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THE

GARDENERS' CHRONICLE.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

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THE GARDENERS' CHRONICLE, Volume XIV., JULY to DECEMBER, 1880.

W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.

EXHIBITION of PLANTS, CUT FLOWERS and FRUIT, WEDNESDAY, July 6. Gates open at 2 o'Clock. The Bands of the 1st Life Guards and 2d Life Guards will be in attendance by kind permission of their commanding Officers. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 5s., or, on the day of the Exhibition 7s. 6d. each.

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GRAND FLORAL DECORATIONS and LILY SHOW, August 6.

J. FORSYTH JOHNSON, Horticultural Director.

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Admission, from 1 o'Clock till 3, 2s. 6d.; from 3 till 5, 1s.; from 5s. till 8, 6d.; children, half price.

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ROSE SHOW, July 7.

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A Third List of Subscriptions will be advertised on July 16.

DISS HORTICULTURAL SOCIETY.
TUESDAY, July 12.
SPECIAL OPEN ROSE PRIZES.
F. PAGE ROBERTS, Hon. Sec.
The Rectory, Scole.

CHISWICK, TURNHAM GREEN, and DISTRICT HORTICULTURAL SOCIETY.
President—His Grace the Duke of DEVONSHIRE, K.G.
GRAND EXHIBITION of FLOWERS, FRUITS, &c., on THURSDAY, July 14, in the Royal Horticultural Society's Gardens, Chiswick. Band of the Scots Guards from 3 to 6 o'Clock.
Entries for Exhibition to be sent to Mr. BARRON, Royal Horticultural Society's Garden at Chiswick, not later than July 9.
The Exhibition will be opened at 12 o'Clock to Subscribers, and at 1 o'Clock to the general public on payment of 2s. 6d. Admission at 3 o'Clock, 1s.
J. T. MUSGRAVE, Hon. Secretary.
Sutton Court Road, Turnham Green.

WEST KENT HORTICULTURAL SOCIETY.—The ANNUAL EXHIBITION of FLOWERS, FRUIT, VEGETABLES, and TABLE DECORATIONS, &c., will be held in Camden Park, Chislehurst, on SATURDAY, July 16. The WEST KENT BEE-KEEPERS' ASSOCIATION will also hold their Exhibition in conjunction with the above Flower Show. T. A. MITCHELL, Hon. Secretary, Woodlands, Chislehurst. JOHN SCOTT, Jun., Hon. Treasurer, Elmstead Grange, Chislehurst.—Annual Subscriptions of One Guinea may be paid to the Hon. Treasurer.

NEWCASTLE-ON-TYNE BOTANICAL and HORTICULTURAL SOCIETY.
SUMMER SHOW, July 27, 28 and 29, 1881.
Entries close on WEDNESDAY, July 20. Schedules can be had on application to JAS. J. GILLESPIE, Secretary,
Cross House Chambers, Newcastle.

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The SECOND EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held on WEDNESDAY, November 23. For Schedule of Prizes apply to
EDWARD BRIDGE, Secretary,
Whitebrooke Cottage, Hayton, near Liverpool.

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY.
The NINTH ANNUAL EXHIBITION will be held at Weston-super-Mare, on TUESDAY, August 9. TWO HUNDRED POUNDS in Prizes. Schedules now ready.
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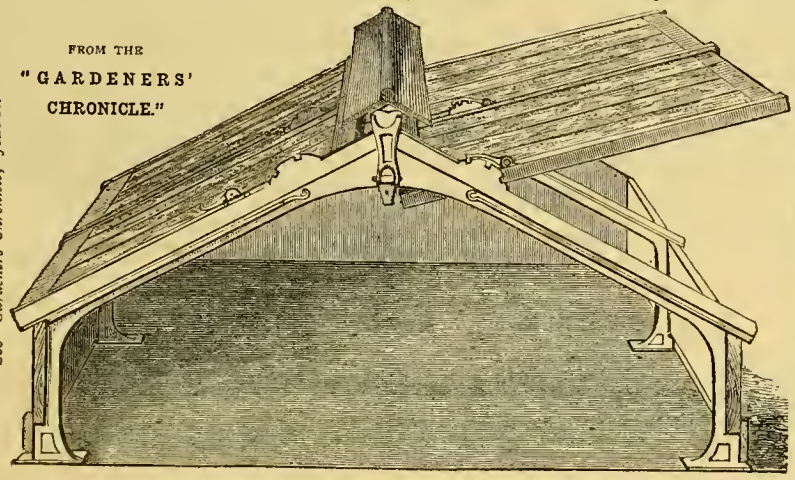

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It is intended that the First Part should be ready for publication during the month of July, 1881. The succeeding Parts will be issued monthly, and the Annual Volume completed in June of next year.

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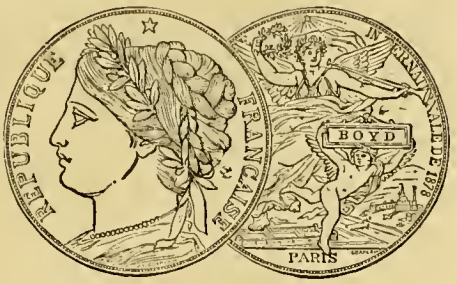

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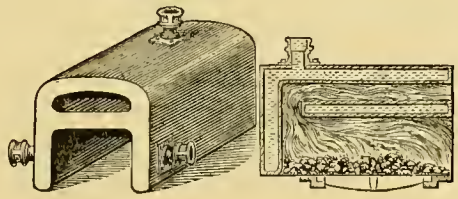

THE
Gardeners' Chronicle.
SATURDAY, JULY 2, 1881.

FLOWER LORE: JULY.

IN the present month our summer flowers may be said to reach their perfection, and it would be no easy task to refer even to a thousandth part of these lovely embellishments which now clothe the earth with such unrivalled beauty. Foremost, however, amongst them may be noticed the white Lily, around which an extensive folklore has clustered. Thus, in Germany, the soul was thought to have the form of a flower, as a Lily or a white Rose. From the grave, too, of one unjustly executed, white Lilies are supposed to spring up as a token of his innocence. It is also a German superstition that on the chair of one soon to die a Lily or white Rose appears. With the ancient Romans this was a popular plant, and in the wedding ceremonies of the modern Greeks the priest is supplied with two chaplets of Lilies and ears of corn, which he places on the heads of the bride and bridegroom as emblems of purity and abundance; it was also the national emblem of France till the year 1789, when the tricolor was introduced. Gerard, alluding to it, says—"Our English white Lilie groweth in most gardens of England." One of its popular names is "Juno's Rose," from whose milk, mythology tells us, it originally sprang; and a well-known proverb tells us how—

> "Against St. Swithin's hasty showers
> The Lily white reigns queen of the flowers."

Again, the water Lily (Nymphæa) was, amongst other remarkable properties, believed to sink below the surface of the water at night, and remain there till the following morning, hence the allusion by Moore—

> "Those virgin Lilies all the night,
> Bathing their beauties in the lake,
> That they may rise more fresh and bright,
> When the beloved sun's awake."

According to one notion, if a person accidentally falls with a flower in his possession he is likely to become immediately subject to fits; while in Germany it is gathered with certain rites as a preservative against witchcraft.

A flower that has earned for itself a universal reputation from its sweet fragrance is the Mignonette, described by Cowper as

> —— "The fragrant weed,
> The Frenchman's darling."

By the ancients it was called "Reseda," because some of the species were considered good for mitigating pain. Pliny informs us that, when used for reducing swellings or assuaging inflammations, it was customary to repeat the following words, twice spitting on the ground at each repetition:—"Reseda, cause these maladies to cease; knowest thou, knowest thou, who hath driven these pullets here? Let the root have neither head nor foot." In some places the wild Mignonette is known as "Dyer's Rocket," or "Yellow Weed," from its leaves resembling those of the genuine Rocket, and its being used by the dyers to dye woollen stuffs

yellow. Linnæus mentions a little piece of weather-lore connected with this plant: he says, "Its spike of blossoms always follows the course of the sun, even on a cloudy day, turning at sunrise to the east; at noonday looking up to the south, and in the afternoon marking the west; and with its half-closed flowers at night pointing due to the north." Another of our choicest and most favourite flowers is the Carnation, a corruption probably of Coronation, from its being placed in chaplets—*coronæ*. Thus Spenser, in his *Shepherd's Calendar*, says,

> "Bring Coronations and Sops-in-wine
> Worn of paramours."

One of its popular nicknames in days gone by was "Clove Gillyflower," and on account of its being used to give a spicy flavour to ale and wine it was called "Sops-in-wine." Thus, Chaucer, writing in Edward III.'s reign, speaks of "a Clove Gilofre to put in ale;" and in Blount's "Tenures" we read of "a sextary of July flower wine." In Shakspeare's day the Carnation seems to have been a popular plant, for in his "Winter's Tale" he makes Perdita say—

> "The fairest flowers of the season
> Are our Carnations and streaked Gillyflowers."

A favourite plant with children is the Snapdragon; and from the curious shape of its corolla, which resembles the face of an animal, it has received numerous nicknames, such as "Dog's Mouth," "Toad's Mouth," "Lion's Snap," &c. On pressing the sides of this flower it opens like a gaping mouth, the stigma appearing to represent the tongue; on removing the pressure the lips of the corolla snap together, and hence its name, "Snapdragon." Amongst some of its other names are "Bulldog's Mouth," and "Rabbit's Mouth," and "Calf's Snout." The fragrance of the Sweet Pea is always welcomed in our gardens, one of the delicate varieties being known as the "Painted Lady." The Everlasting Pea, so-called from its not being, like the former plant, an annual, is styled by Gerard the "Tare Everlasting," and "Pease Everlasting," and "Chickling."

An old-fashioned plant which has a variety of popular names is the garden Fennel Flower, some of the principal ones being "Love in a Mist," "Love in a Puzzle," and "Devil in a Bush." It has also been nicknamed "Bishop's-wort," and "St. Catherine's Flower," from its persistent styles resembling the spokes of her wheel. In France, too, it has been called "Venus' Hair," "Spider's Claw," and "Bluebeard." The Honeysuckle, again, is an old English garden flower, which in former years was much in request. Shakspeare, it may be remembered, speaks of it in "Much Ado about Nothing" (act iii., sc. 1), where Hero says:—

> "And bid her steal into the pleached bower,
> Where Honeysuckle, ripened by the sun,
> Forbids the sun to enter."

It is said to be the "Twisted Eglantine" of Milton, and has been termed "Lily among Thorns," because "It spredeth forth his swete Lilies like ladies' fingers among the thorns." One species is known as the perfoliate Honeysuckle, or "Goat's-leaf," which is a mistake for Caper-leaf. "The similarity," says Dr. Prior, "of the leaf of this shrub to that of the Caper, and its habit of growing about walls and rocks, very naturally led the northern nations to confuse the one plant with the other." The Meadow Sweet, or as it is often called the "Queen of the Meadows," was used in olden times for strewing the floors of great houses in summer time. Thus Miss Strickland records that in the year 1528, when Atholl entertained the Queen and her son, James V., in the Highlands, "a fair place," built for the occasion, had its principal rooms "laid with green Scarets, Spreats, Medworts (Meadow Sweet), and flowers, that no man might know whereon he trod, but as if he were in a garden." One of its popular names is "Bride-wort," from its resemblance to the white feathers worn by brides. The Tormentil, another pretty wild flower, is called by the Cheviot herdsmen "Ewe-daisy," two of its other nicknames being "Blood-root" and "Flesh and Blood." A showy flower, again, is the Golden Rod, which in days gone by was highly esteemed from its supposed efficacy in healing wounds, hence its generic name Solidago. Gerard speaking of it observes that "it is extolled above all other herbs for the stopping of blood in bleeding wounds." One of its former names was "Wound-wort," and it is still known as "Aaron's Rod."

The Canterbury Bell, which is a showy addition to the garden border, was so named by Gerard from its growing very plentifully in the low woods about Canterbury. It received its name "Throat-wort" from its being supposed to be a cure for sore throat: for the same reason it was called "Hask-wort." Some of its other appellations are "Mercury's Violet," "Coventry Bells," &c. The Sweet William with its compact clusters of blossoms is called by the French "Nosegay of Pinks;" and in our own country one of its former names was "London Tuftes." It derived its name, Sweet William, from its scent, and partly, perhaps, says Dr. Prior, from its allusion to the hero of a popular ballad, "Fair Margaret and Sweet William." According to a writer in the *Quarterly Review* (No. 227), it once bore the name of "Sweet Saint William." The Sunflower, so-called from its fancied resemblance to the radiant beams of the sun, is on account of its showy appearance extensively grown in the gardens of the poor. Many fabulous properties have been attached to this flower, such as its turning to face the sun, a popular fallacy which Thompson thus describes:—

> "But one, the lofty follower of the sun,
> Sad when he sets, shuts up her yellow leaves,
> Drooping all night, and, when he warm returns,
> Points her enamour'd bosom to his ray."

It is noticed by Gerard in the year 1596, under the name of the "Flower of the Sun, or the Marigold of Peru." It is said to be a preservative against fever, and on this account has been grown on the Continent in fenny districts. The following extract is from the *Swiss Times*:—"All those who live in malaria districts should, if possible, test the asserted influence of Sunflower cultivation in removing the sources of fever. An account comes to us from Holland of a landowner on the low banks of the Scheldt, who planted three or four plots of Sunflowers a few yards from his house, with such effect, that for ten years there has not been a case of miasmatic fever among the tenants on his property, though the disease continues to prevail in the neighbourhood."

Among the countless other flowers which now bloom we may briefly mention the French Honeysuckle, a species of Hedysarum, so-called, says Dr. Prior, from the resemblance of its flowers to large heads of Honeysuckle Clover. It is the Saint-foin of the Spanish fields, and is known by the French under the name of "Sainfoin d'Espagne." Parkinson calls it "the Red-flowered Fitchling and the Red Satin-flower," and observes, "Some foolishly call it the Red or French Honeysuckle." A common wayside flower is the Mallow, being a highly popular one with children, who pull off its capsules under the name of cheeses, which they often string into bracelets, occasionally eating them. This plant was familiar to the ancients, and is alluded to by Horace, who speaks of—

> "Shards or Mallows for the pot
> That keep the loosened body sound."

It was also a favourite flower of our ancestors, being planted round the graves of their departed friends. Gerard, speaking of one species, highly commends its properties:—

> "If that of health you have any special care
> Use French Mallows that to the body wholesome are."

The Deadly Nightshade, popularly called the "Death's Herb," is one of the most poisonous of our wild flowers, and from its stupefying qualities it has been termed "Dwale." Thus it is used by Chaucer for a sleeping draught. "There needeth him no Dwale." Its name, Belladonna, originated in its being used by the Italian ladies as a cosmetic. One of the sweetest, on the other hand, of our wild flowers is the Thyme, immortalised by Shakespeare, who, speaking of the place of Titania's repose, describes it as—

> "A bank whereon the wild Thyme blows."

Several nicknames have been applied to it—"Mother of Thyme," "Pell-a-Mountain," and "Penny Mountain." In Northamptonshire it is called "Horse Thyme," the prefix being added on the same principle as in Horse Radish.

New Garden Plants.

Brassia signata, *n. sp.**

A very fine Brassia, with green sepals and petals, which soon get yellow. There are three fine brown lines at the base of the petals, and a single one at the base of the sepals. The lip is white, with two or four purple spots in the centre, two orange eyes on the base of the keels, and yellow in the disc underneath. The outline is pandurate, with a long abrupt point. The two keels run parallel, having one blunt tumour at the base, and a larger one in front. It was imported by Messrs. J. Backhouse & Sons, of York, who, botanists themselves, have a remarkable skill in facilitating the botanic studies of others. I have before me a vigorous plant, the last bulb having produced two shoots, each flowering. With such materials it is a pleasure to work. *H. G. Rchb. f.*

Pleurothallis (Apodæ cæspitosæ) Barberiana, *n. sp.*†

A lovely little thing, imported by Mr. Low, no doubt from tropical Southern America. It is a slender beauty of uncommon delicacy. The secondary stems are short, and bear a very small thick leaf, with a long petiolar base and a small elliptical acute lamina, which is keeled beneath, hence nearly trigonous. A capillary peduncle bears as many as five apparently variously coloured flowers, and exceeds four to five times the leaf in length. The lanceolate aristate sepals are free altogether, ciliate, light ochre, with fine dark purple blotches. The smaller, whitish petals are lightest ochre-coloured and serrate. The lip forms a cuneate oblong-clavate body, similar to the lip of some Cypripedia, as Mr. J. Barber well suggests, but with two small upright teeth in front of the claw. This lovely thing belongs to the zephyrean company of P. macroblepharis and balæniceps. It was introduced by Mr. H. Low, and then discovered in the stores at Upper Clapton by Mr. J. Barber, who took the gem over to Old Hall. This gentleman appreciates the smallest Orchid from a scientific *point de vue*. I hope, therefore, that the dedication of such a graceful plant will not be unwelcome as an acknowledgment of much kind assistance. *H. G. Rchb. f.*

Cœlogyne brachytera, *n. sp.*‡

This has a thin, tetragonous bulb, nearly a span high. To judge from the appearance of the scars there are two leaves, which, however, I have not seen. The raceme is lax, bears several flowers equalling in size those of Cœlogyne lentiginosa. The bracts are lanceolate acute, shorter than the pedicelled ovaries, and persisting during the flowering period. The flowers are much like those of the Cœlogyne lentiginosa, Lindl., so much so, that at first sight I thought of that species. The sepals and petals are light parrot-green, the lip white with a brown stain; the column is light green, with some brown lines at the base.

Cœlogyne lentiginosa has pear-shaped bulbs, the lip emarginate at the upper end, with much larger side laciniæ.

The name signifies short-winged, from the short side laciniæ of the lip. It was introduced from Burmah, and sent me by Messrs. Low. *H. G. Rchb. f.*

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* *Brassia signata*, n. sp. (Brevibracteæ pandurilabiæ).—Pseudobulbo ligulato pyriformi obtuse multicostato; foliis geminis cuneato ligulatis acutis; racemo plurifloro; sepalis lineari-lanceis acuminatis; tepalis subæqualibus brevioribus; labello pandurato abrupte ac longe acuminato; carinis medio emarginatis geminis in basi (Oncidium signatum). *H. G. Rchb. f.*

† *Pleurothallis Barberiana*, n. sp.—Apodæ cæspitosæ.—Folii lamina elliptica acuta dorso carinata crassa elliptica acuta bene petiolata; pedunculo capillari multoties longiori racemoso (ad 5-floro); sepalis lanceis aristatis, hinc ciliatis; tepalis duplo brevioribus semilanceis aristatis serratis; labello cuneato oblongo clavato obtuso solido, ante unguem utrinque unidentato; columna apice utrinque obtusangula, postice medio acutangula, anthera pyramidata. *H. G. Rchb. f.*

‡ *Cœlogyne brachyptera*, n. sp.—Erectæ: pseudobulbis teretiusculo-tetragonis basiliformibus, subspithamæis; foliis geminis . . . racemo plurifloro; bracteis scariosis lanceis ovaria pedicellata æquantibus anthesi persistentibus; sepalis ligulato-triangulis acutis, lateralibus medio carinato angulatis; tepalis angustioribus, labelli laciniis lateralibus semiovatis antrorsum triangulis abbreviatis, lacinia mediana oblonga acuta undulata, carinis ternis longitudinalibus omnibus antrorsum verrucosis; columna apice retuso cucullare, cucullo minute crenulato. *H. G. Rchb. f*

THE AMERICAN FORESTS.

In this country, when a census is taken, we content ourselves with an enumeration of the population, their sex, age, employment, &c.; but our American cousins go a step further—they endeavour to ascertain what there is in the country to feed, clothe, and give employment to their population. We do the same, it is true, but in another way. The conditions are altogether different, so it is not surprising, after all, that we should go to work in a different manner. Be this as it may, there is one feature in the American census which has a special interest for us, and that is the inquiry into the extent and nature of the forests of that vast continent. Into the commercial aspects of the question we do not intend to enter now—indeed, we have not at present information enough before us to enable us to do so satisfactorily. Enough for the moment if the Americans begin to see the necessity of watching and conserving their forest stores, once thought and treated as inexhaustible.

Our present purpose is to call special attention to those forests of the North-West trodden by Douglas some fifty years ago, and which have yielded us so many noble trees for our plantations—trees of such majestic proportions as the Sequoia gigantea (Wellingtonia) and the Red Wood; such beauty as the various species of Abies, such as grandis, nobilis, amabilis, magnifica, concolor, and others, which it is not needful to mention. Our readers are conversant with the various opinions as to the identity and distinctness of some of these species, and the importance of having these questions settled.

With the object, therefore, of studying the resources of the Pacific forests, and of investigating the botanical questions we have referred to, Professor Sargent, of the Arnold Arboretum, Brooklyn, was deputed to visit these forests and to report thereon. He was accompanied on part of his journeyings by Dr. Engelmann, of St. Louis, whose knowledge of Coniferæ is unrivalled; by Dr. Parry, a well-known botanist; and by Mr. Skinner, who acted as secretary to the expedition. The finding of A. amabilis in the very spot where Douglas first lighted on it upwards of fifty years ago, has already been mentioned by us at p. 720 of our volume for 1880, Dec. 4, where we gave a figure of a cone and a branch. We have now the pleasure of laying before our readers portraits of some members of the expedition, including that of Mr. Sargent, the energetic and accomplished Director of the new Arboretum established in connection with the famous Harvard University; and of Dr. Engelmann, to whom botanists in general and our readers in particular are indebted for numerous communications on Conifers, Agaves, Yuccas, and other American plants. A few particulars of the expedition are comprised in the following notes, furnished by Prof. Sargent, which will be read with interest by those interested in the vegetation of the district and forest produce generally. From an economic point of view perhaps the most striking and important fact elicited is the value of Cupressus Lawsoniana as a timber tree. Hitherto we have considered this as an ornamental tree only, but it appears from the investigation of these gentlemen that the Port Orford Cedar—now ascertained to be Cupressus Lawsoniana—is one of the most important timber trees of the Pacific coast. Whether it will ever become so in many parts of Britain is doubtful, but in our south and west coasts, in Ireland, and in many of our colonies, we may fairly expect this tree to become of great value for economic purposes. Aready, then, this expedition has rendered very great service alike to scientific and to practical botany; and we cannot doubt that, when the full details are known, these matters will be supplemented by the publication of a mass of valuable information.

August 3, 1880.—Having arrived at the Upper Cascade of the Columbia it was determined that I should make the ascent of the mountains south of the river, where, in September, 1826, Douglas discovered Abies nobilis and A. amabilis, in order to obtain, if possible, sufficient material with which to determine the specific characters of the latter, and confirm our belief that the tree we had detected a few weeks earlier on the flanks of the mountains south of Fraser River was identical with Douglas' amabilis.

At the Cascade Cratægus Douglasii, common along all streams further north, is first seen as a tree some 30 feet high, the small black fruit already quite ripe. The yellow-fruited C. rivularis, which is common in all the region east of the Cascades, was not distinguished by us anywhere west of the mountains, or in Northern California, nor does Douglas' journal give any clue to his original locality. I crossed the river at about noon, and left the banks at about 1 P.M., accompanied by Mr. S. B. Jones, the agent of the Oregon Railway and Navigation Company at the Cascades, an axeman and two Indians as guides, all mounted, and one of the Indians leading a pack-animal, on which to bring down the wood specimens we hoped to obtain. We kept up the river for 2½ miles by the old military road leading to Walla-Walla, through a heavy growth of Abies grandis and Douglas Fir; here was seen a single tree of Castanopsis chrysophylla at what is probably the northern limit of the species.

Two miles and a half above the Upper Cascade we left the military road, and took a trail leading over the mountains to a large Blueberry (Vaccinium) patch, about 16 miles from the river, to which the Indians have, it is said, resorted every autumn from time immemorial to gather their winter supply of berries, and to indulge in horse racing and other games. It is probable that Douglas took this trail—no other crosses the mountains, which are here steep, rugged, and difficult to climb; and it would, I believe, be impossible for a man to reach the elevation whereat Douglas detected the trees (nearly 4000 feet), and return to the river in the time he was absent—fourteen hours—unless he had followed a beaten trail. The trail in his time was probably in much better condition than now, owing to the greater number of Indians then using it. He did not, however, detect either Pinus monticola or Tsuga Pattoniana, both of which he should have seen from this trail at the elevation he reached. The trail on leaving the river bottom, which is here not over 100 feet wide, at once ascends rapidly through a fine forest of Douglas Fir, among which are scattered a few small trees of Thuya Mertensiana and Thuya gigantea—here near their eastern limit, and puny in comparison with the majestic specimens we had seen on the lower Columbia and on the shores of Puget Sound.

A climate drier than that of the coast range is indicated by a scantier undergowth in the forests of these mountains. The Salmon-berry, the red-and-blue fruited Vaccinium, Gaultheria, and the other familiar forest plants of the coast have disappeared. Pteris aquilina is still the common Fern, but it no longer reaches above our saddles; Eriogoneæ, Artemisias and other plants of the interior region are common; Lilium parvulum is in full bloom, and more abundant than we have noticed it before. Here Xerophyllum tenax was first seen. Altogether the flora is interesting; it shows the effect of the transition from the coast climate into the dry climate of the interior. The trees are still those of the coast flora; the shrubs and herbs belong rather to the interior. The ascent is very rapid, and our progress slow and difficult, being greatly delayed by the necessity of cutting a path for the animals through fallen timber.

The path, which evidently had not been used before this year, is often completely blocked. It was nearly sunset when the first water was reached—a fine spring at 2700 feet above the river. After a short delay we determined to push on to another spring, which the Indians said was near the summit, and which we hoped to reach before dark. The growth of Douglas Fir here became much less heavy, and the Hemlock and Cedar (Thuya) had entirely disappeared. Near the spring a single small plant of Abies grandis was seen. This species extends to the summit, although always small and stunted, rarely bearing cones, and never more than 20 feet high. This is the first time we saw this species, which belongs to the river bottoms, reach any considerable altitude. Its stunted, miserable appearance indicated its abnormal position. Near this spring a single specimen of Tsuga Pattoniana was seen—a remarkably low elevation for this strictly subalpine species. At 3000 feet the only specimen of Pinus ponderosa seen on this mountain was noticed, although a little further east, in the drier region, it is the only, or the prevalent coniferous tree. Near the summit a few small trees of Pinus contorta appeared.

Abies nobilis and A. amabilis were first seen 3500 feet above the river, at which elevation Pinus monticola, Tsuga Pattoniana, Arctostaphylos pungens, and Garrya elliptica, were common. Castanopsis extends here also, but reduced to a low, prostrate shrub. From this point to the summit, which by the aneroid was 3980 feet above the river, the forest consisted of Abies nobilis, A. amabilis, Pinus monticola, and Tsuga Pattoniana. At least half of the trees are of A. nobilis, about one-quarter A. amabilis, and of the other quarter there are considerably more of Pinus monticola than of the Tsuga. We did not reach the summit until after dark, a bare circular pile of rocks (the only untimbered portion of the mountains), nearly 100 yards across, and surrounded by a thick growth of small trees of Abies nobilis and amabilis, loaded with cones probably nearly three-quarters grown.

We pushed on foot in the dark nearly 2½ miles further over a very rough and stony trail, with many tumbles over the fallen timber, first descending several hundred feet, and then rising again to a second bare summit of about the same elevation as the first, and then descended again to a small icy-cold stream, to which the Indians guided us. Here we camped between 10 and 11 o'clock. These mountains are a spur from the northern flank of Mount Hood, which lies about 20 miles south; but unfortunately a dense smoky haze shut it from our view—a great disappointment. The Cascade Divide was just west of us and parallel to our range, which here overlooks it.

August 4.—We were up before 4 o'clock, at the first appearance of daylight. We found that our camp had been made under some magnificent specimens of Abies nobilis and amabilis, while just across the ravine are fine specimens of Pinus monticola and Tsuga Pattoniana. Here, too, enjoying the moist position, are the finest specimens of Abies amabilis I have seen—many over 100 feet high, and branching to the ground, perfect pyramids of bright dark green, the most beautiful of all North American Abietineæ. About the camp grew Acer circinatum (not seen before at so high an elevation), Pyrus sambucifolia just coming into flower, Amelanchier alnifolia in bloom, although the day before we had gathered the ripe fruit on the banks of the river. Here Rosa gymnocarpa was seen in flower for the first time; Achlys triphylla, which we had seen on the Fraser with nearly ripe fruit, was here in flower. Trillium petiolatum, Ribes viscosissimum, Xerophyllum tenax, Fatsia (Echinopanax) horrida, not yet in flower, although it had been collected three weeks earlier in British Columbia with nearly ripe fruit. This striking plant, with its bold foliage and large clusters of bright red fruit, is very ornamental, and should be introduced into cultivation. Two things on these mountains seem remarkable; the fact that, although 4° further south than the mountains of the Fraser, the development of the vegetation at similar altitudes is here fully two weeks later than that of the more northern mountains at the time of our visit a fortnight earlier. Less strange perhaps, because we are here further south, is the absence of the alpine and sub-alpine shrubs (the flora of all the mountains is very poor in herbaceous species) which had so charmed us on the mountains of the Fraser. Here there is neither the Rhododendron albiflorum, with its delicately sweet white flowers, or Bryanthus empetriformis, or Cassiope Mertensiana (Menziesia glabella, Gray), or the various forms of alpine Vaccinia. We were disappointed at not finding the true Chamæcyparis nutkaensis, which we had seen on the Fraser at about the same elevation, and which occurs also near the limits of tree growth on Mount Hood—the southern limit, as far as I know, of this essentially northern species. We worked till 12 o'clock, felling several trees and getting out wood specimens, and a collection of cones, bark, and branches of all arborescent species.

We left camp at 12 o'clock to regain the river. The animals were laden with specimens, so I walked down, leading mine, and "packing" a large sack filled with the tender cones of the two Abies. The descent is difficult, although less tedious than the ascent of the day before; the dragging, however, a tired and unwilling animal down steep inclines, over fallen timber, and at the same time protecting a bag of fragile cones, are not operations conducive to free and rapid pedestrian exercise. We reached the river at 7 o'clock, and the Lower Cascade at 9, thoroughly tired out, but well satisfied with the two days' work.

August 5.—We left the Cascades by boat early in the morning, reaching Portland (Oregon) at 2 P.M.

August 12.—Dr. Engelmann, Professor Collier, of the Oregon University, Skinner, and myself, left Winchester Bay, at the mouth of the Umqua River, Oregon, and drove along the sea beach 20 miles to Coos Bay. These long and rather narrow beaches,

backed by rolling sand dunes, and which are impassable at high tide, are an important feature of the Oregon coast, and afford the only means of communication by land between the various coast settlements. Between the Umqua and Coos Bay there is little of interest to the botanist. We pass a few clumps of Pinus contorta (Douglas detected this species in a similar situation at the mouth of the Columbia) and of stunted, storm-twisted plants of the "Tide-water Spruce" (Picea sitchensis). Near Coos Bay we find in the sand broad patches of a Juncus and the curious Phellopterus littoralis, Schmidt (Cymopterus littoralis, Gray), the fruit unfortunately not yet fully formed. This plant, originally described from Japan and the Asiatic coast, has been collected once before within the limits of the United States, by Dr. Cooper on the shores of Clearwater Bay, in Washington Territory, far north of our station.

We reached Coos Bay at noon, and crossed in a row-boat to Empire City, situated on the southern shore. In Portland we had seen in the factories a white close-grained and odoriferous wood, everywhere known as "Port Orford" Cedar (Port Orford is on the Oregon coast, south of Coos Bay). This wood was very highly esteemed for all sorts of inside work, and appeared to possess to a high degree many valuable qualities. Although distinct in colour, perfume, and especially in its greater rapidity of growth, it closely resembled the wood of the Sitka Cedar (Chamæcyparis nutkaensis), and unless produced by Lawson's Cypress, we were unable to refer it to any species with which we were acquainted. We had been told that Port Orford Cedar was only shipped from Coos Bay, and to settle our doubts in regard to its origin, and to study the amount and distribution of the tree producing such valuable material was the principal object of our visit to this part of the Oregon coast.

A three minutes' walk to the hill behind the town settled our doubts. Here we find on every side plants of every age of Chamæcyparis Lawsoniana—Port Orford Cedar. Here, too, we found a magnificent specimen of Rhododendron californicum. We had seen this plant for the first time two days before in the valley of the Umqua—low shrubs, 2 or 3 feet high; here, at Empire City, it is almost arborescent, forming a dense thick undergrowth beneath the orest of Douglas Fir and Lawson's Cypress; some stems are fully 25 feet in height and 10 inches through. Unfortunately the flowers are past. Has this plant been cultivated? We dined, and embarked on a small steamer for Marshfield, near the head of Coos Bay, and its principal lumbering port.

Landing here, we hastened to the forest. It is very dense and heavy, consisting of Douglas Fir, the western Hemlock, Thuya gigantea, Abies grandis, the "Tide-water Spruce," and Lawson's Cypress. It is the most beautiful forest we have seen. The undergrowth is very luxuriant. Rhamnus Purshiana is here a common tree, 40—50 feet high, and over 1 foot in diameter. The Rhododendron has disappeared, but the Solomon Berry, the various Vaccinia, and the Roses, so characteristic of the Oregon forests, attain a size here we have not seen before. Pteris aquilina reaches above our heads as we force our way through it. This forest gives a greater idea of productive capacity than any we have seen. No other coniferous forest on the continent compares with it in beauty, in grace, or in variety. Here Lawson's Cypress grows to a height of more than 150 feet, with a diameter of trunk of 8—10 feet. The trunks of these old trees are bare of branches for a great part of their height, and the heads are neither large nor very striking. The bark is remarkable on account of its thickness, being sometimes more than 1 foot thick on the old trees—a curiosity among the Cupressineæ. The belt occupied by the Port Orford Cedar extends from the north shore of Coos Bay south about 60 miles to Rogue River; and from the shore inland 10 to 30 miles. It ascends, however, some of the small streams still further from the coast. This tree was first discovered by Murray in the valley of the Upper Sacramento River in California, where a few isolated clumps and individuals, small and stunted, exist. It was collected by the Wilkes' expedition, probably at Coos Bay, and referred by Dr. Torry to Chamæcyparis nutkaensis. Dr. Kellogg in his Alaska journey collected it at Empire City, and described it as a new species (C. fragrans). It is a very local plant, with its greatest devolopment here on the Oregon coast, the few trees of the Sacramento Valley being the extreme southern outposts of the species. It selects rather dry sandy ridges, and grows even in the pure sand of the coast dunes within reach of the salt spray of the ocean. The heaviest continuous body of Port Orford Cedar is on Cape Gregory, extending south to and beyond the mouth of the Coquille. This belt is about 20 miles long by an average width of 12 miles, and lies along the western slopes of the foot-hills of the coast range, extending within three miles of the coast. In this belt two-thirds of the trees are Cedar, the other Tide-water Spruce (Picea sitchensis), with a few Douglas Fir. It is estimated that it contains 200,000 million feet (board measurement) of Port Orford Cedar. These figures give some idea of the wealth and productiveness of the Oregon forests.

In 1867 a terrible forest fire raged during three months in the vicinity of Coos Bay. Volumes of smoke obscured the sky; it became so dark that all work had to be abandoned, and navigation was impeded for miles out to sea. It has been estimated that from 200,000,000 to 300,000,000 feet of Port Orford Cedar were destroyed at this time. It reproduces itself, however, very rapidly, and after the forest has been burned over it is the first tree to reappear, springing up generally in the third year.

As early as 1854 the first cargo of Port Orford Cedar was sent to San Francisco, where ever since it has been largely used. It is remarkable that the value of this wood has not become generally known beyond the limits of the Pacific coast. It is handsome, easily worked, strong, straight-grained, and, owing to the highly-scented resin with which it is impregnated, practically indestructible. It is particularly adapted to the manufacture of furniture and for all sorts of inside work, and if better known should command a high price for many purposes. The match factories of the Pacific coast use no other wood. The resin contained in this tree must be studied. We are informed that the perfume of the newly cut wood is so potent that the men working it in the saw-mills become at the end of a few days so weakened by diuresis that the mills cannot continuously saw Port Orford Cedar, and have to change on to other woods.

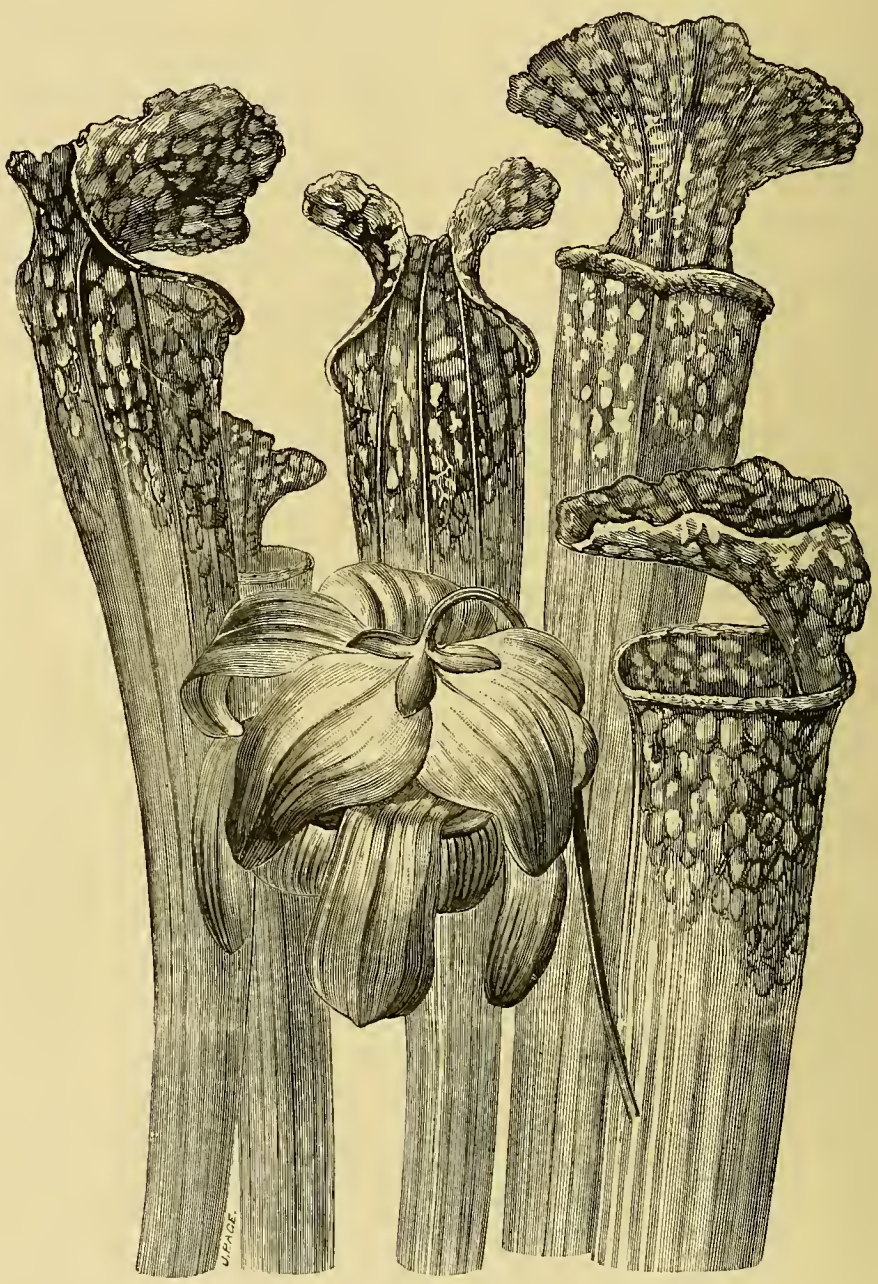

Fig. 1.—Sarracenia drummondi: flowers rich reddish-brown. (see p. 11.)

The Marguerite.—Mr. J. W. Chapman, florist, Queen Street, Ramsgate, sends us a photograph of a very fine Paris Daisy, or Marguerite. The plant measures 4 feet 6 inches in height from the top of the pot, and 5 feet 6 inches in diameter of the head, and is splendidly flowered.

CALIFORNIAN SEED AND VEGETABLE GROUND.

THE California to which the above heading refers is not the rich auriferous State in America, so well known to every one, but a suburban district of Ipswich where gold is not found in the uncoined state; but although this is the case, the great industry brought to bear by cultivating the land, poor though it be, as market gardens, makes it yield a fair return for the labour, and affords to the townspeople quantities of fresh-gathered vegetables, flowers, and fruit, as nearly all who live at California go in largely for growing either the one or the other, and the ground being light and warm, they get things early, and are therefore able to sell at the best prices, and realise on their crops before others can get theirs in to compete with them. I noticed that they make Strawberries a speciality, the favourite kinds being Knevett's Pine, John Powell and President, the first-named so closely resembling the British Queen that I could not see the difference, but the growers aver that it is a more hardy, free-bearing sort. Be this as it may, the soil there evidently suits it, and I was informed that, unlike most others, Knevett's Pine revives again after flagging, swells off its crop, and stands dry weather well. John Powell is a prodigious bearer, as is also the President, and another great recommendation as regards the latter is that it does not damage, as do the softer kinds, in transit to market.

In making fresh plantations I find they are not at all particular to obtain runners, but dig up and pull to pieces the old plants, which they dibble in at 2 feet apart in ground that has been manured and broken up after Potatos, and the results show that the plan of so treating them answers remarkably well. The way they manage their flowering plants that they grow for potting, or selling without pots, is to take them up and replant about midsummer, which increases the fibrous roots to such an extent that they lift with compact balls, besides which such things as Chrysanthemums, Eupatoriums, and all others of that class are made to grow dwarf and stocky by the process, and as the shoots become more mature under such treatment, it follows that the plants are always very floriferous. What interested me most, however, at California was a visit to the seed grounds of Mr. W. Thompson, of world-wide fame for new things, and though he has sent out many treasures he has yet others to follow, for I saw a lovely Whitlavia, having flowers of a brighter and richer blue than the Gentian, and as it is a free-growing annual of strong branching habit, it will be of great value for beds. Near to this very beautiful Whitlavia was another annual, Castilleja indivisa, that was receiving great attention, but unfortunately it appears rather miffy, and requires much nursing on to get it strong before planting out. Although this is the case, it is deserving of all care, as when the leaf bracts are fully expanded it produces a most brilliant effect.

Some years since Mr. Thompson introduced Delphinium nudicaule, a plant that did not succeed well with many, but I noticed a much stronger, finer variety, named elatius, that had branching spikes nearly 2 feet high, with blooms of a brighter red than the species. Of Hyacinthus candicans, an illustration of which appeared in the *Gardeners' Chronicle* a short time back, Mr. Thompson has a large stock of seedling plants that have stood in the bed quite unprotected all winter, which is a further proof how hardy it is. Cyclobothra alba is another gem among hardy plants, producing lovely satiny flowers depending from the apex of the stem after the manner and shape of those of the Fritillarias. Among older things I noticed a fine lot of a capital strain of Primula cortusoides amœna, having large blooms of various shades of colour, seed from which must give others equally varied and good, as they were all standing together, and could readily be operated on by the bees. The double green was very striking, and is a plant that should be in every herbaceous border, as, besides being of a brilliant telling colour, the flowers are just of the size and character to be of great value for cutting.

Another plant that ought to be in great request is Onosma taurica, the habit of which is somewhat dwarf and spreading, and at the ends of the shoots large clusters of yellow long tube-shaped blossoms are borne. Aquilegias were in strong force, a bed of choice hybrids raised by crossing A. chrysantha and A. truncata being particularly showy, and as these hybrids are more robust and hardy than the Rocky Mountain species, there is no fear of losing them through dying off in the way the lovely A. cœrulea is so liable to do. The bed of Iberis gibraltarica hybrida must have been a sight, as the seed heads showed how full of bloom the plants were but a short time back, and what a fine thing it is for producing a display in the spring for the ornamentation of beds or rock gardens. This variety was obtained by crossing I. gibraltarica with I. Tenoreana, and it appears to possess in an equal degree the good qualities of both. Gladiolus were being raised in quantity, both from seed and bulbules, for the growth of which the sharp soil seemed well adapted, and also for the lovely Spanish Iris, than which, except Orchids, nothing can be more beautiful in all the floral creation, as they not only have quaintness of form, but the most delicate and rich colours imaginable, and the wonder is they are not more grown than they are, for besides being so showy and effective in borders, they are specially suited for cutting and last a long time in water. Iris reticulata is also a very choice species, of which Mr. Thompson has a good stock.

As giants among the pigmies which made themselves conspicuous may be mentioned Verbascum olympicum, with its large tomentose leaves and huge spike of deep yellow flowers; and the Rheums, of which officinale is the most desirable on account of its very ornamental palmate foliage and the deep red of its seed vessels. Heracleum absinthifolium and H. panaces have also remarkably fine leaves, and with the Rheums are just the plants to grow among Ferns or in the wild garden—a situation to which they help to give character and look quite at home. The above are only a few of the many good things Mr. Thompson has for distribution, but as he is more famous for seeds than for plants, his catalogue has only to be consulted to show how the world has been ransacked for novelties, and what a large share he has of them, as the list he gives is a long one, and is one of the most complete in the trade. *J. Sheppard.*

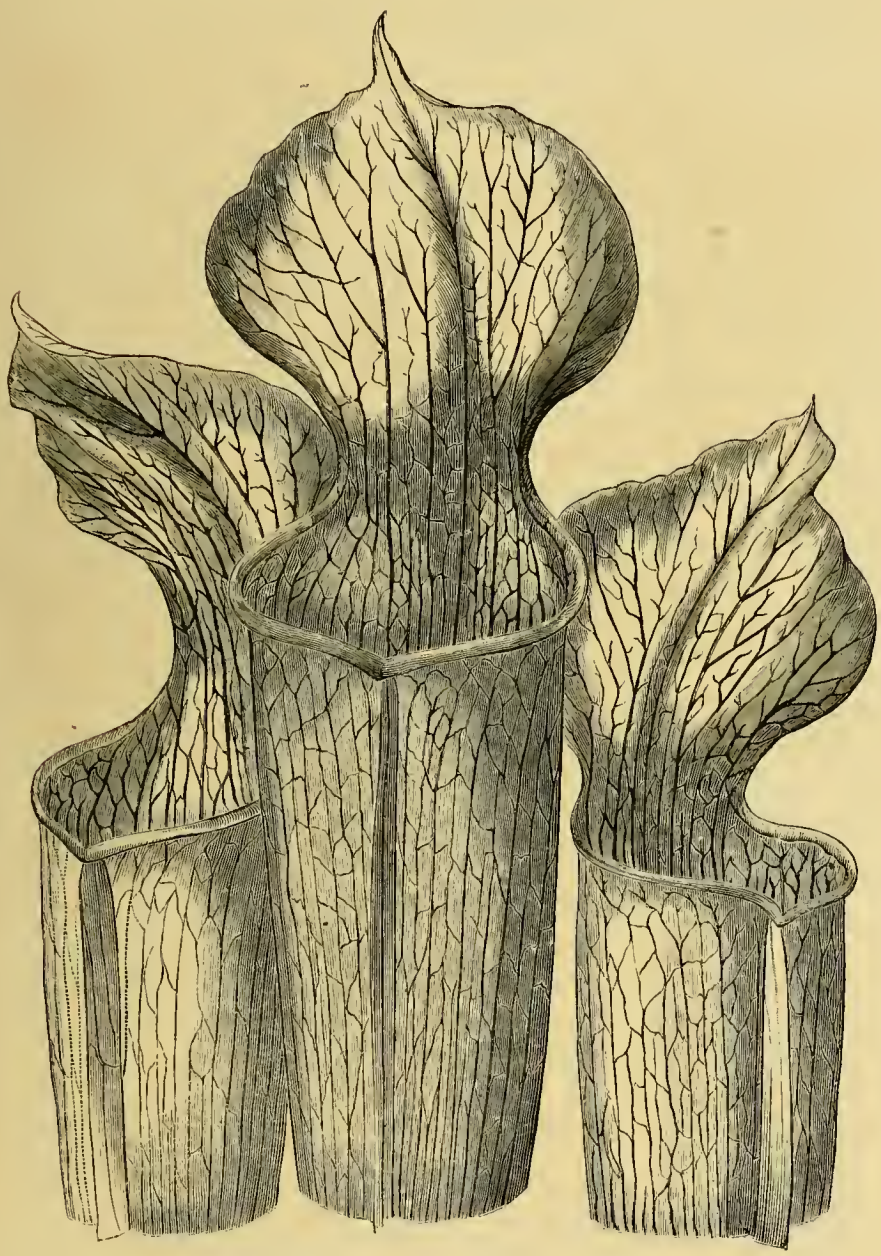

FIG. 2.—SARRACENIA FLAVA VAR. CRISPATA. (SEE P. 12.)

THUYA OCCIDENTALIS.—As a contribution to so-called domestic medicine, perhaps it may be as well to mention the fact, that in certain circles the twigs of the common American Arbor-vitæ are at present regarded as an invaluable, and in the long run a never failing, specific for epilepsy. To ward of, and indeed quite cure this dreadful disease, the writer of this has been gravely assured that all that is necessary is to put small twigs of this shrub into the stockings of the sufferer, and for him or her to go about with them next to the bare sole of the foot!

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 784, vol. xv.)

PLEUROTHALLIS.

29. P. FŒTENS, Lindl. in *Bot. Reg.* 1843, Misc., n. 7; *Fol. Orch.*, n. 95.—White, green, purple, and crimson; odour stercoraceous. Brazil, Loddiges.
30. P. FRAGILIS, Lindl. in *Bot. Reg.* 1841, Misc., n. 188; *Fol. Orch.*, n. 61; *P. lutcola*, Lindl., *l. c.*—Flowers yellow or orange. Brazil, Loddiges.
31. P. FULGENS, Rchb. f. in *Gard. Chron.* 1875, iv., p. 516.—Costa Rica, Endres. Cultivated in Hamburg Botanic Garden.
32. P. GELIDA, Lindl., *Bot. Reg.* 1841, Misc., n. 186; *Fol. Orch.*, n. 12.—About a foot high; flowers greenish-white. Jamaica, Loddiges, 1841.
33. P. GLANDULIGERA, Lindl. in *Comp. Bot. Mag.*, ii., p. 355; *Fol. Orch.*, n. 145.—Brazil, Loddiges, 1836.
34. P. GRANDIFLORA, Lindl. in *Bot. Reg.* sub-t. 1797; *Fol. Orch.*, n. 39.—Peru, introduced in 1842. (Johnson's *Gard. Dict.*)
35. P. GROBYI, Lindl. in *Bot. Reg.*, t. 1797; *Bot Mag.*, t. 3682.—An elegant plant, about 3 or 4 inches high, producing its yellow flowers in great profusion. Brazil, Guiana, and Cuba. Cultivated in England since 1835. Hort. Kew.
36. P. HARTWEGII, Lindl. in *Ann. Nat. Hist.*, xv., p. 106; *Fol. Orch.*, n. 16.—A relatively gigantic species. Mexico. (Johnson's *Gard. Dict.*)
37. P. HEMIRHODA, Lindl. in Paxt. *Fl. Gard.*, n. 612; *Fol. Orch.*, n. 109; *Restrepia vittata*, Lindl. in *Journ. Hort. Soc.*, iii., p. 314, with a figure; *Restrepia nuda*, Kl. in *Allg. Gartenz.* 1852.—New Granada, Linden. This is one of the prettiest of the genus, and is altogether more like a Restrepia than a Pleurothallis, to which Lindley ultimately referred it, because he found only two pollen masses. Flowers white, crimson, and yellow.
38. P. HOFFMANNSEGGIANA, Rchb. f. in *Linnæa*, xxii., p. 827; Lindl., *Fol. Orch.*, n. 130.—Rio, Hoffmannsegg. German gardens, 1849.
39. P. IMMERSA, Rchb. f. in *Bonplandia*, 1855; Lindl., *Fol. Orch.*, n. 236.—New Granada. Introduced and cultivated by Linden.
40. P. INCOMPTA, Rchb. f. in *Bonplandia*, ii., p. 24; *Xenia*, ii., p. 113, t. 137, i., 2—5.—One of the prettiest species, inhabiting Venezuela and Guatemala. Cultivated by Consul Schiller. Flowered at Kew in 1875.
41. P. KEFERSTEINIANA, Rchb. f. in *Bonplandia*, 1854; Lindl., *Fol. Orch.*, n. 240.—Caracas. Hamburg Botanic Garden.
42. P. KRAMERIANA, Rchb. f. in *Hamb. Gartenz.*, xxi., p. 294.—A pretty species, with carmine flowers. Central America. Cultivated in Hamburg gardens in 1865.
43. P. LANCEANA, Lodd., *Bot. Cab.*, t. 1767; Lindl., *Fol. Orch.*, n. 158.—Flowers yellow and crimson. Surinam, Lance; Loddiges, 1831.
44. P. LANSBERGII, Regel, *Gartenflora*, vi., p. 132, t. 190, fig. D (P. Lansbergiana).—Columbia, Lansberg. Botanic Garden, St. Petersburg, 1857.
45. P. LATERITIA, Endr. and Rchb. f. in *Gard. Chron.* 1872, p. 731.—Costa Rica, Endres. Cultivated in Hamburg Botanic Garden.
46. P. LEUCOPYRAMIS, Rchb. f. in *Linnæa*, xli., p. 47; *Xenia*, iii., p. 14, t. 210; i., 1—9.—Costa Rica (?). Cultivated by W. W. Saunders. It grows in dense tufts, and produces its snow-white blossoms in great profusion.
47. P. LINGUA, Lindl. in *Bot. Reg.* 1842, Misc., p. 80; *Fol. Orch.*, n. 244.—Mexico, 1842. (Johnson's *Gard. Dict.*)
48. P. LONGISSIMA, Lindl. in *Fol. Orch.*, n. 182; *P. racemiflora*, Lindl. in Hook. *Exot. Fl.*, ii., t. 123; Lodd., *Bot. Cab.*, x., t. 949, *nec* Swartz.—Flowers white or greenish-white. West Indies and Central America. Loddiges, 1825. Mr. Salvin collected this in Guatemala at an altitude of 5000 feet, with flower-spikes more than a foot long.
49. P. LUCTUOSA, Rchb. f. in *Linnæa*, xli., p. 48; *Xenia*, iii., p. 15, t. 210, ii., 10—17.—Central America, Endres. Cultivated in Hamburg Botanic Garden.
50. P. MACROBLEPHARIS, Rchb. f. in *Gard. Chron.* ii., 1874, p. 772.—Peru, Roezl. German gardens.
51. P. MARGINALIS, Rchb. f. in *Bonplandia*, 1855; Lindl., *Fol. Orch.*, n. 258.—Flowers yellow. Brazil. Berlin Botanic Garden.
52. P. MARGINATA, Lindl. in *Bot. Reg.* 1838, Misc., n. 70; *Fol. Orch.*, n. 225.—Guatemala, Skinner. Cultivated by Mr. Bateman.
53. P. MEMOR, Rchb. f. in *Bonplandia*, 1856; Lindl., *Fol. Orch.*, n. 151.—Native country unknown. Flowered at Laeken in 1856.
54. P. MINUTALIS, Lindl., *Fol. Orch.*, n. 250; *P. crassifolia*, Rchb. f., *Xenia*, i., p. 174, t. 60.—Mexico. German gardens, 1839.
55. P. MULTIROSTRIS, Rchb. f. in *Linnæa*, xli., p. 49. Jamaica. Cultivated at Kew in 1873.
56. P. MUSCOIDEA, Lindl. in *Bot. Reg.* 1838, Misc., n. 165; *Fol. Orch.*, n. 255.—The smallest Orchid known to Lindley in 1859. Brazil, Loddiges.
57. P. OBOVATA, Lindl. in *Bot. Reg.* 1842, Misc., p. 75; *Fol. Orch.*, n. 125; *P. albida*, Lindl. in *Ann. Nat. Hist.*, sér. 3, i., p. 327; *Specklinia obovata*, Lindl. in *Bot. Reg.* 1839, Misc., n. 137.—Flowers pale yellow, scentless. Cuba, Venezuela, Loddiges. Kew, 1860.
58. P. OCCULTA, Knowles and Westcott, *ex* Steudel, *Nomenclator Botanicus*.—Brazil, 1837. (Johnson's *Gard. Dict.*) This name was not taken up by Lindley, and I can find no description. A specimen bearing this name in Kew Herbarium, that flowered at Kew in 1862, has been identified by Dr. Reichenbach and Mr. Bentham with P. tricarinata.
59. P. OCHREATA, Lindl. in *Bot. Reg.*, sub-t. 1797; *Fol. Orch.*, n. 139.—Brazil, 1839. (Johnson's *Gard. Dict.*)
60. P. OCTOMERIOIDES, Lindl. in *Comp. Bot. Mag.*, ii., p. 354; *Fol. Orch.*, n. 101; *P. congesta*, A. Rich. et Gal. in *Ann. Sc. Nat.*, série 3, iii., p. 17.—Tall; pale yellow, with a purple lip. Mexico, Henchmann. Hort. Kew.
61. P. ORBICULARIS, Lindl., *Fol. Orch.*, n. 149; *Specklinia orbicularis*, Lindl. in *Bot. Reg.* 1838, Misc., n. 41; *P. biflora*, Focke, in *Bot. Zeit.* 1849, p. 638.—Surinam, Focke; Demerara, Loddiges.
62. P. PACHYGLOSSA, Lindl. in *Bot. Reg.* 1840, Misc., n. 146; *Fol. Orch.*, n. 189.—Mexico, Barker.
63. P. PANDURIFERA, Lindl. in *Bot. Reg.* 1842, Misc., p. 70; *Fol. Orch.*, n. 229.—Brazil. (Johnson's *Gard. Dict.*)
64. P. PARDIPES, Rchb. f. in *Linnæa*, xli., p. 93; *Refug. Bot.*, ii., t. 119.—Brazil, Rio Janeiro, Bowman. Cultivated by W. W. Saunders in 1868 and 1871.
65. P. PAVIMENTATA, Rchb. f. in *Linnæa*, xli., p. 48.—Brazil. Cultivated in Hamburg Botanic Garden.
66. P. PECTINATA, Lindl. in *Bot. Reg.* 1839, Misc., n. 1; *Fol. Orch.*, n. 56.—Flowers sea-green, with a few purple spots at the base of the lip. Brazil, Loddiges, 1839.
67. P. PEDUNCULARIS, Lindl. in *Bot. Reg.* 1843, Misc., n. 62; *Fol. Orch.*, n. 82.—Pale straw-coloured. Brazil, Loddiges.
68. P. PEDUNCULATA, Rchb. f. in *Linnæa*, xxii., p. 822; Lindl., *Fol. Orch.*, n. 23; *Rhynchopera pedunculata*, Kl. in Link, Kl. et Otto, *Ic. Pl. Rar.*, t. 41.—New Granada, Schlim. Berlin Botanic Garden, 1849.
69. P. PERPLEXA, Rchb. f. in *Hamb. Gartenz.* 1860, p. 15.—Consul Schiller's garden; native country not given.
70. P. PICTA, Lindl. in *Bot. Reg.*, sub-t. 1797; t. 1825; *Bot. Mag.*, t. 3897; *P. surinamensis*, Focke, in Miquel, *Stirpes Surin.*, t. 64, A.—A pretty miniature species, resembling P. Grobyi. Guiana, Loddiges, 1836. Flowered at Kew in 1860.
71. P. PLANTAGINEA, Lindl. in *Bot. Reg.* 1842, Misc., p. 82; *Fol. Orch.*, 259; *Specklinia plantaginea*, Poepp. et Endl., *Nov. Gen. et Sp.*, i., t. 59.—Peru. (Johnson's *Gard. Dict.*)
72. P. PLUMOSA, Lindl. in *Bot. Reg.* 1842, Misc., p. 72; *Fol. Orch.*, n. 157; *P. minax*, Rchb. f. in *Bonplandia*, 1854.—Trinidad and Venezuela, Loddiges.
73. P. POLYLIRIA, Rchb. f. in *Gard. Chron.* 1871, p. 1483.—Costa Rica, Endres. Cultivated by W. W. Saunders.
74. P. PROLIFERA, Herbert, in *Bot. Reg.*, t. 1298; *Bot. Mag.*, t. 3261; Lodd., *Bot. Cab.*, t. 1908.—Six inches high; flowers purple. Brazil, on shady rocks; Herbert, 1829.
74*. P. PRUINOSA, Lindl., in *Bot. Reg.* 1842, Misc.; *Fol. Orch.*, n. 152.—Jamaica, Guiana. Hort. Kew.
75. P. PUBESCENS, Lindl. in *Comp. Bot. Mag.*, ii., p. 355; *Fol. Orch.*, n. 136.—Brazil, Barker, 1836.
76. P. PULCHELLA, Lindl., *Gen. et Sp. Orch.*, p. 12; *Fol. Orch.*, n. 21; *Stelis pulchella*, H.B.K., *Nov. Gen. et Sp.*, i., t. 90.—Peru, 8000 feet; Hall, &c. (Johnson's *Gard. Dict.*)
77. P. PUNCTATA, Lindl. in *Bot. Reg.*, sub-t. 1797, not of *Bot. Reg.*, t. 759; *Fol. Orch.*, n. 156.—Brazil. Cultivated in England in 1836.
78. P. PYRSODES, Rchb. f. in *Gard. Chron.*, vi., 1876, p. 386.—Central America (?). Cultivated by W. W. Saunders.
79. P. RACEMIFLORA, Lindl., *Fol. Orch.*, n. 203; *P. oblongifolia*, Lindl. in *Comp. Bot. Mag.*, ii., p. 355.—West Indies and Venezuela, Loddiges, 1836.
80. P. RECURVA, Lindl. in *Bot. Reg.* 1841, Misc., n. 1; *Fol. Orch.*, n. 138.—Country unknown. Cultivated by Mr. Cannon, Stratford.
81. P. RESTREPIOIDES, Lindl. in *Bot. Reg.* 1842, Misc., p. 68; *Fol. Orch.*, n. 174.—Peru. (Johnson's *Gard. Dict.*)
82. P. REYMONDI, Rchb. f. in *Walp. Ann.*, iii., p. 520; Lindl., *Fol. Orch.*, n. 115; *Bot. Mag.*, t. 5385; *Duboisia Reymondi*, Karst. in *Allg. Gartenz.* 1847, p. 394.—Venezuela. Cultivated by Consul Schiller, Hamburg.
83. P. ROSEOPUNCTATA, Lindl. in *Orchid. Linden*, n. 7; *Fol. Orch.*, n. 11.—Venezuela. (Johnson's *Gard. Dict.*)
84. P. RUSCIFOLIA, R. Br. in Ait. *Hort. Kew.*, v., p. 211; Hook., *Exot. Fl.*, t. 197.—Widely dispersed in the West Indies and Tropical America. Introduced in 1791 by E. Elcock. The genus was founded on this species.

(*To be continued.*)

COLONIAL NOTES.

TONGA.—Some time ago a statement appeared in the *Gardeners' Chronicle* to the effect that a celebrated native medicine, said to be beneficial in neuralgic affections, had been sent to England from Fiji, and that a correspondent had failed to obtain from Fiji any information as to its component parts. The paragraph having, says the *Melbourne Leader*, come under the notice of Mrs. Glendinning, she immediately wrote, making inquiry on the subject, to her brother, Mr. R. L. Holmes, Delanasu Vanua Levu. Mr. R. L. Holmes at once set to work to discover the composition of the medicine, which is known in the islands by the name of Tonga. In a letter, dated February, he replies:—"I received a letter from my Lau correspondent—Rev. J. Leggo—giving me much information concerning the medicine, and also dried specimens of the plants contained therein, with their native names. Mr. L. got his information direct from an old Tonga man, who brought him specimens, which Mr. L. sent to me, and which I now send on to you. There are two, and only two, plants made use of, the names, as so often occurs here, differing slightly in different parts of the group, but I had no difficulty in identifying them."

In Tonga they grate up equal parts of each, pour on cold water, and imbibe. The specimens sent by Mr. Holmes were submitted to Baron Von Mueller, who at once recognised them. The first, called by the natives "Aro," is Premna taitensis, belonging to the order Verbenaceæ. Mr. Holmes states that it is, on open dry places, a shrub, flowering when quite small, but near watercourses becomes a tall tree, the timber of which is used in house building, the inner bark being the part used in medicine.

The other plant is known as "Nai Yalu," or "Walu," and is an Arad, the Raphiodophora vitiensis of Seemann. "It is a creeper, growing freely in sheltered places, especially damp bush, climbing over the stones and the like till it finds a tree, when it changes its nature," says Mr. Holmes. "From a small vine not thicker than a quill at the foot of a tree or rock, with small simple leaves, it gradually expands, the stem growing to 1 inch or 2 inches in diameter, and the leaves, as many feet long, become compound [pinnatifid], forming a handsome plant—one of those climbers that give to tropical forests their rich green, dense appearance. It is the dried scraped stems of this plant that forms the second ingredient in 'Tonga.'"

CEYLON.

The beauty of the scenery and vegetation of Ceylon is described as follows in a recently published brief description of the island. While it is said that it presents many points of resemblance in its flora and fauna to the neighbouring peninsula of India, it differs in some respects, and assimilates rather to the Malayan Archipelago. Cinnamon, for which the island has always been famous, and Rice, are believed to be indigenous, while the more profitable products, Coffee and Cocoa-nuts, are introductions. Most South American plants readily adapt themselves to the climate, as is proved by the recent success of Cinchona and Cocoa. Tea also grows luxuriantly. Ceylon is noted for Ferns, Balsams, and Orchids. Calamander, the most beautiful of the cabinet woods, is becoming very scarce, but Ebony, Satinwood, and others, with serviceable timber, are plentiful in the forests. Palms and Bamboos are specially beautiful and luxuriant, few objects in Nature being more magnificent than a Talipot Palm

in flower, and few more elegant than the slender Areca Palm, or the tall, bending, green Bamboo of the mountain forests of Dimbula. The Cocoa-nut Palm luxuriates along the western and south-western coasts, just as the Palmyra, with its five hundred different uses to the natives, abounds in the Jaffna peninsula. Though free from tigers and lions, the island abounds with animals, the elephants of Ceylon being especially amous. Reptiles also, and birds, are very numerous, but songsters are deficient. River fish, chiefly carp, are few in number, and of inferior quality, but probably no sea coast in the world is richer in fishes and shells. Myriads of insects, including butterflies, moths, beetles, bees, wasps, mosquitos, white, black, and red ants, scorpions, centipedes, multitudes of curious spiders, &c., are found in Ceylon, and the periodical swarms of butterflies are peculiarly interesting.

TEAK IN CEYLON.

Teak is the name of two kinds of timber, valuable for shipbuilding and other purposes, one of which is known as Indian Teak, and the other as African. The trees which produce them belong to very different orders. Indian Teak (Tectona grandis) is a tree of the natural order Verbenaceæ. It is found in the mountainous parts of Malabar, and elsewhere in Hindustan, and in the Eastern Peninsula, Java, &c. It has been introduced in some parts of India, in which it is not indigenous. Dr. Roxburgh introduced it in the low grounds of the Circars in 1790. It is a beautiful tree, attaining a height sometimes even of 200 feet, and rising above all the other trees of the East Indian forests. It has deciduous oval leaves of 12 to 24 inches long, covered with rough points, large panicles of white flowers, with 5 to 6-cleft corolla, and 4-celled drupes about the size of a Hazel-nut. Its flowers are used medicinally in cases of retention of urine, and its leaves by the Malays in cholera. Silk and cotton stuffs are dyed purple by the leaves. The timber is the most valuable produced in the East Indies; it is light and easily worked, strong, durable, and not liable to the attacks of insects. It abounds in silex, and resembles coarse Mahogany. It is extensively used for shipbuilding, for which purpose it is imported into Britain. All the finest ships built in India, and many built in England, are of Teak. The most extensive Teak forests of the present day are in Pegu. It has been planted in Ceylon in a few places, but not yet with much result, as it takes sixty to eighty years to grow a large size. Some of the largest trees in the island are growing at Katutura, on the sea coast, about thirty miles from Colombo. In India, owing to the able and systematic "Forest Department" the planting of Teak and other valuable timber trees is receiving great attention. In Ceylon we are far behind, do not possess such an institution, but have a few foresters that know as much about timber trees as a city clerk. A great want would be easily remedied by extending the Indian Forest Department to Ceylon, and placing it under our able botanical head. I trust the day is not far distant when such will be fulfilled. African Teak, sometimes called African Oak, is a timber similar to the East Indian Teak. It is now believed to be the produce of Oldfieldia africana, a tree of the natural order Euphorbiaceæ. *J. Alexander, May 25.*

SARRACENIAS.

(*Continued from p.* 818, vol. xv.)

S. VARIOLARIS, Michaux; Croom; A. DC. *Prodr.* xvii., p. 6.

Though long known, this is not one commonly met with in cultivation, as its merits are eclipsed by those of others. The pitchers are 6—7 inches to about a foot in height, erect, trumpet-shaped, with a very broad wing and a recurved hood-like lid. The colour is green, except at the upper part, where it is mottled cream-coloured. The flowers are about 3 inches across, and of a pale primrose colour. Disc of the style green. It is figured in *Bot. Mag.*, t. 1710; Lodd. *Bot. Cab.*, t. 803.

S. DRUMMONDI, Croom; *Ann. Lyceum N. York*, 4, 100, t. 6!; A. DC. *Prod.* xvii., p. 5.

This plant has erect pitchers 2 feet long, funnel-shaped, green, with prominent nerves, and a shallow wing. The upper part of the pitcher is marked with interspaces of a pink or creamy-white colour between the veins. The lid is 2 inches across, suborbicular, wavy at the margins, crimson-spotted, covered with deflexed hairs. The inner surface of the pitcher is glossy crimson. The flowers are 4 inches in diameter, bracts oblong-acute, ½ inch long, reddish-brown, white-edged; sepals spreading, 1¾ inch, ovate lanceolate, reddish outside, greenish within. Petals 2 inches long, broad at the base, contracted and bent inwards below the centre, then flat and expanding into an oblong obovate winey-red velvety blade. Filaments whitish. Ovary oblong, roundish, longitudinally lobed. Disc of style 3½ inches across, greenish-red. Lobes ovate, triangular, bifid.

A flower of this species is figured at p. 633 of our last volume, and the pitchers are shown in fig. 1, for which we are indebted to Mr. Bull.

It is also figured in Paxton's *Flower Garden*, 1, t. 1; *Flore des Serres*, t. 560 and t. 1071; and in Moore, *Floral Magazine*, t. 208.

For remarks on the cultivation of this species the reader may be referred to vol. x. (1878), p. 280.

A plant known in some gardens as S. mexicana is, as we learn from Mr. F. Moore, only a small form of this species.

Var. ALBA, *Gard. Chron.*, vol. x. (1878), p. 281.

Only differs in the paler colour of the variegation of the pitcher and the lighter tint of the flowers. The inner surface of the petals is of a more creamy-yellow, not so rosy as in the type.

? S. UNDULATA, Decaisne, in *Rev. Hort.* i., 126; *Flore des Serres*, 7 (1851), p. 268; A. DC. *Prod.* xvii., p. 5; Watson, *Index N. Amer. Bot.*, p. 40.

M. Decaisne separates this from S. Drummondi of Croom by reason of its broader, less elongated pitchers, by the different mottling at the top, by the form and undulations of the lid, and by the different colour of the petals and stigma. With reference to these points M. Decaisne appears not to have seen any native specimen of his S. undulata, and to have relied on the figure of S. Drummondi given by Croom for his characters of that species, in which the lid of the pitcher is represented as concave, and only slightly undulate at the margin, the upper part of the pitcher creamy-yellow, with a network of red veins, the petals dirty violet, and the disc of the style green. Croom's figure was, however, probably taken from dried specimens, so that little reliance can be placed on the curvature of the lid, and less still on the colour of the flowers. Moreover, in cultivation considerable variation may be seen in individual plants. In the herbarium, where are original specimens of Drummondi, it seems impossible to establish two species. We incline, therefore, to the opinion that Professor Decaisne's S. undulata, which is the form commonly grown in gardens as Drummondi, is really that species, and that the name S. undulata should be cancelled. We have been greatly assisted in our investigation into these species by the kind help of Dr. Asa Gray, whose opinion that Professor Decaisne's S. undulata is not really different from S. Drummondi is of much greater weight than our own.

S. RUBRA, Walter, *Flora of Carolina*, p. 152; Croom; A. DC. *Prod.* xvii., p. 4.

This is a species with erect, narrow, slender, funnel-shaped pitchers 10—15 inches high, ¾—1 inch in diameter across the mouth, provided with a deep leafy wing (De Candolle describes it as narrow, but this is variable, and depends partly on the state of development), and surmounted by an erect or inflexed lid, ovate acute or tail-pointed, subcordate and somewhat narrowed at the base into a broad stalk, but not so much so as in S. flava. The general colour of the pitchers is green, but the reticulate veins, especially at the upper part, and on the under-surface of the lid, are of a rich red colour. The outer surface of the pitcher is glabrous, but the inner surface of the lid and of the upper part of the tube is covered with fine appressed hairs, pointing downwards. This portion, moreover, is covered with honeyed secretion. The size and form of the lid, like the depth of the wing, vary considerably in different specimens. The flower-stalk is cylindrical, reddish; the flower 3 inches across, with oblong, boat-shaped reddish-brown bracts. The sepals are about 1 inch in length, obovate oblong obtuse, reddish-brown, greenish on the inner surface. The petals are pendulous, about 1½ inch long, broad at the base, constricted and bent inward below the middle, oblong obovate obtuse, whitish at the base, above reddish-brown, and velvetty externally, cream-coloured within. Filaments white or reddish. Ovary barrel-shaped, tubercled, scarcely lobed. Disk of the style ½ inch across, greenish, its five lobes oblong obtuse, notched.

Var. ACUMINATA, A. DC., *loc. cit.*

This is the form usually grown in English gardens, and distinguishable by its relatively very long tails to the lid. It is the S. rubra of Hook., *Exot. Flora*, t. 13; *Bot. Mag.*, t. 3515; and *Bot. Cab.*, t. 1163.

Var. SWEETII = S. Sweetii, A. DC. *Prod.* xvii., p. 5; Watson's *Index*, p. 40; = S. minor, Sweet, and S. rubra, Planchon.

De Candolle describes this as having cylindrical pitchers with a narrow wing and an erect ovate, tail-pointed lid, not narrowed at the base. It is the S. minor of Sweet, *Brit. Fl. Gard.*, ser. 2, t. 138, but not of Walter, and is the S. rubra of Planchon in *Flore des Serres*, 10, t. 1074. There appears, from an examination of living specimens, as well as those in the herbarium, to be no difference except in size between this and ordinary rubra.

S. FLAVA, Linn., *Sp. Pl.*, ed. i., 510; ed. ii., 729; A. DC. *Prod.* xvii., p. 5.

This is the tallest growing species in cultivation, and we may add the most variable. We are by no means sure that some of these varieties do not deserve the name of species, but as they are known as varieties of flava, it is as well to keep them so till we know more of their natural history. We take the typical flava to be one with pitchers of moderate size, quite green, and with a relatively small ovate, pointed or acuminate lid distinctly narrowed at the base. This includes the forms figured in the *Botanical Magazine*, Loddiges' *Cabinet*, *Illustration Horticole*, and *Revue Horticole*, all of which are referred here by De Candolle and Watson. Catesby's figure, to be hereafter mentioned, was referred with doubt to this species by Dr. Sims in *Bot. Mag.*, t. 780. De Candolle expresses no doubt, and Watson is silent on the point. We share in the doubts expressed by Sims, as it is probable that two plants are figured, one with the incurved lid, which may be S. variolaris, while the other is identical with the form known in gardens as S. flava var. maxima. The typical flava, then, as we understand the plant, has erect elongate green trumpet-shaped pitchers, often as much as 3 feet in height, with prominent green nerves, and usually a very shallow wing, but sometimes as broad as stated in the table at p. 817, vol. xv.), with a wide, open mouth 1½ inch across, with reflexed margin and a roundish, broadly ovate acute or slightly tail-pointed lid, 2—4 inches across, markedly cordate, and narrowed into a flat leafy stalk at the base. The inner or lower surface of the lid is covered with appressed white hairs, pointing downwards, and the inner surface of the upper part of the pitcher is smooth. The flower is large, pendulous, with an odour more powerful than agreeable. The bracts are oblong boat-shaped, the sepals oblong or roundish, the petals oblong, constricted and inflexed below the middle, then expanding into an oblong obovate canary-yellow blade. The ovary is subconical, tubercled, the disc of the style very large (2 inches across), deeply 5-lobed, the lobes deltoid bifid at the extremity. To this belong the figures in *Bot. Mag.*, t. 780; *Bot. Cab.*, t. 1957; *Illustr. Hortic.*, t. 63; *Rev. Hort.* (1852), t. 7 (petals represented as green).

Great variations occur in the size of the pitcher, the depth of the wing, the shape, colour, and markings of the lid, and to a less extent in the flower. One form, collected near New Orleans by Drummond, and of which specimens exist in the Kew Herbarium, but which is not, we believe, in cultivation, has long pitchers contracted at the throat, as in S. Chelsoni ×, and stained purple for nearly their whole length; this is a form to be looked out for by nurserymen. We have selected the following varieties (for illustrations of some of which we are indebted to Mr. Bull) from those we have seen in cultivation, but it must be remembered that they merge one into the other imperceptibly, and that no two plants are in all points precisely similar.

Var. CATESBÆI = S. Catesbæi, Elliot, *Botany of S. Carolina* (1821), ii., p. 11; = S. flava var. picta, Hort. Bull; ? S. Fildesi, Hort. Williams.

This is a form with very large pitchers, a flat roundish cordate wing, traversed by red veins. It is one of the plants figured by Catesby in his *History of Carolina*, vol. ii., p. 69 (1754), under the name of "S. foliis longioribus," &c. It is doubtful on the score of priority whether this should not be taken as the type of the species. The other figure given by Catesby shows a pitcher with a cowl-shaped lid "arching over when near the full growth like a friar's cowl. This cowl expands itself till the leaf is at full bigness, having its inside of a greenish-yellow veined with purple." Catesby here, we imagine, has confounded what we now know as flava and variolaris. It does not seem likely that his cowl-like pitcher-lid could ever unfold into the shape of the other figure, with its cordate base and short narrow stalk. We have previously mentioned Catesby's curious notion that the flies took refuge in the pitchers from the persecutions of the frogs and other animals that fed on them.

Var. ORNATA, Hort. Bull.

This is a rather large form with green pitchers, traversed with red veins, the inner surface of the lid being especially marked with a network of red veins. The flowers, produced in early spring, are 8 inches across, the petals canary-yellow. Botanically it scarcely differs from the var. Catesbæi except in the fact that the stalk of the lid is longer, and that the upper part of the pitcher, as well as the lid, are marked with a network of red veins.

Var. RUGELII = Shuttleworth, MSS., in herb. et in DC. *Prod.* xvii., p. 6; = var. ERYTHROPUS, Hort. Bull.

One of the larger forms, with the lid of the pitcher well marked and strongly blotched with crimson at the base,

There are specimens in the herbarium with the manuscript name of S. Rugelii which are referable here.

Var. LIMBATA, Hort. Bull.

A large form of flava, with a roundish lid marked all round the edge on the lower side with a band of brownish crimson ¼ inch deep. It is a remarkable variety.

Var. MAXIMA, Hort. Angl.

This is a large form, which only differs from the foregoing in the pitchers and their lids being wholly green.

Var. CRISPATA, Hort. Bull, *an propria species?*

This is a very remarkable variety, of which the pitcher is shown at fig. 2, while the flower was represented at p. 633 of our previous volume. Were its history better known, we should be inclined to consider it a distinct species, differing from flava in the deeper wing to the pitcher, the strongly reflected margins of the sepals, the white petals, the blunter, less conical ovary, and the shorter and blunter lobes to the disc of the style.

The pitchers are erect, 2 feet high, green, with prominent nerves, and with deeper wing than in flava; the lid is erect, incurved, ovate acute or tail-pointed, contracted at the base. The flowers are 4—5 inches across, recurved; bracts ½ inch long, oblong, boat-shaped; sepals 2 inches long, ovate oblong obtuse, the margins strongly replicate or rolled back. The petals are pendulous, 2¼ inches long by 1¼ in width, creamy-white, broad at the base, contracted and inflexed below the middle, above ovate or roundish; filaments yellowish; ovary oblong obtuse, ½ inch long; stylar disc greenish, 3 inches across, with five triangular rather blunt notched lobes.

It has been suggested that this variety is a hybrid between S. rubra and S. flava, but we do not see any grounds for the suggestion.

Var. ATROSANGUINEA, Hort. Bull.

This is a relatively small form, with the lid of the pitcher ovate-acute, deeply stained with red. We have not seen the flower of this variety which approximates to S. rubra. (See fig. 4, p. 13.)

Var. MINIMA, Hort. Angl.

Differs from typical flava solely in the smaller size of all its parts. The pitcher-lid is roundish, but acute at the point.

(To be continued.)

Florists' Flowers.

THE PELARGONIUMS AT HILLINGDON.—But for the Pelargonium Society there is too much reason to fear that the days of the Pelargonium as an exhibition plant would be numbered. As it is, there are growers of it in that sense few enough, and but for the private spirit and enthusiasm shown by Mr. Henry Little it might have failed to find any amateur amongst its champions. The show and fancy sections never have had many first-class cultivators in the South. Very fair examples are now and then seen in provincial shows, but these are far from common. In the great metropolitan exhibitions we have of late had only Mr. Turner, of Slough, and Mr. Brown, of Hendon, amongst the trade growers, who have put up presentable plants, and Mr. James, of Redlees, was perhaps the last of gardeners who grew Pelargoniums fit to be seen at first-class exhibitions. Just when there was danger that outside the trade the Pelargonium might utterly pass out of date and of cultivation for show purposes, Mr. Little, having ample space in his new Hillingdon residence, took them in hand, and is now doing all that man can do to keep the show Pelargoniums in the forefront of show plants. What Mr. Catlin so worthily does for the zonal Pelargonium and for Mrs. Lermitte, Mr. Wiggins is striving to perform for the show and fancy kinds and for Mr. Little; and it is well that, in the latter case especially, employer and gardener are both fired with that genuine enthusiasm, without which even success soon palls and the most beautiful flowers become monotonous. Periods of excessive sunshine and unusual heat have this year tended to force somewhat early the finest of the Hillingdon specimens. What these are when in good bloom prior exhibitions have told; but it is less for the sake of these than for reference to the fact that Mr. Little has also become a collector of the best new kinds, which may render a notice of the Hillingdon Pelargoniums interesting.

Hillingdon Place is a thoroughly rural residence, situate just at the entrance to the village and on the Oxford highroad. The situation is high and natural soil good. In that respect no doubt it presents many advantages over localities near the Thames where there is ever a moister atmosphere. The chief house for culture is a long lean-to with a southern aspect, erected by Mr. Little specially for the cultivation of his favourite flowers, but suffering this year from a somewhat excessive exposure to many successive days of brilliant sunshine and high temperature. The enormous value of a good north house in which to keep Pelargoniums during a warm summer becomes therefore effectively demonstrated.

When we paid this home of the Pelargonium a visit there was great activity being shown in preparing for the then coming Pelargonium show. The labour involved in the tying-out of many fine specimens would be too much for other than those divinely gifted with ample stores of the rare virtue, patience; but here that work is but a labour of love, and many are the weary hours spent in not merely making a plant presentable to the public gaze but, what is of even more importance, so secure at every point that in the journey of 16 miles to London not a petal or flower shall come to harm. For the carrying out of this work there is at hand a large roomy shed looking north, and here, if some plants show evidence of precocity they may, for a few days, be held a little in check. Outdoors there stand shorn of all their former beauty and glory a score of large plants, not so long since the cynosure of all eyes, but now relegated to a back yard and the knife. With better luck than some of their human prototypes, they will again, and yet again, rise like the Phœnix from its ashes in renewed beauty and splendour, till eventually comes their crack of doom and final disappearance.

Years since the honoured name of Beck was associated with the Pelargonium. That association, it seems, is happily continued by Mrs. Beck, of Isleworth, who yet raises seedlings, and of this lady's most recent labours Mr. Little is favoured by possessing some striking examples. These are all of the old show kinds, and in a large degree partake of those deep rich hues which are the glory of the Pelargonium. One of the finest is named Superb—a most appropriate name. The flowers are large and of fine form, colour intense crimson, with deep maroon-crimson upper petals—really a grand flower. Near in colour, but having flowers more reflexed, is Thebais. This is very free and of good constitution, and will make a fine show kind. Gloriana shows a considerable advance upon Hermit, and is more free. The lower petals are blush-white, and the upper ones have deep crimson blotches. Britomart has a capital habit and is very free, flowers of fine form, in colour reddish-orange, and dark clouded upper petals. Christabel marks a great advance upon Snowflake, has a robust habit and is a much more profuse bloomer; it will make a fine show kind. The last of Mrs. Beck's selections is Rosalind, a very pleasing and distinct kind, lower petals delicate pink, upper ones deep maroon-black,

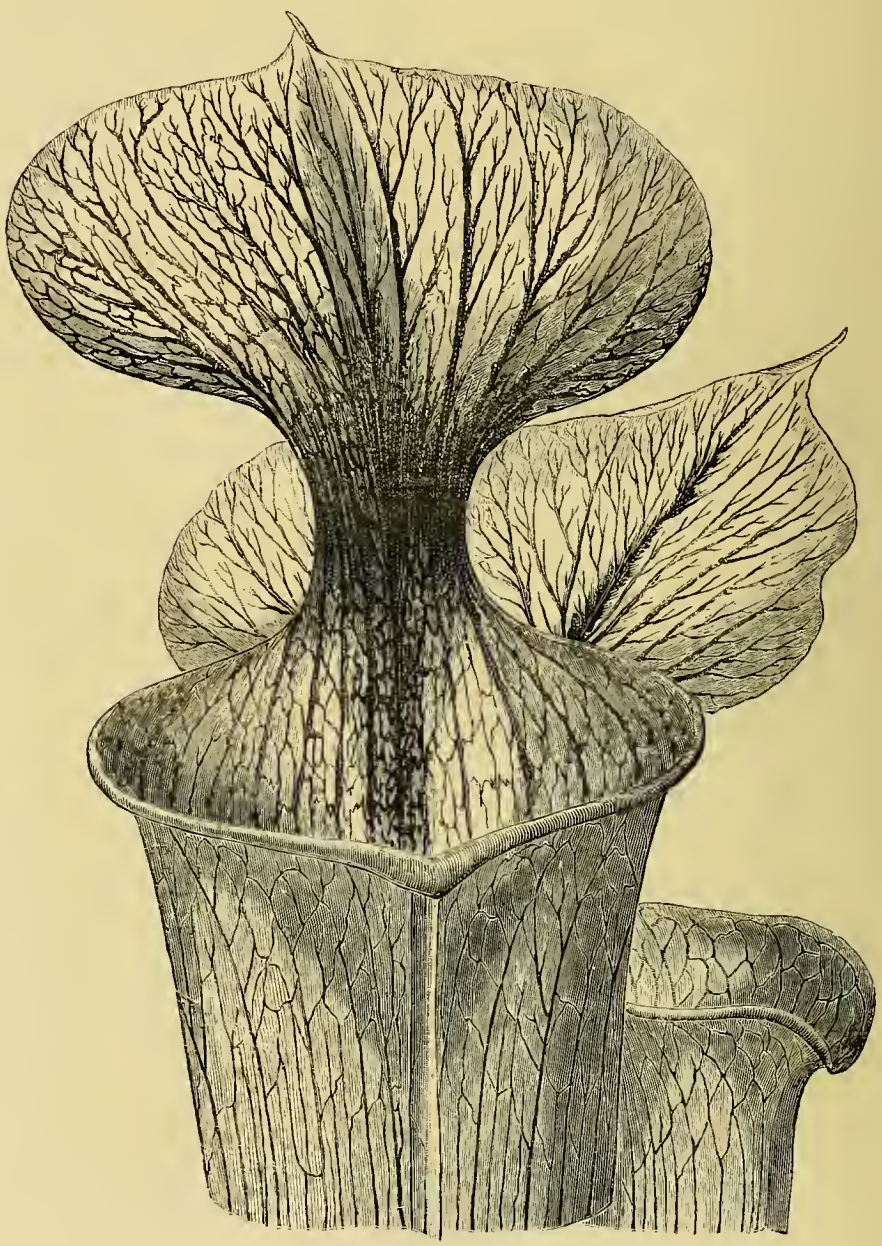

FIG. 3.—SARRACENIA FLAVA VAR. ORNATA, HORT. BULL. (SEE P. 11.)

with a fiery scarlet margin, well reflexed and of good form.

A fine showy kind, sent out by Jackson & Son, of Kingston, is Fire King; colour rich carmine-red, and freely produced. There are also not a few of the newer kinds raised by that veteran, Mr. Foster, of Clewer. Of these The Baron is a fine reflexed flower, lower petals rosy-carmine, upper ones rich deep maroon, and white centre—a very handsome flower. Dauntless has perfectly round flowers of soft rosy-carmine colour, and deep blotch on upper petals—a charming variety. Majestic has flowers somewhat cupped, soft rosy-pink ground, with deep shaded upper petals—a very pleasing flower. Sappho has a dwarf habit, is exceedingly free to bloom, the flowers of perfect form, and in colour rich rosy-carmine, with deep dark blotch. Fortitude is a noble flower, of good substance, and of a rich salmon hue, the blotch of dark maroon. Amethyst, of which there is a fine plant, is a remarkably distinct kind, its rich deep purplish-maroon hue and handsome flowers standing out with marked effect. Amidst the lighter colours, and scarcely less striking, is Black Prince, which has flowers of an exceedingly deep hue of colour, and thinly margined with rosy-white; the petals are somewhat rough, but the plant is very free and effective. Fellowes' Silvio is a charming kind; lower petals scarlet, shaded with violet, upper ones dark maroon, edged with scarlet; very striking and showy. Desfontaines, pure white, with purple blotch; Venus, white, with soft purple blotch; and Miss Maygill, flowers rosy-pink, are all striking kinds in the collection of show varieties.

Perhaps the gayest and most telling of the Pelargonium family are found in the regal or spotted section, of which some grand kinds are at Hillingdon. If lacking the perfect form found in the show kinds there is no want of bloom; indeed, the plants of this section seem to have reached a flower-producing power that can hardly be excelled. One of the most prominent, because of such an exceeding pure white, is Lucie Lemoine. This blooms with a degree of profusion that is remarkable. Mr. Little thinks it will presently beat commoner white kinds out of the market. Emily Everard is a glowing kind, the flowers of an intense fiery red, of good size, and most freely produced. Duchesse de Morny is of a soft rose hue, and a very beautiful flower. A kind not named presents a very distinct advance upon Triomphe; the flowers are of a deep reddish-crimson, of great size, and produced in marvellous abundance. Nellie Hayes has a name that indicates its origin; its flowers are white, shaded rose, and spotted with maroon; trusses large and most abundant. Royalty is a fine pure white kind, striped with maroon; a very charming flower. Lemoine's Madame Thibaut—white, deeply blotched with soft rosy-peach—is a beautiful kind; the flowers have an excessive number of petals, producing a semi-double appearance; it is wonderfully floriferous. An exceedingly pretty kind, named Annie Hemsley, was raised at Chiswick; it resembles Volonté Nationale, but the colour is deeper and richer; it will make a fine exhibition kind. A seedling of Messrs. Jackson & Son, named Racehorse, has blooms of a soft carmine, blotched with deep maroon; a very showy flower. Afterglow—so named because of its singularly pleasing colour—is deep carmine, shaded with violet; a beautiful variety. Madame Favart, Decorator, and Lady Isabel, are all very showy varieties.

A plant of Beck's Bride, the stock of which some years since was sold for 100 guineas, affords an admirable opportunity to compare old kinds with new ones. In the show Pelargonium, as perhaps in the zonal, such wonderful quality in form, size, and colour has been attained that it is only by steps of the most imperceptible kind that advance can be shown now. In the days of the Bride's *début* there was room to go ahead by leaps and bounds. There is a good collection of the Ivyleaf section grown at Hillingdon, the majority being of the double section, and most of the plants trained in pyramidal form. The very best flower to be found amongst these is Dubus' Gloire d'Orleans, the blooms resembling a Balsam in shape and density, and the colour being a soft rosy-lake. Of other kinds that are fairly distinct and good are Sarah Bernhardt, pale lilac; Mdlle. Adrienne Berot, lilac; Perle, pleasing mauve; Lemoine's No. 29, rosy-lilac; Madam Emille Galle, French-white; Monsieur Dubus, rich rose; A. F. Barron, delicate mauve; and La Fiancée, pale mauve. The need of greater breaks of colour in this class in the direction of M. Dubus and Gloire d'Orleans is very evident.

Mr. Little has a grand lot of zonals, and the blooms of every kind are in such perfect form as to exhibit all the best features of the variety. Dr. Denny's new white Prima Donna, the best of its class; North Star, brilliant crimson-scarlet; Dazzler, same hue of colour, with distinct white eye; Lady Emily, delicate rosy-pink; Livingstone, glowing crimson; Ivanhoe, enormous trusses, orange-scarlet; Lady Sheffield, deep rosy-pink, large trusses, and of fine form; Polly King, delicate salmon; Lord Mayo, a grand scarlet; Czarina, white, with pink eye; Cleopatra, carmine-magenta; Golden Glory, intense scarlet; Mrs. Wright, carmine-pink; Circulator, rosy-scarlet; Mrs. Bennett, a grand scarlet; Master Harry, rich orange-scarlet; De Lesseps, brilliant scarlet; and Titania, maroon-crimson, and a superb flower. Of own raised seedlings Mr. Little has Emily Little, a very pleasing rosy-pink; Pearl, a pretty pale pink, very distinct and free; Venus, delicate rosy-pink; Rosy Morn, deep purplish-rose, a first-rate kind; Vivid, intense scarlet of fine form; and Grenadier, rich orange-scarlet, a very fine flower. Very many more kinds than those named are grown, but space necessitates some limit to the list. A more brilliant show of rich colours and striking flowers could rarely be found than at the time of our visit was furnished by the various Pelargoniums at Hillingdon. *A. D.*

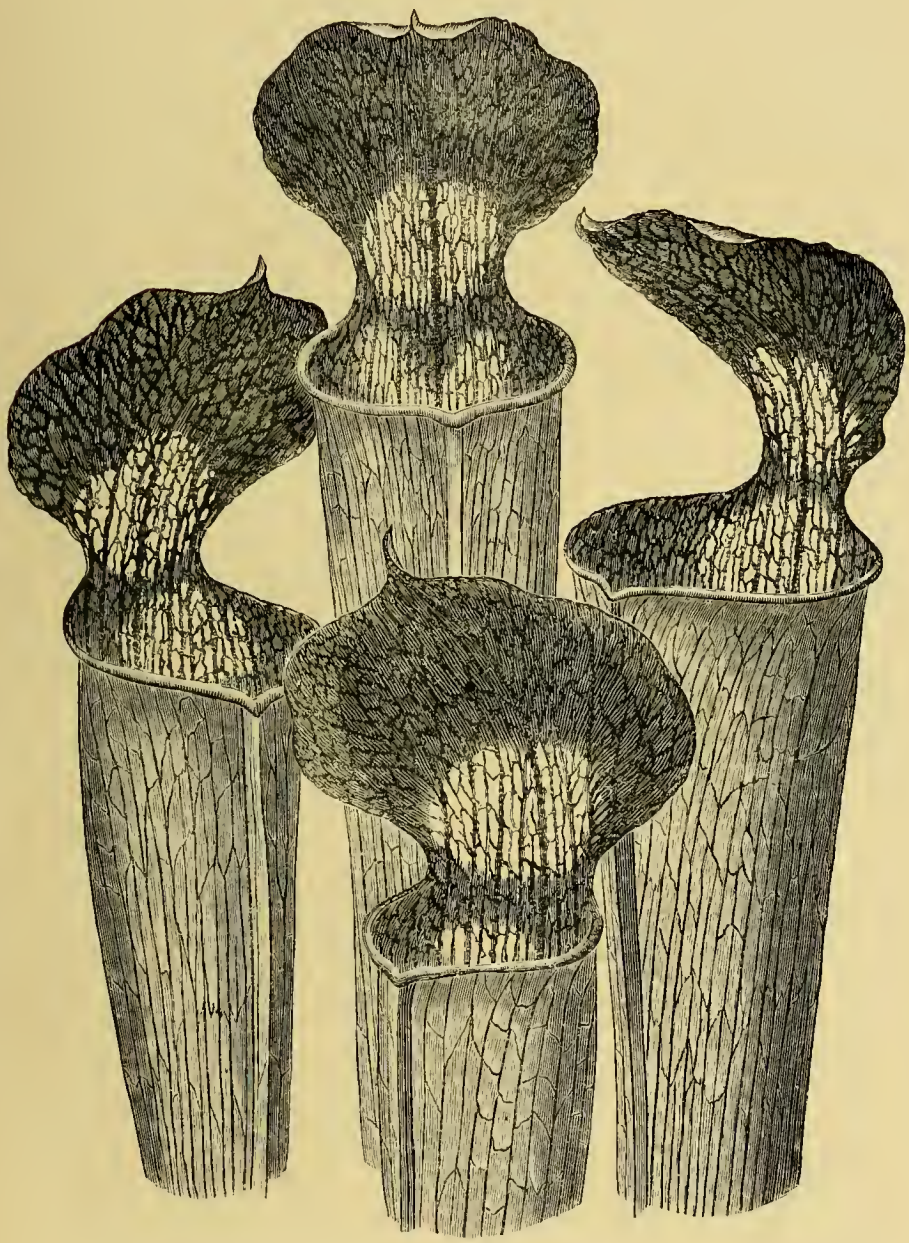

Fig. 4.—Sarracenia flava var. atrosanguinea, Hort. Bull. (see p. 12.)

The Aquilegia.

Since the hybrid forms of Aquilegia cœrulea and A. chrysantha have been introduced to the public the interest in this fine hardy plant has vastly increased, and it is very pleasing to me to be so frequently told how useful they are in gardens, not only to decorate the hardy flower-garden, but also how effective they are as flowering plants for grouping in the greenhouse and conservatory, and also as cut flowers; for the latter purpose they are very effective, and last well when cut in a young state. Mr. Shirley Hibberd told me the other day that Dr. Denny had found both varieties perfectly hardy in his garden at Stoke Newington, where they withstood the last severe winter, and have flowered well this season. I noticed some one writing about them recently who stated that they were biennial rather than perennial. This is certainly an error, for we still have the original plants at Loxford, and they flowered stronger this year than they have ever done previously. I fancy they do not like to be divided; probably some person attempted to do this and failed, hence the above erroneous statement. A. cœrulea and A. glandulosa have flowered well with us this year; they will do well anywhere if well supplied

with water, and kept free from greenfly and red-spider. The old free-growing species, A. vulgaris, must not be lost sight of. Mr. H. Cannell, of Swanley, has just sent a box of blooms of the double forms of it. Some of these are very beautiful; many of them may be designated as selfs, and others bi-colors. They are evidently a very fine strain, and represent the greatest advance yet made in this direction. The pure white single form was not amongst them, but it is exceedingly elegant, the contrast between its pale green leaves and pure white flowers being very pretty. Amongst them was a very fine form of A. glandulosa, grown, no doubt, in the open garden at Swanley. No garden should be without these very pretty flowers, and the best way to get up a stock is to purchase seeds from a house that you can depend upon. *J. Douglas.*

Orchid Notes.

Oncidium macranthum.—This is one of the very finest species of Oncidium, and is of easy culture if it is placed in the cool-house. It is also one of the very best exhibition plants, but it generally flowers too late for the early summer shows. It is so distinct from any other, and so showy, that it forms a most marked feature in a large or small group. Mr. Ward, when gardener to the late F. G. Wilkins, Esq., at Leyton, had one of the best examples of it ever seen. He bought a good imported mass of it, tied it to a large block of wood, and hung it up near the glass in the cool-house; and cool it was, as the temperature there sometimes fell to 35° in winter. It made splendid growths, and flowered freely in that position. It does remarkably well in the cool-house if treated very much the same as the Odontoglossums and Masdevallias as to potting and watering. The plant never seems to be at rest, for long before the flowers open on the long straggling flower-stems, the growths are advancing for next season. There have been some very good varieties flowered from recent importations. The sepals are brown with a yellow tinge, and the petals deep yellow; one of these in flower at Loxford has forty-four flowers on two spikes, and offers a rich contrast to the Masdevallias and Odontoglossums in flower in the same house. *W.*

Aerides Fieldingii.

In the Loxford collection of Orchids there is now a very fine variety of Aerides Fieldingii in flower. It has two spikes on one stem; the longest is within an inch or two of 3 feet, and has five side branches; the flowers are large, rich in colour, and much spotted. This plant was exhibited by Mr. Lane when gardener to Major-General Fytche, of Pyrgo Park, near Romford. At that time it was thought to be a natural hybrid between A. maculosum and A. Fieldingii; now that it is fully developed it is seen to be merely a very fine form of A. Fieldingii. This plant, which is known as the Fox-brush Aerides, is one of the very finest of the species, and it should be grown in an intermediate-house, with Vandas, in pots, which I fancy are preferable to baskets for this species. The pots should be three parts full of clean drainage, and the plants should have their roots in clean live sphagnum liberally mixed with broken charcoal and potsherds. *W.*

Orchids in America.

We have received from Erastus Corning, Esq., a classified catalogue of his extensive and valuable collection of Orchids. The meaning of the Latin names and an indication of the native country is given. Mr. Corning resides at Ta-wass-a-gun-shee, near Albany, New York. We sincerely hope no one will name a hybrid Orchid after the place should one be raised there. Fancy a Mesospinidium tawassagunsheense!

The "Orchid Album."

Under this title Mr. B. S. Williams proposes to issue in quarto monthly parts, commencing in the present month, a series of illustrations of the best and most remarkable Orchids, drawn by Mr. Nugent Fitch, accompanied by a descriptive text from the pen of Mr. Thomas Moore, and notes on cultivation by Mr. Williams. Each part will contain four plates, and the annual volume will be completed in June each year.

The Constable-Burton Orchids.

The extraordinary size and vigour possessed by many of the plants of which this collection was composed have already been noticed in the pages of this paper, and many who are fond of Orchids will no doubt be interested to know if the quantity of flowers they produce is commensurate with their size and condition. Many of the plants have been distributed far and wide, and no doubt subjected to varied treatment; but a considerable number of them are yet in the possession of Messrs. Backhouse. Recently we had an opportunity of seeing these; some had already completed their flowering, some were in bloom, and others were still to come; but in all there was an equal evidence of the bloom being quite in keeping with the vigour of growth. East Indian and Mexican species alike produced flowers in a way rarely seen. Amongst Dendrobiums is D. Devonianum, a mass of bulbs over 5 feet long, and showing that they had been covered with their lovely blossoms for three-fourths of their length; several plants of D. Pierardi latifolia, with bulbs 6 feet long, each specimen in bulk being almost equal to a decent-sized sheaf of corn; these had been clothed with their delicate straw-coloured flowers. Although an old and not-much-thought-of species, there are not many of the best exhibition groups now staged that would not be improved by the presence of such a plant as one of these. D. macrophyllum giganteum, bulbs 5 feet long. The strength and thickness of all the above were quite in keeping with their length. Dendrobium densiflorum, a beautiful example, 4 feet through. Of Aerides affine roseum there are several masses on pieces of rough wood, with numerous racemes like ordinary whipthongs; A. odoratum, four huge baskets, each big enough to fill a good-sized wheelbarrow, the growth bristling with advancing flower-spikes; the scarce A. crassifolium, bearing a splendid spike of bloom; A. Warneri, equally strong; several specimens of Saccolabium præmorsum, with several growths to each—one mass has thirty-five healthy leaves, the biggest of which are 2½ inches wide; S. Blumei, nine growths proportionately strong; S. giganteum, in no way behind those before mentioned. One yet remains of the five examples of Cattleya Skinneri, the dark-eyed variety, 5 feet across. Of Cattleya Mossiæ there are still a number of fine plants, one, in a 12-inch pot with eight leads, had on it eight spikes of flower, six of them having four blooms each, the other two five each—a quantity we never before saw produced by a similar number of flowering bulbs. Another much larger plant was little inferior in the proportionate number of its flowers just dying off. C. Trianæ is like the rest, as full of strength and healthy vigour as it is possible to imagine. A number of plants of Cypripedium niveum, often found a miffy subject, were as strong as C. venustum is generally seen; it is growing principally in Wensleydale slate, not for a moment that we suppose the material has much, if anything, to do with its vigorous condition. The growth collectively—leaves and bulbs—of many of the plants, although unusually thick and stout, is much yellower than most growers have been taught to look upon as the right condition. But facts speak for themselves, and there is no question that the condition of these plants is such as is calculated to maintain them in vigorous health. We are told by one who has had an opportunity of seeing them where grown that the houses were span-roofed, giving plenty of light, and that the plants were mostly kept as near the glass as they could be. This collection has of late made quite a stir amongst growers of Orchids; but so far not even so much as the name of Mr. Clarke, the gardener at Constable-Burton, has been mentioned. He, we believe, has had charge of the garden there for thirty years, during which time the Orchids have gradually been brought together. We understand he is a self-taught Orchid grower, whose knowledge of their cultivation has grown with the collection. So much the more has he reason to be proud of his work, for in their appearance the plants not only bear the stamp of present healthy vigour, but give equal promise of keeping on increasing in size, just as much as if they had been growing in the habitats where Nature had placed them. *T. B.*

Work in the Houses.

The daily round of duties in this department, such as heating, watering, shading, and ventilation, must now be attended to with all care and discernment, and the houses must be continually looked over, as many of the plants will require individual and separate methods of culture. The different stages of our houses offer varying aspects and conditions to the plants that are placed upon them, and this being so, in the placing and arranging of the plants upon the stages care must be exercised that the plants should be stood in the most light and airy position, or in one where shade and damp predominate, according as experience has shown which is the best for their individual growth and advancement. This knowledge, however, is not very quickly acquired, but must be persistently followed up. If it is found that a plant in any of the houses does not make the advance that the progress of the others would lead one to expect, endeavour if possible to ascertain what there is in the position that does not suit it, and then move it to another part of the house; alter its position on the stage, raise it higher or place it further from the glass—in each case after a fair trial watching the effect the altered treatment has upon it: and when the best position, or most favourable part of the stage is found let it then have every encouragement given, that it may make up its growths quickly and mature them before the dreary months come round again. Carrying these ideas into practice, how will it affect the genus Odontoglossum? To grow the whole of the genera in one structure is in some cases a matter of extreme difficulty. Often we find that Alexandræ, Pescatorei, &c., are doing as well as we can desire, the shady, damp, cool atmosphere suiting them in every respect well; but at the same time the state in which grande, Insleayi, citrosmum, nebulosum, &c., are met with, is one in which no pleasure or satisfaction can be experienced. Again, it may happen that a stronger light is at command, a drier atmosphere is maintained, and abundance of air is given: then we find the latter section succeeding better than the former; and though under these conditions the Alexandræ may flower fairly well, the general appearance of the plants is one rather of sickly struggle for life than of healthy and free progress. Bearing in mind the vast numbers of the latter type that have been imported, and are still being offered, it may be well to remind those who for the first time in their experience have some to deal with that, the conditions being favourable, they can be managed with ease; if, however, the conditions are not so, they can just as easily be lost. When first received, after being carefully cut over—if any cutting away is needful—they should be placed in small pots, using a good share of small crocks, only using just enough moss and peat to cover the top of the crocks. Do not be in a hurry to give much water; if the house, stages, &c., are kept moderately moist, the first indication of renewed life and returning power will be the plumping up of the bulbs, with the appearance of small green breaks just pushing away from the base of one or more of the bulbs. No roots yet appearing, little water will be needed, but as the growths advance the new roots will certainly push out, and until the shoots are fairly away it is better that the surroundings of the plants should be wetter than the plants themselves. Care must be taken that the sunlight does not injure them, but so use the shading that a good light can be given, which will cause the new leaves to come up moderately broad, for if fixed or continuous shading is used the leaves come up narrow and weakly, and unable to bear their own weight. I have found these to establish themselves in a very satisfactory manner if fixed on blocks or in small baskets and hung from the roof in the Odontoglossum-house. When they have grown freely it is easy to put them in pots and place them on the stages, in which position they certainly do better when once they are established. *W. Swan, Fallowfield.*

Garden Operations.

HARDY FRUIT GARDEN.

Continue to lay-in the shoots of Peaches and Nectarines as they advance in growth, finally reducing their numbers to the quantity needed to furnish the wall without allowing the foliage of one shoot to overhang that of another. The shoots of Privet from hedges unclipped during the winter will be found most serviceable for the purpose of laying-in, as they have the requisite stiffness combined with pliableness and light appearance. The fruits are now at a standstill during the stoning process, and it will be necessary to see to the removal of any nails that may be too near them before the crop commences to swell. Let continued attention be paid to sustaining the trees in a cleanly state by occasional thorough washings; prevent the establishment of red-spider on the trees by supplying sufficient water to the roots, and in the case of trees bearing heavy crops assist with liquid-manure. Buds of new or seedling varieties of stone fruits may now be inserted on established trees. By putting in a quantity of buds in this way, any new and superior

kind may more quickly be fruited in quantity, and by putting in a few buds of seedlings on trees that have arrived at a fruitful age their worth is speedily determined. Finish, if not already done, the removal of breastwood from Pears, Apples, Plums, and Cherries on walls and espaliers, and tie or nail-in the extension growths as required, not suffering them to go so long as to be in danger of breakage by wind, nor yet fastening them in so soon as to risk causing the shoots to grow crooked. Morello Cherries will now require the young growths to be secured to the walls. They may be laid-in a little more closely than is advisable with other fruits. See to the protection of all Cherries from birds before the fruits change colour, or many of them will be disfigured before they are sufficiently ripe to be carried off.

As the earlier Strawberries are gathered the nets can be removed to the latest batches. Laying the runners into pots must not be longer delayed if strong plants for autumn planting or for forcing are desired. Use good loam and a little thoroughly rotten manure for filling the pots in preference to any lighter compost, which, however well it may start the young plants, is undesirable in the midst of heavier soil when the plants are potted-on. Where the crop of Gooseberries is thin, and the bushes are making gross growths, it may be necessary to thin out part of the shoots and to pinch back the rest; and in the case of standard or pyramidal-trained Currants along the borders by the side of walks it will be well to do likewise, if only for the sake of tidiness and order. See that no larvæ of the Gooseberry sawfly are suffered to reach maturity on the bushes, or a later and probably more numerous batch will appear in the autumn. All growths of Vines on walls ought now to be stopped and securely fastened in, and any excess of bunches at once removed. Figs on walls have suffered heavily during the last three seasons, and the growth is later than usual. The growing shoots will now require attention in tying in those that are required for extension, in pinching out the points of those that are bearing fruits, and to the regulation of growth generally to insure well-ripened wood by avoiding overcrowding the foliage.

This is one of the busiest seasons of the year in the hardy fruit department; daily attention is now necessary in regulating the growth, so that all parts of fruit trees shall have a due share of air and light, that the current crop may arrive at perfection, and the wood be in the most favourable condition for the succeeding one. Raspberries for autumnal bearing should have the growths secured to the stakes or trellis as they advance in growth, removing all weak and superabundant canes, watering with liquid-manure if they are not sufficiently strong, and keeping the hoe going amongst them to cut down distant suckers and to destroy weeds. Add a little fresh litter to the mulchings of alleys in front of fruit walls if it is worn thin by walking upon, or has become too rotten. *R. Crossling, St. Fagan's Castle.*

FRUIT HOUSES.

Pines.—The directions already given respecting ventilation, temperatures, syringing, watering, damping, &c., continue to hold good. With reference to pot culture and the planting-out system, it is thought that Pines planted out in beds, having a larger body of soil to grow in, become more vigorous and produce larger fruit, but this does not always follow. The planting out saves considerable time in watering and less attention in that respect. There is also another gain when the plants are planted out—they are not so liable to suffer from drought as they do when grown in pots, unless very judiciously watered. The advantages of the pot system are, that a greater number can be grown in a given space for more than half the time the plants are in hand. With regard to soil, only one-third the quantity is required for pots. Another point of considerable importance is, that plants in successive stages will at times fruit prematurely even under the most skilful management. When this happens with plants that are planted out it makes it a very difficult task to replace them. It is not an easy matter to keep the required number of duplicate plants exactly of the same size and the same sorts to fill up the vacancies thus made, as each season the number will vary; and perhaps some seasons not a single plant will bolt. Even when the gaps are made good the established plants take the lead in growth, and this gives the house an irregular appearance. It is also very seldom that all the plants in one compartment start and ripen at the same time, and where the plants are planted out when one half are cleared off this space stands vacant until the remaining fruits have ripened. With plants in pots the empty spaces can be filled up at any time to suit circumstances, or the whole may be moved if required. When the plants are in pots they are at all times portable, at all stages, and should a leak or disaster occur with the heating appliances (especially if dependent on one boiler), and this should happen in mid-winter, then these advantages become very apparent and the superiority of the potting to the planting-out system is clearly shown. In my later Calendars I shall treat briefly on some of the cardinal questions that both induce and impede successful results, as they are of more importance than commonplace details of management. *D. Wilson, Castle Hill, Devon.*

Vines.

Early houses, from which Grapes are cut, can now be kept cool, and will not require fire-heat if the wood is nut-brown in colour and thoroughly ripened, which it should be by this time. If the houses have been troubled with red-spider give them copious syringings in the evening until they are clean, and, although the Grapes are cut, do not let the border by any means get dry, but give a thorough soaking with clear water when required; it will not require to be warmed for these houses now, but can be used direct from the pond, or source of supply. Succession-houses, where Grapes are colouring, should be kept as advised in last Calendar. Once every week go over all corners of the houses with a soft hair brush to disturb the spiders, and kill them all if possible, for if allowed to remain they will fasten their webs all over the bunches, and spoil very much their appearance, especially that of black ones. Examine the borders, and if dry water them with clear water; but such kinds as Foster's Seedling and Madresfield Court will require watering with great care, for if over-watered now it will be sure to crack the berries and spoil the appearance of the bunches. Where mixed houses of Grapes are planted, these varieties are best placed to occupy one end to themselves. If red-spider makes its appearance sulphur the pipes when very hot in the evening, putting on air early in the morning, and doing it for several successive evenings until it disappears. Do not by any means burn sulphur on hot bricks, for if it is at all too hot and flares, the leaves will be scorched at once. Later houses that are swelling must have a brisk growing temperature, closing early in the afternoon and giving thorough soakings of tepid manure or guano-water when required. Keep Muscats that are ripening in a little drier atmosphere, damping down in the early part of the day, so that it will dry up before evening, leaving a little back air on all night, and watering the border when dry with clear tepid water. Later Muscats that are swelling require a brisk moist heat, closing the houses early in the afternoon, and allowing them to run up to 95° with bright sunshine after closing, taking care to damp paths, borders, and walls with tepid water. Seventy degrees at night will be hot enough when fire has to be used, but a few degrees more in very warm weather will do no harm. Grapes for late use must be kept as already advised, and the latest houses of Hamburghs will be better for having the fire-heat turned on for a short time every morning when damp and cold outside, shutting it off about 9 A.M., but on bright mornings they will not require it. Newly planted Vines will now take liberal supplies of water, closing them early in the afternoon. Let the laterals ramble the first year without stopping them, which will fill the border with healthy roots for next year. *Joshua Atkins, Lockinge Gardens, Wantage.*

PLANT HOUSES.

Stoves.—Some cultivators of stove plants make it a practice to do without fires in this department during six or eight weeks of the hottest weather. Where this is practised care must be taken to avoid damp; the liberal supply of water needed in this structure in order to keep the plants healthy and vigorous will otherwise cause the house to become heavily charged with atmospheric moisture during the early morning, and if by chance two or three days in succession should be cloudy and inclined for rain, evil results will soon follow. It will be found far preferable to put a little warmth in the pipes, so that a crack of air can be left on to take off the superabundant moisture. All kinds of insects at this season will make rapid progress and thrive immensely, if not kept in check with a firm hand. In order to obviate this, give heed to directions given in previous Calendars. Plants of Gardenias that have flowered early should now be making rapid growth. Look over any that may require potting, especially vigorous young plants. If these (in the case of established plants) are required in bloom early in the season, it would be well to give them a rest in a cooler house after they have made good growth. Then, if excited in a good brisk heat later on, they will give a valuable supply of flower. Plants of Anthurium Scherzerianum that are past their best with regard to flower should have the spathes removed, and the plants should be encouraged to make fresh growth as quickly as possible. This result will soon be obtained, if the plants during the flowering period had been kept in a cooler house. A. Andreanum is evidently going to be a grand stove plant. I would strongly advise any who may be possessed of it to give it every attention; it is a vigorous grower, and apparently thrives well under the same conditions as the first-named. The variegated Pine-apple (Ananassa sativa variegata) should be increased where the opportunity occurs of so doing by the crowns; these will make far more compact and pretty plants than the suckers, especially for indoor decoration. Any healthy free-growing plants of Dracænas should be shifted if larger-sized plants are required. If the plants are not in a healthy state, it will be almost hopeless to attempt this, the better plan being to strike the tops and grow them on quickly. It is not well at any time to overpot the coloured section of these plants; the green forms are not so particular in this respect. Do not lose sight of the stock of Amaryllis at this season of the year; this often occurs, to the detriment of the next season's bloom. Withhold water somewhat, but not to the extreme, until the foliage dies off. Give a sharp look after thrips, which will soon prey on the foliage. Plants of Bougainvillea glabra that have given a good crop of bloom may have a short rest, and then be started into fresh growth, giving another good return in the autumn. Previous to doing this, it would be well to thin out the weakly wood. Plants of Ixoras that have yielded a good supply should have all the heat that can be afforded them; they will soon start into fresh growth, giving some useful heads for cut purposes later on when choice flowers are valuable.

Ferns.—Look after the stock of young plants and seedlings, shifting them if pot-bound; this will save time in watering, and avoid the evil results arising therefrom if overlooked. Basket Ferns should be liberally supplied with water where they are well established; grown in this manner the plants become dry at the root much more rapidly than when in pots, hence the necessity of attending to this point. Where these are suspended over pathways in such as conservatories and show-houses it is a good plan to water them well the last thing in the evening, then the unpleasantness of having the water dripping from them during the day may be avoided. Keep the old and decaying fronds well thinned out of all Ferns, especially those of a dense habit, such, for instancee, as the Gleichenias when in large specimens. The nature of their growth, *i.e.*, the manner in which they extend their fronds, and the freedom with which they produce young ones also when healthy, causes them to soon become thick and dense. If the decaying parts are removed it will give more light and encouragement to the young fronds, which ought always to be looked after. Some kinds, G. flabellata for instance, will soon become a prey to thrips if this point is overlooked. Where a large supply of cut Fern is required give attention to the smaller growing kinds of Davallias, such as D. bullata and elegans; these will be especially valuable for this work during the autumn and winter.

Greenhouse, &c.—Plants of Epiphyllum truncatum that have made good growth should now be well exposed to air and sunshine to have them well matured for an early crop of bloom. Among bulbous plants none are more useful than Vallotas during the next two or three months. Good strong plants when they show flower may have occasional doses of liquid manure-water. Where several plants are grown it would be best to arrange for a succession by forwarding some and retarding others. Tritonia aurea will soon throw up its flower-spikes, if at present in the open air; remove under cover when in this stage. Gladioluses in pots, when throwing up their spikes, should be liberally treated to aid in the development of a good crop of flowers. Keep Chrysanthemums (now growing rapidly) well looked to for tying and staking; water liberally, but withhold manure-water till the plants are showing flower. Give close attention to the stock of Cinerarias and Primulas: a sowing of each may yet be made, and it would also be advisable to sow a pinch of Calceolaria, placing the same in a moist cool place, such as under a north wall, with the protection of a hand-light. Azalea indica, where now placed out-of-doors, may still be syringed in the afternoon, which will keep in check the thrips and benefit the plants in other ways. *James Hudson, Gunnersbury House, Acton, W., June 28.*

Arnebia Griffithi. — This, although perfectly distinct from A. echioides, is equally handsome. Its being an annual vastly increases the chances of its being lost, as many of the Boraginaceæ seed but sparingly under cultivation, and in some seasons hardly indeed seed at all. Twenty years ago seeds were collected and sent to Kew by Lieut.-Col. Thompson from the Murree Hills, N.W. India; but the species seems to have disappeared soon after. It has recently been again introduced from Afghanistan by Dr. Aitchison, and is now blooming in the herbaceous department at Kew. It has narrower leaves, rather smaller flowers, of a more decidedly yellow colour than those of A. echioides, a differently shaped calyx, and a longer corolla. The five rich purple spots, which were understood to be the impression of the five fingers of the Prophet Mahomet, become less distinct as the flowers advance in age, and eventually disappear before these fall, just as is the case in A. echioides.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	July 4	Maidstone Rose Show.
Tuesday,	July 5	Rochester and Chatham Horticultural Society's Show. Clearance Sale of Plants, Glass, &c., at the Tyssen Nursery, Stoke Newington, by Protheroe & Morris.
Wednesday,	July 6	Royal Botanic Society's Summer Show. Bagshot and Windlesham Horticultural Society's Show. Norwood Horticultural Society's Show. Cardiff Rose Show. Sale of Imported Orchids, at Stevens' Rooms
Thursday,	July 7	Royal Horticultural Society of Ireland's Summer Show. Sale of Imported Orchids, at Stevens' Rooms.
Saturday,	July 9	Southgate Flower Show.

THE disparity between Trust, Promise, and Performance, is one of the most trying and disappointing features of modern horticulture. The older cultivators assure us that the disparity was less in their younger days—the crops were more even, as well as the seasons. Of course, if they were so, that would go far to produce more regular crops of fruits. Be that as it may, it is abundantly certain that there is now an alarming disparity between promise and performance of bloom and fruit. Possibly the promise is too good. In social and public life we distrust those who are profuse of promises: perhaps a similar rule might be applied to our fruit trees. It would almost seem as if not a few of them exhausted themselves in the promise, and so fail in their performance. No doubt, the fruiting process is somewhat exhausting. This idea is sustained by the fact, that seems undoubted, that the weaker the plant, as a rule, the greater the tendency to produce flower, and *vice versâ*. Extreme floriferousness is therefore not only a cause, but a proof of weakness. If this be so—and it seems certain that it is—then it follows as a matter of course that plants may be so much exhausted by flower-bearing as to be unable to carry the process into the further and more profitable stage of fruit setting and swelling. The theory that excessive production of flower is unfavourable to fruitfulness is further confirmed by the fact, that the trees that flower the freest are as often as not the most scantily furnished with fruit. Neither is the scarcity of the latter always attributable to spring frosts. These are destructive enough, as all cultivators know to their cost; and it needs courage to write in the presence of such springs as we have had of late years that they have not been wholly to blame for all our fruit failures. When trees are bordering on the brink of exhaustion they are probably more easily injured by cold than under other and more favourable conditions. It is also obvious that, be the weather what it may, if fifty blooms struggle for the food sufficient to set and swell five, the probability is, not that the five will be saved, but that the fifty will be lost; and this is what often seems to happen to Apple, Pear, Plum, Cherry, and Peach trees in bloom. Singularly enough, too, some trees appear to come better out of this struggle, scramble rather, for food than others. Plums and Cherries, for example, fall more profusely in the setting than Apples or Pears. Of the two latter, again, Pears fall more freely than Apples, while both these fall in larger numbers than Peaches; the latter, in fact, including Nectarines and also Apricots, seem to have the power of setting more bloom in proportion to area than any other fruit tree. The tree, however, avenges itself by-and-bye. The cultivator who attempts unmercifully to overload such trees has his reward at stoning time, when they not seldom shoot off the whole load *en masse*, leaving him to marvel in open and empty-mouthed astonishment at his irrevocable *finale* of failure.

It would also seem as if each species of tree had its own setting and swelling ratio, in relation to number of flowers, area of surface, &c. Among the *etcæteras* must be named number, size, and character of roots and branches, age, training, and general culture. It would be beside our purpose to go into these matters here and now; our purpose is rather to inquire whether the desire for fertility, as represented by fruit-buds, has not been carried too far. Have we not in fact lost somewhat of the substance in pursuit of the shadow? What advantage is it to the fruit grower to have his trees smothered with bloom year after year, and bare of fruit? Trees can have no fruit without flower, but unfortunately an abundance of the latter is by no means the sure promise of plenty of fruit, as it has been generally assumed to be.

The time seems opportune to press the question a step further, and inquire whether a superabundance of bloom is not one cause of fruit failure? It would seem in any instance as if it were so. The practical question follows, Can anything be done to moderate or check excessive flowering? No doubt very much can be done. The excessive flower-bearing is chiefly produced by artificial culture; root-pruning, surface-planting, the use of dwarfing stocks, double working, and semi-starvation, all tend to the production of flowers in excess. Reverse or modify these practices and the trees would bloom less, and probably fruit more. By such means all excessive production of flowers might be prevented. Such means of prevention would, of course, be better and also easier than cure; but a good deal might also be done by the mere removal of the blossoms, either in the forming in the autumn or after they are formed in the early spring. It would need considerable skill to thin flower-buds in the making, in the autumn. Most practical men, however, would be able to distinguish them from wood-buds at a very early period. And if removed sufficiently early, the buds left would get the benefit. Part at least of the supplies cut off would be diverted to those left, and they would be all the fuller and the stronger in consequence. It is easier still to thin flower-buds in the spring. All the weakest and worst placed might be removed, and thus the thick clusters thinned to groups of threes or fives, and some of them removed altogether. No doubt the work is somewhat tedious and difficult, but so are many operations in horticulture—the thinning of Grapes notably so. Whatever succeeds pays well in the end. The practice of thinning fruit-tree blossoms, though rather limited, has been reported as mostly successful. It is astonishing, too, how soon it can be done with the prompt help of a quick eye and a sharp knife or scissors in nimble fingers.

It would be difficult to thin standard trees, and it is rather singular that these perhaps need it least; but on cordons, pyramids, bush and wall trees the thinning of the bloom is at least practicable and comparatively easy. Our frequent, we had almost written incessant, failures suggests the wisdom of trying this and any other method in our power to augment our chances of success. It would only be needful to thin the most floriferous trees. Neither the idea nor practice is new. If we remember rightly Dr. Lindley advocated it, either in these pages or in the *Theory of Horticulture*, as based on the soundest theory. The best and most successful practitioners thin the blossoms of much of their superior fruit under glass, notably Grape Vines and Peaches. Nearly every one who hopes to grow fine fruit thins it severely in its rudimentary stages. We only advocate beginning a little earlier, and thinning the blossom to help it to set and swell, through the danger—that is the dropping—period. Seldom have we had a finer show of fruit than this year; the bloom, as beautiful as it was profuse, is gone, and left after all but a sorry crop behind it. The present system does not answer. Would the thinning of the blossom give a better result? We think it possibly might do so, and therefore earnestly commend the matter to our practical fruit growers, of whom we have a goodly number on our staff, and a large host among our readers.

—— The Gardeners' Royal Benevolent Institution.—We beg to remind the friends and supporters of this Institution that the thirty-eighth anniversary festival takes place at the "Albion," Aldersgate Street, on Wednesday next, and that the chair will be taken at 6 o'clock precisely by the Rt. Hon. the Lord Aberdare, who, as President of the Royal Horticultural Society, should be well supported by the craft. The energetic Mr. Cutler has, we know, left no stone unturned to make this festival a grand success, and we heartily hope that it may prove so. We would also strongly urge upon those who cannot be present on this occasion, but who can assist the Institution by collecting subscriptions from gardeners, under-gardeners, and others, on the occasion of the general collection to be made at the end of this month, to do their utmost on that day, remembering the cause for which the money is required, and the effort that is being made to increase the amount of the annual pension.

—— Flowers in Season.—Mr. E. G. Loder sends us a spurless flower of Aquilegia cœrulea, quite similar to the European stellate Columbines. The long white spurred petals are in this case absent, and replaced by an additional whorl of ovate acute blue sepals. A few years since Mr. Loder tells us he "collected seeds of A. cœrulea at an elevation of 10,300 feet, not far from South Park, Colorado." The seeds were sown in Northamptonshire in 1879; a few plants flowered last summer, but this year they have flowered most abundantly, and the individual flowers are quite as fine as in their native habitat; at all events among the dried flowers none were so large as this one (normal one) now sent. The flowering season is nearly over, and some of the flowers have been much larger. Among the seedlings one plant bears white flowers and others spurless flowers. — Messrs. Rodger McClelland & Co. send us flowers of a very elegant free flowering Privet, under the name of Ligustrum rosmarinifolium. It is of dwarf growth, with linear lanceolate leaves and dense masses of white flowers. As we intend to give a figure of the plant we defer further notice of it for the present.—The Philadelphuses are in full glory, and compel admiration, all the more in that they are perfectly hardy. Mr. Lynch sends us from Cambridge a specimen of P. speciosus, a finer thing than grandiflorus. Of this also we shall have to speak more fully on another occasion. — Messrs. Daniels Brothers, Norwich, send us samples of their strain of Sweet William. They are fine in substance and form, varied and rich in colour, one being pure snow-white. The strain is excellent.—From Mr. Moore, Glasnevin, come flowers of Crinum latifolium, very fragrant. The plant is quite hardy at Glasnevin, bearing leaves 6—7 feet in length with a scape 3 feet long bearing a truss of sixteen blooms. Abelia triflora is also hardy at Glasnevin, where it forms a shrub 15 feet high, covered with whitish or pink, very fragrant blossoms.

—— Packing Fruit for Market.—Although the very liberal prizes of five, three, and two guineas, offered by Messrs. Webber & Co., the eminent Covent Garden fruiterers, for the best packed boxes of fruit—viz., one of not less than 14 lb. of Grapes, another twenty-four Peaches, and a third of not less than 2 lb. of Strawberries—to be sent per rail, and duly delivered to the Royal Horticultural Society, brought only four competitors on Tuesday, yet the interest manifested amongst gardeners and others in the result was exceptionally great. As Mr. Webber arrived late, the boxes were not opened till 2 o'clock, when a good crowd gathered round to obtain whatever hints in the matter of packing fruit might prove useful. As last year, Mr. Crump, of Blenheim Park Gardens, was placed 1st: his box of Black Hamburgh Grapes, secured with a thick lining of moss, wadding and paper, but without any division between the bunches, came out well. His Peaches were firm, but had about them rather too much wadding; and his Strawberries, packed in leaves, were first-rate. Mr. A. Waterman, of Preston Hall Gardens, Aylesford, was 2d, with good fruits, the Grapes having interlacings of paper that are objectionable. Mr. Austin was 3d, his Grapes,

of good colour, being somewhat rubbed; and Mr. J. Watson, of Colston Bassett, was the other exhibitor. His Peaches, packed in bran, had become displaced. This material is deprecated as not so good as soft clean moss. Mr. Webber advises, for Peaches, each fruit to be wrapped in soft paper, and packed carefully in moss that is dry and well picked, as the very best method; whilst the use of wadding should be avoided.

—— Bottom-Heat.—Some recent experiments made by M. Prillieux are so suggestive that we commend them to the notice of Potato growers and those who cultivate roots. M. Prillieux sowed seeds of Vegetable Marrow and French Bean in pans, the soil of which was heated by means of a brass rod heated by gas—to what degree is not stated. The effect was that the caulicle, or portion of the seedling between the radicle and the seed leaves, became exceedingly swollen, so that ultimately the outer skin cracked. On examination it was found that the constituent cells of all the tissues were greatly increased in size but not in number. At the same time the number of the nuclei was also increased. The cells in the interior were proportionately more swollen than those on the outside, and hence the cracks. The over-heating of the soil thus produces a sort of tuberisation.

—— The St. John's Nursery Employés.—On Wednesday, June 22, the annual excursion of the *employés* of Messrs. Richard Smith & Co., of St. John's Nurseries, Worcester, took place. Liverpool was the city selected this year for paying a visit to, and the company, with their friends, numbering nearly 400, left Shrub Hill Station by a special Great Western train at 10 minutes past 4 o'clock in the morning. Their destination was reached at 10 minutes past 8 o'clock, when each followed the bent of his own will in viewing the many interesting sights which are to be seen in the great Mersey seaport. At 20 minutes to 9 o'clock the company again got seated in the special train, and the "faithful city" was reached a few minutes after 1 o'clock the next morning, all having spent a very happy, if rather long, day's pleasuring.

—— Royal Agricultural Benevolent Institution.—On Wednesday, June 22, this Society held its annual general meeting at Willis' Rooms to receive the annual report of the Council for the year ended on December 31, 1880, and for the election of officers and pensioners. Messrs. John Collins, A. H. Johnson, and John Marten, retiring members of the Council, were re-elected; and Mr. Thomas Duckham, M.P., and Mr. Charles Sharpe, were elected in the place of Messrs. C. S. Cantrell and T. C. Scott, deceased. In their twenty-first annual report the Council observe that, despite the continued agricultural distress, the receipts for the year have been maintained, although the subscriptions and donations have not attained to the standard reached in former years. This drawback, it is hoped, may be but of short duration, and will disappear with the return of that prosperity to which all classes, and more especially those connected with the farming interest, are anxiously looking forward. The total subscriptions and donations for the year ending December 31, 1880, amounts to £10,851 14*s.* 2*d.*, being only £121 8*s.* 6*d.* in excess of the sum received for the previous twelve months; while during the same period 525 persons have been benefitted at a cost of £10,421 10*s.* At the election seventy-three persons will be added to the list of annuitants, not taking into account the octogenarians who, under the new rule, now receive the same grant as ordinary married or single pensioners. An additional cost of £1520 will thus be incurred, raising the annual charge for annuitants, after allowing for deaths, to close upon £12,000. In order to meet this expenditure, and to avoid any considerable deductions in the funded property of the Society—a point to which attention was invited in last year's report—the Council earnestly renew their solicitations for assistance and support. The Council have much pleasure in announcing the completion of an arrangement whereby the trustees of the Norfolk Cattle Plague Fund have agreed to hand over to the Institution the interest accruing from £4000 Consols, in consideration of the permanent maintenance of five pensioners, to be chosen from the list of Norfolk candidates. The Council feel that, in abandoning for the present year the annual dinner that customarily precedes the election of pensioners, they have taken a course that will commend itself to the subscribers as a becoming tribute of respect to the memory of the late Mr. Mechi, the benevolent founder of the Society, whose death, the Council regret to add, has been followed by that of Messrs. Cantrell and Scott, both zealous and active members of their body.

—— The West of Scotland Pansy Society's second annual competition is announced to take place in the City Hall, Candleriggs, Glasgow, on July 27.

—— The Season.—When recent hot weather, and the long spell of general drought, had begun to satisfy most persons that a warm dry summer was inevitable, there comes, to give the most sceptical ample proof of the nature of the season, a big comet in the northern heavens, and a hot dry summer is held to be of absolute predestination. But this comet is a mere celestial fugitive. No one knew of his coming, few know of his going, and the influence he will exercise upon the weather will be about as much as that of an ordinary meteor. It is evident that, let the season be what it may, we shall not have to associate it with those of famous comet years. But though we have had some exceedingly warm days, and generally too much drought, we have been far from feeling a too high temperature. Nights have seldom been warm, and frost continued late into the summer; so that whatever may be the condition of the summer as to wet or drought at its end, it does not indicate, so far, any exceptional warmth. It is perhaps, so far, a matter for congratulation that, allied to the drought, we have had rather a cool temperature than otherwise. How vegetation suffers under the combined effects of heat and drought we saw during the Derby week, when for a few days real summer warmth was experienced. A month of such heat would have proved most disastrous in its effects upon crops of all kinds, but as it is enough of harm has been done. We see how the Wheat burst into full ear with unusually short straw, whilst other descriptions of corn make but very short growth. Grass on upland pastures is very light, and Clover lies far from dense or heavy. Peas generally are thin, the pods small, and furnishing but indifferent pickings. Potatos have come very irregularly; and where they look well favoured for the present by dressings of manure, the soil is so dry, nevertheless, that unless heavy rains come there will be but an indifferent root crop. We get partial and pleasant showers, but the needed soaking is deferred, and probably will be till too late.

—— The Flower Garden at Grimston Park is this year planted so that everywhere there will be an absence of level surface. In every bed there has been introduced such plants as Humeas, Abutilons, Acacia lophantha, and Salvia patens, in sufficient numbers to relieve the otherwise even sheet of colour. Pansies, representing the different distinct colours, have been freely used in mixture with many of the Pelargoniums and other things usually planted alone, which gives variety, and makes the whole look cheerful from the first.

—— Old Thorns at Grimston Park.—The sound loamy soil, of fair depth, resting on a bed of limestone, existent in this part of Yorkshire, is most favourable to the growth of Thorns, of which there are unlimited numbers of large size at Grimston. In the pleasure-grounds they exist in all the different shades and forms, from white to red, single and double, of unusual dimensions; and over the adjoining land, on all sides as well. This year they were so completely sheeted with bloom that from a distance the white varieties looked as if weighed down with snow. So profuse were the flowers when we saw them, that after a shower of rain the double kinds held water that bent them down almost to breaking.

—— Trees and the Frost.—Nothing is more curious than the widely different way in different places in which various trees and shrubs have been affected by the severity of the last two winters. At Grimston Park there is scarcely a single example of the Lombardy Poplar that will survive. This tree seems here to have been all but killed outright. Even the four large examples that stand in the middle of the roomy stableyard, where it might have been supposed they would have been somewhat protected by the surrounding buildings, are all so nearly dead as to be useless; those also standing opposite the entrance side of the mansion, and which were such conspicuous objects, are apparently quite dead; whilst such trees as Paulownia imperialis, located near one side of the principal walk leading through the grounds, although the extremity of the branches are killed, seems likely to recover.

—— A Huge Rabbit-Warren.—We understand that a farm on the border of Hants and Wilts, a light chalk farm of nearly 1000 acres, after having been deserted by the tenant, who had it at £300 a-year, and remaining some time vacant, has been taken by a gentleman who proposes turning it into a huge rabbit-warren. Rabbits are worth 10*d.* apiece, and 1200 are to be "put down."

—— New Season's Pine-apples.—The *Grocer* states that the *Ceto* steamer, with the first cargo of new season's Pine-apples from Antigua, arrived in London on Friday, June 24. The first portion of the cargo was immediately placed on the market, and was readily sold at full prices, a few fetching as much as 21*s.* to 26*s.* per doz. Some of the Pines were bought for export to France the same day. The Pines generally were in fairly good condition, though rather green.

—— Hardy Cacti.—Mr. Loder's exhibit, the other day, will, we trust, do something towards reviving the taste for these remarkable plants. Many of them, we believe, are much more hardy than is commonly supposed, and suffer more from the continuous wet of our winter months than from the cold. Many of the species grow at great elevations on the mountains. A sunny well-drained border at the base of a wall would suit many of them well.

—— Alpine Plants.—We have received from Mr. Herrmann Gusmus, of Villach, Austria, a descriptive catalogue, conveniently arranged, of the plants of the Central Alps, with directions for their culture. Growers of these plants, to whom the German language is not deterrent, will find this catalogue very serviceable.

—— Parks and Commons.—From the Report of the Metropolitan Board of Works it appears that the total area of open spaces and recreation-grounds under the charge of the Board amounts to over 1676 acres, or 2½ square miles—a small space for a district comprising 122 square miles, with a population of three millions and a half. This, however, is exclusive of the royal parks.

—— A Grape Wall.—At Oxton Hall, Tadcaster, there is a high, old-fashioned, flued wall, some 90 feet of which is occupied by three very old Vines, two Black Hamburghs and a Muscadine. The covering of the extreme length has apparently been effected by some of the canes being layered at intervals close to the wall, and in this way filling the entire length of border with roots. They are now enclosed with a glass case 10 feet wide at the bottom, and heated. These old Vines are in an excellent healthy condition, bearing fine crops of fruit, smallish bunches, but the Hamburghs uniformly get as black as it is possible for Grapes to be. Mr. Croft, who has been gardener here for many years, says they are never troubled with red-spider in the way usual with Vines trained near the roof. The foliage being cooler, consequent on its being so much further from the glass, has doubtless much to do with the absence of this pest to Grape growers. The front of the structure is occupied in summer with Plums in pots, plunged, which bear well.

—— Yew Tree at Oxton Hall.—There is at this place one of the finest examples of a vigorous thriving Yew with which we are acquainted, exhibiting the peculiar spreading habit that it sometimes assumes when the lower branches from the first are not interfered with. It is 60 feet in diameter by about 22 in height; the lower branches lie flat on the ground for some 16 or 18 feet of their length, assuming an erect position at the points. The tree is as evenly balanced and as full of healthy vigour as possible, and there is every appearance of its extending in a horizontal direction more in proportion to its height than it has yet done, for the growth on the extremities of the bottom limbs is much more vigorous than at the

head of the tree. Here also is one of the happiest effects produced by rock plants in conjunction with water that we have met with; it exists in the form of a well-constructed rockery made with the right materials—big pieces of rock surrounding a pond sufficiently encircled with trees to give the requisite idea of shelter and seclusion without being so near as to interfere with the healthy growth of the plants, of which there is a very good collection that have attained a large size, and are still thriving with such freedom as gives evidence of their being quite at home. Amongst quantities of fine things was Cypripedium spectabile, with twenty-five of its beautiful flowers and Orchis foliosa bearing fourteen stout spikes of bloom.

—— Orobus canescens.—Perhaps the most beautiful of all the Bitter Vetches at present in flower in the Kew collection is O. canescens. It grows about a foot high, and has a large handsome purple blossoms and narrow somewhat glaucous leaves. It is a native of South Europe, and far from common in English gardens.

—— Vines at Grimston Park.—From the satisfactory results in the shape of better crops of more highly coloured fruit than usually follows the lifting of Vine roots, when the operation is skilfully managed, it is strange that Vines are so often met with that remain for a length of time giving indifferent returns for the labour bestowed upon them and the room they occupy. So true is this that the most successful exhibitors of Grapes, except when they happen to be in a locality where the natural soil is especially adapted to the wants of the Vine, often say that, to keep their fruit up to the required standard, they need to be ever working at the roots in the shape of lifting them and renewing the soil. The Vines at Grimston Park are one more instance in support of this, and give equal evidence against the erroneous idea that the roots of Vines do not extend freely in inside borders, where they have, as here, access to a good border outside. The unusual crop which the house of Muscat Vines last year bore and coloured well was after the inside roots had been lifted the autumn previous; and in one of the houses of Black Hamburghs this season there is the same thing observable. Here again the roots were lifted in autumn, and the crop shows unmistakably its superiority over that in other houses not so treated, although these latter are as promising as need be. The Vines collectively, and Peaches in the long range of fruit-houses, are in excellent trim, and bearing, probably, too great a weight of fruit. Peaches on the open wall have set a moderate crop; Apples are also fair, but Pears, except some of the freest bearers, are thin.

—— Boilers.—Mr. F. A. Fawkes draws our attention to a regrettable oversight in the review of his book at p. 818, which we hasten to correct. At p. 201 of the book the position of the surface to be heated is not overlooked, as stated in our review, but is duly taken into account.]

—— Leavenworthia aurea.—A remarkably pretty little Crucifer, with bright golden-yellow blossoms of some size. It is a free-flowering plant, which would pay for cultivation in pots for conservatory or window decoration. A native of wet rocks, &c., in Eastern Kentucky, Tennessee, Alabama, and Arkansas. The genus was founded by Torrey in honour of its discoverer. Now blooming at Kew in the herbaceous department.

—— New Pelargoniums.—A peculiar instance of plant mimicry, at any rate as far as the foliage is concerned, is afforded by a new Pelargonium from Central Africa, which is now flowering in the Cape-house at Kew. As an ornamental plant it is not without some claims to consideration; the long-stalked, large umbels of purplish flesh-coloured flowers are both curious and handsome; the long-stalked pedate leaves are much like those of the Stinking Hellebore (Helleborus fœtidus). Probably for hybridising purposes the species would give rise to a set of strange and interesting mules. A figure has been prepared for the *Botanical Magazine*.

—— Chamædorea glaucifolia.—Mr. Hudson, of The Gardens, Gunnersbury House, grows this elegant plant in 8-inch pots to a height of 12 feet. In this way they take up little room, and are easily moved for decorative purposes. It looks odd to see a slender shaft 10 or 12 feet high capped with a crown of foliage springing from so small a pot; the wonder at first is where the food can come from sufficient to maintain such an amount of vegetation. The answer is, apply Standen's Manure. Of course in decorative work the unpleasant look of so fine a head springing from so small a base is easily overcome.

—— Sarracenias at High Beech.—Mr. George Paul has had Sarracenia purpurea planted out at his High Beech nursery for several years, and without any protection it is now alive and thriving. It is planted in a damp swampy spot where sphagnum and Sundews thrive naturally—in fact where the immediate surrounding conditions are of a character, so far as moisture goes, such as might be imagined the plant would select in its native country. That the position is not unsuited to it is evident from the fact that it has seeded and produced a number of young ones. In company with it are the red and white forms of S. Drummondii, kinds that have been supposed to require much more warmth; S. flava, and the nearly allied Darlingtonia californica, as also Dionæa muscipula, are here, and have had no protection. With them are a number of seedling Sarracenias, raised by Mr. O. O. Wrigley, which also show their ability to bear our severest winters where the places selected for them are such as to afford the moisture and natural shelter which they may be supposed to require. The Sarracenias are pushing up their flowers, and altogether form a very interesting colony.

—— Vella pseudo-cytisus.—Although not a very showy plant this is not without a certain beauty of its own. It is, moreover, interesting as being one of the few markedly shrubby Crucifers. The past two winters have failed to make any impression on this species, whilst during the same period a host of plants from the same botanical region (South Europe) have quite succumbed. The species was cultivated as early as 1759 by Miller, yet at present in all probability it is scarcely to be found outside a botanic garden. It is now producing its yellow flowers at Kew.

—— Smoke Remedied.—Agricultural and horticultural interests would be advanced by the prevention of the smoke nuisance. We are glad, therefore, to observe that a joint committee of the Kyrle and National Health Societies is promoting an exhibition (to be held at South Kensington on October 24 next) of improved lighting and heating apparatuses, of which exhibition H.R.H. Prince Leopold, Duke of Albany, K.G., and the Duke of Westminster, K.G., are the Presidents. It should be added that prizes in money and medals will be awarded to the inventors of the best appliances for the prevention of smoke from boiler furnaces, domestic grates and ranges, and for improved fuel for household and manufacturers' use. Also that popular lectures will be delivered by various scientific authorities on this subject.

—— Genista sagittalis.—Either for rockwork or as an ordinary border plant this is decidedly worth a place even in very limited collections. It grows about 6 inches in height, and its terminal racemes of yellow blossoms are produced in great profusion. The leaves are replaced by a foliaceous or winged jointed stem. A native of South Europe. Now in flower at Kew.

—— George Stephenson and his Cucumbers.—At a recent evening meeting of the Littlehampton Gardeners' and Amateurs' Society the Rev. W. H. Simms stated that it was his good fortune some forty years ago to be associated with that wonderful man, George Stephenson, the centenary of whose birth has just been celebrated. In the speaker's early days he had a good deal to do with the construction of railways, and it was his privilege for some years to labour under the direction of George Stephenson and his son Robert. After a short service on the line between London and Birmingham he was transferred to the lovely county of Derbyshire, and being one day invited to Tapton House, George Stephenson told him that in all his gardening nothing vexed him so much as his Cucumbers; they would curl round and grow crooked, and with his habits of mathematical precision he was determined to make them grow straight; and whatever George Stephenson made up his mind to do he invariably accomplished, his motto being "Where there is a will there is a way." He said that he had sent to the glassworks at Newcastle, and got a lot of glass tubes made open at the ends and about a yard long; and his plan was to place each Cucumber, when very young, in the mouth or neck of one of these glass tubes, and let it grow down into it, and by that means he had succeeded in making them grow straight. The tubes, of course, have become common enough since, and all are familiar with them, but at that time nothing of the kind had ever been seen.

—— Gazania pinnata var. integrifolia.—Not the least desirable and beautiful of the many fine garden plants from the Cape of Good Hope is the pretty Composite whose name appears at the head of this note. It has long narrow grassy leaves, green above and white below, and large clear golden-yellow flower-heads; the long ray florets each bearing a greenish-brown bar on their under-surface. In flower in the herbaceous department at Kew.

—— Cowper's Home at Weston.—The estate of Weston, near Olney, is now for sale—a circumstance which has led some correspondent of the *Builder* to pay a pilgrimage both to Olney and to Weston. The result is a charming article, which many of our readers will thank us for directing attention to. The remarkable fidelity of description possessed by the poet is evidenced in this article.

—— Patersonia longiscapa.—This is an Australian Irid, of easy culture. Its long narrow leaves and its bright blue flowers, which are freely produced, should render it a favourite for cool conservatory decoration. According to Sweet it is nearly hardy, as it requires nothing but a slight covering of hay or straw in severe frosty weather. Now in flower in the Winter Garden at Kew.

—— Maréchal Niel Roses.—The way the plants of this Rose growing under glass at Cheshunt are treated, in respect to pruning, has been before noticed by us. Many growers find that this variety, after blooming well for a time, when it has attained a large size and filled the space allotted to it, ceases to flower so satisfactorily. Like other varieties of the same section, if subjected to much pruning in spring, the flowering wood is cut away too much. Mr. George Paul's method is to prune early in June after the plants have flowered, but unless the extent to which they are then cut back was seen, it would fail to be understood. So thoroughly is this summer pruning done, that the plants when newly divested of their growth have much the appearance of Vines grown on the long-rod system, with several stems cut back to different lengths. There are several plants, very strong, with thick stems, filling the roof of a large house; and managed in this way they make a number of very stout long shoots after pruning, which ripen fully, so as to give quantities of such flowers as Mr. Paul has this season shown, which for size and beautiful colour it would be difficult to match.

—— Pionandra fragrans.—At Kew this Brazilian Solanaceous plant is now in bloom, and its sweetly-smelling flowers perfume the entire pit in which it is growing. It has long racemes of bell-shaped blossoms, which change in colour from purple when first opening to yellowish, &c., as they increase in age. The species was introduced to this country by the collector, Tweedie, in 1836, but was soon lost. Libon rediscovered it in the mountainous districts of Santa Catherina, growing on the outskirts of large forests of Araucaria brasiliensis; seeds were sent by him to Linden, and from the stocks thus raised probably the existing plants in European gardens are descended.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending June 27, issued by the Meteorological Office, London:—The weather, though more or less rainy on several days, was moderately fair on the whole, and during part of the time very bright. The temperature has been equal to the mean in "Scotland E.," but again a few degrees below it elsewhere. The highest of the maxima were generally registered during the afternoon of the 24th, when the thermometer rose to 76° at Hillington, Strathfield Turgiss, and in London, and to between 70° and 75° at our other central, southern, and eastern stations. At

some places in the north-western parts of the kingdom the highest temperature during the period was 62°. The lowest readings were registered during the early morning of the 24th, the thermometer falling to 38° at Churchstoke, and to 39° at Leith, Durham, and Arlington (North Devon). The rainfall was decidedly more than the mean in the "grazing" districts, but rather less in the "Wheat producing" districts. Bright sunshine, though more prevalent than it was during last week, was still rather scarce, the percentages ranging from 48 in "England S.W." to 25 in "Ireland N." Depressions observed :—During this period two rather large depressions have travelled from S.W. to N.E. across our northern districts, and several small subsidiary disturbances over England. The winds consequently varied between S., S.W., and W., and were generally moderate or fresh in force, but blew strongly on the 21st, 22d, and 24th, on nearly all our coasts, and at our extreme western stations reached the force of a moderate or fresh gale.

—— GARDENING APPOINTMENTS.—Mr. JOSEPH FITT, who has been Foreman to Mr. DONALDSON, at Latimers, for the last five years, has been appointed Superintendent of the grounds and gardens at Cassiobury, the seat of the Earl of ESSEX.

PLANT PORTRAITS.

ÆCHMEA LINDENI, Baker, *Bot. Mag.*, t. 6565.—A plant of tufted habit, with linear-oblong, rounded, apiculate leaves, with saw-toothed margins. The flowers are in dense heads at the end of the stalk, with lanceolate red bracts shorter than the yellow flowers. It is the Hoplophytum Lindeni of Morren. Native of South Brazil.

CHRYSANTHEMUMS, NEW JAPANESE, *Floral Mag.*, t. 454.—1, Madame Lemoine, magenta ; 2, M. Ardenne, pink, darkening to magenta. M. V. Lemoine.

CLERODENDRON TRICHOTOMUM, Thunb., *Bot. Mag.*, t. 6561.—A hardy Japanese flowering shrub with stalked ovate leaves tapering at both ends, saw-toothed and glabrous or pubescent ; the flowers are in loose terminal cymes each with a red inflated calyx, and a white 5-lobed corolla with projecting stamens. Hort. Kew.

CUSCUTA REFLEXA, Roxb., *Bot. Mag.*, t. 6566.—One of the more ornamental of the Dodders, with small white bell-shaped flowers in sessile tufts on the sides of thread-like leafless stems. Native of Eastern Asia.

HYMENOCALLIS HARRISIANA, Herbert, *Bot. Mag.*, t. 6562.—Remarkable for its dwarf habit, few-flowered umbels, and sessile leaves. The flower-tube is very long and slender, surmounted by six very narrow linear white segments, and with a cup-shaped corona from whose border project six green stamens at equal distances. Native of Mexico.

HYPERICUM CORIS, Linn., *Bot. Mag.*, t. 6563.—The true plant, that grown under the same name being H. empetrifolium. It is a glabrous under-shrub, with numerous slender, erect, terete branches, and subverticillate, linear leaves ; the flowers are yellow, in terminal cymes. South Europe.

KNIPHOFIA CARNOSA, *Garden*, May 28.—Flowers apricot-red, in dense club-shaped spikes, about 5 inches long. Abyssinia. Hort. Max Leichtlin.

NARDOSTACHYS JATAMANSI, DC., *Bot. Mag.*, t. 6564.—A Valerian-like plant, of dwarf stature, with a thick, woody root-stock ; spatulate, lanceolate leaves tapering to a stalk, and dense heads of small pink flowers. It is one of the plants furnishing the spikenard of the ancients. Central Himalaya. Hort. Kew [and Hort. Ware].

ODONTOGLOSSUM POLYXANTHUM, *Floral Mag.*, t. 453.—Flower-spike 2 feet long, flowers 4 inches in diameter, petals and sepals yellow, with broad chocolate blotches ; lip large, roundish, acuminate, reddish-purple, bordered with a white edge, and finely toothed. Ecuador.

PRUNUS PISSARDI, *Revue Horticole*, May 16, 1881.—A remarkable species, with deep claret-red leaves, and deep red oval fruits, of medium quality. The tree is a native of Persia, and is highly spoken of for its ornamental qualities.

VANDA LAMELLATA VAR. BOXALLII, *Garden*, June 4.—Flowers racemose, about 1½ inch in diameter ; segments oblong acute, white, more or less spotted and barred with reddish-violet ; lip oblong obtuse, slightly 3-lobed, pale reddish-violet.

GARDEN GOSSIP.

BY A LADY.

HOW WE RAISED OUR SEEDS THIS SPRING.—It may interest some of your readers to hear of a contrivance by which we have been successful this spring in raising seeds without the aid of a hothouse ; the more so as the means we adopted are applicable to indoor gardening, and might be made available for raising many a pretty creeper, or other ornament to a window in a town house, where Cucumbers and Marrows would not be the *desiderata*, as with us, nor even young seedlings, destined to fall victims to the dissecting-knife in the botanical lecture-room.

We had a rough wooden box made, 20 inches square, and about 18 inches deep. This was supported on four legs, a hole was made in the bottom and boxed round ; then about 2 inches of Cocoa-nut refuse was placed over the bottom of the box, and packed round a common tin baking-dish ; on this were placed two or three strips of wood to support a sheet of perforated zinc with a hole in it, through which was let in a common 2 inch draining-pipe in a vertical direction, so as to enable water to be poured into the dish. Over the zinc cover was a layer of broken pottery, and over that a quantity of fine sandy soil, filling up the box to within 6 inches of the top. An ordinary square garden hand-light, with upright

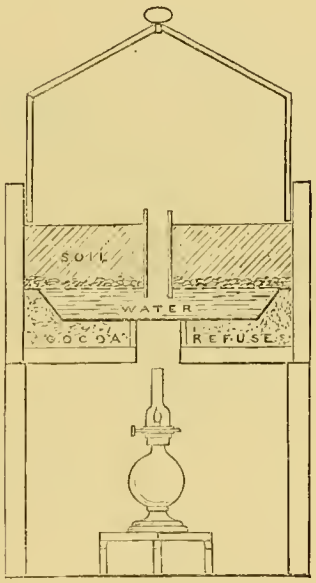

FIG. 5.—A PROPAGATING FRAME.

sides and pyramidal top, was put over the whole apparatus, and a lamp was placed under the hole in the bottom of the box.

The seeds were sown in small pots, which were sunk in the soil to a greater or less depth, according to the amount of heat which we fancied they required. The steam from the hot water passed through the holes in the zinc, and kept the soil moist and warm, raising the temperature at the surface to about 70° Fahr. Of course the water in the baking-dish required to be renewed to replace the loss occasioned by evaporation, and a little practice soon taught us how often this should be done. As the frequency must depend on the depth of the baking-dish, &c., I would recommend each experimenter to ascertain for himself, by occasionally putting a stick down the draining-pipe, and noticing the depth of the water below ; for if by carelessness he allow the water to entirely evaporate a hole in the tin will be the result.

This apparatus, when placed in a room, ought to be entirely successful. In our case it was not so, because it was in a very draughty greenhouse, and it was found to be impossible to ensure against the lamp being blown out, even though we screened it round. So we eventually gave up the lamp, thereby entailing on ourselves the extra trouble of renewing the hot water every twelve hours, or even oftener, in very severe weather. The cold water was drawn off with a siphon, and a kettleful of boiling water was poured in. In this way we were able to keep up a temperature that never fell below 58° ; and though we did not find that heat sufficient for the germination of Orange pips and Palm fruits, all the common things—such as Gourds and Cucumbers, Balsams, Marvel of Peru, Indian Corn, &c.—have grown very well. Castor-oil seeds grew readily, but damped off afterwards.

Of course as the seeds germinated it became necessary to provide accommodation for them ; we therefore had a second box made, about 2 feet wide and 4 feet long, with a similar tank, the water in which was partially renewed every twenty-four hours, and the seedlings raised in the hotter box were transferred to this one as soon as they were large enough to be potted off. This second box had its tank specially made for it, with the additional convenience of a tap for drawing off the water, and a bent pipe coming out at the side by which it could be filled. The top of his pipe, being on a level with the top of the tank, prevented the danger of over-filling it. It was covered with three sliding glass lights.

From these two boxes our garden has been stocked with Cauliflowers, Lettuces, Marrows, Gourds, Cucumbers, and all the common things that require heat to give them an early start, and in as great abundance as if the hothouse had been at work. *A. B.*

Home Correspondence.

Early Beatrice Peach.—Permit me to call attention to the earliness of this Peach. In an entirely unheated and not over-air-tight house, or case, as we call it, being only 6 feet wide, we have been gathering ripe fruit since June 17, and very good fruit too. In the same house are trees of Early Albert Peach, Noblesse, Lord Napier Nectarine, and another unknown, none of which will be ripe for another month. To carry the comparison farther, I may state that in a house well heated, and which has been forced since the beginning of January, I have fruit still on the trees of Pine-apple Nectarine, and Balgowan ; also Stirling Castle Peach, Royal George and Early York, which are just over. I have seen it stated that Early Beatrice is a shy cropper, but I have not found it so, although I have grown it for the last six years. What I wish to point out is that with the inexpensive and imperishable system of glazing now in use, Peaches, such as Early Beatrice and her sister Early Louise, which ripen within a few days of each other, and can be had ripe by the above date without cost of fuel, ought to be extensively grown for market. I enclose a fruit to show you they are not so small as to preclude their fetching a fair price at this comparatively early time of year for Peaches. *Wm. Armstrong, The Gardens, Ford Manor, Lingfield, Surrey, June* 25. [It weighed 3 oz. EDS.].

Lilies in the Shade.—That Lilies require shade there cannot, I think, be any doubt among those who have grown them—at least, I am quite sure that the lower part of the stems and crowns do, for if exposed there I have found that they dwindle and die. A striking proof of this has occurred here, as we planted a lot of L. auratum among Rhododendrons in two shrubberies, forming the wings of the flower garden, the one sloping east-south-east, and the other north-north-west, and I find that those in the former position have all done badly, owing to the dryness of the site and the exposure they get, the Rhododendrons being thin, while those on the more shady side grow strong, and send up fine heads of flowers. Some of this may be owing to the increased moisture they get, and the cooler condition of the soil ; but wherever I have seen Lilies flourish best it has always been where the sun does not hit them hard, and I should therefore advise those who may wish to cultivate these desirable plants to select a place for them, where they are not exposed to the full solar rays. What helps Lilies a good deal is a mulching of some kind laid closely around, which keeps the earth about them more uniform than it ever is when the surface is exposed to the action of hot air playing fully upon it. Does any one know where the vast quantities of Lilies come from in Japan and how they grow there—whether in woods or the open ?—for if so, they will do good service by making it public, as, judging from the vast quantities of L. auratum annually imported from that country, it must be quite a weed there, for we get them yearly by hundreds of thousands, and it is provoking to see how fast they die out after they reach here. Can any one tell the cause of this and give a remedy, as many people tire of continuously buying and planting ? *J. S.*

The Alnwick Seedling Grape.—Perhaps I am not in the best possible mood for writing about this Grape, being grieved and disappointed for what I consider the loss of money and loss of valuable space which might have been occupied with a good crop

of Grapes, and the future time to be lost before that space can be occupied with fruiting canes of some other variety. I purchased the cane when it was first sent out by Mr. Bell, and as it came from him it is not "another variety." It was planted-out on May 16, 1878, in an entirely new border at the same time as twenty other Vines; the borders are both inside and out, but they are planted inside. Three vineries were planted at the same time—one entirely with Muscat of Alexandria, one with Black Hamburgh, Foster's Seedling, and Golden Queen; each of these is doing all that could be desired. The other vinery is planted with Lady Downe's Seedling, Gros Colmar, Alicante, and Bell's Alnwick Seedling; the latter has grown as strong as any of the others. Last year I left four bunches on it, which only weighed 1 lb. 11 oz.; the Alicante bunches were more than 2 lb. each, all the others set as free as the Black Hamburgh, but on the Alnwick Seedling not one berry in ten was set. I thought that as it was a young Vine it might improve another year, but at the present time they look worse than any bunches I ever saw in my life. I send you half-a-dozen bunches so that you can see and judge as to what they are likely to do. It is true that a few good bunches have been sent to Covent Garden, but it has been notably absent from the metropolitan and other exhibitions; there were three bunches of it at the Alexandra Palace show in the autumn of last year, but they looked anything but desirable alongside of the Alicantes. Why have they been absent?—is there some peculiarity in its cultivation?—were the Vines on their own roots from which those Covent Garden bunches were taken, or were they grafted on some other stock?—if so, on what stock? Surely, if the latter were the case, and it was known that it would not succeed on its own roots, Mr. Bell ought to have made it known when he sold it to the public, or is there something peculiar in his soil or climate that we in the South must never expect to be favoured with? Others in this neighbourhood are growing it, but with the same want of success. I shall leave all the berries there are on the Vines, so that any gardener who may call can see them for himself. *D. Walker, Gr. to B. H. Collins, Esq., Dunorlan, Tunbridge Wells, June* 24.

The Gooseberry Caterpillar, and How to Prevent It.—Two years ago the Gooseberry and Currant bushes here were denuded of their leaves by caterpillars. In the first instance I tried hand-picking, but the almost daily downpour of rain prevented me from following it up, and I then had recourse to Hellebore powder, soot, lime, &c., but nothing would or did stop them until nearly every leaf was eaten, and of course the fruit was worthless, and many of the bushes died. The following year, and again this year, upon the first appearance of the pest, I had the bushes, when in a wet state, thoroughly dredged with fresh soot, and I am happy to say I have no caterpillars. True, eggs are deposited as usual on leaves which perhaps escaped the soot, but they can make no progress beyond that one leaf. You say there are two attacks in the season—I find a fresh attack after every heavy rainfall. The soot is now all washed off the berries, and I have a grand crop of fine fruit for the second time. *Wm. Armstrong, The Gardens, Ford Manor, June* 25.

Magnolia fuscata.—Some two years ago, from want of space, I gave away a fine specimen of the above, over 4 feet in height and 3 feet through, and which, although grown in a cool house from which frost was just excluded, it was in excellent health, and never failed to flower in abundance. So far as I recollect, however, the flower has no scent except on sunny days, each flower lasting one day. How long it had been in the same pot I am unable to say. I never succeeded in striking any cuttings. Magnolia pumila is a strong-smelling variety, with much larger flowers, and white. One blossom of this variety will scent a whole house. *A. J. Sanders.*

Autumn Planted Potatos.—My employer (Mrs. Walter Hemming) drew my attention to the enclosed letter from Mr. James Howard, M.P., published in the *Times* last September, and suggested that a planting of Potatos should be made in November, as Mr. Howard advocated. Accordingly, I planted some on a south border, 9 inches deep, in the first week in November, believing that so much seed and labour were simply wasted. The frost was very severe. All the protection they got was about 2 inches of old Mushroom beds. After the severe winter I was convinced they were all killed, but in due time, greatly to my surprise, about 90 per cent. appeared aboveground very strong and healthy. They made very fair progress till May 10, when we had 13° of frost, which cut every Potato to the ground. On the 25th ult. the first dish was dug, and considering their having been cut down the tubers were of a very fair size. The same day I dug some Potatos planted February 10, the aspect of both plantings being identical, and the variety Veitch's Early Ashleaf; but the November planting were twice as large as those planted in February. *Thomas Lloyd, Spring Grove Gardens, Bewdley.*

Kalmia latifolia in Groups.—To produce a brilliant display of these lovely dwarf-flowering shrubs they should be planted *en masse* in beds by the sides of walks, or within view of principal walks which are oftenest frequented. They are, like most other shrubs, flowering in great profusion this season; and now that the closely-shaven grass is a dense carpet of green, the bold masses of this charming flowering shrub are very chaste and ornamental. *Cultivator.*

Fruit Notes.—I have seen some enquiries about a Beurré Robin. I do not know such a Pear; neither is it to be found in Leroy or any other Pomology or catalogue that I have. There is a Beurré Robert, well known to pomologists as having caused some little discussion among them upon the question of its identity with Doyenné du Comice, which has been now established. Perhaps your correspondent will tell us whence he procured the Pear under that name. *R. D. B.*

Nolina georgiana (p. 823, vol. xv.).—With our present knowledge I have no objection whatever to offer to Dr. Sereno Watson's view of the systematic position of Nolina and its relation to Beaucarnea. Till Mr. Elwes imported it alive, our knowledge of Nolina georgiana here was founded on very imperfect material. Even now it is represented in the Kew herbarium by two poor specimens, neither of which shows the rootstock. Two or three decent dried examples would therefore be very acceptable. *J. G. Baker.*

Portugal Laurels as Flowering Shrubs.—One of the most conspicuous features in the pleasure grounds here at the present time is the display of flowers upon Portugal Laurels, which I suspect is unusual even in this mild climate. The trees are smothered with large clusters of creamy-white flowers, the inflorescence being so densely set as to almost hide the leaves. The odour emitted from the flowers is mild and not at all disagreeable, just strong enough to perfume the air within a radius of a few yards of the tree. Umbrella-trained standards are particularly handsome, presenting that finished touch which Nature alone imparts to her subjects after the artificial hand has shorn her proportions to suit the fancy of the age. Are Portugal Laurels generally showing the same disposition to flower elsewhere? *W. Hinds, Canford, Dorset.*

Galtonia candicans.—This lovely bulb, better known as Hyacinthus candicans, which in another month or so will be in full beauty, has now become such an established favourite that the following information concerning its native habitat, recently communicated to me by its original introducer, Mr. Thomas Cooper, may be of some interest, and possibly convey a useful hint to those who cultivate it. The locality in which Mr. Cooper found this fine bulb growing is in the vicinity of Nelson's Kop, a mountain that stands upon the Draconsberg Range; near to Nelson's Kop is a pass between Natal and the Orange Free State, known as De Beer's Pass, and at the foot of one of the mountain slopes in the neighbourhood of this pass grows G. candicans. The slope is well wooded, and at the base of it runs a small river, and it is on the margin of the forest along the bank of the river that Mr. Cooper found and sent bulbs home of this charming plant in the year 1862. The soil in which it grows is formed entirely of decayed vegetable matter, and is so light and porous that Mr. Cooper says he had no need to use an instrument to dig up the bulbs, but merely pushed his hand down in the extremely soft and yielding soil, and so obtained them. On the other side of the river the soil was firm and of a different character, and there were no trees, and not a single plant of the Galtonia was seen there, nor did Mr. Cooper ever meet with it in any other place in South Africa, although it has been found by others before and since in other localities. The altitude of this locality I have been unable to ascertain, but it is probably about 8000—9000 feet above sea-level. In winter it is extremely cold there, and it, therefore, follows that the plant is hardy with us, as has been proved. The pass above mentioned is (or was) remarkable from being subjected to a very strong wind, which blows in the morning in one direction, and in the evening in exactly the opposite direction. One trader opened some stores there, but in consequence of the wind was obliged to abandon the post, after having the roof of one of his houses blown off and carried bodily to a distance of 100 yards by the wind, portions of which roof Mr. Cooper made use of for fire-wood! Although G. candicans has been much written about, and several times figured—once in these columns (see *Gardeners' Chronicle* 1872, p. 1099, f. 258)—under the more generally known name of Hyacinthus candicans, and is besides now pretty widely spread in gardens, it is somewhat strange that G. (Hyacinthus) princeps, which was figured and described at the same time as G. candicans—the former being figured at t. 175, and the latter at t. 174 of the *Refugium Botanicum*—although nearly equally fine a plant is never heard of. Has G. princeps disappeared from cultivation, or is it really not distinct from G. candicans? *N. E. Brown.*

Herbaceous Plants in July.—It is said, I think, in certain well-informed circles, that the month of May is the best in all the year for a display of herbaceous flowers; probably from the fact that the Iris family is in full blow at that time, as well as the herbaceous Pyrethrums, which are the most showy of all hardy plants, not even excepting Lilies and Iris. But the month of July can boast of not a few plants, which if not so attractive as the above-mentioned for dotting or grouping are certainly worthy of cultivation as border plants. It is a fancy of mine that herbaceous plants should occupy a long winding border, having a background of green, and, if possible, bounded upon one side by a pinetum or shrub garden; the former would, of course, be preferable for obvious reasons. I think the border should be located some way between the flower garden and dressed parterres, and the hothouses, in order to render a walk from the former to the latter enjoyable and interesting. I also think a straight border objectionable if it can be avoided, because the eye takes in at a glance the whole extent of the border, whereas in one curving gently you may expect a pleasant surprise as you come unexpectedly in the presence of some old friend long since forgotten. Beginning with the old Lychnis chalcedonica (vermilion-scarlet), than which there is no plant better adapted for a back row in a border not alone because of its height, but also because of its dazzling colour, and which would make a capital associate for the light and dark single and double Delphiniums, and Achillea Ptarmica fl.-pl.—we have three species of plants which, if judiciously and tastefully disposed, would produce the necessary colours to form an elegant background of red, white and blue. Then there is Epilobium angustifolium, Polypodium cuspidatum, Symphytum officinale var., Thalictrum glaucum, Bocconia cordata, and many other plants of suitable height which would furnish material for forming back rows in herbaceous borders, and which would produce a distinct feature from the subtropical bed or border. The two hardy Aralias, Sieboldi and edulis, might also be used with considerable advantage. The main body of plants might then comprise the following, all of which have some claim to merit either for the beauty of their flowers or foliage, and which are now either in or coming into flower:—Campanula persicifolia coronata, C. grandis alba, C. rhomboidea, Monarda didyma, Potentillas of kinds, early flowering Lilies, Geranium sylvaticum fl.-pl., G. Vlassovianum, Œnothera Youngii, Mertensia sibirica, Spiræa Filipendula, S. Ulmaria var., Aquilegia chrysantha, Betonica grandiflora, Veronica multifida and V. incana, which, if not removed for a year or two, will produce lovely spikes of violet-coloured flowers; Acanthus latifolius, Valeriana rubra, Senecio abrotanifolium, Dianthus of sorts, &c. *W. Hinds.*

Removal of Purple Beech.—Knowing Mr. Barron's skill in the removal of large trees I have little doubt that the Beech you describe as removed at Lady Shelley's is safe, and will continue so. It is, however, as well to bear in mind that its present fresh shoots afford little proof of the fact, for had the tree been simply cut down and left with its top intact it would have nevertheless put forth shootlets all the same. The tug of war or rather test of success, will come from this time till August, and it would be well in all cases, where practical, that when such giants are removed they should remain under Mr. Barron's management for a year afterwards, as far more trees succumb to error of judgment about their after-treatment than to any mechanical or other difficulties in their removal. In fact, Mr. Barron's powerful machines, and his experience, render it possible to remove any tree. The great desideratum is to place the tree for, say, a full year under his fostering care after its removal. Of course it would not be needful for Mr. Barron to be on the spot, but his instructions should be thoroughly carried out. Skilful as he is in moving trees perhaps no one values after-treatment more highly as an element of success than Mr. Barron. *D. T. Fish.*

A New Allium from Bokhara.—I have at present in flower a grand and quite distinct Allium from one white large bulb imported two years ago from Bokhara, Asia, and which is now in bloom for the first time in my nursery. I believe this species is unknown to gardens; the leaves are very large and glaucous, 21 inches long and 4 inches broad, the strong flower-stems, too, 6 feet high, and the flowers are of rich purple-violet, and spherically shaped: it is really the king of the Allium genus. Having only one plant I regret I cannot send you the stem, flowers,

&c., for your inspection, as I now intend to collect the seeds. *J. Van der Swaelmen, Ghent.* [I have not yet seen this Bokhara Allium, but should expect it will prove a new species of the Molium section, near magicum and atropurpureum. *J. G. B.*]

Foxgloves and Shrubberies.—Nothing tends to brighten up the shubbery bed or border at this season, or to give it a more cheery appearance, than the presence of a few of those erect-habited plants, having their flowers pendulously clustered upon the stem which is stout, and self-supporting. They look to best advantage when arranged with green Hollies, Rhododendrons, &c. The latter are just over flowering, and the vacant spaces between them are now charmingly clothed with noble spikes of Foxgloves of various colours and shades, which continue to brighten up that sombre tone which preponderates so much among trees and shrubs after they go out of flower. *Cultivator.*

Chlora grandiflora.—On the south face of a rockery or warm border this biennial now produces a brilliant effect when the sun is shining. It grows about 1½ foot high, bearing large stellate flowers 2 inches across, of a bright yellow colour. I sowed it last July, pricking it out when large enough, so that the seedlings should not meet, but form bushy plants. It is tender, and requires something more than a cold frame in winters like the last. If potted three in a 6-inch pot it may either be kept to flower under glass or planted out in the pot at the end of May when coming into flower. It is worth the room it takes, for a mass of thirty flowers open together in the sunshine is a sight not easily forgotten. I first saw it at Mr. Joad's last June, and at once sent to Mr. Thompson of Ipswich for seeds, which came by return of post. *C. Wolley Dod, Edge Hall, Malpas.*

Mr. Loder's Hardy Cacti.—In your report of the late show at South Kensington respecting the Cacti shown by Mr. Loder the name Echinocactus is used in place of Echinocereus for E. Fendlerii, E. gonacanthus, E. phœniceus, E. paucispinus, and E. viridiflorus. Echinocactus Simpsoni is correct, but E. vivipara should be Mamillaria vivipara. I was delighted with the lot, but think, especially as they are hardy and may be enquired for, that it would be well to be right in the names. *J. Croucher.*

Delphiniums.—Among the many hardy plants now in flower none are more showy and useful than the different varieties of Delphinium, which embrace many shades of colour, the most predominant being those of blue, ranging in depth from the deep tint of the Gentian down to that of pale lavender or delicate sky. Not only are the colours varied and beautiful, but the plants of some kinds are of stately habit, sending up their towering spikes to a height of 6 feet or more, which when in bloom have a most striking effect. For forming bold masses in front of shrubs or isolated specimens in the herbaceous border they are quite unsurpassed, and the wonder is that they are not more frequently seen in such places, especially as they admit of such ready increase, as they not only seed freely but may be divided to almost any extent. The best time to do this is in spring, just as the crowns are on the move, as then they start away at once, and soon heal over the cut parts, and become quickly established again. If raised from seed, that may be sown either now or in spring, but as plants obtained in that way at this season flower the year following in great strength, the best plan is to sow as soon as ripe; when up, prick out at 6 inches or so apart in light rich soil where they can stand and grow on till large enough for transplanting. To have Delphiniums really fine, they must have plenty of root-room, and not be planted where they will be robbed by trees, which so starves them as to diminish their vigour and curtail their blooming by bringing on mildew, a malady to which some of the kinds are very subject; indeed it is rarely that D. formosum passes a season without it. Old as this variety is, it is still one of the best, and should be in every garden, the lively rich blue and white of its flowers lighting up a border in a way few other things can. Superior even to this in size and effectiveness is R. cashmirianum, seedlings of which vary much in colour, but all come with very fine tall branching spikes that last a long time in perfection. Besides these and many other blue-flowered varieties, there are two red kinds, D. nudicaule and D. cardinale, the latter being the strongest and best grower, and altogether an exceeding showy plant. *J. S.*

The Hollyhock Disease.—You gave a perfect illustration of this in last week's *Gardeners' Chronicle.* The spots are generally red, much resembling the rust on Roses. Has any one found a remedy for this pest? It came here suddenly several years since, and with such virulence that it swept the garden clear of those magnificent plants. Every subsequent attempt to introduce them has failed. This disease attacks the plants with such virulence that they simply succumb to it. As we used to grow several hundreds by the side of walls and the backs of wide borders, the loss is correspondingly great, for there is no plant that can quite take the place of Hollyhocks. We tried most of the usual pest killers, with no perceptible effect. The fungi lived and spread, the plants lingered and died, and for several seasons we have not had one on the place. We thought thus to starve the disease out; but no sooner does one appear than it is smothered, killed with the horrible pest. We have not had the opportunity of trying paraffin on the Puccinia. Has any one done so? and with what result? Neither have we grown Malvas or any kindred plants for the disease to live upon. It does not appear that it can be starved, and it was found equally impossible to grow it out. Liberal culture or no culture, the rich soil of the garden or the poor exhausted soil of the home woods or shrubberies, seemed all alike to this fell disease. In all cases alike it simply punctured or bled the plants to death. *D. T. Fish.*

Onosma taurica.—One of the prettiest of all the yellow-flowered rock plants of rosy June is this Taurian Onosma, now blooming on our rockery here. It is as uncertain as it is lovely. At one time you have a large tuft of it which delights you with its pure "golden drops," and the next time you see the plant it has all withered up, as if cut off at the root with a hoe. Other individuals die off during severe winter

FIG. 6.—ONOSMA TAURICA.

weather, but the very uncertainty of the plant makes one enjoy its Erica Cavendishiana kind of beauty still more keenly. After all it is not so very difficult to propagate in March or April from cuttings put in clean sand under a hand-light. Although the plant will thrive in the open border in warm districts it is far safer on a rockery where it can nestle amongst the stones. Apart from its open-air beauty it is a charming addition to cut flowers for small vases. It is, indeed, one of those neat, shapely, and distinct hued flowers well worth culture amongst the rarer of hardy flowers. *F. W. B.*

Vitis macropus.—This interesting plant is now in capital flowering condition in the Succulent-house at Kew. It is so different, in general appearance, to a Grape Vine, that none but a botanist would suspect that they have any relationship with each other. In the Kew plant the large swollen base gives off two very thick tapering leafless branches, about 2 feet high, covered with a light brown smooth papery bark; from the summit of these are produced annually the leaf and flower-bearing shoots, one peculiarity of which, as first pointed out by Mr. Lynch in the *Journal* of the Linnean Society (Botany, XVI.), p. 181, is that after flowering and fruiting they disarticulate at the apex of the first elongated internode; that is to say, the whole of each year's growth falls off, with the exception of the first developed internode and the few undeveloped internodes that precede it, which alone persist, ripen, and become gradually transformed into permanent stem. Another peculiarity, which I do not find mentioned by any one who has written about this strange looking Vine, is the presence of glands and some remarkable succulent multicellular bodies. The stem of the young shoots is sparsely, and the leaves and stipules densely, covered with a white cottony tomentum, and the whole surface except the flowers is thickly sprinkled with stalked glands. On the under surface of the leaves and stipules, and at the base of some of the pedicels, are scattered the succulent semi-transparent bodies above referred to. These bodies are about three-quarters of a line long, and one-third to one-half line thick; they are ellipsoid or ovate, generally obtuse, but sometimes attenuated into a short point, and are attached to the leaves, stipules, &c., by very slender short pedicels, from which they become detached by a very slight touch. They are very watery, and the cells composing them are comparatively large, and have large nuclei, which are distinctly visible under an ordinary pocket botanical lens. In the cultivated plant it is almost impossible to ascertain what is the exact purpose these peculiar bodies serve; but in all probability they are in some way connected with the visits of insects, and recall to mind the small Pear-shaped yellow bodies that grow at the apex of the leaflets of the Bull's-horn Thorn Acacia, which certain ants make use of as food, and who in turn protect the Acacia from the attacks of other insects. Perhaps the bodies on the Vitis above described are made use of in some similar manner as food by insects? In the cultivated plant after a time they shrivel up and change to a yellowish colour. A figure of this curious Vine will be found in the *Botanical Magazine*, t. 5479. *N. E. Brown.*

The Onion Fly and Pear and Apple Maggot.—How comes it that after such a winter we have so many grubs of all descriptions, as not only is the Onion-maggot busy at work destroying whole beds everywhere but Pear and Apple trees are infested to such a degree as to curl the leaves and spoil a great part of the fruit, which the grubs penetrate by eating their way into the core, where I suppose they lie till the time arrives for them to emerge in some other form. Paraffin appears the infallible remedy now for almost everything, and I am just trying it for the Onion-fly, by syringing it heavily on, as that way it can be kept mixed with the water better than is possible if poured on through a rose. Soot, salt, and lime are good to sow on to kill Onion-maggot, but the salt must only be applied in the proportion of about two pounds to the rod of land, which quantity does no harm to the plants; or the above named ingredients may be thrown in water and put on in the liquid state, which is the best way to settle the maggot at the roots of Cauliflower, where they have been committing sad havoc this season. *J. Sheppard.*

Long-rod Pruning.—In answer to Mr. D. T. Fish, I beg to inform him that the main rod of the Vine is 15 feet in length; on this I grow four rods, averaging 4 feet in length; sometimes it may be necessary to have only three rods, and sometimes five. I cut away these rods every year, and substitute others growing and ripening their wood at this time, the buds being fully developed. As I said before, the crop is one-fourth larger than I have as yet been able to grow on any other principle, and my experience dates from 1855, when the first house of 120 feet in length was built. A year or so afterwards I built another house, 70 feet in length by 30 feet in width, so that the Vine borders are 140 feet in length in this house. As I have made some important experiments, especially in this last house, I wish some good Grape grower would come down and see these vineries (the Editors have my address). I could show him 15,000 feet of glass. *Philodendron.*

Single *v.* Double Flowers.—Is not the present prevalent fancy for single flowers of plants that produce double ones less a protest against the change produced in the structure of the flower by florists, and rather a sort of floral sentiment that for the moment holds sway? In taste for flowers, as for many other things, we are held in a sort of fashionable chain. Let the excited fancy take flight after brilliant bedding displays, then the popular fancy follows. So also does it in the case of carpet bedding; then it swerves off to a dance after hardy plants, and then from double to single flowers, and so on. Probably we shall be told that this indicates, not an eccentricity of mind, that is proverbial amongst the masses, but rather a reversion from feverish fancies back to a healthy state of mind; but all who watch the waves of fancy which flow through the world wil have to admit that none have stability, and another will soon succeed the previous one, obliterating that and all its impressions. The present taste for gawky single flowers of certain kinds is retrogressive. It naturally conducts back to the garment of Fig leaves and all its very primitive associations. Does any sane person prefer the Dog Rose to a La France, a Devoniensis, or a Maréchal Niel?—a single Pæony to a double one, or single Stocks, Carnations, Asters, Balsams, Marigolds, ay, or scores of similar things, to double ones? Single Dahlias and single Pyrethrums

are re-introduced as protests against the inevitable doubling of those flowers, but what are they more than coloured Ox-eye Daisies?—big, staring yellow eyes that are coarse and monotonous, surrounded by a single row of thin loose petals. These serve very well to reproduce their kind, but of real floral beauties they have little. There was a certain feverish scream raised when Mr. Cannell brought up his single Dahlia blooms, but curiously enough no sooner does he follow with the semi-double Juarezii than the scream becomes a perfect yell of delight at the manifest advance shown. That was inevitable. No lover of flowers is content to stand still. If any kinds soon pall upon the floral palate surely it is thin bodiless single ones, of which we have double ones so infinitely superior. There are plenty of single flowers so beautiful that we do not want them doubled, but if gawky single flowers can be improved by human skill let human skill do its best by all means. *A. D.*

Mutilated Rhododendrons, &c.—Perhaps it might interest some of your readers to know that there was a strong standard here of Rhododendron pictum, a hybrid white, which was a shy bloomer. Last summer no flowers appeared at all—the bloom-buds always expanded into leaves. In the early spring of this year the buds seemed set for flowers all over the plant, but again they started off to grow, each bud crested with a coronet of leaves: we therefore trimmed them all carefully, keeping them in shape as well as we could, those at the top that could not be treated by a lady being done by the gardener. Yesterday we counted the clusters: they numbered 222 heads of magnificent bloom, which have lasted much longer than those of the other Rhododendrons now over, with the exception of Lady Eleanor Cathcart, Butleriana, and Michael Waterer, and the small-leaved section, which is coming into bloom. The natural soil of the Midland Counties seems unfavourable to these magnificent shrubs, so on that account they are not much grown; but when the peat has been brought from Hants for their accommodation one would expect they would be satisfied, and show their feeling by blooming, which they do, with the above exceptions. Everestianum and roseum elegans are wonderfully "free," and none of them have ever missed a season. The hardy Iris have been quite a show this spring; they never flowered so abundantly, and, with one exception—I. sanguinea (orientalis), which was killed by the severe winter—they are all in the beds, and most lovely. The one that died must be accommodated with a warmer site, as it is too beautiful to lose. Two dozen might be named extra hardy out of more than 100 varieties. The severity of the winter seems only to have stimulated their buds and increased the bloom, perhaps from the complete rest it gave the plants, which were mulched. The wall Roses are especially fine this season, though so many standards were killed. Are not Briers "a delusion and a snare"? The best wall-climbers now in perfect beauty and sparkling with dewdrops are Souvenir d'un Ami, Devoniensis, Maréchal Niel, Gloire de Dijon, Souvenir de Malmaison, Harrison's Yellow, Cheshunt Hybrid (that best of Roses), Général Jacqueminot, Crested Provence, Belle Lyonnaise (just beginning to come), Copper Austrian (just over), and even that shy creature, Rêve d'Or, having lost its superfluous wood by the frost, is thinking of blooming a little. To this list may be added the unfailing Ayrshire and Boursault, trailing Roses, as a "set off" against the brightest standards that have only finished dying quite lately. The rock plants are a perfect mass of colour; perhaps nothing is prettier in its way than a group formed of the violet bells of Campanula pulla, the snow-white Silene alpestris, the starry grey flowers of Aphyllanthes monpeliensis, the fringed Dianthus corsicus, with the deep rose of the glacial and Cheddar Pinks. A piece of blue Veronica rupestre grown with the silver-grey of the Cerastium tomentosum is very lovely, and the dense cushions, both purple and white, of mountain Thyme, on which we find the poor tipsy bees, who have drank "not wisely but too well," and are incapable of further exertions. The first flush of the purple cushions looks like the coming of the heather on the highland hills. These, with the pink masses of Saponaria ocymoides and the new variety splendens, are the most conspicuous at this moment of our alpine treasures. *H. M. E., June* 19.

Difficulty of Flowering Tacsonia exoniensis.—"M.'s" query (p. 802, vol. xv.) seems like a burlesque. To grow and flower, and flower almost faster than it grows, seems the two qualities possessed by this splendid hybrid in perfection, and yet there is "M.'s" question, and during the week a long shoot was brought to me to enquire why the plant never flowered. In the latter case I was able to reveal the cause. The conservatory was attached to the drawing-room. The lady of the house was in delicate health, and the house was closely shaded all day long. The shoots were studded with buds paler than usual, and instead of opening they simply fell off. That was easily accounted for. Does "M." also overshade his plant? Another cause of scarcity of flowers is over-pruning. The plants are sometimes almost wholly cut back to the rootstock or main stem; such treatment checks their flowering and limits its quantity. The Tacsonia should be pruned like a Grape Vine, spurring back all the lateral or side shoots only, and leaving the leaders intact. Close and formal training also prevents the free flowering of Tacsonias and all kindred plants. We scarcely train at all, the whole of the flowering shoots being allowed to droop and depend from the roof. Left thus they have a freedom and a grace far beyond the reach of any formal art or training. I see "J. S." is good enough to refer in to-day's *Gardeners' Chronicle* to our success in flowering T. van Volxemii: that is treated exactly in the same way as exoniensis; it does not, however, flower so freely as the hybrid, though it is simply magnificent. As to soil, two parts loam and one of peat or leaf-mould is perhaps as good as any; but it is a gross rooter and feeder, and consequently by no means particular about soil. During their long season of growth and flowering they are frequently watered with yard and house sewage. They receive no shade but that caused by their own shoots and leaves, the shoots being dependent at right angles from the roof, and flowering at all distances from it—from 6 inches to 6 feet or more—throw less shadow on each other than might be supposed. In some places the Tacsonias show and ripen a good many fruit. These should be picked off where the plants are grown only and chiefly for their flowers. *D. T. Fish.*

—— If your correspondent, "M." (p. 802, vol. xv.) had stated, when putting his question respecting his difficulty in getting this free flowering and gorgeous greenhouse climber to flower, a few particulars respecting the conditions under which he has grown his plants, he would have helped those anxious to assist him how to advise him as to the future treatment of the climber in question. However, I will briefly state the conditions and treatment under which this climber will grow and flower freely. If planted in an inside border in a conservatory or greenhouse in an admixture of three parts good sandy loam and one part peat and leaf-mould placed in a specially prepared well-drained border, over which some thinly-cut turfs have been put to prevent the soil getting into and thereby choking the drainage, the roots should be disentangled at the time of planting, and the soil pressed firmly about them and then watered to settle the soil around the roots. After this water must be applied judiciously, its application being guided by a variety of causes—such, for instance, as the size of the border, the nature of the weather, and especially by the symptoms and vigour of the plants themselves. The young wood should not be cut-in so as to confine the shoots to one particular rafter and straight-line fashion, which would destroy its chances of flowering; but, on the contrary, the principal shoots should be trained up under the rafter, and the young ones or side laterals trained thinly right and left, under the roof. Withhold the knife, await the result, and report progress. Tacsonia exoniensis and Van Volxemii, under similar treatment to that above recommended, have been continuously in flower in a conservatory here, and are still ablaze with deep crimson and pale magenta, the former since March, 1880, and the latter since July of the same year, but not so profusely as T. exoniensis. *H. W. Ward, Longford Castle.*

Reports of Societies.

Royal Horticultural: *June* 28 *and* 29.—Considering the large amount of prizes offered for groups of plants arranged for decorative effect, and the additional attractions of the exhibition of Roses and Pelargoniums, this exhibition was, on the whole, not so fine as might have been anticipated. The long tent, filled with vegetables, cut Roses, Pelargoniums, and other exhibits, by its shape, necessarily offers no opportunity for scenic display. Visitors here are expected, or at least they must study the objects in detail, and make their comparison between competing collections in the best manner in which such competitions can be judged, that is, side by side; but in the large tent, to which the long one gives access, there is space for more artistic grouping, and the raised banks, the projecting promontories, and recessed bays are devised for that very purpose. On this occasion, too, as we have stated, special prizes of large amount were offered by the General Horticultural Company (John Wills), Limited, for the best group of plants arranged for effect, while a Gold Medal of relatively small value was offered for the same purpose by the Society itself. Of the five groups which were displayed for the admiration of the visitors that by Mr. Wills himself (not for competition) was by far the best. It occupied the western end of the tent, and was a pyramidal composition, consisting of a noble group of Palms and Tree Ferns in the centre, with a foreground of brilliant Crotons, flanked on either side by a patch of dark-coloured Dracænas, broken up by two Nepenthes, with pitchers of a deep reddish-brown, and with a carpeting of Selaginella, from amid which peeped up Gloxinias. The whole composition was well balanced, but probably a shade too formal. For the prizes offered by the General Horticultural Company but two exhibitors appeared—Mr. C. Rann, gr. to J. Warren, Esq., and Mr. Croucher, gr. to J. T. Peacock, Esq.—and to each of these a 3d prize was awarded, the 1st and 2d prizes being, as we think properly, withheld. Mr. Rann's group occupied one of the promontories, and had for a centre a good plant of Hyophorbe Verschaffelti, in front of which was an Azalea in full flower, a Pandanus Veitchii, and quite in the foreground a neat plant of Agave hystrix gracilis. The general outline of the group was pyramidal, but the plants were too crowded and too varied, so that repose and balance were lost, and the whole composition was meaningless and devoid of expression. Mr. Croucher's group had at least the merit of originality, but it was too fantastic to be pleasing. The space to be filled was, moreover, of awkward shape. The culminating point in this case, at one side, was occupied with a Thief Palm, Phœnicophorium Sechellarum, with a beautiful plant of Thunia Marshalliæ in front. On one side was a group of Cereus senilis of different sizes and appearance. These were whimsically labelled according to their appearance—the old man and woman, the maiden aunt, the children, the baby, &c. These were separated, by a golden bar laid on the ground, from a similar group of less seemly aspect—dirty and unkempt in appearance. These were the "impecunious relatives" kept apart from their more fortunate relatives by the golden bar they were supposed to be forbidden to cross. On the other side of this group a fine plant of Odontoglossum vexillarium in full bloom was supposed to represent civilisation, while a huge Echinocactus Visnaga in like measure typified well-fed savagery. Among other plants in this group was a good specimen of the curious Ceropegia dichotoma. As a collection of curiosities whimsically arranged this group might pass muster, but as it was, we are not surprised at the verdict of the judges.

For the "best arranged group of plants," a prize offered by the Society, Messrs. Cutbush & Son were 1st. A Latania occupied the centre, flanked with tall Dracænas, the dull green-colour lightened up with the white foliage of the variegated Negundo. In the foreground effective use was made of the yellow mottled foliage of Abutilon vexillarium variegatum. The group was effective and less muddled than in the case of some others. Messrs. John Laing & Co., who competed in the same class, had in the centre a Fan Palm, with a broad-leaved mottled Dieffenbachia in front, and a mixed carpeting of flowering stuff, too crowded and not varied enough in the disposition of the masses of foliage. Messrs. Hooper & Co. occupied a corner with rows of Dracænas, Crotons, and small Palms rising from an undergrowth of flowering plants edged with Selaginella. The outlines here were too formal, consisting mainly of two horizontal lines, one of tall, the other of low growing plants, not leading up to anything, and devoid of any special feature of interest. We trust that these prizes will be repeated another season, and that competitors will remember that it is neither the number nor the rarity, nor even the good cultivation of their plants, that is primarily required, but artistic grouping. In each composition there should be some striking and important feature to which the eye should be led up. There should be a general symmetry and balance obtained by repetition, not indeed of the same plants, but by different ones of like form, so that while the general outline is harmonious the detail shall be varied, and above all things the materials used should not be too crowded. Monotony of colour should be avoided by judicious intermixture of flowers or coloured foliage; monotony of outline broken up by some striking foliage plants. But criticisms and suggestions are much easier than practice in such a case. We would recommend our gardeners who have the opportunity to visit some of the great Continental shows, where the grouping of plants is often more artistically done than it is on this side of the Channel.

Next to the competing groups, which we may now leave, we have to mention several large collections shown "not for competition," and each of which had some special feature of interest to all. Thus Messrs. John Laing & Co. put up the largest and most complete group of tuberous Begonias that we have ever seen, the collection containing well grown, clean, and nicely flowered plants of many varieties, the merits of which we shall discuss on another occasion. Mr. John Burley, Hereford Road, Bayswater, sent a group of very large Palms, which were heightened in effect by a band of dwarf but well-flowered Roses in pots from Messrs. Paul & Son, of Cheshunt. Messrs. James Carter & Co. exhibited an immense group of seedling Petunias in great variety, conspicuous amongst them all being the varieties named White Pearl, King Crimson, Queen of Roses, Stars and Stripes, and Cerise Brilliant.

On the opposite side the corresponding bank was

completely furnished with a fine lot of flowering Begonias, Zonal and Ivy-leaved Pelargoniums, and Gloxinias, &c., all sent up from Chiswick. Mr. W. Brown, of Hendon, had a grand group of market Pelargoniums and Fuchsias; and Messrs. H. Cannell & Son a large display of zonal Pelargoniums, mixed with cut spikes of Larkspurs and Foxgloves. Messrs. Barr & Sugden had a very large display of cut flowers of English Irises, in great variety of colour; many other good herbaceous plants now in flower, and a few choice things, such as Arum crinitum, Cyclobothra pulchella, Imantophyllum cyrtanthiflorum, Iris juncea, a lovely orange self-coloured flower; the rosy-purple Bletia hyacinthina, and various varieties of Babiana. Messrs. Osborn & Sons also sent a few nice hardy plants. Messrs. Hawkins & Bennett, of Twickenham, had a splendid bank of Maidenhair Ferns of various sizes, from good plants in 32-sized pots up to specimens a yard through, examples of excellent cultivation.

Of miscellaneous subjects not included in either of the above sections, we noted some stands of exceedingly fine Pansies and Violas from Messrs. Downie & Laird, of Edinburgh. The latter were novel and good —a strain of large flowers, rich and various in colour, that is worth looking after. Mr. Hooper, of Bath, sent another fine lot of Carnations, Pinks, and Pansies; and Messrs. Hooper & Co., Covent Garden, sent some fine border Pinks and English Irises, &c.

THE ROSE SHOW.—Generally backward, like everything else in the garden, it was not to be expected that Roses would be at their best on Tuesday, and therefore no other excuse need be offered for the show being a poor one, both as to the numbers staged and the low quality of the blooms. In a season like the present one expects to see growers favoured by such a climate as that of Torquay to carry all before them at the early shows, but they failed to realise our expectations; and Mr. Turner, of Slough, being in rosy parlance "just in," swept the board—not for the first time during his successful floricultural career. The great failing in most of the flowers was want of substance and colour, only those from Slough coming anything near the usual standards of excellence in these two most essential points. For forty-eight single blooms Mr. Turner led off with a couple of boxes, containing amongst others of good quality:—Niphetos, Bessie Johnson, Marie Baumann, Madame Nachary, Madame Marie Verdier, Sir Garnet Wolseley, Mrs. Harry Turner, Devienne Lamy, La Rosiere, Oxonian, Général Jacqueminot, Ferdinand de Lesseps, and Madame H. Jamain. Messrs. Curtis, Sandford & Co., Torquay, came in 2d, with a fresh lot of blooms, including, as the best, François Michelon, Marie Baumann, Marie Cointet, Paul Jamain, La Duchesse de Morny, Le Havre, Madame Vidot, Etienne Levet, and Antoine Ducher. Mr. B. R. Cant, of Colchester, was 3d; and Messrs. Paul & Son, Cheshunt; Mr. G. W. Piper, Uckfield; and Messrs. George Bunyard & Co., Maidstone, also competed. With twenty-four trebles Mr. Turner led off, with good examples of Marguerite Brassac, Marquise de Castellane, Sénateur Vaisse, Duke of Edinburgh, Alfred Colomb, Avocat Duvivier, Miss Hassard, Annie Laxton, &c.; Messrs. Curtis, Sandford & Co. again came in 2d, and Mr. B. R. Cant 3d, the finest of the Torquay blooms consisting of Beauty of Waltham, Barthelemy Joubert, Charles Lefebvre, François Michelon, Madame Gabriel Luizet, Madame Verdier, Madame Vidot, and La Havre. In Mr. Turner's next 1st prize stand of twenty-four singles Abel Grand, Niphetos, Charles Darwin, Maréchal Niel, Général Jacqueminot, Ferdinand de Lesseps, Prince Camille de Rohan, François Michelon, and Marquise de Castellane were the leading flowers. Here Mr. B. R. Cant came in 2d, and Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, 3d. In the class for twelve blooms the awards went to Mr. Turner, Mr. B. R. Cant, and Mr. G. W. Piper. The last-named exhibitor was pre-eminent with Teas and Noisettes, taking the 1st prize for twelve with a pretty lot of small blooms, including such sorts as Madame H. Jamain, Josephine Malton, Catherine Mermet, Safrano, Marie Guillot, Niphetos, Jean Ducher, Marie Van Houtte, Comtesse Riza du Pau, and Souvenir de Paul Neron, &c. Mr. B. R. Cant was again 2d, and Messrs. Paul & Son 3d. For six blooms of any one sort of Hybrid Perpetual, Mr. Cant was 1st with A. K. Williams; and in the corresponding class for a Tea or Noisette the same exhibitor took the 1st prize with Devoniensis. The amateur classes were, if anything, better contested than the nurserymen's; but the quality altogether was equally low. For twenty-four singles the 1st prize went to T. B. Haywood, Esq., Woodhatch Lodge, Reigate (Mr. Ridout, gr.), for fine large heavy blooms of, amongst others, Edward Morren, Mrs. Baker, Charles Lefebvre, Thérèse Levet, Etienne Levet, François Michelon, Countess of Rosebery, Abel Grand, and La Havre; 2d, J. Hollingsworth, Esq., Turkey Court, Maidstone; and 3d, G. P. Hawtry, Esq., Slough. For twelve trebles Mr. J. Hollingsworth was a good 1st; Mr. J. Davis, Wilton, 2d; and the Countess of Leven and Melville, Rochampton (Mr. Berry, gr.), 3d. T. B. Haywood, Esq., sent the best twelve singles; and next in order of merit came J. H. Pemberton, Esq., of Haveringatte-Bower; and Mr. C. Davis, of Hynhoe, Bawtry. The two last-named exhibitors were also 1st and 2d with twelve Teas. The Countess of Leven and Melville took the 1st prize for six single blooms of any H.P., with François Michelon; Mr. J. H. Pemberton, being 2d, with Souvenir du Pierre Dupuy; and Sir Trevor Lawrence (Mr. Bain, gr.) 3d, with Pierre Notting. Bouquet d'Or, shown by Mr. C. Davis, was the best of the Teas. For six new Roses of 1878 and 1879 Mr. Turner came 1st, with Duchess of Bedford, Charles Darwin, Countess of Rosebery, Paul Jamain, Madame Eugénie Verdier, and Mrs. Harry Turner; Mr. B. R. Cant was 2d, and Mrs. G. W. Piper 3d.

SPECIAL PRIZES FOR VEGETABLES. — Rarely has a finer lot of Peas been submitted for competition than was staged for the valuable prizes offered by Messrs. James Carter & Co., of High Holborn. The requirements of the class were that fifty pods each of Carter's Stratagem, Telephone, Telegraph, and Pride of the Market should be shown separately. That only the kinds stated were exhibited there could be little doubt, as the points of the various sorts are strongly marked and easily recognised. No less than twenty lots were staged in competition for the five prizes of £5, £3, £2, £1, and 10*s.* 6*d.* respectively. That veteran and premier vegetable grower, Mr. Miles, of Wycombe Abbey Gardens, was placed 1st, with really remarkably well filled pods, well coloured and surfaced with bloom. The 2d prize went to Mr. H. Marriott, Prospect Place, Thirbeck, Boston, whose Telephone and Telegraph were exceedingly fine, but the others were not quite up to the mark. Mr. T. Bailey, of Shardeloes, Amersham, was 3d, with good full pods. Mr. J. Bartholomew, of Hildenborough, Tunbridge, took 4th place, with medium-sized pods well filled; and Mr. J. Garland, Killerton, Exeter, was 5th. Throughout Telegraph and Telephone exactly resembled each other, except that the latter is the palest in colour. Pride of the Market is a dwarfer Pea, but much resembling Telegraph in pod; whilst Stratagem is quite straight on its lower side, is of a darker hue, and quite distinct.

In competition for the very liberal prizes offered by Messrs. Sutton & Sons, of Reading, for twelve distinct kinds of vegetables named in the schedule, without condition as to trade varieties—the amounts being 6 guineas, 4 guineas, 3 guineas, 2 guineas, 1 guinea, and 10*s.* 6*d.*—there were thirteen collections, making a grand display of kitchen garden produce. Having regard to the difficult nature of the season, the results of the competition fairly surprised visitors, too many of whom must have sighed in vain for such samples in their own gardens. Here Mr. Miles was again in the front, and well carried off the first honours, his only weak points being his two kinds of Lettuces, which were not quite so good as in other collections. He had a handsome brace of Model Cucumbers, fine Telegraph Peas, beautifully grown Early Nantes Carrots, very fine Seville Longpod Beans, shown under the name of Leviathan; clean and well kept Pine-apple Beet, Early White Naples Onions, Canadian Wonder Dwarf Beans, very pretty Woodstock Kidney Potatos, Walcheren Cauliflowers, Early Munich Turnips, and Brown Cos and Suttons' Marvel Brown Cabbage Lettuces. The 2d prize was taken by Mr. T. Haines, gr. to Lord Radnor, Coleshill House, Highworth, Berks, who came as near to Mr. Miles in quality as may be desirable in another competitor, for he was only just beaten for 1st place. This exhibitor had handsome Tender and True Cucumbers, very nice Nantes Carrots, good white Onions, Seville Longpod Beans, Telegraph Peas, Lapstone Potatos, Early London Cauliflowers, good White Cos and All the Year Round Lettuces, &c. Mr. W. Meads, of Beckett House Gardens, Shrivenham, who came 3d, had handsome Lapstone Potatos, Telegraph Cucumbers, Beets, Carrots, &c. The 4th prize was taken by Mr. J. Austin, of Ashton Court Gardens, Bristol, who was not up to his usual form. Mr. Beckett, The Gardens, Sandown House, Esher, was 5th, and as a young exhibitor merits all praise for the excellence of this collection amidst so many. His superb White Cos and Blonde de Nelin Cabbage Lettuces were perhaps the best in the show. The 6th prize was taken by Mr. J. Clarke, The Gardens, Melton Constable, East Dereham, who was a long way ahead of several competitors.

For the prizes of the value of 3 guineas, 2 guineas, and 1 guinea, offered by Messrs. Webb & Sons, of Wordsley, Stourbridge, for six kinds of vegetables, any selection, it was remarkable that out of twenty collections the three exhibitors placed in the previous competition should again take the prizes here, the only difference being that Mr. Miles was 2d, and Mr. Meads 1st, whilst Mr. Haines was 3d. Mr. Meads had good samples of Telegraph Cucumbers, Nantes Carrots, Naples Onions, Telegraph Peas, Canadian Wonder Beans, and pretty Lapstone Potatos. Mr. Miles had the same kind of Peas, Carrots, and Onions, Walcheren Cauliflowers, and Porter's Excelsior Potatos. Mr. Haines had capital samples. With few exceptions this class was good throughout.

A prize, value 2 guineas, offered by Messrs. T. Rivers & Sons, of Sawbridgeworth, for the best six fruits of Lord Napier Nectarine, brought three lots, the best, fine, well coloured fruit, coming from Mr. C. Williams, The Gardens, Lower Eaton, Hereford. Very good fruits were also shown by Mr. Biggs, gr. to Major Peploe, Garnstone, Hereford; and Mr. Wm. Elphinstone, Shipley Hall, Derby.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair.

Mint Fungus.—Mr. W. G. Smith exhibited specimens of garden Mint infested with Æcidium menthæ. Mr. Smith stated that, as far as his experience went, the fungus was chiefly confined to the cultivated Mint. Just now the fungus is very common on the Mint exposed for sale in the greengrocers' shops of London.

Gooseberry Fungus.—Mr. Smith exhibited fruits and leaves of Gooseberry badly attacked by Æcidium grossulariæ: this fungus appears to be widespread and virulent this summer, destroying the fruit. The uredo form of these fungi is not as yet known.

Primitive Agriculture and Bread Making.—Mr. Smith showed a hoe mounted with a withy, the blade, 8 inches long, being made of flint: the same instrument, when inverted and drawn along the ground by a man, would act (when guided by a second man and withy) as a primitive plough, and make a good furrow. Mr. Smith also exhibited an ancient British millstone, together with the flint corn-crushers, or mullers, used by the Britons for preparing their bread made from the small-eared Wheat that was cultivated by them: he also exhibited the iron pyrites and abraded pebble used for lighting the ancient fire to bake the wheaten bread, and a knife-blade of flint, 5½ inches long, such as might have been used for cutting up bread and other food. Mr. Smith also showed spindle-whorls made of drilled circular pebbles, such as were used with weaving machines in olden times. The objects had been mostly found by Mr. Smith himself in British camps.

Hybrid Campanula.—Mr. G. F. Wilson showed a Campanula supposed to be intermediate between C. pulla and C. carpatica.

Malformed Iris.—Dr. M. Foster showed a flower of Xiphion vulgare, in which, although the ovary was fully developed, the flower-segments and style were arrested in their development.

York and Lancaster Rose.—Colonel Clark showed for Dr. Hogg a specimen of the true York and Lancaster Rose.

Gladioli.—Rev. H. H. Crewe brought Gladiolus illyricus from the New Forest; G. triphyllus, G. segetum, and a species which he found growing in profusion in wet meadows at Gijon, in the north of Spain, associated with Corbularia citrina, C. Bulbocodium, Narcissus biflorus, destroying grass meadows! and probably G. byzantinus or communis.

FLORAL COMMITTEE.—J. McIntosh, Esq., in the chair. Comparatively few subjects came under the notice of the committee on this occasion, but First-class Certificates were voted to Messrs. James Veitch & Sons for Sobralia xantholeuca, with creamy-yellow flowers, and for Phalænopsis violacea; and to Mr. Croucher, gr. to J. T. Peacock, Esq., for Agave Parryi, described at p. 237, vol. xii., and Yucca Peacockii. The Messrs. Veitch also had a Second-class Certificate for the pretty banded Rush, Juncus zebrinus; and J. Batten, Esq., had a Cultural Commendation for a plant of Dendrobium McCarthiæ, with four branched spikes of flowers. Messrs. Cannell & Sons showed for the first time the new double-flowered Bouvardia Alfred Neuner, which has white blossoms resembling a miniature double Stephanotis. Votes of thanks were accorded to Mr. Croucher, for the singular Ceropegia Saundersii; to W. A. Tillet, Esq., Sprouston, Norwich, for leaf and flowers of Philodendron Selowii; to Mr. Croucher, for Odontoglossum vexillarium roseum, a good high-coloured variety; and to Messrs. Downie & Laird, with a Cultural Commendation, for a remarkably fine stand of Pansies.

Among the new plants exhibited by Messrs. Veitch were Globba coccinea from Borneo, a very remarkable species, with long, slender, purple stems and dark green convolute leaves. The flowers are deep scarlet-crimson, in spikes at the ends of the branches, each subtended by a bract of the same colour. It is not to the credit of the committees that this plant should have been passed over without any award at all. Impatiens Marianæ, lately described in our columns, was also shown by the same exhibitors. It is a low-growing plant, with green ovate acute leaves, the veins picked out with silver variegation. Styrax serrata (Hort. Veitch) is a Japanese shrub, with pale green ovate acute leaves like those of Ligustrum sinense, and with pendulous white bell-shaped flowers. Talbotia elegans is a plant with a semi-creeping rhizome, with closely packed dark

green lanceolate leaves of a dark green colour, and white star-shaped six-parted flowers on long slender peduncles. It is a native of New Zealand.

Fruit Committee.—H. Webb, Esq., in the chair. First-Class Certificates were awarded at this meeting to Mr. James Hopkins, High Cross, Framfield, for a large green-fleshed Melon of fine quality called High Cross Hybrid; and to Messrs. James Veitch & Sons, for Veitch's Extra Early Forcing Cauliflower, remarkably like Dean's Snowball, if not that variety, and in any case a first-rate early sort. Mr. G. Thompson, gr. to Mr. Charles Lee, Croxby House, Hounslow, received a Cultural Commendation for a very fine sample of Madresfield Court Grapes; and the thanks of the Committee were voted to Mr. H. W. Ward and Mr. G. T. Miles, for Stamfordian Tomatos; to Mr. H. Eckford, for a seedling Cucumber named Climax; and to Mr. Thomas Piper for a new golden-podded Broad Bean.

The Pelargonium Society.

Instituted in 1874, the Pelargonium Society has held on in a career of steady progress, doing its work in a quiet and unostentatious manner, and it is no fault of the Society if the objects which it set itself to accomplish have not been fully attained; because prizes—and liberal prizes, too—are offered for every section and variety of the Pelargonium: and what a vast field there is for the hybridist to work in was exemplified in the large and finely grown collection sent from the Society's gardens at Chiswick. It would be well if some one would step out of the well-beaten path and try what can be done by crossing or improving other species, for it is very difficult indeed to make much further improvement in the zonal, show, and other sections. As an instance of this it might be noted that no prizes or certificates were awarded in the zonal section for new varieties, as none of them were considered an advance on previous varieties in quality of flower or novelty of colour. In the class for hybrid Pelargoniums, bred between any Cape species and a variety of any of the other types of the Pelargonium family, there was no competition whatever—only one plant was exhibited; but it is a very pretty variety, and gained the 1st prize in its class. It was exhibited by Messrs. H. Cannell & Sons, of Swanley, who were also the raisers; it is a cross between Lothario, a variety sent out by Messrs. Carter, of Holborn, and Blue Boy. The leaves are scented, and the flowers medium sized, bright lilac with crimson-purple blotch. It was named Mrs. J. Douglas. This variety, though showing but little trace in leaf or flower of the pollen parent, would be a good variety to raise seedlings from.

In the next class, for new varieties of the large-flowered show type, E. Foster, Esq., Clewer Manor, Windsor, gained the 1st prize for three with very small plants, but distinct and good varieties. They were Zealot, scarlet, with maroon blotch shaded scarlet; Royal Review, and Margaret. Rev. A. Matthews, Gumley, Leicestershire, was 1st for two new varieties not in commerce; Russell is a good flower, with pale red lower petals, velvet-maroon top and distinct white eye; and Eva, a well grown plant. Henry Little, Esq., Hillingdon, Uxbridge, was 1st for a single plant, with Magnet, a very good variety, of which Illuminator is the type; it is a better formed flower, and the colour, crimson-scarlet with white eye suffused with lake, is very striking. It was awarded the First-class Certificate of the Society. Other new varieties which received certificates in this section were The Abbott (Foster); the plant is of good habit, truss large, flowers large, and of good shape; the upper petals are dark maroon, lower petals crimson with dark reddish maroon markings and white eye. Duke of Albany (Foster), dwarf plant, which had but one truss of three flowers, but these were large, the upper petals shaded maroon, the lower petals pale red with white centre. These two were exhibited by Mr. Turner. Christabel (Beck) is a very fine and distinct variety of the Snowflake type; the flowers are very large, white, with reddish maroon blotch, very free flowering, and plant of excellent habit—a fine exhibition variety. Britomart (Beck), a very dwarf and free flowering variety; the flowers are also of good form, reddish crimson, with maroon blotch on upper petals. Superb (Beck), crimson, scarlet, with rich maroon top petals edged with crimson, dwarf and free-flowering plant. These three were exhibited by H. Little, Esq. Besides the above there were some really good flowers in this class which were not considered good enough for certificates, viz., Monarch (Foster), a really grand flower, of good shape and large size, dark crimson and maroon with white centre; Florence (Foster), Chivalrous (Foster), and Letitia (Matthews).

All the prizes in the class for new varieties of the small-flowered or fancy type were gained by Mr. C. Turner. Queen of the Hellenes was the best of them: it is white, with rose blotches; Sims Reeves, a good dark flower; and Florence Taylor, rose, with deep rose blotch.

The classes for new varieties of the large-flowered "decorative" class were well filled. Messrs. J. & J. Hayes, of Edmonton, who have paid considerable attention to the raising of new varieties, were 1st for three, with Mr. Ashby, which is like all of its class, most floriferous, but the flowers are rough and lack quality, but they are of a good colour, bright rosy-red, with white centre suffused with pink; it received a First-class Certificate. Grand Lilas, white flushed with pink, reddish-maroon blotch. Ruby, very free flowering, with medium-sized flowers, bright reddish-scarlet, suffused with lake at the base of petals. H. Little, Esq., was 1st for two varieties with Annie (Hemsley), First-class Certificate, very free flowering, flowers pale rosy-red, lighter at the base of petals, and small blotch on upper petals; and Aurora (Jackson). Other new varieties exhibited in this section were Metallica (Hayes), First-class Certificate: the flowers are rosy-red, with darker blotch on upper petals. Lemoine's new varieties, although quite distinct in character from the above, must be included in this section; they are dwarf in habit, but do not produce their flowers in such large masses, although the grand variety, Lucie Lemoine (Lemoine), which was exhibited by H. Little, Esq., is an exception; it is really a charming variety, and produces a large head of bloom; the flowers are large, pure white, with occasionally a faint streak of purplish-rose in the upper petals; it was unanimously awarded a First-class Certificate.

Belle de Jour (Lemoine), exhibited from the Royal Horticultural Gardens at Chiswick, is a splendid novelty; the flowers are pure white, semi-double, each having about twelve petals: it will be very useful for bouquet making and other decorative purposes; this also received a unanimous First-class Certificate. These and other good and distinct single varieties were raised by Mons. Lemoine, of Nancy, France. Although no awards were made in the zonal section, H. Little, Esq., Mr. George, of Putney Heath, and Mrs. Lermitte, Finchley (Mr. Catlin, gr.), exhibited. Mr. Little's flowers were really good; Emily Little is a distinct rose-coloured sort, so also is Venus, another and brighter shade of pink.

Passing to the classes for specimens and half specimens, although the exhibitors were not more numerous than usual, there was a decided advance in the quality of the productions. Mr. Little seems to spare neither trouble nor expense to bring every section of the Pelargonium up to the highest point of perfection that it is possible to attain, and has actually surpassed the life-long champion and exhibitor of the Pelargonium, Mr. Charles Turner, of Slough, although Mr. Turner exhibited well in nearly all the classes except zonals and Ivy-leaved varieties—classes in which he did not exhibit. Mrs. Lermitte (gr., Mr. Catlin) exhibited grand specimens of double and single zonal varieties; indeed, such grandly flowered double specimens have not been seen previously. In the large-flowered show section Mr. Little gained the 1st prize for six large specimens, and very fine they were. He had a grand example of Prince Leopold, one of the best for specimens; Setting Sun (Jackson), distinct and good; Magnificent, Illuminator, Jeanette, and Victory. Mr. Turner was 2d with smaller but well-flowered specimens. Evening Star was the best of the rose-coloured varieties; Marshal McMahon, Sophie Birkin, and Polly King, salmon; Golden Glory, Lord Mayo, Rosa Little, and Mrs. Bennett, the best scarlet; Ivanhoe is a fine red, with immense trusses. Mr. Meadmore, nurseryman, Romford, was 2d, with neat plants, and Mrs. Lermitte 3d. For large specimens with double flowers Mrs. Lermitte was easily 1st; G. Simpson, Esq., Wray Park, Reigate (Mr. King, gr.), 2d; and Mr. Meadmore 3d. G. Simpson, Esq., gained 1st prize for eighteen double varieties, and very good they were. Paul Berti, Madame Thibaut, Roi des Violettes, Louis Buchner, Thomas Harper, Horace de Choiseul, and Mons. G. Lowagie were the best of them. Mrs. Lermitte was 2d, and Mr. Meadmore 3d.

H. Little, Esq., received the 1st prize for nine specimens of the Ivy-leaved section, the varieties Perle, Sarah Bernhardt, and Lemoine's Seedling being very fine; they were all double varieties. Mons. V. Lemoine, of Nancy, was 2d. Cut blooms were not numerous; but with one exception they were really very good, and were exhibited in small bunches, three trusses in each.

For eighteen varieties in 6-inch pots, Mr. Little was again 1st with large well-flowered plants, and fine varieties. Amethyst, Ritualist, Hermit, Rosalind, The Baron, Fortitude, Cristabel, Britomart, and Superb, were the best of them. Mr. C. Turner was 2d with fine plants, comprising the best new varieties. F. Hunt, Esq., Stamford Hill (Mr. Hammond, gr.), was 3d in this class. Mr. Turner beat Mr. Little for fancies, each exhibitor showing nearly equally good well-grown specimens. Mr. Turner likewise beat Mr. Little in the decorative class, Messrs. J. & J. Hayes being 3d—all of the exhibitors showing good enough for 1st prizes. For eighteen varieties in this class, H. Little, Esq., was 1st, and Messrs. Hayes 2d, the best varieties being Lucie Lemoine, Princess of Wales, Reannie, Bouquet, Nellie Hayes, Triumphans, Kingston Beauty, Princess Hortense, Metallica, Princess Teck, and Volonté Nationale. For large specimens of the single zonal type Mrs. Lermitte was 1st, and D. Martineau, Esq., Clapham Park (Mr. Weston, gr.), 2d. For eighteen varieties, single, in 6-inch pots, H. Little, Esq., was well 1st with a splendid lot of plants, in which Mrs. Leavers and Mrs. Wright were conspicuous. Mr. Turner was 1st for thirty-six, fine in quality and variety. The prize for twenty-four cut blooms was withheld. Mr. Meadmore and Mr. G. Duffield gained 1st prizes for single varieties of the zonal type. Messrs. Cannell taking 1st prize for thirty-six double varieties: the trusses were immense and in good condition. Mr. Cannell gained a 1st prize for trusses of double Ivy-leaved varieties—Mr. George, of Putney Heath, being 1st in the corresponding class for single varieties. Mr. J. R. Pearson exhibited a very fine group of his own seedlings; they were really well grown and flowered, and deservedly received the Highly Commended label of the judges. Vetis, scarlet; Constance, pinkish-rose, immense trusses and well formed flowers; Dr. Orton, deep crimson; Eurydice, rose, fine dwarf habit; Cypris, clear deep rose; Mrs. Sturt, rose; Mrs. Gordon, scarlet, white eye. Mrs. Jas. Gibson, salmon; Edith, light scarlet, are all good and distinct varieties. From the Society's gardens was sent a large and well grown collection of Cape species; these are not only interesting, but many of them are very pretty as greenhouse flowering plants.

Chertsey and District Horticultural: *June 23.*—The sixteenth summer exhibition of this Society was held at Ancote, Weybridge, by the kind permission of F. B. T. Money Coutts, Esq. This is an excellent local Society, and does much good in the district over which its influence extends. The Society has G. F. Wilson, Esq., for its President. It numbers many distinguished persons amongst its patrons, and its affairs are well managed by a very practical committee of gardeners and others, besides Mr. Rawlings, who has been its secretary from the beginning. The show this year was a great success, owing to the fine weather, which allowed the large assemblage of visitors to examine the various productions with comfort. The most important classes are the stove and greenhouse flowering plants, and of these there were a few exceedingly well grown specimens, and the 1st prize collection of six contained a grand example of Anthurium Scherzerianum—it had only fourteen spathes, but these were rich in colour and 7 inches long by 3 wide; Stephanotis floribunda well bloomed, and a fine Begonia weltoniensis, covered with bloom; the flowering sprays of this plant are well adapted to decorate vases, &c. This collection came from Mr. Cornhill, gr. to E. Pettit, Esq., Oatlands Park. The same exhibitor had the best foliage plants, and prominent in the collection were a fine Buonapartea juncea, and a noble plant of Dicksonia antarctica. Mr. Dibbin, gr. to W. Hinds, Esq., Byfleet, had an excellent Cycas circinalis and a large Anthurium crystallinum. Ferns, exotic and British, were well represented, Mr. Cornhill having the best in each of the sections, the most noteworthy being a fine Platycerium grande, and a small but healthy Gleichenia Spelunca. Mr. Dibbin gained a 1st prize for four exotic Ferns, Adiantum concinnum latum and Gleichenia rupestris being fine. Mr. R. Lloyd, of Brookwood Asylum, exhibited six choice and well grown British or hardy Ferns, for which he received a special prize; his plants were smaller than the 2d prize collection, but they were in better condition.

There were four collections of twelve plants each for table decoration, two of them being very meritorious, but the owner of the 1st prize lot did not affix his card to his plants while your reporter was there. Fuchsias were fairly well represented in several collections, Mr. G. Povey, gr. to A. Gillespie, Esq., Weybridge, having the best. They were good plants of White Lady, Wave of Life, Rose of Castile, Mrs. Marshall, Wiltshire Lass, and an unnamed variety.

Pelargoniums were not so good as usual, except a collection of double zonals from Mr. J. Taylor, gr. to James Macintosh, Esq., Oatlands Park, which were very good indeed, the varieties being Wonderful, Lucie Lemoine, Lafayette, Madame Dauphin, Madame A. Baltet, Monsieur Buchner, and Madame Thibaut. The Selaginellas were also very well grown, the plants being large and in splendid condition; Mr. Millican, gr. to Mrs. Cobbett, York Lodge, Walton, gained the 1st prize. Mr. R. Lloyd had 1st prizes for well-grown Gloxinias, and six fairly good tuberous Begonias. As usual Mr. Taylor gained a 1st prize for an excellent group of Lilies; it contained L. pulchellum, L. Washingtonianum purpureum, L. Szovitzianum, L. Krameri and L. Hansoni.

In the tent devoted to groups of plants arranged in semicircles against the canvas were about eight groups, Mr. Cornhill again displaying the best taste. A larger tent was devoted to cut flowers, fruits and vegetables—the fruit, especially Peaches and Nectarines, being very good, and the vegetables also were worthy of high commendation. Mr. Cornhill had the best Peaches and Nectarines. Mr. W. Sutton, gr. to J. S. Sassoon, Esq., Ashley Park, Walton, had the best black Grapes. Mr. D. Mann, gr. to Mrs. Silver, gained the 1st prize in the class for white Grapes, with good Frontignacs. Mr. J. Taylor also received a 1st prize for good British Queen Strawberries; Mr. W. Sutton the best green-flesh Melon, and Mr. W. Polley, gr. to Mrs. Rogers, Oatlands, the best red-flesh. There were a dozen exhibited. A 1st prize was also awarded to Mr. W. Sutton for fine

examples of Tender and True Cucumber, who also gained 1st prize for the only collection of fruit exhibited. There were a good many vases of cut flowers, also stands of stove and greenhouse cut flowers, &c., some of them arranged with good taste; and some cut Lilies were sent from the gardens of G. F. Wilson, Esq. The Roses, too, were good, and should be mentioned in detail did space permit. Mr. Hill, gr. to A. Savory, Esq., had a really good collection of vegetables, which gained the 1st prize amongst others not far behind it. There was also a tent devoted to cottagers' productions, and a glance down the well furnished tables showed that the culture of flowers and vegetables is not neglected by this class of exhibitors.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JUNE 29, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
June	In	In.	°	°	°	°	°	°	°		In
23	29.98	+ 0.18	70.4	52.8	17.6	59 9	+ 0 8	49 0	67	W. S.W	0.00
24	30.03	+ 0.22	75.5	51.7	23 8	61.3	+ 0.4	53.3	75	S.	0.00
25	29 87	+ 0.06	64.6	51.0	13 6	56.3	— 4.8	51.8	83	S.:S.W.	0.18
26	29 97	+ 0.15	73.0	50.0	23.0	59.5	— 1.7	52.9	80	W.	0.00
27	29.77	— 0.05	62.8	54.6	8.2	57.5	— 3.8	52.8	84	S.W.	0.02
28	29 93	+ 0.11	68.0	52.0	16.0	58.2	— 3 1	48.0	69	W.N W	0.00
29	30.10	+ 0.28	72.5	51.6	20.9	62.2	— 1.1	49.7	67	W.N W	0.00
Mean	29 95	+ 0.13	69.5	52.0	17.6	59.0	— 1.9	51.1	75	S : W.	0.20

June 23.—A fine day, but generally dull, a very fine night.
— 24.—A beautiful morning, a very fine day: fine clear night. The comet was well seen.
— 25.—Fine at first, but dull with wind, then rain till the evening. Fine clear night. The comet was well seen.
— 26.—Dull, but fine morning. A fine day and night. The comet well seen.
— 27.—A little rain, and fine alternately. Cold and dull day. Fine night. Comet seen.
— 28.—Fine day, but generally dull, cloudy night.
— 29.—A very fine day and clear night. The comet well seen.

LONDON: *Atmospheric Pressure.*—During the week ending Saturday, June 25, the readings of the barometer at the level of the sea decreased from 29.86 inches at the beginning of the week to 29.58 inches by 9 A.M. of the 21st; increased to 30.26 inches by the morning of the 24th, and was 30.09 inches at the end of the week. The mean reading for the week at the level of the sea was 29.94 inches, being 0.04 inch lower than in the preceding week, and 0.04 inch below the average of forty years.

Temperature.—The highest temperature in the week was 75°.5 on the 24th, and the lowest of the high day temperatures was 64°.6 on the 25th. The mean of the seven readings was 70°.3. The lowest temperature in the week was 51°, on the 25th. The highest of the low temperatures was 57°, on the 21st. The mean of the seven readings was 53°.5.

The greatest range of temperature in one day was 23°.8, on the 24th; and the smallest range was 13°.6, on the 25th; the mean of the seven daily ranges was 16°.8.

The mean temperature of June 19 was 59°; 20th was 60°.4; the 21st was 62°.5; the 22d was 59°; the 23d was 59°.9; the 24th was 61°.3; and the 25th was 56°.3. Of these the 19th, 22d, and 25th were below their averages by 0°.7, 1°.4, and 4°.8 respectively; those of the 20th, 21st, 23d, and 24th were above their averages by 0°.5, 2°.4, 0°.8, and 0°.4 respectively.

The mean temperature for the week was 59°.8, being 0°.2 of lower temperature than in the preceding week, and 0°.4 below the average of the week for sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, and placed in the full rays of the sun, was 151° on the 24th, and the highest on the 25th was 89° only; the mean of the seven readings was 133½°.

The lowest reading of a thermometer with its bulb resting on short grass and exposed to the sky was 46°, on the 25th, and the mean of the seven readings was 49°.

Rain fell on three days, to the amount of 0.22 inch.

ENGLAND: *Temperature.*—During the week ending Saturday, June 25, the highest temperatures exceeded 77° at Cambridge and Nottingham. At Plymouth the highest temperature in the week was 65°.8, and at Bristol 67°.5. The mean from all stations was 72°.3. The lowest temperatures in the week were 39° at Truro, and 43° at Plymouth. At Norwich the lowest temperature in the week was 52°. The mean from all stations was 45°.7.

The greatest range of temperature in the week was 34°.9 at Nottingham, and the least was 22°.8, at Plymouth. The general mean was 26°.6.

The mean of the seven high day temperatures were 73°.5 at Cambridge, and 73°.4 at Nottingham. The smallest means were 63°.9 at Plymouth, and 64°.5 at Bristol. The mean from all stations was 68°.5.

The mean of the seven low night temperatures was least at Wrottesley, 47°.7; and highest at Norwich, 55°.1. The general mean from all stations was 52°.

The mean daily range was greatest at Nottingham, 23°; and smallest at Plymouth, 10°.8. The general mean was 16°.5.

The mean temperature for the week was highest, 61°, at Cambridge, and 60° at Nottingham. The lowest mean temperatures were 55°.6 at Wrottesley, and 56°.3 at Bristol. The general mean was 58°.3.

Rain fell on an average of four days; the largest falls were 1.3 inch at Truro, and 1.1 inch at Plymouth; the smallest falls were 0,04 inch at Norwich, and 0.14 inch at Brighton. The mean fall from all stations was 0.57 inch.

SCOTLAND: *Temperature.*—During the week ending Saturday, June 25, the highest temperatures were 68°.7 at Aberdeen, 68°.1 at Edinburgh, and 68° at Dundee. At Greenock and Paisley the highest temperature in the week was 64°, and the general mean was 66°.9. The lowest temperatures were 37° at Glasgow, and 39° at Paisley. At Aberdeen the lowest temperature in the week was 47°. The general mean was 41°.2. The mean temperature was highest at Dundee, 57°.8; and lowest at Aberdeen, 55°. The general mean was 56°.4.

Rain.—The largest amounts were—1.39 inch at Aberdeen, and 1.35 inch at Greenock. The smallest were 0.23 inch at Edinburgh, and 0°.30 inch at Leith. The general mean was 0°.71 inch.

JAMES GLAISHER, F.R.S.

Obituary.

WE regret to record the death, at Goldings Park, Herts, aged seventy-seven years, of Mr. JOHN CATTON, for twenty-four years gardener at Babraham Hall.

Answers to Correspondents.

BELGIUM AND HOLLAND: *Business.* Ghent, in Belgium, and Haarlem, in Holland, are the centres of the nursery trade in those countries. Make those towns your headquarters, and pick up what other information you want on the spot.

CAMELLIAS: *R. P. W.* The leaves have all the appearance of being scalded, either by lenses in the glass or by drops of condensed water on the glass, or by being caught by the sun while covered with drops of water. They have perhaps had too much sun. Are the roots taking to the soil you have potted them in? If not, try a more loamy compost. In any case, recovery must be a work of time.

CONIFER SEEDS: *A Constant Reader.* Try Messrs. Howcroft & Watkins, seedsmen, Covent Garden, W.C.

GARDENS IN LONDON: *B.* The Metropolitan Board of Works has the power of taking these over, and of committing their care to the ratepayers of the district, or to the vestry of the parish.

GOOSEBERRY CATERPILLARS: *J. B. Tibbets.* The mixture of Quassia water and Gishurst must have been put on while too hot, as there is nothing in either of the compounds to injure the trees in the manner you describe.

GRAPES: *T. W. H.* The heaviest bunches were exhibited at Edinburgh in the autumn of 1875:—Trebbiana, 26 lb. 4 oz.; and White Nice, 25 lb. 15 oz.—*Gregorius.* You are quite right. See answer above.

INSECTS: *E. S. D.* The little white grubs which get into the hearts of your young seedling Carnations, and also into those of recently layered plants, are the larvæ of a small two-winged fly (Phytomyza sp. ?) like a miniature house-fly, of a greyish colour. We know no other remedy than carefully extracting and burning the infested plants. *I. O. W.*—*W. J. C.* The tops, or crowns, of your young Cauliflower plants are infested with the small white larvæ, or maggots, of a two-winged fly, smaller than the common house-fly, which larvæ feed upon the delicate base of the young leaves within the buds. They belong to the genus Anthomyia, and are probably identical with the A. Brassicæ; but this can only be determined by breeding the perfect flies. The diseased head ought to be cut off and burnt, as there is no way of catching the flies; but watering the plants with soapsuds and gas-tar water is said to be advantageous. Please send some more specimens of the diseased plants and larvæ to Prof. Westwood, Oxford. *I. O. W.*

LICENSE: *E. A.* You would not want a license to sell plants in a market; but if going from house to house, we presume you will require a hawker's or a pedlar's license. Ask the nearest inspector of police in your district.

NAMES OF PLANTS: *Connon & Reid.* 1 and 2, varieties of Saxifraga Aizoon; 3, specimen insufficient; 4, Saxifraga cuneifolia.—*Mrs. Nicholson.* Cæsalpinia (Erythrostemon) Gilliesii.—*J. H. B.* Aphyllanthes monspeliensis (see Moggridge, *Flor. Mentone*, t. 89).—*Geo. Nunns.* Caliphruria subedentata, often grown as Eucharis candida.—*J. Steele.* Pittosporum phillyræoides; flowers yellow.—*W. A.* Polygonum complexum.—*D. W., Glasgow.* Cotton-grass (Eriophorum vaginatum).—*J. J. Gaitskell.* 1, Spiræa Aruncus; 2, Staphylea pinnata; 3, Euonymus europæus; 4, Berberis empetrifolia; 5, Ligustrum sinense? 6, under this number you send two things—one appears to be Physalis Alkekengi, and the other probably Omphalodes verna.—*F. N. B.* Corydalis lutea.—*C. F.* Diplotaxis muralis.—*C. T.* We cannot name garden varieties of Pelargoniums, there are too many of them.—*G., Bath.* Thalictrum majus.—*S. A. S.* Cotyledon Umbilicus.—*W. T.* 1, Thlaspia arvense; 2, Lepidium Draba.—*Rot.* 1, Davallia bullata; 2, Nephrolepis tuberosa; 3 and 5, Adiantum cuneatum; 4, Adiantum hispidulum.

OXALIS: *J. A. C.* The only way to stamp it out is by being careful to prevent the plant from seeding. Systematic hoeing for a time will do it.

PANSIES: *J. B.* Not worth growing as named varieties. They are very poor.

SECRETARY AND EXHIBITOR: *Thomas H. Hill.* Under the circumstances you describe we should not in the least expect the judges to be influenced by your presence in the tent; but if you are a competitor as well as being secretary, as a matter of tact and good feeling you should keep away from the tent or room while the judging is going on.

SULPHATE OF AMMONIA: *A. Rivers.* Commence with a teaspoonful to a gallon of water, and increase the quantity if you find by experiment that a little more would be beneficial.

VINE BORDER: *A Constant Reader* sends a sample of loam weighing 1½ oz., and asks our opinion upon its quality for making a Vine border. We cannot give him one. Bones, about half a bushel. Do not use much cow-manure, but add old lime rubble, and keep the border open.

CATALOGUE RECEIVED.

BARNAART & Co., Vogelenzang, near Haarlem—Dutch Flower Roots, &c., Wholesale.

COMMUNICATIONS RECEIVED:—C. W. Dod.—W. H. Cullingford.—T. Smith (with thanks).—W. F. G.—D. R. & Co.—T. N.—F. M.—T. F.—G. M.—R. E. W.—C. W. D.—J. G.—J. D.—Dublinensis.—J. M.—P. G.

Markets.

COVENT GARDEN, June 30.

Large supplies of Strawberries have reached us this week, considerably affecting prices of other goods, more particularly Grapes, which have not been cleared except at exceptionally low values. Trade remains the same as last week. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Aralia Sieboldii, doz.	18 0	42 0
Arbor-vitæ (goldeu), per dozen ..	.. 6 0	18 0
— (common), dozen	6 0	12 0
Begonias, per doz. ..	6 0	12 0
Calceolaria, per doz.	6 0	12 0
Creeping Jenny, doz.	3 0	4 0
Cyperus, per dozen	6 0	12 0
Dracæna terminalis	30 0	60 0
— viridis, per doz.	..12 0	24 0
Erica, in variety, doz.	18 0	30 0
Euonymus, various, per dozen ..	.. 6 0	18 0
Evergreens, in var., per dozen ..	.. 6 0	24 0
Ferns, in variety, per dozen ..	.. 4 0	18 0
Ficus elastica, each	1 6	7 6
Foliage Plants, various, each ..	.. 2 0	10 6
Fuchsias, per dozen	6 0	12 0
Ivy Geranium, doz.	4 0	6 0
Lilium longifl., doz.	18 0	42 0
Lobelia, per dozen..	4 0	6 0
Marguerite, white, per dozen..	..18 0	24 0
— Yellow, per doz.	12 0	30 0
Mignonette, per doz.	4 0	6 0
Myrtles, per doz. ..	6 0	12 0
Palms in var., each	2 6	21 0
Pelargoniums, doz.	9 0	30 0
— tricolor, per doz.	3 0	12 0
— scarlet, per doz.	4 0	9 0
Rhodanthe, per doz.	6 0	10 0
Roses, various, doz.	12 0	30 0
Spiræa japonica, doz.	9 0	18 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Abutilon, 12 blooms	0 3	0 6
Antirrhinum, 12 bun.	6 0	9 0
Arum Lilies, 12 blms.	4 0	6 0
Azalea, 12 sprays ..	0 6	..
Bouvardias, per bun.	0 9	1 6
Calceolaria, 12 bun..	9 0	12 0
Carnations, 12 blms.	1 0	2 0
Cornflower, 12 bun..	2 0	4 0
Eucharis, per doz. ..	4 0	0 0
Forget-me-not, 12 bunches ..	.. 3 0	6 0
Gardenias, 12 blms..	3 0	8 0
Heliotropes, 12 sp. ..	0 6	1 0
Hemerocallis (Day Lily), 12 blooms ..	1 0	1 6
Iris, 12 bunches ..	6 0	18 0
Lapageria, white, 12 blooms ..	.. 4 0	6 0
— red, 12 blooms..	1 0	3 0
Lilium longiflorum, 12 blooms ..	.. 4 0	6 0
Marguerites, 12 bun.	0 4	0 9
Mignonette, 12 bun.	4 0	9 0
Pelargoniums, 12 sprays ..	.. 0 9	1 0
— zonal, 12 sprays	0 4	0 9
Pinks, white, 12 bun.	2 0	6 0
— coloured, 12 bun.	3 0	6 0
Primula, double, per bunch ..	.. 0 6	1 0
Rhodanthe, 12 bun.	8 0	12 0
Roses (indoor), doz.	1 0	6 0
— (outdoor), 12 bun.	4 0	9 0
— (Moss), 12 bun.	8 0	12 0
Spiræa, 12 bunches..	8 0	12 0
Stephanotis, 12 spr...	3 0	4 0
Tropæolum, 12 bun.	1 0	3 0
Tuberoses, per dozen	2 0	3 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apricots, per box ..	1 6– 2 6	Lemons, per 100 —	4 0– 6 0
Cherries, per ½-sieve	8 0–12 0	Melons, each ..	2 6– 4 0
Figs, per dozen ..	6 0– 9 0	Peaches, per dozen..	4 0–12 0
Gooseberries, ½-bush.	2 6– 3 6	Pine-apples, Eng., lb.	2 0– 4 0
Grapes, per lb. ..	1 6– 6 0	Strawberries, per lb.	0 6– 1 3

An advance of 20 per cent. on the above prices may be taken as a fair average of the retail value of the articles quoted.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Herbs, per bunch ..	0 2– 0 4
Asparagus, English, per bundle.. ..	6 0– ..	Horse Radish, p. bun.	4 0– ..
— Sprue, per bund.	1 6– 2 0	Lettuces, Cabbage, per doz.	0 6– 1 6
Beans, French, p. lb.	1 0– ..	— Engl. Cos, score	1 6– ..
— Broad, per bush.	6 0– ..	Mint, green, bunch..	0 4– 0 6
Beet, per doz. ..	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz. ..	1 0– 2 0	Onions, per bushel..	5 0– ..
Carrots, per bunch..	0 4– 0 6	— Spring, per bun.	0 6– ..
— New Fr., bund.	0 9– 1 0	Parsley, per bunch..	0 4– ..
Cauliflowers, English, each	0 6– 0 9	Radishes, per bun...	0 2– 0 6
Celery, per bundle ..	1 6– 2 0	Rhubarb, per bund.	0 4– 0 6
Cucumbers, each ..	0 6– 1 6	Small salading, pun.	0 4– ..
Endive, per doz. ..	2 0– 3 0	Spinach, per bushel	4 0– ..
Garlic, per lb. ..	1 0– ..	Tomatos, per lb. ..	0 9– 1 0
		Vegt. Marrows, each	0 6– 0 8

POTATOS, NEW:—Kidney, 8s. to 10s.; Round, 6s. to 7s.; Malta, 8s. to 10s. per cwt.

SEEDS.

LONDON: *June* 29.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that the seed market to-day was very thinly attended, and there was scarcely any business doing. Lower offers of new Trifolium are to hand from France, but these do not meet with any attention. Fine samples of white Mustard, having become scarce, are held for more money. There is no change in Rape seed. For Canary and Hemp seed the trade has shrunk to very narrow proportions. Feeding Linseed is firm. Quotations for spring Tares continue at a low level.

CORN.

At Mark Lane on Monday supplies of home-grown Wheat were very meagre, and comprised some very good qualities, which realsed 1s. advance on the week. Foreign supplies were not heavy, and for these also values for the se'nnight are quite 1s. higher. At the advance there was more business than for some time past. Flour met a steadier sale than lately, at 6d. to 1s. per sack advance. Barley was firm, with a quiet demand. Beans were 1s. dearer. Peas unchanged. Maize was the turn against buyers, and Oats brought 6d. to 9d. over Monday se'nnight, or about last Friday's rates.—On Wednesday there was a more subdued tone, whilst the brilliant weather tended still further to check any eagerness on the part of buyers. But there was nothing pressing for sale, and Monday's rates for Wheat were nominally unaltered. With small arrivals Oats further advanced 3d. per quarter. Other spring corn quiet and unchanged. Flour was held for late rates.—Average prices of corn for the week ending June 25:—Wheat, 45s.; Barley, 30s. 3d.; Oats, 23s. 8d. For the corresponding period last year:—Wheat, 44s. 3d.; Barley, 28s. 3d.; Oats, 26s. 9d.

CATTLE.

At the Metropolitan Market on Monday trade showed improvement, and prices for beasts fully recovered the depression of last Thursday, Sheep and lambs did not move off very readily, but of the former the market was pretty well cleared, prices remaining without appreciable change. Lambs met a slow sale at last Thursday's reduction, and calves were dull of sale Quotations:—Beasts, 4s. to 4s. 10d., and 5s. to 5s. 2d.; calves, 4s. 8d. to 6s.; sheep, 5s. to 5s. 8d., and 5s. 10d. to 6s. 2d.; lambs, 7s. to 7s. 8d.; pigs, 4s. 4d. to 5s.—The trade on Thursday was dull in tone. Supplies were comparatively large, and were fully equal to the demand. Beasts and sheep were both lower to sell. Lambs and calves also were depressed.

POTATOS.

The Borough and Spitalfields Markets reports state that there was very little inquiry for old, but a steady demand for new. Quotations:—Champions, 50s. to 70s.; Victorias, 50s. to 80s. per ton. New: Jersey round, 6s.; kidneys, 10s. to 11s.; French, 6s. to 7s. per cwt.—The imports into London during the past week were as follows:—2100 cases Cherbourg, 4291 cases Barfleur, 449 baskets St. Nazaire, 136 packages Bordeaux, and 2118 packages Jersey.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 14s. 3d.; East Wylam, 15s. 6d.; Ravensworth West Hartley, 14s. 3d.; Walls End—Haswell, 16s. 6d.; Hetton, 16s. 6d.; Hetton Lyons, 14s. 6d.; Lambton, 16s.; Wear, 14s. 6d.; South Hetton, 16s. 6d.; Tunstall, 14s. 6d.; Chilton Tees, 15s.; Thornley, 15s. 6d. and 15s. 9d.; Tees, 16s. 3d.; Hawthorns, 14s. 9d.; Original Hartlepool, 16s. 6d.; Westminster-Brymbo and Wrexham Navigation, 15s. 9d.; Radford Navigation, 16s. 9d.

Government Stock.—The closing prices of Consols on Monday were, for delivery, 100¼ to 100⅜, and 100⅜ to 100½ for the account. On Tuesday the last prices quoted were, for delivery, 100½ to 100⅝, and 100⅝ to 100¾ for the account. The final figures on Wednesday were 100¾ to 100⅞ for both delivery and the account. The feature on the Exchange on Thursday was an improvement of ¼ to ⅜ per cent. on Consols. (All the prices recorded are ex div.)

RUSSIA MATS
For COVERING, TYING and PACKING.
RAFFIA FIBRE for Tying.
TANNED GARDEN NETTING, SCRIM CANVAS and TIFFANY, SEED BAGS and SACKS, TARPAULINS and HORSE CLOTHS. Descriptive Catalogue post-free on application. — JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London.

G. ELAM AND SON, 43, Wellington Street, Strand, London, W.C.
Manufacturers of ROPES, TWINES, SACKS, TARPAULINGS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1s. each; 15 sacks, 12s.; 30 sacks, 20s.; truck-load, delivered to any station in London, 25s. Try our HEMP SASH-LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.
Chief Office: 25, Commercial Road, E.
Works: Belgrave Street, Stepney, London, E.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 2d. per yard; 100 yards, 16s. 4 yards wide, 4d. per yard; 50 yards, 16s.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.
TIFFANY, 5s. and 6s. per piece of 20 yards.
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge.

Garden Walks and Carriage Drives.
BEAUTIFUL RED GRAVEL SIFTINGS, of the best binding nature, put on rail at Farnham Station, S.W.R., at 2s. 9d. per ton. The best of coarse GRAVEL for roads or concrete, same price. Finely sifted sharp SAND, 1s. 10d.
GEORGE FOOT, Farnham, Surrey.

Gentlemen's Gardeners, Amateurs, and Others
REQUIRING
GARDEN POTS
of best quality are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
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VASES, PEDESTALS, FOUNTAINS, GARDEN EDGINGS, &c.,
IN
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PLAIN AND ORNAMENTAL PAVINGS;
TILES FOR LINING WALLS OF Conservatories.
ART POTTERY, including JARDINIERES AND OTHER
Table Decorations and Vases, Fountains, &c., for the Conservatory, in
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Show Rooms, Albert Embankment, S.E.

Rosher's Garden Edging Tiles.
THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
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KENT PEATS or LOAM supplied at lowest rates in any quantities.
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N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

GREENHOUSE SASHES,
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15-oz., 9s.,
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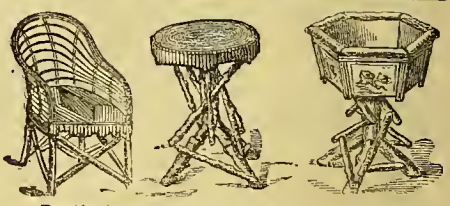
PRICES FREE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Garden Seats, Awnings and Tents, Rustic Tables, Chairs, and Flower Stands, Lawn Mowers, Garden Rollers, Water Barrows Wheelbarrows, Garden Tools, Summer-houses, Sun Dials, Fancy Wirework, Weather Vanes, Hammocks, and all kinds of Garden Furniture at lowest marked prices. *Catalogues post-free.*
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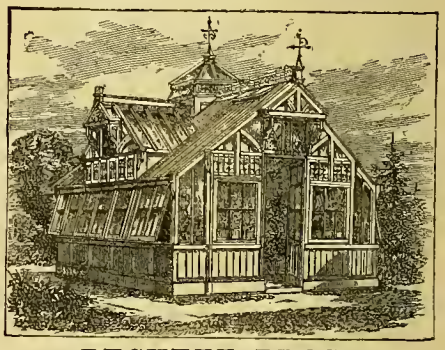
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HORTICULTURAL BUILDERS AND HOT-WATER ENGINEERS.
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Portable Melon Frames, 8 feet by 6 feet, £2 10s.
See Illustrated SHEET, Two Stamps.
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NOTE.—The above structure is ready for immediate delivery, 20 feet by 14 feet, tenant's fixture or otherwise.
WORKS: ANCHOR STREET, CHELMSFORD.
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THE COTTAGE POULTRY HOUSE, TENANT'S FIXTURE.
Of improved construction, can be erected in a few minutes, with Roosting House, Covered Run, Nests, Perches, &c., complete, 12 feet long 4 feet wide. Price £6 10s., carriage paid. Write for Illustrated Catalogue, containing useful Treatise on Poultry Management, free by post.
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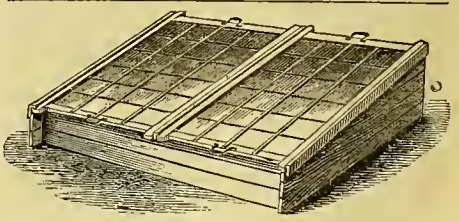
Cucumber Frames.
R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.
Prices, delivered to any station in England, also Dublin a Belfast:—

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2-light frame, 8 feet by 6 feet	3 10 0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.
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SYNOPTICAL LIST of the ROSES of THIRTY YEARS,

COMPRISING

Names, Dates, Raisers, Characters, and Uses of all the best Roses that have been introduced to Cultivation during the past Thirty Years.

This will be compiled from notes on Roses, and their raisers and characters, accumulated by Mr. SHIRLEY HIBBERD in the course of his study of the history and cultivation of the Rose, and is intended to serve as a permanent index to the Rose Garden, and a supplement to all the works that treat of the Rose as a garden flower.

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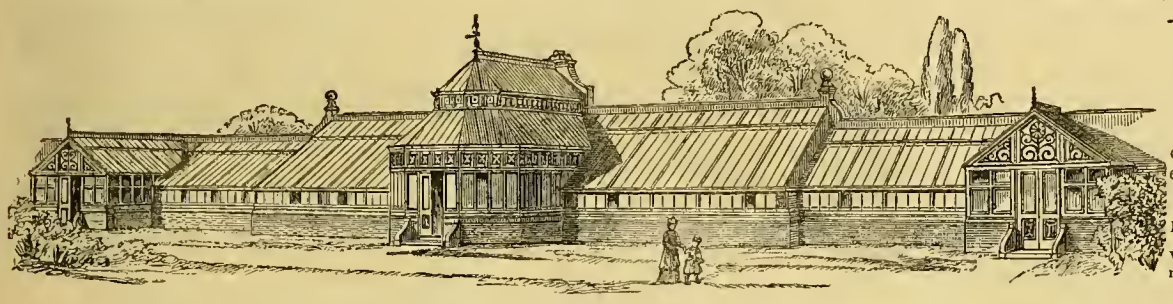

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"Under the name of Hoya globulosa, Cranston's Nursery and Seed Company, Hereford, exhibited, at the meeting of the Royal Horticultural Society, on April 13, 1880, a charming Hoya, so pretty and distinct as to merit and receive a First-class Certificate of Merit.

"We can confidently recommend is as a most useful and valuable plant, blooming profusely and thriving well under the same treatment as other Hoyas. The flowers are of a bright straw colour, the coronal protuberances white, the interstices of a shining brownish-pink, forming a very pleasant contrast; the trusses large and freely produced; and the leaves of a shining green colour, with dark green veins." *Floral Magazine.*

Strong Plants, now ready, 10s. 6d. and 15s. each.

TRADE PRICE ON APPLICATION. COLOURED PLATES ONE SHILLING EACH.

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EXCELSIOR LAWN MOWER

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The Original and Best American Lawn Mower.
ALL OTHERS ARE IMITATIONS.
Adapted for the requirements of Amateurs and Gardeners.
Awarded the SILVER BANKSIAN MEDAL of the Royal Horticultural Society, June, 1880, for Special Merit.

CANNOT CLOG.
CUTS THE BORDERS.
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THE LIGHTEST IN DRAUGHT.
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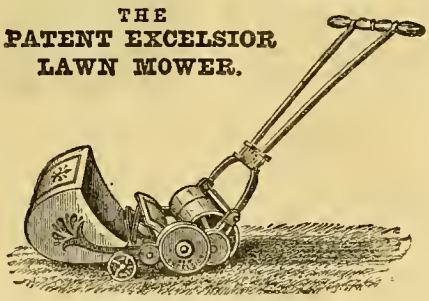
IS A PERFECT MOWER.



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Prices and particulars of any respectable Ironmonger or Florist, and of the Manufacturers,

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ORIGINALLY COMPILED BY THE LATE SIR JOSEPH PAXTON, M.P.

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Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH,

for Preserving Ironwork, Wood, or Stone.

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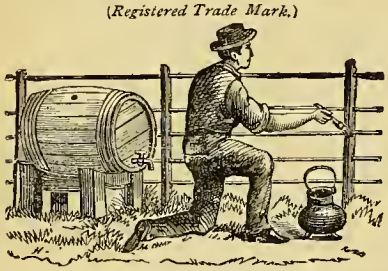

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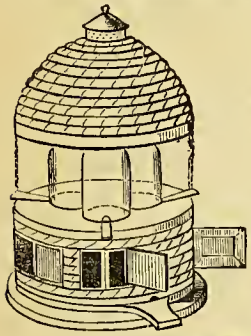

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working three bell-glasses, is neatly and strongly made of straw; it has three windows in the lower Hive.

This Hive will be found to possess many practical advantages, and is more easy of management than any other Beehive that has been introduced.

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Stand for ditto **0 10 6**

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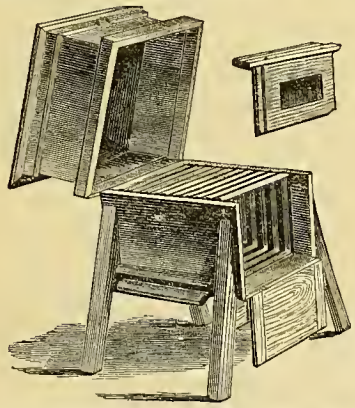

From which the Combs can be removed at side opening whilst supers are on. This Hive affords remarkable facility for manipulation, because the Frames can also be taken out from top as with other Frame Hives, and at the same time affords great opportunity for full inspection, having glass on three sides, closed with shutters.

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SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz.,	300 feet,	30*s.* 0*d.*,	if 21-oz., 200 feet,	30*s.* 0*d.*
Fourths ..	,,	,,	34*s.* 6*d.*	,, ,,	34*s.* 6*d.*
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Also 26-oz., 28-oz., and 32-oz. Glass.

SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½ × 5½	.. 8*s.* 6*d.*,	9*s.* 6*d.*,	10*s.* 6*d.*, 11*s.* 6*d.*
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SHEET LEAD, WHITE LEAD, OILS, TURPENTINE, and COLOURS.

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BUTTON-HOLE FLOWER WATER BOTTLE.

A new invention for keeping flowers fresh in the button-hole, &c. Six free by post for 1*s.* 7*d.*

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Registered. N.B.—Agents Wanted.

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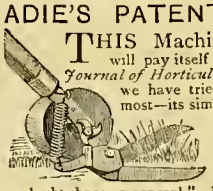

THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and" he further adds, "the use of it will, we have no doubt, become general." Prices 27*s.* and 30*s.*

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PIPES and FITTINGS,

FOR HEATING APPARATUSES.

The largest stock in the Kingdom. 4-inch pipes, 1*s.* 7*d.* per yard.

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REDUCED PRICES.

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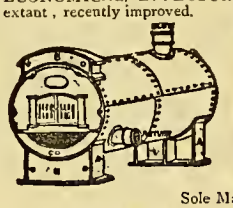
TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most SIMPLE, ECONOMICAL, EFFECTUAL, and LASTING BOILER extant, recently improved.



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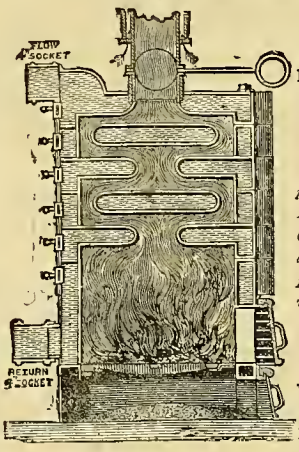
Wright's Patent "Endless-Flame Impact" Hot-water Boilers.



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For HOUSES, YARDS, GARDENS.
For WATER or LIQUID MANURE.
For TANKS or WELLS of any depth.
Supplied with Pipes ready for fixing.

Catalogues on application.

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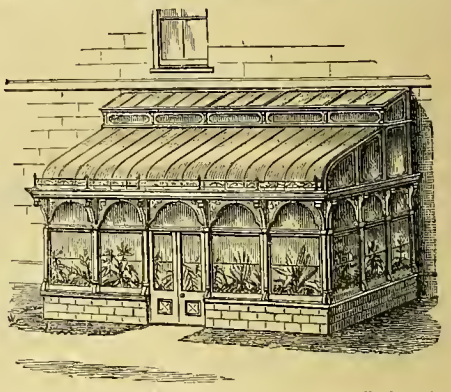

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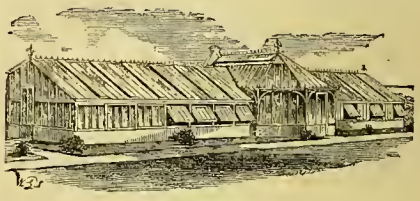

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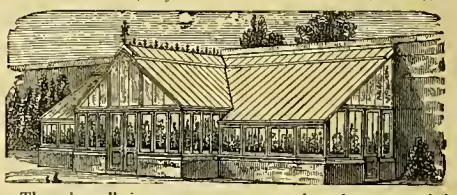

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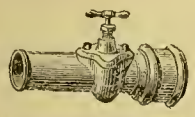

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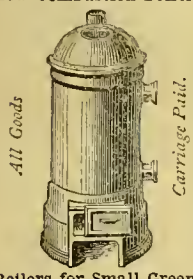

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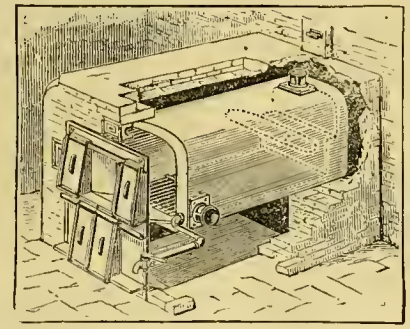

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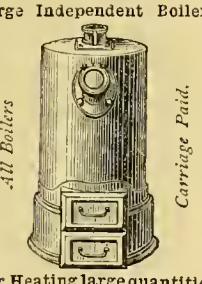

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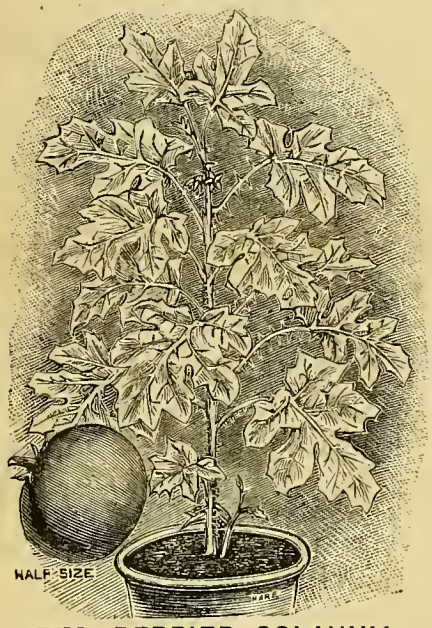

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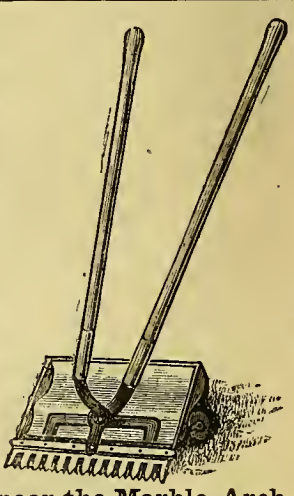

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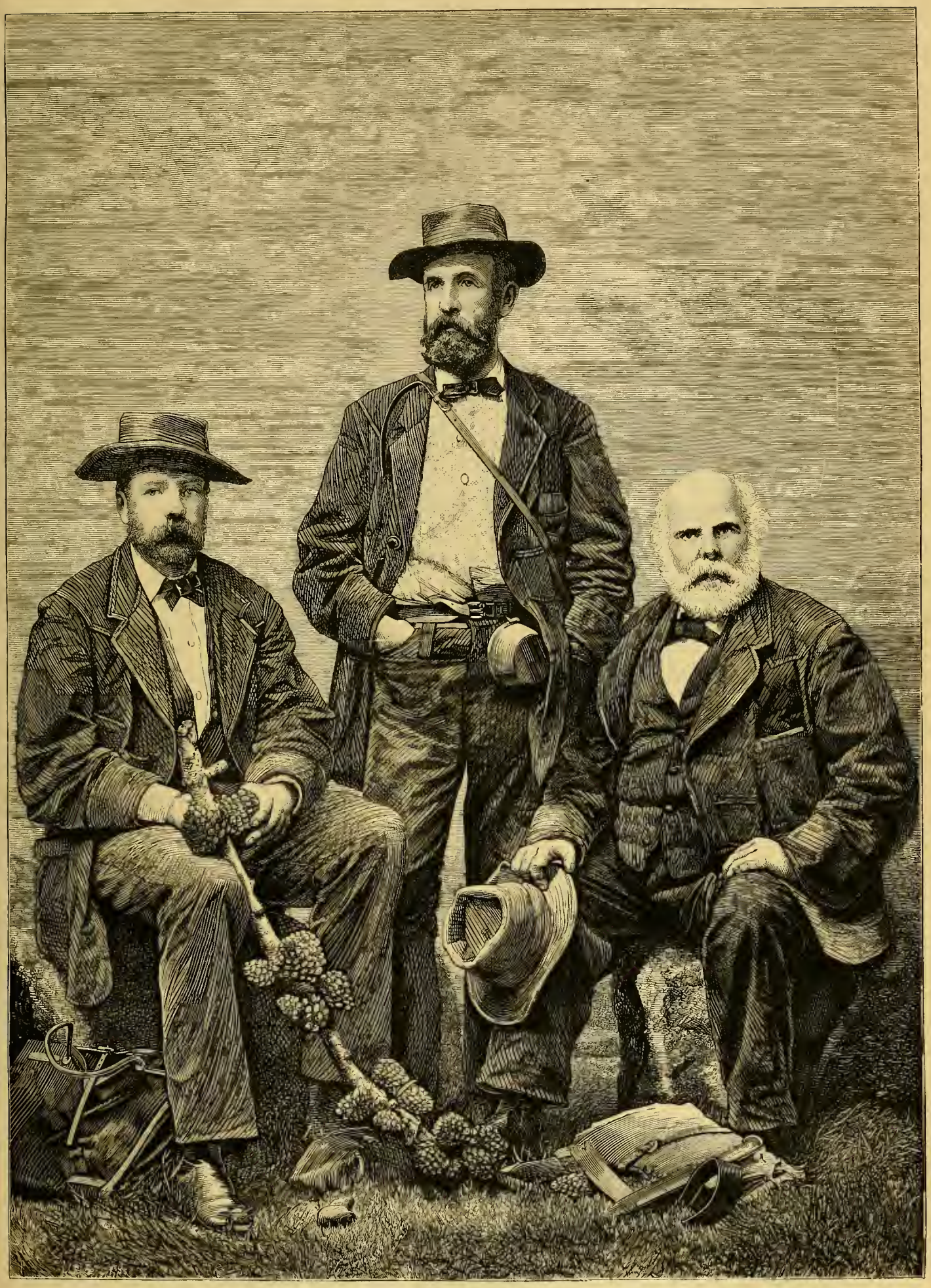

PROF. C. S. SARGENT. MR. SKINNER. DR. ENGELMANN.

(FOREST SURVEY OF THE UNITED STATES.)

THE

GARDENERS' CHRONICLE.

Established 1841.

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NOTICE.—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M.; Scientific at 1 P.M.; General Meeting for the Election of Fellows, &c., at 3 P.M., on TUESDAY next, July 12. Admission, 1s.

N.B.—Prizes offered by Messrs. Hooper & Co., Covent Garden, to be competed for only by Amateurs or Gentlemen's Gardeners :—Calochorti, best collection, in bloom, 42s., 25s.

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ROSE FAIR and PRIZE for the BIGGEST GOOSEBERRY, July 16.

GRAND FLORAL DECORATIONS and LILY SHOW, August 6.

J. FORSYTH JOHNSON, Horticultural Director.

LUDLOW ROSE SHOW.—The ANNUAL EXHIBITION of ROSES will be held at the Assembly Rooms, Ludlow, on TUESDAY, July 12. Liberal open money Prizes will be given to Nurserymen, Amateurs, and Cottagers. Schedules of Prizes and Regulations may be obtained from the Rev. V. T. T. ORGILL, Hon. Sec., Ludlow.

CHISWICK, TURNHAM GREEN, and DISTRICT HORTICULTURAL SOCIETY.

President—His Grace the Duke of Devonshire, K.G.

GRAND EXHIBITION of FLOWERS, FRUITS, &c., on THURSDAY, July 14, in the Royal Horticultural Society's Gardens, Chiswick. Band of the Scots Guards from 3 to 6 o'Clock.

Entries for Exhibition to be sent to Mr. BARRON, Royal Horticultural Society's Garden at Chiswick, not later than July 9.

The Exhibition will be opened at 12 o'Clock to Subscribers, and at 1 o'Clock to the general public on payment of 2s. 6d. Admission at 3 o'Clock, 1s.

J. T. MUSGRAVE, Hon. Secretary.

Sutton Court Road, Turnham Green.

LIVERPOOL HORTICULTURAL ASSOCIATION.

The THIRD GRAND SUMMER EXHIBITION of PLANTS, FLOWERS, FRUIT and VEGETABLES will be held in Sefton Park, on SATURDAY, July 30, and MONDAY, August 1. Entries close July 23.

The SECOND EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held on WEDNESDAY, November 23. For Schedule of Prizes apply to

EDWARD BRIDGE, Secretary,
Whitebrooke Cottage, Hayton, near Liverpool.

Double-flowered Bouvardia, Alfred Neuner.

MR. WILLIAM BULL can now supply this pretty and desirable novelty, as announced by him last January, by the dozen or 100, at 10s. 6d. each.

Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

Orchids, &c.

THE NEW PLANT and BULB COMPANY'S SPECIAL LIST (No. 51) is just published. Post-free on application.

Lion Walk, Colchester.

Hyacinths, Tulips, &c.

BUDDENBORG BROTHERS, Bulb Growers, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.

B. B. have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

ADIANTUM GRACILLIMUM, fine stuff, in 48-pots, 10s. per dozen, £3 12s. per 100; do., in 32- and 24-pots, large show plants, 24s. per dozen, £9 per 100.

DRACÆNA AUSTRALIS, with 20 to 24 leaves, 12s. per doz.

,, INDIVISA, with 18 to 24 leaves, 12s. per dozen.

Packing included for cash with order, to

T. JANNOCH, Nurseryman, Dersingham, Norfolk.

Gardenia Intermedia.

MESSRS. JOHN STANDISH and CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.

Royal Nurseries, Ascot, Berks.

Primulas — Primulas — Primulas.

Twelfth Year of Distribution.

WILLIAMS' superb strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS same price. Package and carriage free.

The above are quite equal to those I have sent out in previous years. Cash with order.

JOHN STEVENS, The Nurseries, Coventry.

POT ROSES and CLEMATIS.—A large and very extensive collection of the above, including the finest varieties, now ready. Orders respectfully solicited.

W. B. ROWE and CO. (Limited), Barbourne Nurseries, Worcester.

Hardy Ferns.

HUSSEY and SON offer a Collection of twenty choice varieties, including CYSTOPTERIS MONTANA, ONOCLEA SENSIBILIS, STRUTHIOPTERIS GERMANICA, and other rare kinds, for 15s.—LIST of the sorts on application.

Mile End Nursery, Norwich.

To the Trade Only.

E. H. KRELAGE and SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland. The Wholesale CATALOGUE (No. 353A) of Dutch Flower Roots, and miscellaneous Bulbous and Tuberous-rooted Plants for 1881-82 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

CALCEOLARIA BURBIDGEI.—This beautiful plant is a cross between C. Fuchsiæfolia and C. Pavonii, and is exactly intermediate between the two parents. The foliage is downy, about one-third that of C. Pavonii in size; the habit of the plant is free and branching, and, unlike C. Fuchsiæfolia, not at all subject to sunscorch; the flowers are the same colour as the latter plant. It flowers during the autumn and winter months. It was raised by Mr. Burbridge, of the College Botanic Gardens, Dublin.

Trade price, strong plants, 36s. per dozen.

RODGER McCLELLAND and CO., 64, Hill Street, Newry.

STRAWBERRY RUNNERS.—Strong, healthy, and well-rooted, from twenty of the best varieties in cultivation. Price LIST, &c., on application.

Manual on Strawberry Culture, with Sample Box of Plants and Fruit, post-free 1s.

W. LOVEL & SON, Strawberry Farmers, Weaverthorpe, York

WANTED, PELARGONIUM CUTTINGS, early flowering, market sorts; also GERANIUMS. Send LIST of sorts, and price per 100, to WM. ABRAHAM, Nurseryman, Limerick.

WANTED, CUT ROSES, and OTHER FLOWERS.

THOS. MILNER and SON, Bradford, Yorks.

WARREN and CRAIK require MARÉCHAL NIEL and WHITE MOSS ROSES, not for Commission.

43, Jermyn Street, St. James, London, W.

FLORAL COMMISSION AGENCY.—WANTED, CUT MARÉCHAL NIEL ROSES, and EUCHARIS.—W. CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.

WANTED, CONSIGNMENTS of PEACHES and other FRUITS, CHOICE CUT FLOWERS, CUCUMBERS, TOMATOS, &c.

WISE and RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

SUTTONS' CALCEOLARIA. THE BEST.

"Really grand in size, colour, and variety."

Rev. T. J. W.

Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' CINERARIA. THE BEST.

"The best I have seen, both for variety of colour and size of flower."—J. R.

Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' PRIMULA. THE BEST.

"The admiration of all who see them."—W. P. J.

Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' BEGONIA. THE BEST.

"The form, size, substance, and colour of the flowers are perfect."—W. H.

Price 2s. 6d. and 5s. per packet, post-free.

SUTTONS' GLOXINIA. THE BEST.

"The Gloxinias are really magnificent."—W. M.

Price 2s. 6d. and 5s. per packet, post-free.

SUTTON and SONS, The Queen's Seedsmen, READING, BERKS.

Bedding Plants for the Million.

JAS. HOLDER and SON can supply strong, healthy Plants of Scarlet and Variegated GERANIUMS, VERBENAS, GAZANIAS, AGERATUMS, LOBELIAS, Single PETUNIAS, DAHLIAS, SALVIAS, CHRYSANTHEMUMS, FUCHSIAS, HELIOTROPES, IRESINES, MESEMBRYANTHEMUM, CINERARIA MARITIMA, &c. Eight dozen for 20s.; box and packing free. Cash with order.

Crown Nursery, Reading.

6000 Grape Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

GERANIUMS.—The best of the New, all that took Prizes or Certificates.—Denny's Romeo, Dudu, &c., eight varieties, post-free, for 6s.; Catlin's (Carter & Co.), five varieties, for 4s.; Cannell's, ten varieties, for 7s. 6d.; Pearson's, ten varieties, for 7s. 6d.; Cuttings half-price. All the best Doubles in Cultivation. Also PELARGONIUMS Regal and others. See CATALOGUE.

RICHARD PANNETT, Nurseryman, Chailey, Sussex.

Cheap Surplus Stock.—Cheap Surplus Stock.

GERANIUMS.—Mrs. Pollock, Italia Unita, Glen Eyre Beauty, Master Christine, Vesuvius, Scarlet, Pink, Rose, Beauty of Calderdale, Marshal McMahon, Variegated Bijou, and other choice Geraniums. Price on application.

FLETCHER and SON, Florists, &c., Chesterfield.

DUTCH BULBS.—Cheap Route.—Buyers when ordering should request the Growers to Consign them to

WATSON and SCULL, 90, Lower Thames Street, London, E.C., Forwarders to all parts of the World; they will then secure speed with cheapness.

LAPAGERIA ALBA, the finest and largest stock in Europe, strong hardy plants which have been wintered in cold frames, from 15s. to £15 15s.

LAPAGERIA ROSEA, good specimen plants, from 21s. to £10 10s. each. The Trade liberally treated, for cash.

W. HOWARD, Southgate, N.

LILY OF THE VALLEY.—Best and earliest variety for forcing. Strong single crowns. Early orders will oblige.

SEEMANN and GOEPEL, Wandsbeck, near Hamburgh.

The Very Best Selections.

CALCEOLARIA, CINERARIA, PRIMULA, GLOXINIA, BEGONIA, each, 1s. 6d., 2s. 6d., and 5s. per packet. These, as well as Seeds of all sorts, of best quality, post and carriage free.

JAMES DICKSON and SONS, "Newton" Nurseries, Chester.

East Lothian Intermediate Stocks.

THOMAS METHVEN and SONS beg to offer their choice strain of the above, in five colours, viz., Scarlet, Purple, White, White-wall-leaved, and Crimson, at 1s., 2s. 6d., and 5s. each colour.

15, Princes Street, Edinburgh.

Wholesale Export Business.

CONVALLARIA MAJALIS (LILY OF THE VALLEY).

We beg to offer the above for the autumn of 1881, first-rate quality, 700 bulbs for 30s., carriage paid to the frontier. Stock half a million. Three months' credit, 2 per Cent. discount for ready money.

HEUER and STOCK, Nurserymen, Eimsbuttel, Hamburg, Germany.

To the Trade.

RAPE SEED and WHITE MUSTARD.

H. and F. SHARPE will be pleased to submit SAMPLES of the abovenamed SEEDS, of the finest quality, and at very moderate prices.

Seed Growing Establishment, Wisbech.

Mangel Wurzel Seed.

JOHN SHARPE is now prepared to supply samples and special quotations to the Trade.

Bardney Manor, Lincoln.

SALES BY AUCTION.

Potter's Bar, one mile from the Station.

By order of the Trustees of the late R. Atkins, Esq.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, July 11, at 2 o'Clock precisely, a thoroughly well-built double-fronted detached FREEHOLD VILLA RESIDENCE, known as Albemarle House, Potter's Bar, containing 14 rooms with Stabling and Coach-house; also 14 Span-roof Greenhouses and a large Vinery, all heated by about 4000 feet of hot-water piping, driven by seven boilers, standing on a block of ground 160 feet by 300 feet; the whole being of the estimated rental value of £100 per annum. Now in the occupation of Mr. Mott.

Particulars of Sale may be had on the Premises; at the Mart; of G. S. HALL, Esq., Solicitor, Ely, Cambridgeshire; and of the Auctioneers, 8, New Broad Street, E.C.; and Leytonstone, E.

Established and Imported Orchids.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, July 18, the second portion of a large importation of LÆLIA MAJALIS, received direct from Mexico for unreserved sale; also 400 lots of Established ORCHIDS.

Catalogues had at the Mart, and 8, New Broad Street, E.C.

Wednesday Next.

ODONTOGLOSSUM YEXILLARIUM, O. CRISPUM, and O. PHALÆNOPSIS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, July 13, at half-past 12 o'Clotk precisely, by direction of Messrs. Shuttleworth, Carder & Co., 191, Park Road, Clapham, S.W., a fine importation of ODONTOGLOSSUM YEXILLARIUM, O. CRISPUM, and O. PESCATOREI—all in splendid condition.

On view the morning of Sale, and Catalogues had.

Cattleya Mossiæ.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 13, at half-past 12 o'Clock precisely, a large importation of CATTLEYA MOSSIÆ, and its varieties. Collector writes:—"Among the Cattleyas are a quantity of a beautiful variety of Mossiæ, which has a certain likeness to Trianæ; the labellum is much frilled, deep yellow in the interior, dark red in the middle, with a blush or rather white border. It is a variety flowering in February." Many of the above are in large masses.

On view the morning of Sale, and Catalogues had.

Epidendrum bicornutum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 13, at half-past 12 o'Clock precisely, an excellent importation of this lovely and scarce ORCHID, many of them in magnificent large masses.

On view morning of Sale, and Catalogues had,

Dendrobium canaliculatum and Bletia Blumei.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 13, at half-past 12 o'Clock precisely, an importation from Queensland of the New DENDROBIUM CANALICULATUM, which gives many fine spikes on a plant, with from forty to fifty flowers on each spike; it is very free blooming, and the flowers deliciously fragrant. Also some good Tubers of the pretty and rare BLETIA BLUMEI, with pink coloured flowers.

On view the morning of Sale, and Catalogues had.

Thursday Next.

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Gardens, W.C., on THURSDAY NEXT, July 14, at half-past 12 o'Clock precisely (by order of Mr. F. Sander, of St. Albans), a fine Importation of CATTLEYA AUREA, one mass among them with 100 bulbs—flowers will be shown; CATTLEYA DOWIANA, large consignments of LÆLIA AUTUMNALIS, and the beautiful LÆLIA PEDUNCULARIS, CATTLEYA GIGAS, EPIDENDRUM DICHROMUM, five species of new ORCHIS, ODONTOGLOSSUM CITROSMUM and LAEVE; also other importations.

May be viewed the morning of Sale, and Catalogues had.

To Market Gardeners.

TO BE LET, UPNEY FARM, within half a mile of Barking Railway Station, for many years occupied by the late Mr. Thos. Circuit and his representatives. The whole Land is in the highest possible state of cultivation, and possession can be had at Michaelmas.

For particulars apply to Messrs. GODWIN AND BASLEY, Estate Agents and Surveyors, 28, Cadogan Place, Belgrave Square, London, S.W.

TO LET, at Michaelmas next, an extensive FRUIT and KITCHEN GARDEN, containing 3½ acres, with Greenhouse and Vinery, in good condition, with House. Apply,

THOS. COGHILL, Norwich Street, East Dereham, Norfolk.

TO BE LET, an old-established NURSERY, FLORIST, and SEEDSMAN'S BUSINESS, with immediate possession, on account of the death of the late proprietor, who has carried on a successful business for the last thirty years. The Premises comprise a convenient Dwelling-house, Seed Shop and good Storage. There are 8½ Acres of deep rich Soil, and all the necessary Glass-houses, &c., for carrying on a large business. For particulars apply to

J. WATSON, 38, Crown Street, Bury St. Edmund's.

To Nurserymen and Florists.

TO BE LET, a Piece of GARDEN GROUND, about 240 feet frontage by 100 feet deep, with a convenient Brick Building and Shed, situate in Hargrave Park Road, Upper Holloway, N. For particulars apply at Cuba House, 76, Junction Road, N.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

NEWCASTLE-ON-TYNE BOTANICAL and HORTICULTURAL SOCIETY.

SUMMER SHOW, July 27, 28 and 29, 1881.

Entries close on WEDNESDAY, July 20. Schedules can be had on application to JAS. J. GILLESPIE, Secretary,

Cross House Chambers, Newcastle.

DEVIZES HORTICULTURAL SOCIETY.

By kind permission of C. E. H. A. Colston, Esq., a GRAND SHOW of PLANTS, FLOWERS, FRUITS, and VEGETABLES will be held at Roundaway Park, Devizes, on MONDAY, August 1.

LIST OF PRIZES (Open to All except where otherwise stated).

Class.		1st.	2d.	3d.
1.	12 STOVE and GREENHOUSE PLANTS, viz., 6 in bloom, and 6 for foliage	s. 140	s. 80	s. 40
2.	6 STOVE and GREENHOUSE PLANTS, in bloom, distinct	60	30	..
3.	6 ORNAMENTAL FOLIAGE PLANTS, distinct	40	30	20
4.	12 EXOTIC FERNS, distinct	60	40	..
5.	9 ditto, ditto, ditto	40	20	..
6.	9 FUCHSIAS, distinct	80	50	20
7.	6 ditto, ditto	50	30	15
8.	4 ditto, ditto	20	10	..
9.	GROUP of ANY NUMBER of PLANTS, for effective arrangement, to occupy 12 ft. by 10 ft.	50	30	20
10.	6 GERANIUMS, single plants, distinct	20	15	10
11.	6 ditto, variegated, distinct	15	10	..
12.	6 PETUNIAS, distinct	15	10	..
13.	6 GLOXINIAS, ditto	10	7	5
14.	6 BEGONIAS, ditto	10	7	5
15.	6 ACHIMENES, ditto	10	7	5
16.	6 COCKSCOMBS	7	5	..
17.	6 BALSAMS, distinct	10	7	..
18.	6 VERBENAS, ditto	10	7	..
19.	6 COLEUS, ditto	10	5	..
20.	ROSES, 48 single blooms, distinct, with their own leaves	140	80	..
21.	„ 24 ditto, ditto, ditto	60	40	..
22.	„ 24 bunches, 3 in each, ditto	60	30	..
23.	„ 18 ditto, ditto, ditto	40	20	..
24	„ 24 single blooms, distinct, with their own leaves (Amateurs only)	40	20	10
25.	„ 12 ditto, ditto, ditto	20	15	10
26.	„ 12 bunches, 3 in each, distinct, ditto	20	15	10
27.	CUT GERANIUMS, 18 bunches, distinct, not more than 5 stems in each	7	5	..
28.	COLLECTION OF FRUIT, 6 distinct kinds (Black and White Grapes may be shown as two kinds)	50	30	20
29.	GRAPES, Black, 2 bunches	10	7	5
30.	GRAPES, White, 2 bunches	10	7	5
31.	PEACHES, best dish of 6	7	5	3
32.	NECTARINES, best dish of 6	7	5	3
33.	MELON, green-flesh	5	3	..
34.	MELON, scarlet-flesh	5	3	..
35.	Collection of VEGETABLES, 9 varieties	10	7	..
36.	Ditto, ditto, 6 varieties	5	3	..
37.	CUCUMBERS, 1 brace	5	3	..

N.B.—The Vegetables shown in the following Classes must have been actually grown by the Exhibitors.

SPECIAL PRIZES offered by Court Dolphin, 3037, Ancient Order of Foresters, Devizes. (For Cottagers.)

Class.		1st.	2d.	3d.	4th.
38.	For the Best Collection of VEGETABLES, 6 distinct varieties	s. d. 10 0	s. d. 8 0	s. d. 6 0	s. d. 3 6
39.	For the Best Collection of POTATOS, 4 distinct varieties (12 of each)	7 0	5 0	2 6	1 6
40.	Best Single Dish of POTATOS, any variety	4 0	2 6	..	..
41.	For the Best NOSEGAY of WILD FLOWERS, to be confined to the Juvenile Foresters of Devizes	5 0	2 0	2 0	..

SPECIAL PRIZES given by the Oddfellows of the Loyal Independent and the Providential Dolphin Lodges of Devizes. (For Cottagers.) These Prizes are limited to Artisans or Labourers, not being Gentlemen's or Market Gardeners.

		1st.	2d.	3d.
42.	VEGETABLES, 6 most useful varieties	s. 15	s. 10	s. 5
43.	„ 4 „ „	10	7	4
44.	POTATOS, round, half-peck	5	4	3
45.	„ kidney, „	5	4	3
46.	ONIONS, 12, Spring sown	4	3	2

Mr. C. N. MAY, Elm Lodge, Devizes, } Hon. Secs.
Mr. J. A. RANDELL, Devizes, }
Mr. C. N. MAY, Elm Lodge, Devizes, Treasurer.
Mr. THOMAS KING, Devizes, Superintendent.

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY.

The NINTH ANNUAL EXHIBITION will be held at Weston-super-Mare, on TUESDAY, August 9. TWO HUNDRED POUNDS in Prizes. Schedules now ready.

W. B. FRAMPTON, Secretary.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

GREAT SHOW IN OSMASTON PARK, DERBY,

OF

HORSES, CATTLE, SHEEP, PIGS, and IMPLEMENTS, BUTTER and CHEESE, BEEKEEPING, and DAIRYING APPLIANCES.

JULY 12 to 18, 1881.

TUESDAY, July 12.—Implement Yard only, 9 A.M. till 6 P.M. Admission, 2s. 6d. each person.

WEDNESDAY, July 13.—The entire Showyard open from 9 in the morning, at which hour the Judges will commence inspecting the Live Stock and making their awards. Admission, 5s. each person.

THURSDAY and FRIDAY, July 14 and 15.—Admission, 2s. 6d. each person.

SATURDAY and MONDAY, July 16 and 18.—Admission, 1s. each person.

Practical Dairying and Bee-Management exhibited daily.

General Meeting of Members, Thursday, July 14, at 12.30 P.M.

Non-transferable Season Tickets, price Half a Guinea, admitting the holder to the Showyard on WEDNESDAY, July 13, to MONDAY, July 18 (Sunday excepted), and available for re-admission, may be obtained at the Secretary' Office, near the Showyard; or of E. CLULOW, Jun., 36, Victoria Street, Derby.

H. M. JENKINS, Secretary,

12, Hanover Square, London, W.

GRAND INTERNATIONAL HORTICULTURAL EXHIBITION, 1881.

The Great Horticultural Event of the Year.

To be held in the Royal Botanical Gardens, Manchester, on AUGUST 24 and three following days.

TWO THOUSAND POUNDS in PRIZES.

The Exhibition will open to the Public on the first day at 2 P.M., at a charge of 2s. 6d. each, the three remaining days 1s. each. Special Trains from all parts of the country. For Schedules, &c., apply to the undersigned,

BRUCE FINDLAY, Curator and Secretary.

Royal Botanic Gardens, Manchester.

GREAT INTERNATIONAL, HORTICULTURAL EXHIBITION, 1881.

ADDITIONAL LAND has been taken for a SPECIAL EXHIBITION of HORTICULTURAL IMPLEMENTS, DESIGNS, &c., and for which Medals will be awarded, as per Schedule. Certificates of Entry, &c., may be had from the undersigned.

SPECIAL NOTICE.—For the Horticultural Department Entries close on August 14. For the Implement Department Entries close on August 10.

BRUCE FINDLAY.

Manchester.

The Future Bedding Zonal.

HENDER'S CRIMSON VESUVIUS.—Sport from Vesuvius; Trusses much larger, and of splendid form; Colour, rich crimson, similar to Dr. Denny's Commander-in-Chief, or Keynes' Fire King.

"Judging from the immense size of the truss of your new Vesuvius, and the colour of the flowers (a fine deep crimson), I have no doubt but what it is a great improvement on the old Vesuvius."—W. PATERSON, *Gr. to* Her Majesty the Queen, *Balmoral Castle, May* 2, 1881.

List of Testimonials, post-free. 5s. each. To be sent out early in August. Usual discount to the Trade.

HENDER AND SONS, Bedford Nursery, Plymouth.

BEDDING PANSIES.

SUNBURST, best and finest red, 20s. per 100.
PILRIG PARK, fine white, 14s. per 100.
IMPERATOR, finest purple self, 14s. per 100.
EMPRESS, excellent yellow, 12s. per 100.
BRILLIANT, golden-yellow, 16s. per 100.
CLIVEDEN, purple, 2s. 6d. per dozen.

POLEMONIUM CŒRULEA VARIEGATA, 3s. per dozen.

RODGER McCLELLAND AND CO., 64, Hill Street, Newry.

WARTEL FRÈRES, NURSERYMEN, Ghent, have to offer:—

AZALEA MOLLIS—Seedlings, well set for flower, 100 to 400 francs per 100; select varieties, 150 to 500 francs per 100.
AZALEA PONTICA—From the open ground, 125 to 400 francs per 100.
AZALEA INDICA—Well set for flower, 90 to 600 francs per 100; also specimen plants for exhibition.
CAMELLIAS—Set for flower, 150 to 300 francs per 100; also larger specimens.
DRACÆNA TERMINALIS—Good specimens, 300 francs per 100.
LATANIAS—10,000 from 200 to 2000 francs per 100.
PHŒNIX RECLINATA, 250 to 1500 francs per 100.
DRACÆNA INDIVISA and D. LINEATA—Of all sizes and prices.
CHAMÆROPS EXCELSA, C. HUMILIS, ARECA LUTESCENS, A. SAPIDA, A. BAUERI, CORYPHA AUSTRALIS, of all sizes.
PALMS—30,000 for sale, good healthy plants.

Wholesale Trade Only.

We Offer, for the Autumn of 1881,

CONVALLARIA MAJALIS (Lily of the Valley), first quality, 700 for 30s., carriage paid to the frontier. Stock half a million. Three months' credit; two per cent. discount for cash.

HEUER AND STARK, Nurserymen, Eimsbuttel, Hamburg, Germany.

PANSIES.—We offer for the approaching season Seed of the following superior, large-flowered varieties of Pansies, dark blue, brownish-red, and light blue:—

KAISER WILHELM, quadricolor.—Clear golden-yellow, violet bordered with white. 2s. 4d. per oz., 1d. per packet.
BARON DE ROTHSCHILD.—Burnished gold colour. 3s. per ounce, 1d. per packet.
AURIKEL.—Bronze colour, splendid flowers; Rœmer's Improved, nigra; Dr. Faust, rubra. 4s. 6d. per ounce, 1½d. per packet.
SNOW-WHITE, STRIATA PERFECTA (Rœmer's Improved).—White, with a violet eye. 7s. 6d. per ounce, 2½d per packet.
ODIER.—Largest blooms. 10s. 6d. per ounce, 4d. per packet.
CORONATA.—A novelty (Rœmer). 5s. per pkt.

The above splendid sorts, 1st quality, assorted, 20s. per pound, 2s. 4d. per ounce; 2d quality, mixed, 16s. per pound, 1s. 4d. per ounce. Also the best, selected, blooming varieties of the old colours. 12s. 7½d. per packet.

My collection of Pansies gained a prize last year at Magdeburg.

FRIEDR. RŒMER, Seed Grower, Quedlinburg, Germany.

HEDERA HELIX MADEIRENSIS VARIEGATA.

This very handsomely variegated IVY obtained First-class Certificates at the Exhibition of the Royal Horticultural Society on July 13, 1880, and of the Royal Botanic Society, on May 25 last. It was figured in the *Gardeners' Chronicle*, and described as follows:—

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THE
Gardeners' Chronicle.
SATURDAY, JULY 9, 1881.

A RAMBLE ON THE GLYDER.

ON the morning of July 2 four of us, including a botanist, and two other friends from the neighbourhood, all used to the mountains, drove from Bangor Station to the lonely cottage at the lower end of Llyn Ogwen. In our drive we noticed Valeriana pyrenaica in several spots on the roadside: this plant, introduced within thirty years, has now thoroughly established itself along the lower valley of the Ogwen. Clumps of tall Foxgloves growing everywhere, and the bright crimson flowers of Rosa villosa, and on the walls the masses of Sedum anglicum, now covered with flowers of a delicate rosy tint, helped to make the drive beautiful. From the cottage we walked along the edge of Llyn Idwall, in which Lobelia Dortmanna was just putting up flower-stalks, and Subularia aquatica was visible in abundance. We then ascended towards the famous gap known as Twll Dhu, generally called the Devil's Kitchen. Butterwort and the round-leaved Sundew were everywhere in profusion. Butterwort is abundant amongst the Carnarvonshire hills from nearly the sea level to an elevation of about 2000 feet, where it begins to get scarce. The neighbourhood of Llyn Idwall is one of its headquarters: here and there a patch of two or three square yards was quite blue with it.

As we mount the wet, rocky bank, Asplenium viride occurs sparingly, growing on the under-surface of the large stones. I remember it far more abundant there, but dealers have nearly cleared it out. The Oak and Parsley and Filmy Ferns are all in profusion; these and Cystopteris fragilis were the only local Ferns we found. The Holly Fern was formerly abundant on the higher rocks, but has now disappeared wherever ropes and shepherds can reach: the price native specimens used to fetch in Llandudno market was too tempting. On the wet grassy slopes Thalictrum alpinum begins to be abundant at about 1200 feet above the sea, and continues to 2000. It is a shabby little plant, hardly raising its leaves above the grass, and seldom flowering; I have often walked over it without observing it. Twll Dhu has been called a paradise of botanists, and it is certainly delightful to a botanist not only to see all the pretty and rare plants there, but to reflect how impossible it is ever to reach most of them on the slippery and overhanging sides of the precipices. The mixture of plants of different habit is remarkable. Silene acaulis, of which you can never reach the end of the tap-root, is still beautiful with its pink flowers, and luxuriates on the wet rocks high and low. Saxifraga oppositifolia is abundant too, and seems to delight equally in wet. One of our party told me that two forms grow there, one bearing flowers twice as large as the other, like the variety sold as pyrenaica. Alchemilla vulgaris and Thalictrum minus hang elegantly from the crevices, mixed with large and conspicuous tufts of Sedum Rhodiola, now at its best.

I was surprised to see on the wet rocky ledges at this elevation of 2000 feet abundance

of the yellow flowers of Trollius europæus, also a fine spike of a purple Orchis, probably O. latifolia. Geum rivale, Galium boreale, and Oxyria reniformis, are all plentiful. The rarest plant of the place—Lloydia serotina—which grows on the inaccessible sides of the Kitchen, we could not recognise. It can only be distinguished from grass by the flowers, growing as it does quite out of reach; and the flowers, Mr. Griffith told us, last with marvellous regularity from June 15 to 25, and are then over. Ascending under the rocks on the south side of the Kitchen, where there is an easy track, we saw many pretty tufts of Arenaria verna, covered with snow-white flowers, and hanging by a slender tap-root from minute fissures in the perpendicular sides. In drier chinks the dwarf variety of Solidago known as cambrica becomes common, but it does not seem truly distinct, for I find that in my garden it soon assumes the coarseness of the common S. virgaurea. Still higher, Gnaphalium dioicum grows on the dry horizontal surface of the bare rocks, and Saxifraga stellaris, abundant everywhere but on the lower hills, seeming to be semi-aquatic, as we get higher appears to be satisfied with the moisture it gets from above, and grows amongst dry stones. It also increases in size; and in the shelter of some rocks at more than 3000 feet elevation I found a plant of it with leaves as large, though not as thick, as those of an average plant of London Pride. Saxifraga nivalis, which occurs on these mountains sparingly, we could not find; nor did we see Dryas octopetala, another rare native of these high and bare rocks.

On the summit of the Glyder is a level plateau like a sea of large stones, extending about 2 miles from east to west, with an average width of 300 feet and an elevation of 3000. Out of this rise many piles of huge loose rocks, heaped together so as to stand at every possible angle. The stone is rough, and at a moderate slope affords good foothold. Two of the largest piles are called Glyder Vawr, and Glyder Bach, which rise about 200 feet above the plateau. On this high ground vegetation, excepting mosses and lichens, becomes very scanty and stunted. Vaccinium Myrtillus goes to the very summit, also Empetrum nigrum: and we found there plenty of Arctostaphylus Uva-ursi in flower, but hardly rising out of the ground. I also recognised stunted forms of Campanula rotundifolia, and of Tormentil and Eyebright, and Galium, both saxatile and boreale. Amongst the large loose rocks on one of the summits was a luxuriant bed of Beech Fern, being the highest I have seen in Wales. Mr. Griffith was paying attention to lichens, and showed us a fine clump of Iceland moss he found there. I believe it is rare in Wales. From the summit of Glyder Bach, a small lake, Llyn Boch-Llwyd, may be seen about 1500 feet below. This Mr. Griffith was anxious to reach, and proposed to go straight down to it.

Now, as you view the northern face of the Glyder from Nant-Francon, it looks like a perpendicular precipice, but it may be descended by careful and experienced climbers at two or three points. However, I preferred to go round, and descended by a steep slope of loose stones just eastward of the ridge, which joins the Glyder to Trifaen. Making as fast as I could for the wall which separates the watershed, and crossing it at its lowest point, I was by the side of the lake in twenty minutes after leaving my friends. More than half an hour after me they arrived, and had found the descent so steep and difficult that they promised never to attempt it again. I have given these details of our route because it makes one of the finest rough mountain walks in Wales.

We were on the mountain six hours, but more than two were spent in botanising. The ascent of that fine mountain Trifaen, which I have often made, might easily be included in the walk without extending the time. The ascent of the Glyder is generally made from Capel Curig, from which the slope is easy and gradual; but those who are fond of wild plants and of wild scenery, and can use their hands as well as their feet on a mountain, will find the walk I have described far more interesting. *C. Wolley Dod, Edge Hall, Malpas, July 4.*

New Garden Plants.

CATTLEYA GUTTATA (*Lindl.*) LILACINA, *n. var.*

This would be the rare Cattleya guttata Prinzi, Rchb. f., if the ground colour of the sepals and petals were not light lilac in lieu of white or greenish-white, and if the darker spots were not more marginal. The grand lip is the same—whitish, with a hue of lilac, the middle lacinia of a glorious purple. It bears a raceme of nine grand flowers, and was imported under the name of Cattleya guttata Leopoldi by Sir Trevor Lawrence, Bart., M.P. *H. G. Rchb. f.*

CYPRIPEDIUM BURBIDGEI, *n. sp.**

Much in the way of Cypripedium javanicum, Reinw., and C. virens, Rchb. f., but very easily distinguishable by the staminode, which is quite abrupt in front, and with three exceedingly obscure teeth. The lip is more conical than in any species of the affinity quoted, resembling that of Cypripedium Petri and Dayanum. Petals light green, with a row of most obscure dark warts on each side, and one on the middle line, and some mauve on the lips' margins. The upper sepal is almost triangular, as in Cypripedium purpuratum, with nine green nerves. The upper sepal is very small and short. Leaves nearly those of Cypripedium javanicum.

My first acquaintance with this was undoubtedly made by the assistance of Mr. S. Low, who pointed out the affinity with Cypripedium javanicum when I urged that with virens, Rchb. f., though the petals are too much bent down. It was a flower apparently of a fresh importation, weak. I asked for a second flower, but till now it has not flowered again, and may have been sold long since.

Lately I obtained it, with a fine, strong, well-rooted plant, from Messrs. Veitch. It grew together with Cypripedium Petri, and it is more gay in its colours. Mr. H. Veitch was pleased by my suggestion to name it in compliment to Mr. Burbidge, since I like to have two Cypripediums as near companions, just as those two travellers were good companions. *H. G. Rchb. f.*

AERIDES FALCATUM (*Lindl.*) EXPANSUM, *n. var.*

This is easily distinguished from the old and rare genuine form by its expanded lip, as well by the middle and side laciniæ. There are rather large amethyst blotches on the side laciniæ and on the side parts of middle lacinia, excepting the large median and anterior deep purple area. The petals and sepals appear to be more marked with purple than the ovary. One cannot help thinking of Aerides crispum when seeing the flowers; the base of the keels in front of the mouth of ovary are also very abrupt; there is an intermediate keel between, and all together are shorter. The spur is not white, but sordid red with an orange apex. This beauty came to my hands from Messrs. J. Veitch & Sons. *H. G. Rchb. f.*

ANGULOA MEDIA, *n. hybr.*

This is a hybrid, raised no doubt between Anguloa Clowesii and Ruckeri, Lindl. It has the sepals and petals nearly orange-yellow outside, brownish-purple inside. The side sepals, however, have an orange middle line and much orange at the base, with some brown pallid spots and lines. The lip has the very short anterior lacinia usually seen in Anguloa Clowesii, but its side laciniæ are reddish-brown, the disc ochre-coloured. The strong column is yellow, with numerous brown spots. It was kindly sent by Mr. Bowring, Forest Farm, Windsor. *H. G. Rchb. f.*

EPIDENDRUM TRIPUNCTATUM, *Lindl.*

This has been very correctly described by Dr. Lindley in *Bot. Reg.* 1841, p. 66, misc. 143. It might, however, be rather regarded as an Osmophytum, together with Epidendrum hastatum and its two allied species. I have before me a glorious mass of it, introduced recently from Mexico by Messrs. J. Backhouse, and most kindly sent me, doing great honour both to the firm and to their excellent fibrous peat. It is an accumulation of fifty ovoid shining bulbs, three peduncles, two of which are two-flowered, and ten breaks of linear-acute leaves. The flowers are stellate, The sepals and petals are lanceo-triangular, acute, spreading, greenish-yellow to yellow. The oblong convex lip is very large, rugose by elevations, not by warts, whitish-yellow; its colour is blackish-purple above, with three orange retuse teeth around the androclinium. There can be no doubt this peculiarity suggested the name to Dr. Lindley.

The specimen preserved in Dr. Lindley's herbarium, sent by Mr. Richard Harrison, of Aigburgh, was not so well grown as the Backhousean plants; it had very long flaccid leaves and much smaller flowers. The flowers before me are not much smaller than those of a middle-sized Epidendrum nemorale, Lindl.

There is a second Epidendrum tripunctatum, Lindl. (from Lindley's herbarium, named thus by Messrs. Loddiges), *Folia*, n. 126. This must be called punctiferum. *H. G. Rchb. f.*

SCILLA (LEDEBOURIA) SUBSECUNDA, *Baker.**

This is another new Scilla of the Ledebouria set, of which the bulb was sent by Mrs. Bowker from the eastern district of Cape Colony to Kew, where it has just flowered for the first time. It is allied to S. concolor, lorata, and tricolor.

Bulb globose, about 2 inches in diameter; leaves eight or nine, contemporary with the leaves, the outer spreading, lanceolate, 6—8 inches long, $1\frac{1}{4}$—$1\frac{1}{2}$ inch broad, plain green on the face, flushed with red-brown on the back, and marked with a few transverse bars of the same colour towards the base, the inner narrower and longer, sub-erect, about 1 foot long and 1 inch broad. Scape pendulous, very flexuose, about 1 foot long. Flowers in a dense subsecund oblong raceme, half a foot long; lower and central pedicels $\frac{1}{2}$—$\frac{3}{4}$ inch long; bracts minute, deltoid; rachis very much ridged. Perianth oblong, $\frac{1}{4}$ inch long, greenish externally, greenish-brown inside, the segments reflexing from a short basal cup. Filaments bright purple, as long as the perianth-segments. Ovary stipitate and discoid; style finally $\frac{1}{4}$ inch long. *J. G. Baker.*

ROSE NOTES.

ROSES AND ROSE SHOWS.—The time of Roses is come again, and with it the time of Rose shows. Amongst a portion of our horticultural friends, and that by no means a small one, there will be a Rose fever for the next three or four weeks. Excited exhibitors will be rushing about from place to place; travelling by night trains, sitting in guards' vans on their boxes discussing the beauty of Countesses and Duchesses with a familiarity that shows they move in the very highest society—military critics, too, talking over the respective merits of general officers—appraising the form and texture of fair damsels in a manner that might make them well blush if they could only hear them; and over the wide extent of this fair island of ours there will be such a general excitement about our national flower that shows that it occupies a place *per se* in the horticultural world. No other flower can command such an extensive constituency, or have sufficient interest to maintain so many shows in its sole honour. On the very threshold, then, of this exciting time I should like, as a rosarian and exhibitor, to say something on the subject of Roses and Rose shows.

There is one class of Rose growers with whom I must profess to have little sympathy—those with whom a Rose show is the "be-all and end-all" of a Rose. However beautiful in other respects a Rose may be, if it have not the qualities that make an exhibition Rose it is in their eyes worthless. It may have the exquisite form of Comtesse de Chabrillant, but it won't do, it is too small; it may have the peculiarly attractive tint of Souvenir du Dr. Jamain, but it cannot be grown, it is too thin. On the other hand, a Rose may not have an atom of perfume, like Victor Verdier and his numerous progeny, but it must be grown, as it is a fine exhibition Rose; it may have a miserable constitution, like Marquis de Mortemarte, but then you very seldom get a good bloom from it, at any rate from a maiden; and so, although to grow it is only practicable for a year or so, yet for this chance it must have a place. I cannot but think these Rose growers make a mistake. Every one, without exception, tries to smell a Rose when they receive

* *Cypripedium Burbidgei*, n. sp.—(Coriifolia tessellata.) Foliis Cypripedii javanici, Reinw.; pedunculo paulisper puberulo; bractea triangula brevissima ovario multo breviori; sepalo imoari ovatotriangulo acuto utrinque novemnervi; sepalo pari connato labello bene breviori; tepalis ligulatis acutis, utrinque et per medium minute verruculosis minute ciliatis; labelli sacco conico; staminodio transverso semielliptico antice retuso medio minutissime obsoleto tridenticulato. Ex Borneo. *H. G. Rchb. f.*

* *Scilla* (*Ledebouria*) *subsecunda*, Baker.—Bulbo globoso magnitudine mediocri; foliis 8—9 synanthiis lanceolatis vel loratis pedalibus 1—$1\frac{1}{2}$ poll. latis viridibus dorso rubro-brunneo suffusis prope basin maculis paucis transversalibus rubro-brunneis decoratis, scapo pendulo flexuoso subpedali, floribus in racemum densum oblongum subsecundum dispositis; pedicellis flore 2—3-plo longioribus; bracteis minutis deltoideis, perianthii oblongi 3 lin. longi segmentis extus viridulis intus viridulo-brunneis flore expanso profunde reflexis; filamentis splendide purpureis perianthio æquilongis; ovario stipitato basi discoideo producto. *J. G. Baker.*

one, and it is a disappointment to them to find it has no perfume. I am very confident if Rose growers were to refuse to have anything to do with scentless Roses, and were to decline to buy any new ones that lack this first essential of a Rose, raisers would very soon get out of the track of this scentless race, and find the same colours in those races which possess fragrance. And in the same way, if they would refuse to buy any of weakly constitution, no matter how desirable in other respects, they would very soon find that raisers would be particular in discarding all attempts to hybridise from sorts of such delicate constitution.

But if I have no sympathy with the man whose sole idea of a Rose is that of its appearance on an exhibition table, I have as little with those who run down our modern Roses, and are for ever talking or writing of the old Roses of bygone days, or the single Roses of the present. The æsthetic noodles who go into ecstacies over a white Lily, and rave about the preciousness of a wild Rose, and turn their backs on our lovely Marie Baumann, Louis Van Houtte, &c., are past cure. And yet what a quantity of twaddle there is written in this style; quite as much—and this is saying a good deal—as is written upon the superlative beauties of the Tea Rose. Surely we may like both. I admire the lovely gracefulness of the wild Rose as it sheds its garlands of white or blush flowers over our hedgerows and banks, or the curious colour and beautiful hips of the Japan Rose (Rosa rugosa), or the lovely little Apennine Rose; but that does not hinder me from admiring also the beautiful Roses which the skill or good fortune of modern rosarians have obtained for us.

There is one subject connected with Rose shows which has been warmly debated, and against which no very measured language has been directed—viz., the plan of showing them. The formality of long rows of boxes of flowers is stated to be utterly wrong, and some other method ought to be devised than this unnatural mode of exhibiting now. I would frankly say I see no escape from the present method. What we want to see at a Rose show is the merit of each separate variety, and in no way can this be so well done as in exhibiting it on a flat surface of green moss. It is unnatural, but so is any way of exhibiting a cut Rose. Any one who has seen an exhibit of ten thousand Roses artistically arranged, or a French exhibition of Roses, will, I think, not fail to see and appreciate the difference. Prizes have been offered for some other method, but it has elicited nothing that can be compared for a moment with the present system. Moreover, the convenience of exhibitors must be considered. It is a difficult matter for them now to cut and carry the blooms, often for a great distance, to the show; it would be simply impossible if they had to alter their mode of arrangement when they get to the place of exhibition. And then, as to a better method of arranging the boxes, dividing the classes by the introduction of other plants: this is very much hindered by the uncertainty of exhibitors. For example, you have, it may be, a class in which a dozen boxes, each 2 feet long, have been entered. You allow your space of 24 feet, but on the morning of exhibition only six of these boxes have arrived; you have then your space of 12 feet vacant, and you cannot at a moment's notice provide plants to fill this large space; and your only remedy is to move up other boxes in the next class. I have seen cases where, owing to some change of weather, or some other cause, more than one-half of the entries in a large exhibition have not come in on the morning of the show. I think, therefore, that, take it all in all, the present system cannot be well altered; and although I am free to admit that it has its disadvantages, yet they are counterbalanced by the convenience both to exhibitors and Rose lovers that it possesses. *Wild Rose.*

Nymphæa pygmæa. — This remarkably pretty little plant is now blooming in the aquatic tank in the herbaceous department at Kew. It is a native of China and Siberia, and was found also in the Khasia Mountains by the present Director of Kew, who in his charming book, *Journal of a Naturalist in the Himalayas*, states that in large marshes dammed up for iron-washing, "we found a diminutive Water Lily, the flower of which is no larger than half-a-crown; it proves to be the N. pygmæa of China and Siberia, a remarkable fact in the geographical distribution of plants."

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.

(Continued from page 786 of last volume.)

Subgenus I. Stenaster.—Flowers erect in all stages, the linear segments of the limb spreading or reflexing, not more than ¼—⅓ inch broad. Filaments suberect, diverging equilaterally from the ascending style.

** Australian and Polynesian Species.

7. *C. brachyandrum*, Herb., Amaryll. 249; Kunth, Enum. v. 554.—Bulb 3 inches in diameter, with a short neck. Leaves about twenty to a bulb, suberect, linear, 3—5 feet long, about 2 inches broad, deep green, not tapering much to the point. Peduncle green, above 2 feet long. Flowers 10—30 to an umbel, not perfectly erect. Pedicels scarcely any. Perianth-tube greenish, under 3 inches long; segments linear, rather longer than the tube, ⅝ inch broad. Filaments not more than 1 inch long, red upwards. Style above 1 inch longer than the tube. Stigma small, white. Ovules two in a cell.

A native of tropical Australia, introduced to Calcutta by Dr. Carey, and sent by him to Dean Herbert about 1820. It was soon lost from cultivation, and was never figured, and we have not been able to match it amongst the numerous dried specimens received from Tropical Australia of late years.

8. *C. pedunculatum*, R. Br., Prodr. 297; Ker, in Bot. Reg., t. 52; Benth. Fl. Austral. vi. 455; C. australe, Donn, Hort. Cant., edit. vi., 83; Herb. Amaryll. 246; Kunth, Enum. v. 553; C. taitense, Red. Lil., t. 408; C. canaliculatum, Roxb. Fl. Ind. ii. 132.—Bulb about 4 inches in diameter, with a columnar neck half a foot long. Leaves twenty to a bulb, lorate, bright green, similar to those of asiaticum in texture, 3—4 feet long, 4—5 inches broad, with an obscure entire cartilaginous border. Scape ancipitous, green, 2—3 feet long, 1 inch in diameter. Flowers 20—30 to an umbel; reflexing lanceolate-deltoid spathe-valves 3—4 inches long; pedicels 1—1½ inch long. Ovary oblong-trigonous, with about three ovules in each cell. Perianth-tube greenish, quite straight, 2½—3 inches long, the top inch persisting as a beak to the fruit; segments linear, spreading horizontally, or finally reflexing, not tinged with red on the back, 3 inches long, ¼—⅓ inch broad. Filaments 1¾—2 inches long, suberect, red in the upper half; anthers very narrow, ¾ inch long. Style suberect, protruding 2 inches from the tube, green at the base, red towards the capitate stigma.

A native of New South Wales and other provinces of Eastern Australia. My description is taken entirely from a plant that flowered in the Palm-house at Kew in the summer of 1878. It comes very near to asiaticum, differing in the long pedicels and triovulate ovary cells. Herbert names and describes four varieties. We have a fine specimen from Herb. Gay of Redouté's C. taitense, from the establishment of M. Noisette, dried in 1816, with a flower and limb together above 7 inches long, the latter rather the longest. Another extreme is a wild specimen gathered by my late much esteemed friend, Jas. Backhouse, in a lagoon north of Port Jackson, in which the whole flower is under 4 inches long, with segments just equalling the tube. There is an unpublished drawing in the Kew collection, made from a plant that flowered in 1824, sent by Allan Cunningham from Moreton Bay. Seemann's wild Vitian plant, distributed as asiaticum, looks to me more likely to be pedunculatum; but I have not seen it alive. I have noticed in my previous paper a third Australian Crinum of this section from Port Darwin, which comes near C. sumatranum.

*** Tropical African Species.

9. *C. bracteatum*, Willd., Sp. Plant. ii. 47; Jacq Hort. Schoen. iv., t. 495; Gawl. in Bot. Reg., t. 179; C. brevifolium, Roxb. Hort. Beng. 23; Fl. Ind. ii. 129; C. asiaticum var. bracteatum, Herb. Amaryll. 243; Kunth, Enum. v. 548.—Bulb ovoid, with a short neck. Leaves 6—8 to a bulb, oblong, thin in texture, 1—1½ foot long, 3—4 inches broad at the middle, subobtuse, narrowed to 1—1½ inch above the dilated base, with a crisped narrow entire cartilaginous margin. Scape about 1 foot long, ½ inch in diameter, green, much compressed. Flowers 10—20 in an umbel, slightly fragrant; spathe-valves green, reflexing, about 3 inches long; pedicels very short. Ovary oblong, with the ovules solitary in the cells; tube slender, tinged with green, 2½—3 inches long; segments of the limb linear, spreading when fully expanded, about as long as the tube, not tinged with red on the back. Filaments suberect, bright red, 1½—2 inches long; anthers very narrow, ¾ inch long.

This has always been attributed to Mauritius, from whence it was introduced to the Calcutta Botanic Garden; but it does not appear to be wild in that island at the present day. Mr. Horne found it in plenty in the Seychelles, especially on the sandy beaches of the western coast of the Island of Mahé. Var. angustius of Herbert is a form with narrow leaves, which I have not seen.

10. *C. mauritianum*, Lodd., Bot. Cab., t. 650; Herb. Amaryll. 249; Kunth, Enum. v. 554.—Leaves linear, suberect, about 3 feet long, apparently not more than 2—2½ inches broad, narrowed to thepoint, falcate at the apex. Scape much shorter than the leaves. Flowers four in an umbel, sessile. Tube of the perianth apparently 3—4 inches long, not quite erect. Segments linear, rather shorter than the tube, spreading, tipped with red. Filaments and style bright red upwards.

This is said to have been imported by Loddiges from Mauritius. I know it only from the short diagnosis of Herbert and the reduced figure in the *Botanical Cabinet*. Its affinity appears to be with sumatranum, brachyandrum, and defixum. Nothing like it is known in Mauritius at the present day, but we have lately received from Central Madagascar, from the Rev. R. Baron, a Crinum which in a dried state I cannot distinguish from defixum. He gathered it on the border of the Ibara country west of Fianarantsoa, and he speaks of another allied to asiaticum which is very common in Betsileoland, "but its leaves, though 3—4 feet long, are only about 2 inches broad." It is quite likely that this last may prove to be the long-lost C. mauritianum.

11. *C. Tinneanum*, Kotschy and Peyritsch, in Plant. Tinneanæ, 44, t. 21.—Bulb and leaves unknown. Scape green, compressed, above ½ foot long, ½ inch diameter. Flowers 12—30 in an umbel. Spathe-valves lanceolate-deltoid, 2—3 inches long; pedicels 1—2 inches long; umbel 7—8 inches in diameter. Ovary oblong, with several ovules in each cell. Perianth-tube erect, very slender, 2½—3 inches long; segments of the limb rose-red, linear, not more than half as long as the tube, ⅛—⅙ inch broad. Filaments half as long as perianth-segments; anthers linear-oblong, ¼ inch long.

This Central African species I know only from the figure and description above cited. It was discovered by Mdlle. Alexandrine Tinné, the intrepid lady traveller who was so foully murdered near Tunis. The head of flowers as above described was found amongst a dried bouquet of Hydrolea floribunda and other plants which she gathered on the banks of the Bahr-Ghasal; Kotschy also gathered it in flower without leaves near Obeid, in Kordofan, under the shadow of a Baobab tree, and Father Knoblecher sent it from Gondokoro from the garden of one of the Khartoum missionaries. The specific name is printed Tinneæ in the text, and Tinneanum in the plate, while it is indexed by Pritzel as cordofanum. It is remarkable for its very long pedicels.

12. *C. Bainesii*, Baker.—Bulb and leaves unknown. Scape above ½ foot long, under ½ inch diameter. Spathe-valves deltoid, reflexing, 1½—2 inches long. Flowers 15—20 in an umbel; pedicels ½—¾ inch long. Ovary subglobose; ovules several in each cell. Perianth tube very slender, erect, or rather curved, 2½—3 inches long; segments not more than half as long as the tube, linear, erecto-patent when fully expanded, reddish. Filaments nearly as long as the perianth-segments, bright red; anthers linear-oblong, ¼ inch long.

Sent by the late Mr. T. Baines, the artist, from somewhere near the tropic in the Transvaal country, where he collected it towards the end of 1861. We have lately received dried flowers of what is probably the same species from Dr. Kirk, obtained by Mr. Last, from an altitude of 2000 feet on the Kagune mountains, situated about 100 miles inland from Zanzibar, and bulbs have just arrived. The bulb is half a foot in diameter, with nearly black tunics; the flowers are a pretty pink, and the leaves are remarkable for disarticulating above the base when the flowers fade.

13. *C. ammocharoides*, Baker, in Trimen's Journ. Bot. 1878, 195.—Bulb large, globose, with brown outer tunics, and a very short neck. Leaves 6—8 to a bulb, lorate, about 1 foot long and 1 inch broad, with very close veins and a distinctly ciliated margin. Peduncle stout, ancipitous, 3—6 inches long, arising from the top of the bulb outside the cluster of leaves. Spathe-valves membranous, lanceolate-deltoid, 2—2½ inches long; flowers 10—20 in an umbel; pedicels at most ½ inch long. Ovary small, oblong; ovules several in a cell. Tube very slender, straight or rather curved, 3½—4½ inches long; segments of the limb bright red, linear, not more than half as long as the tube, erecto-patent when fully expanded.

Filaments bright red, as long as the perianth-segments; anthers not more than ¼—⅓ inch long.

Discovered by Dr. Schweinfurt in 1869, in Djurland, in Central Africa. Remarkable for its short stout scape and distinctly ciliated leaves.

14. *C. Welwitschii*, Baker.—Leaves narrow, linear, 1½—2 feet long, ¼—⅓ inch broad, moderately firm in texture, with close veins, and a narrow rather scabrous denticulate cartilaginous margin. Perianth-tube slender, about 4 inches long, not quite straight; segments linear, ascending, nearly as long as the tube.

Angola, discovered by the late Dr. Welwitsch. I know this only from very imperfect material, but it is evidently a very distinct species, allied to serrulatum and pusillum.

** Tropical American Species.

15. *C. caribæum*, Baker; C. floridanum, Griseb. Flora Brit. West. Ind. 583, *non* Fraser.—Leaves oblong, with a blade 9—10 inches long, 3—4 inches broad, obtuse, with curved main veins, tapering gradually into a sort of petiole under ½ inch broad. Flowers 3—4 to an umbel; pedicels about as long as the ovary. Tube nearly straight, 3—4 inches long; segments linear, nearly as long as the tube, white, ⅙ inch broad, spreading when fully expanded.

Gathered in Jamaica by the Rev. Mr. Wullschaegel. C. floridanum of Fraser, as already stated, proved to be C. asiaticum. The alliance of this is with C. bracteatum.

16. *C. cruentum*, Gawl., in Bot. Reg., t. 171; Lodd. Bot. Cab., t. 346; Herb. Amaryll. 250, tab. 44, figs. 9 and 16; Kunth, Enum. v. 355.—Bulb large, with dark purplish tunics and a short column. Leaves lorate, glossy, dark green, suberect, 2—4 inches broad, reaching a length of 3—4 feet, tapering to the point, with an obscure entire cartilaginous edge. Scape green, ancipitous, above 2 feet long, ½ inch thick low down. Spathe-valves lanceolate-deltoid, 3 inches long; flowers 5—7 in an umbel, subsessile. Ovary oblong; tube slender, quite straight, reaching a length of 7—8 inches; segments of the limb about 3 inches long, spreading, finally reflexing linear, ⅜ inch broad, bright red. Filaments bright red, about 2 inches long; anthers ½ inch long.

A native of Mexico, gathered by Andrieux in the province of Oaxaca. C. Loddigesianum, Herbert, *Amaryll.*, 253 and 401, of which I have seen a couple of type specimens, looks to me the same species. *J. G. Baker.*

(*To be continued.*)

SARRACENIAS.

(*Concluded from p. 12.*)

We may now mention the hybrid varieties, all of which have been raised in British gardens, the late Dr. Moore, of Glasnevin, and Mr. Stevens, of Trentham, having set the example. It may be mentioned that Messrs. Veitch and Mr. F. Moore, of Glasnevin, have many crosses not yet made public, indeed the plants have not as yet fully developed themselves, so that their characteristics cannot be given. All attempts at present to effect a cross between Sarracenia and Darlingtonia have, we believe, been in vain. S. Chelsoni × has been previously described and figured at p. 817, vol. xv.

S. Moorei × (hybrida inter S. flavam ♀ et S. Drummondi ♂, D. Moore, in *Atti del Congresso Internazionale Botanico*, Firenze, 1874, p. 174; and in *Gard. Chron.* 1874, i. p. 702).

This is a very remarkable and very lovely plant, Some hybrids cannot be said to be improvements on their parents, and indeed are very generally much inferior, but this case is exceptional. The pitchers are like those of the pollen parent, S. Drummondi. In height they are about 2 feet, erect, trumpet-shaped, winged, 4 inches in diameter at the mouth, green, with prominent veins. The lid is about 3 inches across, hairy, suborbicular, cordate, sessile, wavy at the margin, with a network of crimson veins enclosing paler spaces. The flowers are about 4 inches in diameter, pendulous, fragrant, with boat-shaped, oblong-obtuse bracts (see fig. 9). The sepals are about 1½ inch long, ovate, oblong-obtuse, replicate, greenish tinted with rose outside, greenish within. The petals are about 2¼ inches long, oblong-obovate, broad at the base, contracted and inflexed below the middle, rounded at the ends, deep rosy-pink on the outer side, pale creamy pink within. Filaments whitish. Ovary oblong, spindle-shaped, obtuse, furrowed. Disc of the style pale green, lobes lanceolate, bifid, strongly reflected. The colour of the flower is very beautiful, intermediate between that of flava and of Drummondi, the petal being in form more rounded than in Drummondi, and more near in this particular to flava.

Dr. Moore remarks that S. Drummondi and some others make a second growth of pitchers in autumn. They flower in spring, rest for a few weeks, and then develope a second crop of pitchers more beautiful than the first. S. flava, the female parent of the hybrid, does not make this second growth.

S. Stevensi × (hybrida inter S. purpuream ♂ et S. flavam ♀, *Gard. Chron.* 1874, i., p. 738).

This was raised and brought into notice almost at the same time with S. Moorei ×. It was obtained by Mr. Stevens, of Trentham, from S. flava, fertilised by the pollen of S. purpurea. It has erect, deeply winged, green pitchers about 20 inches in height, with a sessile, roundish lid 3 inches across, covered with deflexed hairs. The flowers are as much as 6 inches across, with oblong obtuse boat-shaped bracts, margined with white. The sepals are ovate oblong obtuse, greenish, tinted with reddish-brown. The petals are broad at the base, contracted below the middle and oblong-obovate above, dull crimson outside, cream-coloured within. The ovary is ovate truncate, 5-lobed and tubercled, the disc of the style 3 inches across, green, the five lobes deltoid lanceolate, deeply notched. Both pitchers and flowers show the cross between the characteristics of the two parents.

? S. Williamsi ×, Hort. Williams.

This is supposed to be a natural hybrid between S. purpurea and S. flava. It was imported by Mr. B. S. Williams with a consignment of S. flava. The pitchers are 9—12 inches high, erect, bright light green, streaked and veined with crimson, with a broad lid like that of S. purpurea. The flowers, for specimens of which we are indebted to Mr. Williams, are nearly 5 inches across, with ovate obtuse rather flat reddish-brown bracts about 1½ inch long. The sepals are narrow at the base, ovate oblong, slightly bent back at the margins, reddish-brown outside, greenish within. The petals are nearly 2½ inches long, obovate-oblong, constricted and bent downwards below the middle, pale lilac at the base, elsewhere rosy lilac. Ovary ovoid obtuse, obscurely lobed. Disc of the style 3 inches across, greenish, lobes triangular obtuse, notched. The contrast between the rosy-lilac petals and the greenish disc of the style is very beautiful.

S. Popei × (hybrida inter S. flavam et S. rubram).

This variety, the flowers of which are very lovely, was raised at Glasnevin between S. flava and S. rubra (see fig. 8). The pitchers are erect, about 2 feet in height, 2¼ inches in diameter at the top, slender, trumpet-shaped, with prominent veins, and a wing which is broad at the lower part of the pitcher, narrower above. The lid is about 3½ inches across, ovate acuminate, with a glossy sheen on the inner surface and a network of red veins. The flowers are about 4 inches in diameter; bracts obtuse, boat-like, green, with white edges. The sepals are narrow at the base, ovate-oblong, the margins strongly recurved; greenish, flushed with red. The petals are twice the length of the sepals, broad at the base, oblong-obovate, constricted, and bent below the middle; the base of the petal is white, the remaining portion velvety crimson, margined with pale yellow, creamy-pink within. The ovary is ovoid-obtuse; the disc of the style 2½ inches in diameter, flattish, pale green; the lobes oblong-obtuse, notched.

Mr. Pope, after whom this variety is named, has for many years been connected with the establishment at Glasnevin, where he has secured the respect of all who know him. Mr. Pope has had charge of the Sarracenias during the curatorship of the late Dr. Moore, and now during that of his son, Mr. F. Moore.

S. melanorhoda ×, Hort. Veitch (hybrida inter S. purpuream et S. Stevensi ×).

This, the latest novelty in the way of hybrid Sarracenias, was raised in Messrs. Veitch's establishment, and was exhibited by them recently before the Floral Committee, when it obtained a First-class Certificate. It was raised between S. purpurea and S. Stevensi ×, itself a hybrid. It thus combines the essence of one-third flava and two-thirds purpurea. In habit it is like S. purpurea, the pitchers being obliquely ascending and distended like those of purpurea, 6—7 inches high, with a deep wing, narrowing to either end, and a roundish, sessile lid 2½

Fig. 7.—Sarracenia Stevensi: petals rosy-pink.

inches across. The colour is like that of S. Chelsoni × —a rich blood-red, but the pitchers are not so tall as in that variety.

The flowers have not as yet been seen.

S. FORMOSA ×, Hort. Veitch (hybrida inter S. psittacinam ♀ et S. variolarem ♂).

This is a hybrid raised in Messrs. Veitch's establishment from S. psittacina, fertilised by the pollen of S. variolaris. The form and variegation of the pitchers in these two species is not dissimilar. The pitchers of the hybrid are ascending, 6—8 inches in height, green with reddish areolar spots, the lid curved over like a parrot's beak. It has not yet flowered.

American writers (see *Eaton Man.*, ed. vi., 1833) describe a Sarracenia under the name of S. heterophylla with distended pitchers, the whole plant being palish yellow, and very slender. It is considered to be intermediate between S. flava and S. purpurea, but we have no material in this country whereon to found an opinion. *M. T. M.*

RHODODENDRONS.

(*Continued from p. 786 of last volume.*)

A LOVER of Rhododendrons visits, as of course, Mr. Anthony Waterer's Knap Hill Nursery, near the Woking Station. So well known is this garden, that I need almost an apology for saying anything more about it; yet perhaps some who have seen Mr. Waterer's Rhododendrons in Hyde Park and the Botanic Gardens may fancy that they have seen all that they could see at Knap Hill. Such is not the case, however, Acres upon acres at the nursery are covered with the finest specimens, and the most interesting and beautiful seedlings. The mass and breadth of colour, the variety of tints, the luxuriance and *abandon* of growth, the happy intermixing of Pinuses and other trees, raise the place to the dignity of one of the show places of England. As spring passes away into summer, the prevailing tints of this fairy spot shift and change like those of the dying dolphin. In the earliest days of early summer (and before) all is aglow with the crimson hues drawn by the subtle hybridist from Rhododendron arboreum and its allies. At such a time, in olden days, before the commons were curtailed, one saw with the laureate—

"A crimson cloud,
That land-like slept along the deep,"

the deep being the Heather in its dark and gloomy spring attire. As summer advances the purple tints derived from R. ponticum and catawbiense, with bold patches of dazzling white, obtain predominance. Then, too, the oranges and yellows and scarlets of the Azaleas feast the eye, and perfume fills the air. Last of Flora's gifts comes the coral Kalmia, red or pink, according as it is bud or blossom, and resting on its cool dark green foliage; and then, as notable a sight as any, the uprising and unfolding of the young and tender shoots of the tens of thousands of Rhododendron trees and bushes. Some are of the tenderest green, others yellow-brown or rich with pink or ruddy hues. Some wave bright scales which presently wither and fall away, and all cover up their now rotting and unsightly blossoms with this fresh development of beauty. I know not but that this is as interesting a sight as any.

The name of Waterer (both of the Knap Hill and Bagshot Nurseries) has been so identified with the culture and extraordinary improvement for gardening purposes of our most showy shrub, that I have often wondered that it has not been embalmed as the name of some Rhododendron species, which will live when hybrids, however showy and magnificent, have been superseded, and John and Helen and Frederic and Michael Waterer have yielded to newer names.

It had rained all day till 4 o'clock, but the clouds cleared off and the sun shone as my brother and I reached Knap Hill, and did homage to the splendid Douglas Fir near the gate. The crimson period of the garden was just changing into the purple. As proof of this, a gigantic bush of an early ponticum flanked by two whites at once caught the eye. The effect was surprisingly superb, and taught the lesson, too often forgotten by planters, that much white is needed to bring out the tints, and that the common kinds may produce wonderful results when judiciously arranged. Presently Lady Eleanor Cathcart, although the bloom was somewhat on the wane, seemed to assert, in contradiction of the remarks above, that a hybrid might live and reign for ever. Entirely unsuperseded she certainly remains, and, strange to say, has refused, so far as I know, to transmit her charms to any of her descendants, who are mostly wishy-washy in the extreme. I have always believed in the descent of this variety from R. maximum, a species curiously misnamed, and not often seen, although both late and hardy. As we passed on the colours changed at each opening. Standards and dwarfs and lusty bushes were alike loaded with bloom, and the winter and the drought had done apparently little or no harm. In truth, an elaborate system of artificial irrigation had supplied the needful moisture, and I fancy that the hedges had warded off some of the cruel winter's rage.

A nursery garden has always a somewhat formal air about it, but as we strolled from close to close, shut in by tall hedges, each seemed to sparkle like a perfect jewel, for the raindrops were upon the blossoms, and the arrangement in heavy masses suits the quality and growth of our plants. I need not say that some of the Azalea closes were heaped up, as it were, with burnished gold, or heaved with billows of vegetable fire. But the grandest view of all was from the top of the long avenue, which appeared to fade away in the dim distance, an endless vista of Pines and ornamental trees, bedded in sheets of purple, crimson, and white Rhododendrons, and of every intermediate hue.

In gardens devoted to some particular plant it is interesting to see the original seedling plants of famous kinds, from which has been propagated the stock to people, so to say, the whole earth. Mr. Waterer's firm has raised and sent out many of the best of our old and new favourites, such as Brayanum, Barclayanum, Everestianum, Stella, Mrs. Clutton, Mrs. Holford, Mrs. Hankey, and Marshal Brooks. We saw the seedling bushes of some of these dear and familiar friends, and rare trusses of H. W. Sargent (one of the best), The Moor, Sigismund Rucker, Ralph Sanders, and others, good in flower and in foliage. Doubtless many of my readers have observed the Marchioness of Lansdowne (rose-colour, with very black spotting) in Hyde Park. I know very few better Rhododendrons. Of unnamed seedlings we were shown many hopeful youngsters of varying types, destined to make a noise in the world. When one considers how this wealth of hardy hybrids springs from the blending of only two or three of our numerous species, and some of these by no means the hardiest, one is filled with astonishment at the variety and the endless progresss. Well may one ask whether the other species, as yet almost untouched, may not yield, in due time, as rich a harvest; but I must return to this fruitful subject presently. In the existing strain, progress with the dazzling crimson type seems just now somewhat at a standstill, short of realising, it must be confessed, the peculiar scarlet of the true arboreum in a hardy form. Meanwhile, strenuous efforts are being made to produce Pelargonium-like flowers, with dark and contrasting markings, or with coloured edges and white centres, and the purples are again coming into favour. Striped flowers are scarcely yet contemplated, but I heard of a double crimson.

The Azaleas at Knaphill are a very marked feature of the garden. I never saw a finer or more varied collection. Here we get the tints, which as yet are unattainable among the hardy hybrid Rhododendrons—orange, fiery scarlet, and yellow, and white, which is common to both, and indeed to nearly every other flower.

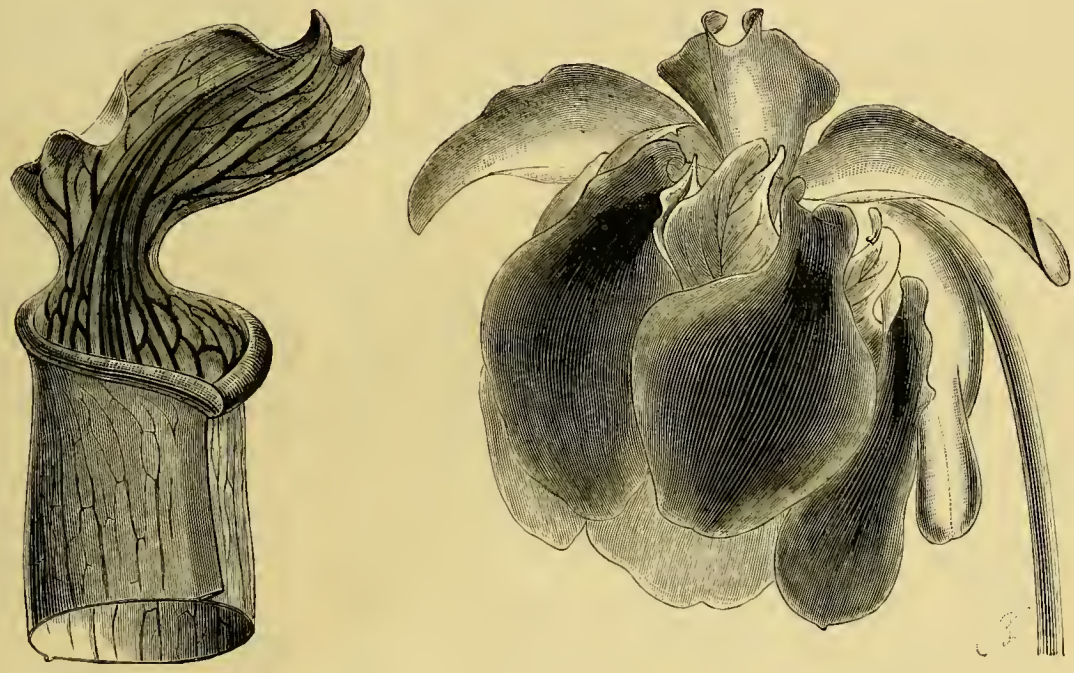

FIG. 8.—SARRACENIA POPEI. PETALS VELVETY-CRIMSON EDGED WITH YELLOW. (SEE P. 40.)

Nothing can be more charming than a thicket of these gorgeous and perfumed plants, so different at first sight, and yet so nearly allied, or rather identical in genus, with the Rhododendrons. Year by year the size of the flowers increases and the colours vary in Mr. Waterer's skilful hands, and now he has many examples of a double race, which, among other merits, last longer than the single sorts. The yellow hose-in-hose-like variety (A. narcissiflora) has proved with me most admirable as a forcing plant.

Those who have largely grown Azaleas know that they have what may be called two seasons—the first for their flowers, the second for the autumnal tinting of their leaves. In the autumn Knap Hill must again be lit up with brilliant colours in the Azalea grounds. Some Azaleas turn crimson, others purple and yellow and bronze, and for a week or two delight the eye. But, alas! the glory is short-lived. The frosts and the winds soon tear off the glowing leaves, and for the winter Azaleas cut but a sorry and meagre figure among their Rhododendron brethren.

I must now apologise to Knaphill for many sins of omission. My remarks are merely Rhododendron notes, and not detailed accounts of anything. Having related my visit to Mr. Anthony Waterer, in the open air of Woking, I propose shortly to change the *venue*, and interview Mr. John Waterer, of Bagshot, and his plants under his tent in London. *J. H. Mangles, Valewood, Haslemere.*

(To be continued.)

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 10.)

PLEUROTHALLIS.

85. P. SANDERSIANA, Rchb. f. in *Gard. Chron.* 1866, p. 74; *Refug. Bot.*, ii., t. 120.—A pretty little trailing species, having greenish-yellow flowers striped with purplish-red. Peru (?). Cultivated by W. W. Saunders, 1857.

86. P. SARCOPHYLLA, Rchb. f. in *Bonplandia*, 1855; Lindl., *Fol. Orch.*, n. 245. — Flowers purple. Caracas. Cultivated by Consul Schiller, Hamburg.

87. P. SAUROCEPHALA, Lodd., *Bot. Cab.*, t. 1571; *Bot. Mag.*, t. 3030; *Bot. Reg.*, t. 1968; Lindl., *Fol. Orch.*, n. 161.—One of the showiest; flowers yellowish-brown without, purple within. Brazil, Loddiges, about 1830. Hort. Kew.

88. P. SCABRIPES, Lindl. in *Bot. Reg.* 1839, Misc., n. 155; *Fol. Orch.*, n. 79.—Flowers dirty purple. Brazil. Introduced by Lieutenant Downey, and cultivated by Michael Williams in 1837.

89. P. SCAPHA, Rchb. f. in *Gard. Chron.* 1874, ii., p. 162.—Native country unknown. Cultivated by J. Day. See fig. at p. 784, vol. xv.

90. P. SCLAREA, Rchb. f. in *Linnæa*, xli., p. 49.—Cultivated in Kew Gardens, 1876.

91. P. SEMIPELLUCIDA, Rchb. f. in *Linnæa*, xxii., p. 823; Lindl., *Fol. Orch.*, n. 27. — Venezuela. Flowered at Kew in 1878. Hort. Kew.

92. P. SERIATA, Lindl. in *Bot. Reg.* 1840, Misc., n. 175; *Fol. Orch.*, n. 251. — Brazil. Cultivated by the Horticultural Society in 1840, received from J. Hearne.

93. P. SERTULARIOIDES, Spreng., *Syst.*, iii., p. 731; Lindl., *Fol. Orch.*, n. 271; *Specklinia sertularioides*, Lindl., *Gen. and Sp. Orch.*, p. 8.—Jamaica. (Johnson's *Gard. Dict.*)

94. P. SICARIA, Lindl. in *Bot. Reg.* 1841, Misc., n. 187; *Fol. Orch.*, n. 70; *P. tripteris*, Rchb. f. in *Linnæa*, xxii., p. 829; *P. trigonopoda*, Kl. in *Allg. Gartenz.* 1853. — Yellowish-green, with brown or purple stripes. Trinidad, Venezuela, New Granada. Cultivated by Loddiges and others.

95. P. SMITHIANA, Lindl. in *Bot. Reg.* 1843, Misc., n. 79; in *Journ. Hort. Soc.*, ii., p. 247, with a figure; *Fol. Orch.*, n. 133.—Flowers white, with purple spots. Brazil, Miers. Garden of Horticultural Society.

96. P. STENOPETALA, Lindl. in *Bot. Reg.* 1838, Misc., n. 182; *Fol. Orch.*, n. 200; *P. listrostachys*, Rchb. f. in *Bonplandia*, 1855.—Venezuela and Guiana to Brazil. Hort. Kew.

97. P. STRUPIFOLIA, Lindl. in *Bot. Reg.* 1839, Misc., n. 3; *Fol. Orch.*, n. 137; *P. picta*, *Bot. Mag.*, t. 3897, *nec* Lindl.; *P. bicolor*, Lindl. in *Bot. Reg.* 1842, Misc., p. 76.—Nearly a foot high, with rather large purple flowers. Mexico, Parkinson. Cultivated at Woburn in 1839.

98. P. SUBSINUATA, Lindl., *Fol. Orch.*, n. 223; *P. trichopoda*, Rchb. f. in *Bonplandia*, 1856, *nec* A. Rich. —Native country unknown. Described from a plant growing in Consul Schiller's garden at Hamburg.

99. P. SUPERVACANEA, Rchb. f. in *Hamb. Gartenz.*, xvi., p. 180.—Consul Schiller's garden, Hamburg, in 1860.

100. P. TERES, Lindl. in *Bot Reg.*, sub-t. 1797; *Fol. Orch.*, n. 118. — Flowers cinnamon-coloured. Brazil, Loddiges, 1836. Flowered at Kew in 1862.

101. P. TIGRINA. — Mexico, 1838. (Johnson's *Gard. Dict.*) Probably a garden name.

102. P. TRIBULOIDES, Lindl., *Gen. et Sp. Orch.*, p. 6; *Fol. Orch.*, n. 243.—Flowers red, buried among the scarious sheaths at the base of the leaves. West Indies, Mexico, and Central America. Flowered at Kew in 1861.

103. P. TRICARINATA, Poepp. et Lindl., *Nov. Gen. et Sp.*, i., p. 49, t. 87; *Fol. Orch.*, n. 166; Rchb. f., *Xenia*, ii., p. 115, t. 137, ii., 10—13, iii., 14—24. —Peru, Bolivia. Cultivated by Consul Schiller.

104. P. TRIDENTATA, Klotzsch in *Allg. Gartenzeit.* 1840; Lindl., *Fol. Orch.*, n. 50. — Venezuela. Hort. Kew.

105. P. VELATICAULIS, Rchb. f. in *Linnæa*, xxii., p. 824; Lindl., *Fol. Orch.*, n. 173. — Venezuela, Otto, Fendler. Berlin Botanic Garden, 1840. Hort. Kew.

106. P. VELATIPES, Rchb. f. in *Linnæa*, xxii., p. 828; Lindl., *Fol. Orch.*, n. 20.—Venezuela. Hort. Kew.

107. P. VILIPENSA, Rchb. f. in *Hamb. Gartenz.*, xiii., p. 3; Lindl., *Fol. Orch.*, n. 268. — Central America, Warscewicz. Berlin Botanic Garden.

108. P. VILLOSA, Knowles and Westcott, *Fl. Cab.*, ii., p. 78; *Fol. Orch.*, n. 150; *P. lepanthiformis*, Rchb. f. in *Linnæa*, xviii., p. 397; *Specklinia ciliaris*, Lindl. in *Bot. Reg.* 1838, Misc., n. 40.—Mexico, Loddiges, 1838.

109. P. VITTATA, Lindl. in *Bot. Reg.* 1838, Misc., n. 133; *Fol. Orch.*, n. 97; *P. Wageneriana*, Kl. in *Allg. Gartenz.* 1852.—Mexico, Venezuela, Loddiges.

W. B. Hemsley.

A LOCOMOTIVE DICOTYLEDON.

ALMOST every one is interested in the various movements exhibited by plants, whether it be the more perceptible and more easily seen movements of the leaves of such plants as the Venus' Fly-trap, Sensitive Plant, Telegraph Plant, &c., the motion of such microscopic plants as Volvox, Gonium, Oscillatoria, &c., or the less perceptible movements of the root, stem, and leaves, which Darwin has recently shown to be universal among plants—all alike are interesting: indeed, the whole subject is full of interest, and still offers a wide field for research.

So far as has been generally known hitherto, the power of voluntary locomotion from place to place is confined to members of the lower orders of Cryptogamic plants—viz., Algæ and Fungi; but an interesting case of voluntary locomotion among Dicotyledonous plants, in a species of Loranthus, has been discovered by Dr. G. Watt, of the Educational Department, Bengal Lower Provinces.

It is only whilst the seed is germinating that the motion takes place, but the mode of travelling is very peculiar, and quite different from that of any other plant known to the writer.

The Loranthus, which, according to Dr. Watt, is L. globosus, Roxb., though I doubt this being the correct identification, is a native of Bengal, and like all other members of the genus is parasitical, and grows upon a few evergreen trees, particularly upon some species of Memecylon. The fruit, like that of the common Mistleto and nearly all the other members of this order, consists of a mass of a very viscid pulp surrounding a single seed, and on separating from the parent plant adheres, by reason of its viscidity, to whatever it may chance to fall upon, and after a time commences to germinate. It is only during the first stage of germination that the motion about to be described takes place, and it is evident that the power of being able to move about is to enable the plant to find a suitable place to grow upon. The radicle at first grows out, and when it has grown to about an inch in length it developes upon its extremity a flattened disc, the radicle then curves about until the disc is applied to any object that is near at hand. If the spot upon which the disc has fastened is suitable for the further development of the plant germination continues, and no locomotion takes place; but if, on the other hand, the spot should not be a favourable one, the germinating embryo has the power of changing its position. This is accomplished by the adhesive radicle raising the seed and advancing it to another spot; or, to make the process plainer, the disc at the end of the radicle adheres very tightly to whatever it is applied to; the radicle itself straightens and tears the viscid berry away from whatever it has adhered to, and raises it in the air. The radicle then again curves, and the berry is carried by it to another spot, where it adheres again. The disc then releases itself, and by the curving about of the radicle is advanced to another spot, where it again fixes itself. This, Dr. Watts says, he has seen repeated several times, so that to a certain extent the young embryo, still within the seed, moves about. It seems to select certain places in preference to others, particularly the leaves, which in the Memecylon are evergreen and very dense. The berries on falling are almost certain to alight upon leaves, and although many germinate there, they have been observed to move off the leaves on to the stems, and finally fasten there.

The above account was kindly given to me by Dr. Watt, who assured me he had watched the movements many times. Although a good deal has been written about the germination and growth of Viscum and Loranthus,* no case of locomotion similar to that above described appears to have been detected—at least, I can find no record of such an occurrence, and I believe the only record of the above case hitherto published is a very brief notice of it given by Dr. Watt in his *First Step in Botany*, of which there is an English as well as Bengali edition. The movements of the radicle are, of course, due to nutation, which, as lately shown by Darwin, seems to be almost, if not quite, an universal and necessary factor in the process of vegetable growth. The radicle in curving towards an object on which it intends to fasten its disc (as described to me by Dr. Watt), makes a series of rotatory movements—that is to say, the disc describes a series of small circles in the air, approaching the object on which it intends to fasten more and more nearly with each successive circle, until finally it reaches the object and becomes fixed; the same process being repeated when the berry is raised and advanced to another spot. In reference to the above, Dr. Masters directed my attention to an article by Mr. Holland upon Primrose seedlings, which was published in the *Gardeners' Chronicle* for 1871, p. 1580, with a woodcut, under the delectable title of "Morsus Diaboli." In this article the tigellum (the stem below the seed-leaves) of Primula is described as elongating to a very considerable degree, and after the development of two or three proper leaves bending towards the earth, the young plant meanwhile producing from the base of each leaf a single stout root which strikes the ground, enters it, and with its *confrères* forms a new and adventitious root system, whereby the young plant is hereafter nourished, the original and true root, together with the tigellum, dying away, and thus producing a premorse root. Although the young Primrose is removed, by the bending of its tigellum, to a short distance from the place where it first commenced to germinate, still this is quite different from the case of the Loranthus above described, and it would be interesting to know from further experiments if the Primrose seedling appears to select any one spot within the radius of its tigellum in preference to others. *N. E. Brown.*

* See Griffith, in *Trans. Linn. Soc.* xviii, p. 78; Loudon, *Arboretum et Fruticetum*, ii., p. 1024; Scott, in *Journ. of the Agricultural and Horticultural Soc. of Bengal*, ii., p. 257, &c.

HOLWOOD HOUSE.

IT gratifies romantic minds—and most minds are more or less romantic—to visit places of historic interest; and with that object I made my way across Hayes Common towards the spot where Holwood House now stands, and where Julius Cæsar, and William Pitt, and several other men of eminence, "pitched their tents," each in their day.

Mr. Pitt was born in the little village of Hayes, close to Hayes Common, at the house of his illustrious father, in 1759. Holwood is just two miles distant across Hayes Common and Keston Common, the park pales skirting the narrow part of the latter, and forming its boundary. The ground gradually rises the whole distance till the sites of the house and camp are reached; and here Julius Cæsar's eagle eye looked from the highest ground in the neighbourhood over a pleasant part of Kent and Surrey as far as the city called by the Romans Londinum. The Prætorium was not built till afterwards, or Cæsar would have seen it standing on exactly the same site where,

on a clear day, Mr. Pitt could plainly perceive the dome of St. Paul's rising grandly in the distance and bounding his view.

From a boy the "heaven-born minister" (Premier at twenty-one) had desired to possess Holwood; and perhaps none of his other successes delighted him more than the purchase and improvement of this property. I remember, as a schoolboy, a lad who was my special chum, as he still is my friend, pausing at a spot which we often passed, not very far from his father's house, and saying he should like to build his house there, and he pointed to a fine site where a very handsome house of his building now stands, and where he told me, at my first visit, that the desire to build there had been never absent from his mind, and had aided him in rising from nothing to £10,000 a-year by his own exertions.

There is a park of about 300 acres, I believe, around Holwood House, and there was a great deal of rough woodland in which Pitt when a boy went bird-nesting. Woods are not always so beautiful as they might be, and these were rough and ill-placed, blocking the residence and spoiling its view. Mr. Pitt accordingly cleared them, and laid the land in grass—formed a park, in fact, and planted it; and an exceedingly pretty park it is, with old Oaks taken from the wood, and Scotch Fir trees planted by Pitt, and well grouped with Birch and other trees upon the poor heights of the park. The planting of Fir trees within the boundaries of the park secured in due time the scattering of seed outside, and the Duchy of Lancaster, which owns the manor, is indebted to Pitt for the clumps and groups of young Scotch Fir which have sprung up upon Keston Common. The sowers in this case were probably rooks. A writer in *Notes and Queries* reported lately that he had seen a flock of "crows" carrying "something" from some Fir trees to an adjoining field. The seed was, no doubt, sown on Keston Common by rooks carrying the Fir cones and tearing them open for the seed. Hayes Common, further off, has not been planted.

Holwood House stands just at the angle between the villages of Keston and Farnborough—if you can call the former place a village, which consists only of a windmill and a few houses standing along the roadside.

Among his other improvements Mr. Pitt had the pleasure of turning a road. There is nothing more delightful. With the connivance of two neighbours, who must be Justices of the Peace and in the right humour, you apply to Quarter Sessions, who assume that it is all right. Your surveyor having sworn that the proposed route — which is further round, of course—is a short cut, you get your road. So the old broad road from Keston Mark to Leaves Green and Westerham, passing through the park, was turned; and I am bound to say that Mr. Pitt's new road, winding round the west side of the hill, and skirting the park pales and the common, is a very picturesque one. He delighted in his several improvements, and, like his father, in his leisure hours at Hayes amused himself with planting, and carried on the work of landscape gardening with great skill.

There had been, during many generations, a great "fox-earth" among the entrenchments which the Romans had thrown up. I ought to have said that Holwood, buried among woods as it was, and situated at the edge of a famous fox-hunting country, had been long noted as the residence of a succession of famous fox-hunters, and the adjacent fox-earth had been much cherished as a breeding place by the old Duke of Grafton and other Nimrods. But Pitt was not a lover of the chase; he had become Premier too soon to acquire the taste; and having had enough of Fox in the House of Commons, he commanded Reynard's home at Holwood to be dug out and extirpated.

The house itself commands the distant woodlands of Knole, Sevenoaks, and Tunbridge hills. Forest scenery and downs, both in Kent, Surrey, and Sussex, lay around the statesman's chosen retreat; and even at the present day, when woodlands have been diminished, I do not think that Mr. Alexander, the present owner of Holwood, can complain, since the woods hereabouts have not suffered much, while the general aspect of the country has improved. He still has the heights of Sydenham in one direction—crowned as they now are by a fairy palace—and Knockholt Beeches on the other, with a varied and undulating plain stretching wide between. He has, too, what his illustrious predecessor had not—the Pitt Oak and the Wilberforce Oak; or, if Mr. Pitt possessed them, having spared them when the woods were grubbed, they were at that time wanting in the sentiment which now attaches to them. Under these trees the two friends reposed during Wilberforce's visits to Holwood, and here they matured the measure for the abolition of slavery. In 1790 Wilberforce made an entry in his diary which time has rendered interesting. It runs:—"April 7. Walked about after breakfast with Pitt and Grenville. We sallied forth armed with billhooks, cutting new walks from one large tree to another through the thickest of the Holwood copses."

The small house, originally a hunting-box, occupied by Mr. Pitt, was pulled down in 1823.

Mr. Ward, a merchant of London, followed Pitt, and finished the new house in 1827. Lord Cranworth, long known as Baron Rolfe, lived and died here. The late Lord Salisbury, and after him Lord Derby, have been among those who, either as owners or otherwise, have occupied this interesting residence. *H. E.*

ALPINE PLANTS.

The chain of the Alps extends for 300 miles in length, and covers a space equal to 8000 square miles. This mountain range, rising from the coast near Genoa, extends across Piedmont, Savoy, Switzerland, Lombardy, the Tyrol, Illyria, to the confines of the Ottoman empire, sending its ramifications towards Italy, Germany, and France. From its size and extent this chain of mountains is a separate world, distinguished by special conditions and phenomena. The alpine region is entirely different from that of the plains; animal and vegetable life are distinct, and even the soil is unlike that of the plains beneath. While in the plains large districts are alike, in the Alps it is not so, for in some spots it is easy to step in a few feet from the Italian climate to that of the Polar regions.

Suppose a traveller, for instance, starting from Nice to ascend one of the mountains in the adjacent Maritime Alps. He passes first gardens full of Oranges, Olive groves, Myrtles, Pomegranates, Laurels, Palms even. At a little higher elevation vast forests of evergreen Oaks and Chestnuts are reached. These trees form a sort of belt round the mountains of Europe, and are always met with at the same height. Next forests of Pines are met with, and at a still greater elevation Larch and Pins d'Arolles [Pinus Cembra?]. All this kind of vegetation ceases at a height of 1200 metres, to give place to low-growing shrubs, Rhododendrons, Gentians, &c. Then begins the true alpine region, which contains a most charming series of plants. The traveller walks through meadows enamelled with flowers of the loveliest tints and the most graceful forms. He exchanges these for a dreary and rocky district, and then reaches the glacial region, where still some species of Phanerogams are met with; then, mounting still higher, he reaches the icy summit, where only a few Lichens grow. Our traveller has thus in a single day passed through so many different districts that he may observe the various European floras from the shores of the Mediterranean to the Arctic regions. The most interesting of these floras is that of the Alps, and of this I shall hereafter speak, not altogether passing over the vegetation of the two other zones. A notion of the alpine climate, and of the phenomena which are so extraordinary and so interesting, is therefore a necessary preliminary.

In a mountainous region, comprising the sub-alpine portion, and extending from 800 to 1200 metres, the snow begins to disappear about the beginning of May, at which time the inhabitants of the large and rich villages in these districts begin to sow their seeds. In the higher regions, however, the snow does not disappear completely until towards the end of July, to reappear in September, and where indeed sometimes it remains for the whole year, so that occasionally the winter for the alpine vegetation lasts two or more years. In the upper regions the summer nights are often so cold that snow falls almost all the year round, and even at midsummer the alpine pasturages are whitened with snow. The sun of March and April is, however, sufficiently hot to melt a considerable portion of the snow which covers the ground, but it is only in June and July that the true and complete thaw takes place, which is the cause of the great and alarming phenomena, such as avalanches, inundations, landslips, &c. It is at that time also that the excursions and ascents begin, and that the flowers enamel the slopes exposed to the rays of the sun. *H. Correvon, Geneva.*

(To be continued.)

WESTON BIRT.

Weston Birt, the seat of Robert Stayner Holford, Esq., stands out in bold prominence on the high ground of Tetbury, in the county of Gloucester, from which place it is some 3½ miles distant. Weston Birt, like many other places of such proportions, is of considerable antiquity. We read in Atkins' *Gloucestershire* that Weston Birt lies in the hundred of Longtree; Elnod held Weston in Langtree hundred in the reign of King Edward the Confessor; Earl Hugh held it in William's reign, and was taxed at four hides; Hugh le Despencer was seized of the manor of Weston Birt in the time of Edward II.; Mr. Nicholas Dymery was lord thereof in 1608. This manor afterwards came to the Crews, who were a branch of the Crews of Cheshire. The heiress of the Crews was married to Sir Richard Holford, then Master in Chancery, and also lord of the manor of Weston Birt, and kept a court; but this was in the latter part of the sixteenth century, from which date it has continued in the Holford family, and has since been rebuilt in magnificent style by its present proprietor.

The nearest station by which Weston Birt may be reached is that of Nailsworth, on the Midland Railway, which place is some 9 miles distant; to convey passengers to their homes among the hills a two-horse omnibus awaits the arrival of trains, and by it passengers are conveyed as far as Tetbury, an old-fashioned and historic town. The ride from Nailsworth is one of continuous and indescribable beauty, the sloping banks and meadows deepening into ravines. The moss-covered stone walls which form the fences are here and there one mass of the smaller Ferns; among these the Hart's-tongue and "Wall Rue" are prevalent, less frequent being the common Polypody. The woods and rugged rocks in the distance all tend to assist the beauty of the surrounding landscape; until at length on the main Bath and Bristol road the entrance to Weston Birt House is reached.

This entrance with massive stone porches and iron gates indicates in a small degree the character of the mansion generally, which is approached by a slightly undulating and circuitous carriage drive of considerable length, with parks and meadows on either side, in which Mr. Holford has tastefully planted a variety of Conifers, many of which have now attained specimen size and are most attractive. The entrance, which is supported by massive stone columns, is tastefully laid down in mosaic work or what is commonly termed "Roman pavement" in some parts of the country. The garden proper is on the opposite side of the mansion, viz., south and south-east, and to this I turned my attention. A fine specimen of Sycamore was among the first objects I noticed. It was densely symmetrical in form and fully 100 feet in height. On the south side of the mansion are a variety of beds in which carpet bedding is a marked feature during the summer months, but which at the time of my visit—early in January—were replaced by a carpet design of quite a different character.

For many years Mr. Holford has made his garden one continuous study, and by his arrangement and taste has produced an almost unique effect. His taste for foliage is everywhere apparent, and the carpet beds in question are only one instance of the many that are to be met in the course of a walk through the grounds. These beds, which I have already stated produce such good effects, were filled at the time of my visit with Berberis Aquifolium (Mahonia) and gold and silver Hollies. Of the former three distinct colours were used, viz., bronze, green, and red, the Hollies being placed alternately, each colour forming a diamond. In the front spaces Crocuses were used, which when in flower, being so well backed with foliage of various hues, had a marked effect. The pieces of Hollies and Berberis thus employed are the autumn trimmings of the trees, and the beds thus arranged last far on into the spring months. Behind this, on the wall and in the recesses, are fine specimens of Magnolia grandiflora, from which extends the front or top terrace, which leads the way to the west side, where stands the conservatory. On entering the conservatory,

which is about 100 feet long and 20 feet wide, I was struck with the unusually natural appearance of its occupants, and upon enquiry I was informed that the method, strictly adhered to, was such that if a plant is a climber it should be treated as such, if of drooping habit it should hang down, and so on, so that each and every plant, so far as practicable, should assume its natural appearance, never of course allowing any plant to get in its neighbour's way or to become wild.

The most noticeable features here were the Camellias, which were not only remarkable for the quantity of blooms upon the plants, but for the truly remarkable vigour of the plants generally. These were planted against the wall, which is densely clothed to a height of several feet with their abundant foliage, in a border specially prepared for them, The leaves of many of these plants were of extraordinary size and substance, and of a deep olive-green ; in short, their general appearance indicated the suitability alike of situation and treatment. The principal kinds were C. eximia, C. conspicua, C. Chandleri elegans, C. imbricata plena, C. alba plena, and last, but not least, two very fine specimens of C. reticulata, some 15 feet high. The other occupants comprised some well-grown Poinsettias, with heads of bracts from 15 to 18 inches in diameter. A few Chrysanthemums still flowering bore evidence of having made a fine display. Cobœa scandens variegata, Plumbago capensis, Abutilons, Lapagerias red and white, were suspended from pillars and festooning from the roof. Fine plants of Cypripedium insigne had quantities of fully developed blooms. Epacrises were gay, so also were a host of other pants; the mottled leaves of Farfugium grande were showing well from amidst the abundance of other foliage surrounding it, Habrothamnus fascicularis growing up one of the pillars is a good plant, as are likewise several forms of the "Trumpet Flower," Bignonia capensis,

Leaving the conservatory and passing through the pleasure-grounds we were led by a long winding and sloping path to the lake. In our course were many objects of interest; among these were three specimen Cedars—C. Deodara, planted in a somewhat triangular position some forty years ago, probably among the finest in the country. Rhododendrons clumps abound, and the plants were studded with bloom-buds. Conspicuous on the left were the remains of a giant Ash, whose upper portions have long since succumbed to the raging of some storm, but the trunk still remains erect to the height of several feet. The sloping banks and the lawn are judiciously planted with coniferous plants, which have now attained specimen size. A noticeable feature is the natural and easy appearance of the various slopes and banks generally. Continuing our walk I noticed many fine beds of Rhododendrons in which a variety of Liliums have been planted and become well established, and judging by some of the remaining flower-stems these had not failed to produce a good effect. Near this some kidney-shaped beds planted with Ghent Azaleas and Liliums were edged by a broad band of Gentiana acaulis, thriving admirably; this latter was much finer than usual; it seems to succeed in almost any situation here; a little further on are fine beds of Clematis Jackmanni, which in summer have a bordering of Cineraria maritima, which cannot fail to contrast well with the Clematis. Turning to the right, a fine specimen Wellingtonia presented itself to view; it is well furnished, and is upwards of 46 feet high, girting at 1 foot above the surface 10 feet 6 inches: this tree has been planted some twenty-two years. On a variety of beds of various design are planted choice Conifers and deciduous shrubs, arranged with a view to produce by their foliage and stems as good an effect as possible, To brighten and lessen the monotony of green, the crimson-wooded Dogwood, Cornus sanguinea, is largely used and planted in masses; this when massed with gold and silver-leaved Hollies, Laurels, Mahonia, Daphne, and others, has an effect not easily produced by other plants.

Behind this in the distance breaks into view a rock of large dimensions, while in the immediate front is the lake, which is large and most picturesquely formed; the irregular outline, with massive rock-studded sides, and the numerous creeks or bays which have been formed, all lend a natural charm to it. Growing in the waters of the lake are a variety of aquatics, including masses of the white Water Lily (Nymphæa alba), the Cape Pond Weed (Aponogeton distachyon?, and many others. Near to the water's edge is a variety of plants of a moisture-loving character, including some of the better of the mossy Saxifrages and Bambusa Metake, in fine stately clumps. This Bamboo is probably one of the most useful for this climate, as it withstands our severest winters with impunity. It is not the most graceful of its class, but being thoroughly hardy, of quick growth, and strictly evergreen, is deserving of a place in all collections of hardy plants. Overhanging the rising rocks are to be seen Cotoneasters of sorts, Heaths in variety, Gaultheria Shallon in masses, and many others. Many of the dwarfer Ivies are clinging to the sides of the rocks, and on the top, in sunken pockets, Golden Yews are planted. Here and there in shady nooks are huge clumps of the Royal Fern, Osmunda regalis, and scores of other plants, all alike seeming to occupy favourable situations. On the opposite side of the lake is a large clump of Conifers and shrubs arranged for effect; Hollies, Cryptomerias, Dogwood, and others being most tastefully and judiciously arranged. Fine clumps of Rosa rugosa, with R. rugosa alba in their centres, occupy positions at the west side and end of the lake. I have often urged the planting of this lovely Japanese Rose in clumps and single specimens on the lawn, where their beauty can be more fully realised, and where they soon form dense and almost impenetrable bushes, and are handsome in foliage, flower, and fruit,

Fig. 9.—Sarracenia Moorei. Petals rosy-pink, cream-coloured within. (see p. 40.)

the latter being, I am told, used as a preserve in its native home, being of delicious flavour when ripe.

At the extreme west end of the lake we face a cottage with its moss-covered roof almost hidden by a bank of trees and shrubs; its walls are clad with Pyracantha, Honeysuckle, Clematis, and Rose Gloire de Dijon. A walk leading to this is lined on the left side with Erica hederacea, and on the right is a rockwork planted with a variety of Saxifrages, Christmas Rose, Helleborus niger, and H. orientalis, all doing well. Beyond this is the village and church of St. Catherine, an old stone building in the Early English style, the register of which dates from 1547. Returning to the mansion by another route, which if possible is of deeper interest, masses of Ligustrum sinense and clumps of Pampas-grass, backed up by fine specimens of Oak and Elm, were first to meet the eye; then, by a half-turn to the right, a most picturesque view was obtained over the waters of the lake, and extending far into the well-wooded park beyond. Continuing our course, some goodly plants of Thuiopsis dolabrata I noted had good leaders; near this a bed was planted with the Pennsylvanian Whortleberry (Vaccinium pennsylvanicum), whose leaves in autumn have a decided crimson tint; this is edged with fine clumps of that most beautiful of all hardy Primulas, P. rosea, whose hardiness and free flowering qualities render it a favourite with all who see it.

I could not but admire in my walk through these grounds—accompanied by Mr. A. Chapman, the gardener—the large, and I may add almost unique, collection of Japanese Acers, to which he drew my attention. These are planted in clumps at almost every turn, and comprise every possible procurable variety. The effect produced by their graceful foliage in summer, and their variable and highly coloured tints in autumn, can be more readily imagined by those having a knowledge of them than by any attempts to describe them here. Among the kinds planted in masses were Acer palmatum, A. polymorphum and its variety sanguineum, the major portion of kinds most rare being in single specimens. Olearia Haastii, a neat compact shrub, producing whitish flowers late in summer, which are deliciously fragrant, cannot be too largely used, and is most suitably adapted for rockwork. Continuing by the same winding route I noticed a most distinct Oak, Quercus Buergerii. Here, again, we came upon another piece of rock of rugged outline, and here and there on banks covered with Periwinkle the flower-heads of the winter Heliotrope, Tussilago fragrans, were springing in abundance; and closely associated were masses of the St. John's Wort, Hypericum calycinum. The rock here is situate on either side of a sloping path: on the left Ampelopsis Veitchii holds a prominent place, planted against the sides of the huge stones forming it, and to which it readily adheres. In a large cave in this rock, which is continually moist, a host of Scolopendrium vulgare have found a home, and near may be seen fine clumps of Osmunda (interrupta) Claytoniana and Polystichum angulare Wollastoni; also an exceedingly fine form of the Holly Fern, Polystichum Lonchitis, the fronds of which are much longer, the colour much deeper, and the pinnæ broader and more deeply serrated than is generally seen. A number of paths wend their way to and fro amidst this mass of rock, which is partially covered with Ivies, Cotoneasters, &c., with Golden Yews dotted about in the more conspicuous places. In close proximity a huge crown of Gunnera manicata, which in summer must make a fine display with its gigantic foliage, has withstood the test of several past winters uninjured, and is only protected by a very light covering. A fine standard weeping Holly is an attractive feature at one corner, its long pendent branches touching the ground. This rock continues for a considerable distance, planted with Hollies and Thymus lanuginosus closely clinging to the rocks in its onward course. Here a fine example of Abies Nordmanniana some 46 feet high is quite a feature, and at some distance on the lawn a goodly Wellingtonia is towering high into the air. Osmanthus myrtifolius, with short and blunted foliage, I note as a distinct and attractive evergreen. A variety of useful specimen Conifers adorn the lawn, and likewise fine Tulip trees.

My guide next led the way to a small garden solely devoted to alpine rock plants, and here I found an innumerable assortment of Sedums, Saxifrages, Sempervivums, and a host of others of dwarf and cæspitose habit. Among Saxifrages S. Burseriana was foremost, represented by some remarkably fine tufts; S. juniperina was another, but rather shy blooming: S. juniperina was the earliest flowering species, and had small yellow tassel-like flowers; S. Wallacei of the mossy section, having pure white campanulate flowers; S. ciliata, of the large-leaved or Megasea group; S. oppositifolia pyrenaica bears deep rose-coloured flowers early in spring; these were all thriving well and represented in good specimens; Acantholimon glumaceum (syn. Statice ararati) was doing well, and here

FIG. 10.—WESTON BIRT, THE RESIDENCE OF R. S. HOLFORD, ESQ. (SEE P. 43.)

again we met with Primula rosea; a fine clump represented Gunnera scabra at one end; Gentiana verna was in nice healthy patches, and a host of other alpine gems and rarities which to give in detail would occupy far too much space. From this alpine garden, and extending into the flower garden, is an iron canopy covered with Roses. In the flower garden and at the eastern and western end of it are some fine borders of herbaceous perennials, which I found by close observation to contain a choice selection of plants. A high wall extends along the south side, with pillars for climbers and recesses for such wall plants as under ordinary conditions will support themselves. Among these I noted Mahonia lascicularis, a noble plant some thirty-five years planted; Chimonanthus fragrans, then flowering freely; Jasminum nudiflorum, Myrtles, Magnolias, Pyrus japonica, and others of like character, the spaces occupied by each of these plants being about 9 feet; Clematis of the leading kinds with climbing Roses and red-leaved Vitis occupied the pillars. At either end of this wall are massive stone porches or entrances laid down in mosaic work, and at the western end is a fine specimen of Thuiopsis dolabrata variegata, which, having a good leader, promises to make in time a most handsome plant.

In the centre of this flower garden is an entrance through a glass corridor leading to the extensive range of plant-houses, &c., and directly facing on the opposite side of the flower garden is a large dolphin fountain, the overflow of which is carried into a similar one below it. The extensive range of plant-houses here comprises about thirty compartments; these are of large proportions and principally span-roofed, and in them a fine collection of clean, well-grown plants is to be met with. The first of these I entered was a lean-to structure, the principal of its occupants being cool Orchids, among these Odontoglossum Alexandræ, O. pulchellum, and O. triumphans were conspicuous, the latter having some fine spikes; O. Uro-Skinneri had made remarkably fine bulbs; a telling form of Sophronitis grandiflora was also in flower. The second house is also a lean-to, this being solely devoted to Amaryllis. Among specialities at this establishment the culture of the Amaryllis and the raising of seedlings, which have been the result of careful hybridisation and selection of the best kinds, has been a feature for many years, and is still carried on with the same success as in days of yore; upwards of 600 flowering bulbs were using their utmost endeavours to push forth their flowering-stems. These in the great majority of instances were produced in pairs from each bulb, and it is quite a rarity to be without flowers of this lovely and most useful decorative plant. I was enabled to form a good opinion of the style and quality of their flowers by some fine examples of Lord Chatham, with flowers of a glowing crimson-scarlet, with white central stripe on each petal. Bellona was another, of darker colour: the great substance and roundness of the petals speak volumes in their praise. The well-known variety, Mrs. Holford, which as a white Amaryllis is as yet unsurpassed, was raised here by the late gardener, Mr. Lucas, who in his time gave special attention to their culture as Mr. Chapman does now. A few of the leading kinds are Miss Evelyn, Lady Morley, Mrs. Albert Grey, Frisca, Lord Chatham, Bellona, Bismarck, Psyche, Vera, Brennus, Miranda, and Sappho, all of which are noted for the size of petals, colour, and substance generally. A vast quantity of seedlings are annually raised, from which are selected those only having the three qualities above named. Judging from the number of spikes appearing at the time of my visit, a grand display would shortly be expected. In another house a fine display of Salvia splendens was apparent.

The next house I entered was specially kept for flowering plants generally, and was bright from end to end. Calanthes were largely used and were flowering freely. These are grown in large 32-sized pots, and averaged four spikes to each plant, and from thirty to thirty-five flowers on a spike. Gesnera exoniensis was flowering profusely, as was also the East Indian Flax, Linum trigynum, a plant deserving of more attention by cultivators generally; although introduced into our gardens nearly a century ago it is seldom met in anything like good condition. Here this plant is grown extensively, and managed well, and is found most useful. Poinsettias were good, with large, highly-coloured bracts; Eucharis amazonica was largely represented, and flowering freely in their usual manner.

In the Cattleya-house, which came next, many finely grown examples were conspicuous; among these C. pallida, C. gigas, a fine vigorous plant, C. Dayana, and C. exoniensis were of the best; Maxillaria picta and M. venusta were good, Zygopetalum Mackayi finely in flower, together with a variety of Cypripediums, all doing well; in this house I noted Calanthe vestita rubra, with fine spikes. The East Indian house, next, had its complement of plants, including some fine Phalænopsis, producing large spikes of bloom, so useful in winter; Saccolabium guttatum Holfordi, also in flower; and likewise the rose-scented Odontoglossum Roezlii, which is always welcome. The Dendrobe-house came next, and in it I noted fine specimens of D. fimbriatum oculatum, D. chrysotoxum, D. crassinode, D. thrysiflorum, and others; fine pans of Pleione maculata were also noticeable, with Sobralia macrantha, Thunia alba, and a host of others. Two propagating houses, conveniently fitted up to meet the requirements of a large establishment, came next. Then in turn comes the fernery, which is full to overflowing with choice specimens of the leading kinds. A pleasing and not easily forgotten sight here presented itself in the way of two plants trained to the roof, the one Ipomœa cœrulea, the other Thyrsacanthus rutilans. The former plant was covered with hundreds of its light blue flowers, which are borne in the greatest profusion and fully compensate for their short individual existence; the latter plant had but few flowers open—when these are developed the two will form a striking contrast, and from the profusion of the former and lasting qualities of the latter a good display for some length of time will be but a very natural result. Next came the stove, where a general collection of suitable plants was looking healthy and vigorous: trained to one of the pillars of this house Hibiscus grandiflorus forms an ever-flowering plant, and associated with it is the snow-white blossom of Jasminum hirsutum; conspicuous near this is Heliconia discolor, and an almost endless variety of other plants. The corridor comes next, and forms, as it were, a central avenue to this extensive range of glass-houses; in this Camellias abound. Next in rotation is a greenhouse devoted to Tea Roses in pots; and on the roof on the south side is Rose H.P. Marie van Houtte, and Fortune's Yellow. The next house is devoted to Pelargoniums and double and single Primulas, the latter Williams' strain, and certainly a most creditable one. Some other houses are devoted to Poinsettias, Heaths, half specimen Azaleas, and other plants. The roof of the Palm-house is covered with Roses, consisting of Devoniensis, Fortune's Yellow, Maréchal Niel, &c. Some remarkable specimens of Rhododendron Veitchii and R. Countess of Haddington were also noticeable, and well set with buds. An extensive range of vineries and Peach-houses were planted with a choice selection of their respective occupants, and another house is devoted to the raising of seedling Amaryllis.

It is scarcely necessary to add that a large and spacious kitchen garden, walled in on all sides, is well stocked, the neat and careful training of the trees being especially creditable and noteworthy. The Pear wall is perhaps the most conspicuous; and here a single specimen of Gansel's Bergamot, from one extreme to the other, measures nearly 60 feet. Some of last season's crops, I was informed, were enormous, and among these two varieties of Onions (viz., James' Keeping and Nuneham Park) were most remarkable; the remaining crops were also good.

Situate at some distance from the mansion is a small nursery, in which various trees and shrubs of choicer kinds are planted after they are received, and in which they are allowed to establish themselves before being permanently planted in their respective positions.

Directly opposite the main entrance on the Bath and Bristol Road is situate the extensive Pinetum, which has been the work of many years, and is now near completion, but which I will not here venture to describe; it will suffice to say that it contains some of the finest specimens of rare Coniferæ that have ever come under my notice. Thus it will be seen by the foregoing remarks that every class of plants, from the choicest Orchid to the smallest alpine gem, are taken into consideration, and are in due course provided with situations and other requirements to secure the well-being of the plants. Cleanliness and order everywhere abound, and not a weed is to be seen on any of the numerous walks, due mainly to the unceasing exertions of Mr. Chapman, the gardener, on whom the general condition of the garden and its occupants reflect great credit. *J.*

Orchid Notes.

Orchid Treatment at the York Nurseries.—Messrs. Backhouse's nurseries have long been noted for their Orchids, which, as most growers of these plants are doubtless aware, are grown under what may be described as treatment more in accordance with the conditions under which these plants exist in a state of Nature than the majority of cultivators submit them to, particularly in the matters of light and air. Especially in regard to the former very important element is their treatment remarkable, many of the species being subjected to but little, and in the case of not a few no shading at all. So far is this carried that many growers of these plants would have their preconceived ideas sorely upset were they to see the way in which the mid-day sun all through the summer is allowed to pour down on quantities of the Cattleyas, Lælias, Oncidiums, Dendrobiums, Epidendrums, and other genera. But the result speaks for the soundness of the practice when, as in this case, applied to plants that have never, from the time of their first being imported, been reduced to a soft spongy state, by having their growth formed under a considerable amount of shade. A long house, 100 feet by 15 feet, glazed with Hartley's rough plate-glass, never shaded, is filled with Cattleyas, thick-leaved Dendrobiums, such as D. Dalhousianum, Sobralias, and various other Orchids, which collectively are in the best possible condition, with leaves and bulbs almost as hard as a board, thick and plump, and having all the character of imported plants that in their native country had grown to an unusual size. Amongst the Cattleyas were many examples of C. gigas, which under such treatment thrive and bloom beautifully; some grand forms of it were flowering in a way that not a few growers would like to have. Hundreds of C. Mossiæ were doing equally well, and the same may be said as regards C. Mendelii; one small plant of this fine kind, with one lead and some four or five not over strong back bulbs, had last summer made a second growth from the single lead. Both of these last season's formed bulbs flowered this spring, producing four blooms each. C. Warneri, C. maxima, and C. superbiens are all in the same unusually strong state. Odontoglossum citrosmum, Dendrobium Dalhousianum, D. suavissimum, Lælia autumnalis, and L. purpurata, with numbers of others, were in such condition for strength and vigour as is not usually met with. The next big house, 100 feet by 35, that was at one time used for growing pot Vines, has not now more than a third of its space occupied with them, the rest being all Orchids, which are subjected, in the matter of air, atmospheric moisture, and full exposure to the sun to the same treatment as the Vines. They are a mixed lot of species, including such kinds as those named as growing in the preceding house with a good many others, collectively thriving in a way they are never seen where overshaded and kept too close and moist. It is needless to say that the leaves are devoid of the deep dark green colour which by some is looked upon as the perfection of condition, but is not unusually the result of too much coddling, and which fails to last. This house is glazed with clear glass. It is now a good many years since the first experiments made at the York Nurseries in submitting some few kinds of Orchids out-of-doors fully exposed to the open air in the summer were mentioned. Many people have supposed that this kind of treatment was simply an experiment to see what some of the hardier kinds would bear without destruction, but, if they were to see the rows of Lælia majalis and Epidendrum erubescens stood out to make their growth as soon as the danger from frosty nights, is past until there is a chance of the same chill visitant in the autumn, they would be of a different opinion. The Lælias consist of immense specimens with from 200 to 500 bulbs each, growing on blocks of wood; they are hung in a double row to a couple of rails fastened to posts driven into the ground about 1 foot or 15 inches high in the full blazing sun, drenched with water in hot weather three or four times a day. Here they make their growth, and that growth much stronger than ever they will

under glass. The stock of Epidendrum erubescens is in pots stood on the ground at the north end of and shaded by one of the big houses already described. *T. B.*

Aerides japonicum.

Although, perhaps, not one of the most striking members of the genus to which it belongs, this is decidedly a pretty little plant. Its flowers, which exhale an aromatic odour, are white, the two lower petals being barred with reddish-brown at the base, and the lip blotched with rose. The species was first introduced by Linden in 1862, and afterwards by Veitch. In the *Botanical Magazine* Sir Joseph Hooker remarks that "the presence of Aerides in so high a northern latitude as Japan is a remarkable fact in botanical geography, as testifying to the warmth of the southern coasts of that archipelago, and to the extension of Malayan types of vegetation to so high a parallel." It is now in flower at Kew.

Notices of Books.

How to Dress Neatly and Prettily on Ten Pounds a Year. By One who Has Done It for Ten Years. (London: E. W. Allen, 11, Ave Maria Lane, E.C.)

The author of this little volume tells us that "Household duties, parish work, family claims, social obligations, daily occupations, accomplishments, bodily exercise, and mental culture, must all receive their due meed of attention, according to individual circumstances, and the greater or less demand that one or *all* of these may have upon your time." But it must strike an ordinary observer that to dress upon ten pounds a-year neatly and prettily, and attend to some or "all" of these details would involve a much larger expenditure of time (making and mending clothes must be added, we presume) than most ladies can afford to give. We cannot (from personal experience) agree with the author's remarks upon washing costumes. She considers them to be economical, "especially when the washing-bill does not fall on your shoulders;" but surely, as "one of seven," where "money was a consideration," the author washed as well as made her own dresses? We really should not like to wear black cotton gloves in summer; but, being economically disposed, should much like to buy wearable kid gloves for 2*s.*, and never to give "more than 2*s.* 6*d.* per pair." A cardinal skirt and sleeves would now attract more notice in the streets than would be agreeable to the wearer; while hoods to jackets with coloured linings, and Jersey costumes, have had their day; so, too, have black gloves (a hideous fashion) with white dresses. Still, when dress materials are of so costly a character as those used at present, a little volume counselling economy should be welcomed; and we trust any lady endeavouring to dress upon ten pounds a-year may receive some of those "aids" in the shape of presents from her friends, which, as the author suggests, are most welcome. *Signora.*

Garden Operations.

FRUIT HOUSES.

Peaches and Nectarines.—The fruit on the earliest trees in the second house will now be all gathered. Whenever a tree is cleared of fruit, treat according to directions given in last Calendar, as regards syringing, &c. The trees in the third house will now be swelling off their fruit; give them liberal waterings of liquid manure with the chill just taken off, and trees in succession-houses will be assisted in maturing a good crop of fruit by the same treatment repeated whenever they require it. Keep young shoots tied in close; stop any gross ones that are taking the lead; get all fruit well up above the foliage before they commence colouring. Very little fire-heat will now be required: if we get anything like summer weather, any houses that require a little forcing to get them ripe by the time they are required may be shut up early, allowing the temperature to run up to 90° with sun-heat, and plenty of moisture about; this will bring them on quicker and better than using much fire-heat. Ventilators in the latest houses may be kept open to the fullest extent night and day during hot weather, which has come at last—Monday and Tuesday having been very hot indeed—thermometer 85° in the shade. *J. Wallis, Keele Gardens.*

Melons.

The natural conditions afforded by the recent fine weather have so simplified the work of Melon growing that few will fail to obtain satisfactory returns, except where disease or accident has interfered with the healthy progress of plants. During the past fortnight succession plants have made remarkable progress, and will no doubt mature their crops considerably in advance of the time at which they were intended to come in for use. Climate, situation, and the structural advantages afforded by houses will enable the cultivator to determine for himself the latest date at which it will be safe to plant for a last crop. Given a fairly good house, facing the south, well ventilated and moderately supplied with heating surface, wherein plants are swelling their fruits at the present time, it will be quite practicable to have another crop from the same house for the late autumn and early winter. Having this object in view those who are not overdone with glass structures, and who cannot plant successions in the order they would like, would do well to sow a pinch of seed every week or ten days, in order to have a good stock of plants so far on the way ready to take the place of plants from which the fruits will be gathered at the end of this month and the beginning of next. I have cut handsome Melons of fairly good flavour at the end of November in the worst climate in England, and this by no means a chance crop, although of course the weather plays an important part in enabling the cultivator to produce good fruits at that season. The Melon will be everybody's fruit shortly; houses, pits, and frames will all yield them in greater or less numbers, and if they are properly attended to in the matter of ventilation and watering they will be of excellent quality. Plants that are grown in cold pits and frames should be well exposed to sun and air, unless there is some indication of constitutional or other weakness, in which case a little shade during the hottest part of the day will be of advantage to them. Upon the other hand, if the weather should change to be dull and cloudy, the exposed plants which are hard and firm will stand the change best, and finish the best and finest crops. *W. Hinds, Canford, Dorset.*

Cucumbers.

The management of Cucumbers during the present intensely hot weather consists mainly in ventilating, watering, and maintaining the humidity of atmosphere by artificial means, which is conducive to growth, and gives tone and vigour to foliage and fruits. Cucumbers of the best quality are usually the product of plants bearing brittle foliage of a deep green, not drawn in the leafstalk, but of compact, sturdy habit. It is not possible in the present arid state of the atmosphere to accomplish this without resorting to careful shading by means of scrim canvas, tiffany, or such other material as is at command. Houses, pits, or frames that are located in positions where they are shaded from the sun during the hottest part of the day are more easily kept supplied with moisture, and afford better and more natural conditions for growing Cucumbers at the present juncture than those that are exposed to the full drying influences of sun and air, even if these are equipped with the best and most approved means of shading and ventilating. As, however, the advantages of such structures for summer work have been fully referred to in former Calendars, it is not necessary to advert to the subject further than to point out to those whom it may concern, the utility of practical advice, which anticipates the exigencies of the times. All plants should be heavily syringed overhead twice daily, and the walls and paths of houses, as well as the borders, should be damped frequently throughout the day. *W. Hinds, Canford, Dorset.*

FLOWER GARDEN.

Summer Bedders.—The present season bids fair to be a good one for bedding plants, the hot weather and occasional showers having ensured the early filling out of the beds, and also the high colouring of foliage plants. Plenty of water for ordinary bedders and mulchings of horse-droppings for subtropicals are now all that is needed to the perfecting of their growth. Peg down the undergrowths, and train and pinch into form the various carpeting plants. Pick flowers off Sedums, Saxifrages, and the like, and press down with the fingers the centres of the plants that they may the more quickly cover the ground; Herniaria glabra, Cerastium arvense, and Antennaria tomentosa are the most quickly trimmed into form, and the flowers clipped off by using sheep shears. In formal arrangements of succulents all flowers should be constantly picked off, except, of course, those that form the undergrowth, such as Mesembryanthemums, the flowers of which species, no matter of what colour, always appear to harmonise with the succulents, which is certainly not the case when flowers of other species are used. Mesembryanthemum conspicuum, with its large mauve-coloured flowers, forms the most perfect setting imaginable for large plants of Echeveria metallica, E. metallica glauca, and Sempervivum arboreum variegatum, whilst the well-known variegated Mesembryanthemum is most appropriately used as a cushion for the green and red Sempervivum and the variegated and green-foliaged Agaves and Yuccas; both these groundwork plants need to be pegged till the ground is covered, after which very slight labour in the matter of pinching will keep them in bounds. Coming to the more generally used bedders, if the hot weather continues it will be necessary to cover the ground beneath Violas, Calceolarias, Verbenas, Petunias, and Lobelias with cocoa-fibre or droppings, and if at all allowable or permissible take off at least a part of the flowers, and especially the old flower-stems, the seeding of which most quickly impoverishes the plants; of course as soon as colder weather sets in all flowers that are produced should be left. The "dot" plants in all beds should be kept neatly tied to stakes, and in the case of Dahlias, Begonias, and other flowering plants that have been so used the flowers should be kept off till the plants have got large enough to be effective. Keep the grass edgings of beds cut, and otherwise aim at perfect neatness in all the surroundings, without which there can be no real enjoyment however perfect the flower beds and borders may be.

Herbaceous Borders, Asters, Stocks, &c.—These are very gay just now with Potentillas, Delphiniums, Spiræas, Mallows, Campanulas, Pansies, Violas, &c., and need a weekly look over to keep them tied to supports. All vacant spots in such borders may be temporarily utilised for growing Everlastings, Wallflowers, &c., whilst the margins may be planted with hardy low growing plants of which there are amongst the Saxifrages several kinds every way suitable for this purpose; and being perfectly hardy they are, when once planted, done with for some considerable time. Where there are no regular beds for Asters, Stocks, and other biennials, they may be planted in the most favourable spots in these borders, but will need more attention as to watering than the general run of the plants in such borders. Asters, Stocks, and Zinnias cannot well be fed too liberally, and well repay, both by quality and quantity of flowers, any extra attention that can be afforded in this direction. If the ground be not mulched keep the soil open and weeds down by hoeing in favourable weather.

Shrubs and Roses.—Water those that were moved in the spring; pick the seed-vessels off choice Rhododendrons and Azaleas, and pluck out suckers that may be growing out from the stock; the same remark is applicable to Roses that are budded either on the Manetti or Brier. Cut-in climbing Roses that have done flowering, and encourage a second bloom by well soaking and remulching the ground. The budding of Brier stocks ought now to be done, and if the present great heat prevails the buds should be partially shaded by using Cabbage or Rhubarb leaves; but these should be sometimes removed, or they might do more harm than good. *W. Wildsmith, Heckfield, Hants.*

KITCHEN GARDEN.

Celery Planting.—The main plantings should be made as soon as the ground is available for the trenches to be got out, which should be done in the way described in former Calendars, and planted in the manner there detailed. The earlier planting will now require to be landed-up by having a little of the soil of the ridges on either side the plants cut down with the spade, and then with the hands placed around the plants (which in the meantime are encircled with another pair) taking care in doing so that the soil does not get into the hearts of the plants. However, before this operation is proceeded with, the plants should have a few of the outside leaves removed, with any suckers that may happen to have sprung from the crown. Moreover, instead of being earthed-up when only 6 or 9 inches high, as is not unfrequently the case, it is advisable not to do so before the plants have attained 12 or 16 inches high, thereby not only economising labour in the operation, but also lessening the chances of soil getting into the hearts, and the primary object—the blanching of the head—is secured as fully and completely as by carrying out the operation at more frequent intervals. Celery being a moisture-loving vegetable, the plants will require to be watered frequently with weak liquid-manure. Peas and other crops will also need seeing to in this direction. Shallots and Garlic bulbs will need to be taken up and stored away in a dry loft when dry.

General Work.—Dutch hoeing, hand-weeding, clearing away old Pea and Broad Bean haulms, planting Broccoli, &c. *H. W. Ward, Longford Castle.*

Dimorphotheca pluvialis.—In the herbaceous department at Kew this pretty Cape Composite is now in flower. It is a charming annual, with large Ox-eye Daisy-like heads, the ray florets being snow-white above and creamy-yellow beneath, and those of the small disc orange. The leaves are spathulate, more or less lobed, and the plant attains the height of from 6 inches to 1 foot.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	July 11	Sale of Albemarle House, Potter's Bar, at the Auction Mart, by Protheroe & Morris.
Tuesday,	July 12	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.: Scientific Committee, at 1 P.M.
Wednesday,	July 13	Kingston and Surbiton Horticultural Society's Show.
Thursday,	July 14	Chiswick, Turnham Green and District Horticultural Society's Show. National Rose Society's Exhibition at Sheffield.

"As spring comes on," says Mr. H. A. Bright, in a charming essay lately republished from the *Quarterly Review*,* "the fancy of any man who cares about a garden lightly turns to thoughts of flowers and the gardens where they grow." Some of us know to our cost that the thoughts thus alluded to are anything but light. So much is this the case, that anything that may tend to lighten them is worth attention. On this ground, then, as well as from the profit to be derived from seeing ourselves as others see us, we call attention to Mr. Bright's pleasant volume. It is written by an amateur for amateurs, that is, for the very class whose interests so many practical gardeners have specially to consider. With light touch and fluent pen Mr. Bright, whose delightful "Notes on a Lancashire Garden" have charmed so many readers of this journal, first sketches very briefly the history of gardening in England, the uprise of this fashion, the decadence of that. He tells us how Pope, who wrote such excellent precepts, in practice had a "shell temple," and, "above all, a wonderful grotto, finished with shells, interspersed with pieces of looking-glass in angular forms," which shows that Pope in practice was a Cockney of Cockneys, for all his polished verse and acute philosophy.

And so we are brought to the "bedding-out" era. For the most part Mr. Bright writes fairly and sensibly on this question. He falls foul, as he is quite justified in doing, of the chromatic horrors and excruciating ribbon borders which were such flagrant exhibitions of bad taste a few years ago, but which have been considerably toned down of late years. On the other hand, he is not so fierce in his denunciations or so little catholic in his tastes as not to recognise that well executed "bedding-out" in proper proportions and in the right places, which he is careful to point out has its advantages. But he is not quite correct when he says that bedding-out is inexpensive, and "a singularly easy and not very costly method of having a certain show of bright and effective colouring." This may be true when the bedding-out is of a very limited character, but where a great deal of bedding-out is desired the tax on the resources and the labour of the gardener is very great indeed. All sorts of shifts have to be devised to propagate and house, to plant and maintain these beds. Can Mr. Bright have visited a large establishment in winter, or noticed in summer the endless labour which carpet bedding well carried out entails? If he has he surely would not say that bedding-out on the scale we are alluding to was either singularly easy or inexpensive. With much that he says as to the defects of the bedding-out system — the monotony, the glare, the want of sympathetic interest, the fact that one cannot walk comfortably among the beds, or pluck a flower from them—we agree, but in fairness to the gardener Mr. Bright should remember that he generally only carries out the wishes of his employers. In very many cases the chromatic aberrations complained of are due to the taste of the ladies of the family, who devise the beds and their colouring. If this be done with taste and judgment well and good. Often it is not, but in any case the gardener should no more be blamed for that than the house-painter because he is not a Titian. Again, Mr. Bright does not take into consideration that in a very large number of cases neither my Lord nor my Lady cares anything about the plants in their gardens — they want any number of cut flowers and plants for decorative purposes. They must be grown, cut, packed, and sent off to the town-house; their vineries are at the same time turned into trade establishments to compensate in some degree for the cost of the garden; and the only occasion when the garden itself is cared for is in the few weeks when the family is in residence. What better can the average gardener do than contrive a gay garden at the time when the members of the household are likely to see it. Of course the case is altogether different when the proprietor or any member of the family is a landscape gardener or a plant-lover. Intelligence, taste, sympathy are then sure to be evidenced alike in master and man under such conditions. The gardener is not wholly or largely responsible for the abuses of the bedding-out system. As the knowledge and the taste of employers improve, so will the demand arise for gardeners of corresponding acquirements, and it will be forthcoming in the future as it has been in the past.

Mr. Bright's remarks on shrubberies and their contents are as judicious as those concerning bedding-out. Neither gardeners nor their employers have, as a rule, any but a very meagre idea of the wealth of beauty and interest in flower and foliage there is in hardy shrubs and trees. They go on planting a few things, useful and valuable enough no doubt, but be no means representing the wealth of materials at their disposal. This is a matter our forefathers with their comparatively limited resources understood better than we do, and as for a good deal of the neglect, landscape gardeners, with a defective knowledge of plants, are to blame.

With the hybridisers Mr. Bright has manifest sympathy, and he is awake to the extraordinary improvement that has taken place in some groups of plants, but he hardly appreciates the fact that this is not so "much unnatural art" on the part of the skilful gardener as a power of availing himself of the resources of "artful Nature." Cross-breeding is extremely common in Nature, though actual hybridisation of distinct species is very much less so. The gardener does but control and direct the tendency as seems best to him.

A tribute to botanical explorers is, we must say, well earned. Of all deadly occupations this is surely the most fatal. We should say, perhaps, was — for the conditions of modern travel have largely diminished the risks of the followers of Douglas and Fortune.

Some remarks on the relations of gardening to botanical science and to painting follow, which points we cannot now enter upon. We must, however, allude to the concluding remarks on flower-shows, because we think the genial author is here not quite fair to the gardener. Mr. Bright acknowledges the advantages of these exhibitions in the way of cultivation, and in the promotion of hybridisation and other means of improvement, but he lays some stress on certain more or less possible abuses connected with them. If an exhibiting gardener neglects other departments for the sake of growing plants or fruit for exhibition, it is an affair between the master and the servant, and any neglect or disregard of the master's interests or wishes is sure to entail unpleasant consequences; but if the master is aware of, and sanctions his gardener's proceedings, where is the ground for complaint? Again, as to the allegation that at flower shows the prize is adjudged to Mr. ——, gardener to ——: this may be so in some cases, but it is not now, and has not been for some years, the practice in the parent society, the Royal Horticultural Society. "The owner of the garden," continues Mr. Bright, "is nobody, and the gardener everything. The prize is in almost every case regarded as the unchallenged property of the gardener, who has, nevertheless, won the prize by his master's plants, reared at his master's expense and at the cost of time which has made him too frequently neglect much more important matters."

The *Gardeners' Chronicle* has always been alive to the abuses of the flower show system, and we have not hesitated on occasion to express our opinions on these matters. We shall therefore not be accused of undue bias when we say that these remarks of Mr. Bright's, given without qualification, are not fair on the gardener. The fault is not his: it rests with the managers of horticultural societies. Again, if there is no proper confidence and due relation between master and servant, then such remarks are in place; but if the master is aware of, and approves of, what his servant does, who has a right to complain? The gardener is, or should be, a skilled workman, and should be treated as one. His training, his experience, his competence, are, as a rule, such as to give him of right, but much too often, not in fact, the consideration and the rate of wages due to a skilled artizan. Sometimes, indeed, he is a discoverer or an inventor. If he is to be treated as a mere labourer, it should be only in cases where he deserves no better fate. Mr. Bright's final suggestions—that prizes should be given for the culture of the garden as a whole, for well-kept beds, for the arrangement of shrubberies, for the grouping of herbaceous plants —are well worth the attention of the managers of our horticultural societies. There are practical difficulties in the way, no doubt, but they could readily be met, and we doubt not the advantage to horticulture would be very great; the experience of cottagers' shows and allotment gardens on this point is distinctly favourable.

With this we take leave of a very pleasant little book. We especially commend it to the notice of managers of horticultural societies and of flower shows, because it is to them chiefly that many of the shortcomings Mr. Bright alludes to are really due, and not to the gardener. Flower-show managers, as a rule, think of little or nothing but "getting up a show;" the more vital points of furthering horticulture and promoting its beneficent influence are in practice treated as if they were of secondary importance.

* *The English Flower Garden.* By Henry A. Bright. Macmillan & Co.)

To the long list of successful annual festivals that have been held in aid of the funds of the Gardener's Royal Benevolent Institution we are glad to be able to add that on Wednesday evening last, under the Presidency of the Right Hon. Lord Aberdare, President of the Royal Horticultural Society. His Lordship was supported by several members of the Council of the Society, by the leading men in the market and nursery trades, by many enthusiastic amateurs, and by a good sprinkling of practical gardeners, to the number of about 130 in all. We do not remember any similar event in the history of the Institution which excelled this in the pleasant character of the proceedings. In proposing the toast of "Her Majesty the Queen, our Patroness," the Chairman remarked that though Her Majesty's reign had been marked by many triumphs, nothing was more remarkable than the immense advance that had been made in horticultural progress since 1837, and which, it had been suggested to him, was in a great measure due to the acts of two of Her Majesty's Prime Ministers—the late Sir Robert Peel, who took the duty off glass, and Mr. Gladstone, who removed the impost on bricks.

Proposing "Continued Success and Prosperity

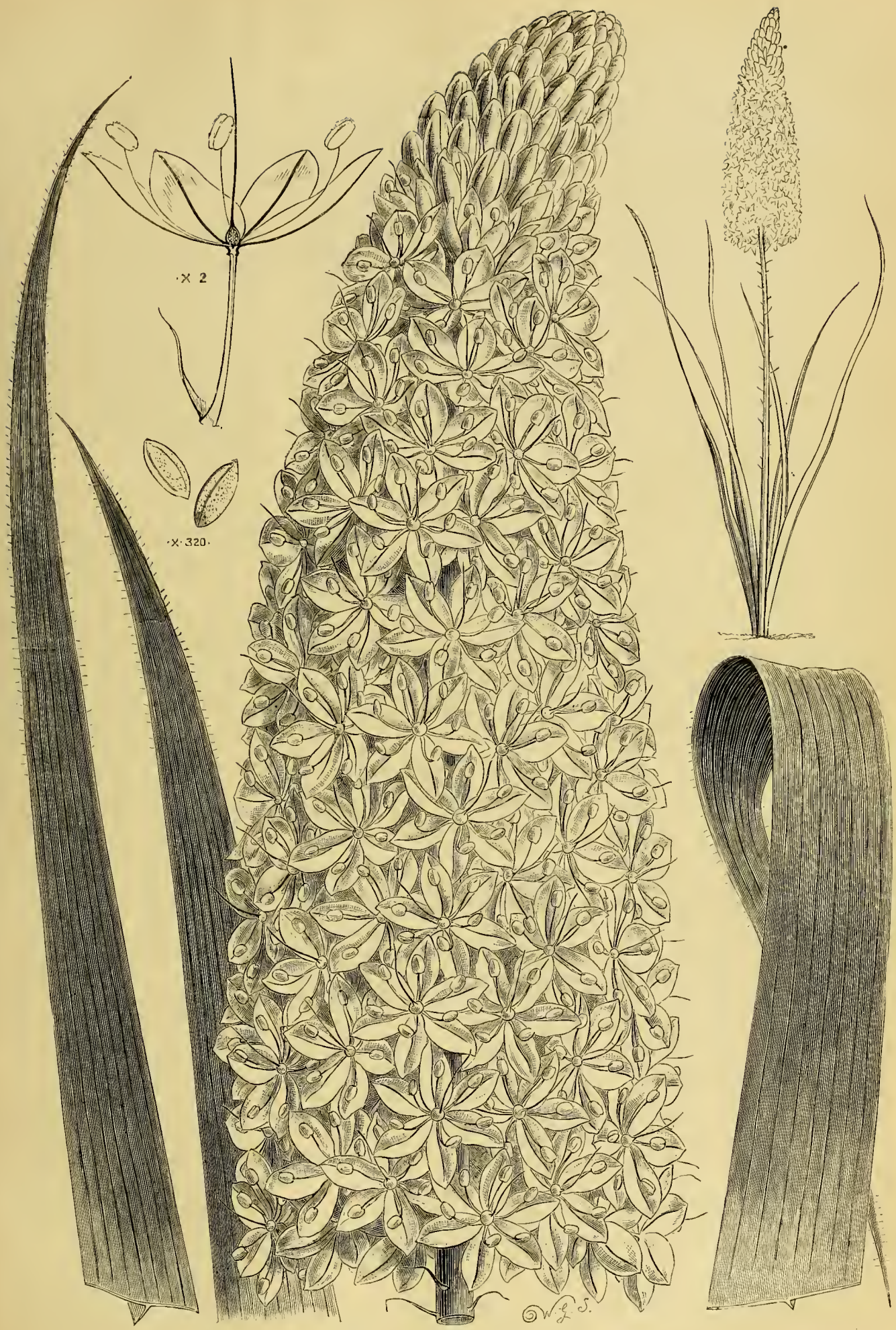

FIG. 11.—EREMURUS HIMALAICUS: FLOWERS WHITE. (SEE P. 50.)

to the Gardeners' Royal Benevolent Institution," the Chairman alluded to the remarkably sound financial basis upon which the Institution existed, for much of which the subscribers were very greatly indebted to their Secretary, Mr. CUTLER, whose first festival, he would remind them, brought £40 to the exchequer, and that was considered a fortunate result. He would not stay to make comparisons between the circumstances of the Institution then and now, but proceeded to ask what were the claims of gardeners to such assistance as was provided by the Institution whose aims and objects they had met to promote? They were many. From the time of that grand old gardener, ADAM, no class had better ministered to our material wants or contributed more largely to the enjoyment of our greatest pleasures; and on this point he would take leave to say, that although a very high value was set on the comestible products of Nature, he doubted whether the growers of fruits contributed so much to our pleasures as the growers of flowers. The gardener, too, was ever a victim of circumstances, his life being a continuous struggle with the climate, in season and out of season; and it was vastly to the credit of the craft as a whole, that although, as a rule, they were poorly paid, no other class, probably, had so few members actually requiring assistance. Some charitable institutions did more harm than good, but he looked upon this as a well-directed institution, and considered that its rules had been drawn up with great care to exclude those who were undeserving of its aid.

Mr. HAUGHTON, in proposing the health of the Chairman, called attention to the good work that Lord ABERDARE had done for the Royal Horticultural Society, by the anxious thought that he had bestowed upon it in its darkest hours, and by the genial manner in which he had always met its opposing forces. The position of the Society was improving fast, and it would ere long be more flourishing than ever. Mr. SHIRLEY HIBBERD, in a characteristic speech proposed the Corporation of the City and the City Guilds; which was acknowledged by the Masters of the Worshipful Companies of Haberdashers and Fruiterers. Dr. HOGG returned thanks for the Royal Horticultural, Royal Botanic, and kindred societies, proposed by Mr. G. F. WILSON; and the veteran Treasurer, Mr. ROBERT WRENCH, replied on behalf of the office-bearers—Mr. B. S. WILLIAMS rendering a like service for the Stewards. In proposing the health of Mr. CUTLER, Lord ABERDARE said that it was impossible for any society to have a more zealous or indefatigable servant; and the Secretary in reply had the pleasure to report that the result of the festival would be the addition of over £500 to the funds, of which sum over £200 was on the Chairman's list, and about £50 from new annual subscribers. Mr. CUTLER also referred in feeling terms to the death of Mr. ARTHUR VEITCH, who attended their festival for the first and last time last year, and stated with regard to the subscription that had been raised to perpetuate his memory that the committee had decided to present the sum collected (£820) to the Gardeners' Royal Benevolent Institution, and so ensure a lasting and useful monument to his memory.

—— EREMURUS HIMALAICUS.—This is a fine hardy herbaceous plant, native of the western ranges of the Himalaya. Its fleshy roots are in tufts, and from the crown is sent up a number of strap-shaped, acute, glabrous, entire leaves, a foot or so in length. The scape is 1½—2 feet in height, bearing a dense cluster of star-shaped white flowers, the general character of which is well shown in our illustration (fig. 11), taken from a specimen grown by the Rev. H. H. CREWE, and obligingly furnished by him.

—— THE FRUIT CROPS.—We propose to publish our annual tabular statement of the condition of the fruit crops in all parts of Great Britain and Ireland on Saturday, August 13, and shall be obliged, if any of our usual contributors do not get their forms to fill up before August 1, if they will kindly let us know.

—— PROFESSOR SCHLEIDEN.—The death of this eminent botanist, at an advanced age, is announced. Students of a quarter of a century ago and more will remember the prominent part taken by SCHLEIDEN in connection with the history of cell-development. He will also be remembered as being one of the first to insist on the value of a study of the development of organs from their very earliest stages up to their fully developed condition. His caustic satire, and intolerance of the views of other people when they did not coincide with his own, did something to damage the reputation of botany, as the *amabilis scientia*—so much so that when SCHLEIDEN's view as to the development of the embryo within the pollen-tube, instead of within the embryo sac of the ovules, was shown to be incorrect, a feeling of satisfaction was—unworthily, perhaps, but not unnaturally—experienced on personal grounds. But when the bitterness of these personal attacks is forgotten, as it already is to a large extent, SCHLEIDEN's merits as one of the foremost pioneers of modern botany will be universally acknowledged. For some years past Dr. SCHLEIDEN has published but little. In this country he is best known by his *Elements of Scientific Botany*, translated by the late Dr. LANKESTER, and by a series of popular lectures on the *Plant*, translated by the late Prof. HENFREY.

—— CHRYSANTHEMUM MONTANUM, now flowering in the Cambridge Botanic Garden, is the earliest of a choice set of hardy herbaceous plants, with white Daisy-like flowers of immense size. Next will come the handsome C. lacustre, which is not nearly so well known as it should be; and then the autumnal Pyrethrum uliginosum. The present C. montanum has equal beauty with the two others, but is much dwarfer, growing less than 2 feet high. The leaves are lanceolate or strap-shaped, slightly narrowing to the base, irregularly serrated, and decreasing in length from below to above the middle of the stem, where it becomes naked. The stem is simple and grows erect, bearing a single flower-head more than 2½ inches across. This fine plant is not common. A native of the South of Europe.

—— LYSIMACHIA BARYSTACHYA.—In a genus in which the large majority of species bear yellow flowers the present plant is rather remarkable. It grows about 18 inches or 2 feet high, and has erect terminal crowded racemes of small white blossoms. It is now in bloom in the herbaceous department at Kew.

—— LILIUM AURATUM AT HOME.—With reference to the remarks of "J. S.," at p. 19, M. JEAN VAN VOLXEM writes:—"Coming from the south of Japan I saw for the first time the Lilium auratum, a little after passing the gate of Hakoni, three days before arriving in Yokohama. They were grown in fields, by the side of the to-kaïdo, as our Onions are, and quite as close to each other. As the flowers were beginning to expand the sight was magnificent, and the scent overpowering. It was much later, and far north of To-kio, that I saw them wild, coming out of the margin of the natural shrubberies, generally with a single huge blossom, sometimes two, rarely three. It is no wonder we got at first notice such quantities of them, as the bulbs are a common article of diet with the natives, and are sold everywhere as a vegetable in the markets. I have eaten them pretty often, and rather relished them, as they are, when cooked, sweet, mucilaginous, and without any decided taste to make them objectionable to a newcomer."

—— THE NEW BOKHARA ALLIUM.—M. MAX LEICHTLIN writes:—"The Allium from Bokhara alluded to on p. 20 of last week's paper by Mr. VAN DER SWAELMEN, is Allium stipitatum, REGEL. It has been in flower here four weeks, and certainly is a magnificent plant."

—— PACKING FRUIT.—Our note respecting the methods of packing adopted by the several competitors for Messrs. WEBBER's prizes last week did not fully convey all that Mr. WEBBER—whose experienced remarks should have due weight with all young gardeners—had to say about Peaches. In packing these for transit he advises that the box shall be shallow, and should have the bottom and sides equally lined with about one inch thickness of soft dry moss. Then, the fruit being carefully wrapped in soft tissue-paper, the packer should begin in one corner and with the fingers of the left hand slightly hollow the moss packing, and with the other hand place into the hollow one of the fruit; then place against it a portion of soft moss, the which must again be slightly hollowed as before, and so proceed until a layer of fruit covers the box. Then put another thin layer of moss over, and proceed as before. In this way these tender fruits will travel better than by any other mode of packing. We learnt that the result of last year's competition had been to produce some improvement in the packing of the fruit sent to market.

—— THEROPOGON PALLIDUS.—This plant, which was first received from the late celebrated collections of Mr. W. WILSON SAUNDERS, is now blooming nicely at Kew. It has grassy leaves, and Lily of the Valley-like racemes of rose-tinted bells. It is a common Himalayan species, from Kumaon, at elevations of 6000 feet, to Nepal and Sikkim, in which latter country it ascends to 10,000 feet. In its wild state it prefers mossy rocks and the bases of old trees, where its roots run rather superficially in light soil. As a cool-house plant, it does well under cultivation, and flowers freely.

—— MR. HINDS.—We understand that our correspondent, Mr. WILLIAM HINDS, has resigned his position as Gardener to Lord WIMBORNE, at Canford Manor, and leaves there in a few weeks. We believe Mr. HINDS is leaving his place in first-rate order, and shall hope soon to hear that such a good practitioner has found another field in which to display his skill.

—— GLOXINIAS.—That a group of nine plants of this most beautiful summer decorative flower should evoke special praise from some of our oldest plant judges indicates that they were unusually good. We doubt whether finer plants, more superbly flowered, were ever put upon a show table than were those staged at Richmond show last week by Mr. MORRELL, gardener to J. S. RUTTER, Esq., of that place. Being seedlings they were not named, but the blooms were not only large, but of rich colours, and the finest quality. These plants exhibit what can be done towards making the Gloxinia a summer exhibition plant, and it must be admitted that in beauty and richness it stands second to none other. Since the Gloxinia has been taken in hand by the florists it has developed grand qualities, and such brilliant hues as to put even Begonias into the shade. Seeding freely, easily raised, and indeed easily grown, the Gloxinia has become popular, and a deserved favourite, in every garden where there is a little heat to be found in a greenhouse.

—— SALE OF GRAPES.—Nothing so certain is experienced in Covent Garden Market as that when Strawberries are in the price of Grapes falls low. Proof of this, if any were wanted, occurred on Wednesday afternoon, when about 120 lots of Jersey and English Grapes, ranging in weight from 8 lb. to about 18 lb. per lot, were sold by auction at prices ranging from 8*d.* to 1*s.* 8*d.* per pound.

—— MR. G. W. JOHNSON.—The current number of the *Journal of Horticulture* contains a portrait and a sympathetic notice of the life and labours of Mr. G. W. JOHNSON, who was the founder of the *Cottage Gardener* in 1848, and who till lately has been associated with Dr. HOGG in the management of a paper which has so developed in size and usefulness as to justify the change in its title. The narrative of Mr. JOHNSON's varied and busy life will be read with great interest, and the best wishes of all with whom he has been associated (in some cases for more than half a century) follow him into his well-earned retirement.

—— KING'S COLLEGE JUBILEE.—On the occasion of this festival, which took place on Saturday last, and which was graced by the presence of the Prince and Princess of WALES, Mr. LARKE, of the firm of SMITH & LARKE, High Street, Kensington, and who is an old pupil of the College, had the

honour of presenting to Her Royal Highness, through one of the officials, a basket of choice flowers, consisting of Roses and Carnations in several colours, Stephanotis and Tuberoses, and Maidenhair Fern. The Princess manifested much delight for the gift, and carried it away as a memento of the pleasant visit. It is worth remembering that one of the very earliest experiments with the electric telegraph took place at King's College, under the management of Professor WHEATSTONE, in the presence of the Prince CONSORT; while on this jubilee day the great feature of interest among the objects exhibited was the apparatus by means of which the electric force can be stored up and conveyed from place to place.

—— MALFORMED STRAWBERRY. — A correspondent sends us a Strawberry in which the "seeds" are replaced by small 3-lobed leaflets. Every botanist, of course, knows that the so-called seeds in this case are really seed-vessels containing the seed, and such instances as that now sent are confirmatory of this fact. The Plymouth Strawberry of our forefathers was of similar nature.

—— ALLIUM PEDEMONTANUM.—This is a truly handsome border, rock, or pot plant. It grows in grass-like tufts, bearing large graceful drooping clusters of bell-shaped rosy-purple flowers on stems 6 to 12 inches high. A few days since we were gratified in witnessing fine displays of it in the York Nurseries. The plant is evidently of easy culture, for it was equally gay both in pots on the rockery and in the herbaceous border.

—— LADIES AND LANDSCAPE GARDENING. — The directors of the Crystal Palace have made special arrangements for the admission of lady students to the division for landscape gardening in the Crystal Palace School of Gardening and Practical Floriculture, of which Mr. EDWARD MILNER is principal.

—— DAPHNE MEZEREUM.—Though not often mentioned, this is one of the most ornamental fruited shrubs we have. A specimen in a street garden at Cambridge is literally crowded with scarlet berries on every branch. The effect may perhaps be imagined better than it can be described. In the Botanic Garden is the variety with yellow berries, which produces white instead of purple flowers.

—— THE POTATO DISEASE. — After a few days with the thermometer over 90° in the shade, we have now experienced a thunderstorm accompanied by torrents of rain. As these are the conditions most favourable for the germination of the fungus-spores, it is to be feared that we shall soon hear of the appearance of the disease on a large scale. Already we have had intimations of its existence, and have ourselves seen it. We cannot too urgently recommend small growers who may be able to do so to uproot and destroy infected plants immediately they see them. People too often are content to do nothing at all in the way of prevention, because it seems to them that the little they can do is really not worth doing. We altogether demur to this opinion, especially on the part of small growers. Infected plants should, if possible, be burnt, or saturated with a solution of carbolic acid. To put the diseased haulm on the manure-heap, or to give the diseased tubers uncooked to pigs or horses is not only folly, but, in the present state of our knowledge, a crime to our neighbours.

—— FLOWERS IN SEASON.—Pentstemon Bridgesii, now flowering at Kew, is an elegant tall-growing North American species, with glabrous lanceolate leaves, and a loose terminal spike of pendulous scarlet flowers.—Salvia Moorcroftiana is a tall-growing, hoary Himalayan species, with rugose lanceolate serrulate leaves, hoary on the under-surface. The flowers are borne in widely scattered verticils, the upper lip of the corolla being violet-blue, the lower lip white.—Lysimachia davurica is in the way of our L. vulgaris, but is larger in all its parts.—Of the uncommon and neglected herbaceous plants Apocynum androsæmifolium is an extremely lovely one. It grows about 2 feet high and bears handsome foliage of bright green opposite leaves, with large cymes of the most charming bell-shaped flowers. They are small but produce a lively effect. In colour they are pale pink with dark lines on the inside, of the same colour. This is the prettiest of the cultivated species and also the earliest. It is a native of North America and is now flowering in the Cambridge Botanic Garden.

—— INCARVILLEA OLGA.—At Kew, in one of the cool compartments of the new range, this newly introduced species is now in flower. It is a tall half-shrubby looking Bignoniaceous plant, about a couple of feet in height, with pinnate leaves like those of our common native Valerian on a small scale, and pretty rose-purple blossoms. A native of Kokand, where it is found at elevations of about 4000 feet. The Kew collections are indebted for this charming plant to Herr MAX LEICHTLIN, in whose garden it withstood the winter of 1879-80. At Kew at the foot of a wall it has survived the winter of 1880-81.

—— EFFECTS OF MANURES UPON FOLIAGE. — A very interesting example of the diverse results obtained in density of colour in the foliage of the Potato plant through the use of diverse manures may now be seen at the Bedfont seed ground, where Mr. DEAN is carrying out some simple trials. Phosphatic manures, designed specially to assist in the promotion of tubers, not only do so, but also excite or stimulate earlier and more robust growth, whilst the normal tint of the foliage remains. Nitrogenous manures prepared for cereal and bulbous root crops, on the other hand, produce stems of a stouter kind, and foliage so dark in hue that but for assured certainty on the part of the planter it would scarcely be credited that the rows of Potatos were of one and the same kind. Even more interest will perhaps attach to the appearance of those rows, the ground being poor, to which no manure was applied. Compared with these the manured rows, even now, indicate that more than double the produce will result.

—— MAGNOLIA MACROPHYLLA.—A week or so ago this rather rare species was flowering in the nurseries of Messrs. KINMONT & KIDD at Canterbury, where are to be seen good specimens of many uncommon and interesting trees, some of them got together by that ardent horticulturist, the late Mr. MASTERS. Flowers submitted to us were considerably larger than the life-size figure given in the *Botanical Magazine*, in 1821, and more than double the size of the plate (half natural size) in MICHAUX. In colour they are whitish, with a purplish blotch at the base of each petal. By the way, the illustration in LOUDON gives but a poor idea of this remarkable plant—the flower is there represented somewhat like that of M. grandiflora whilst in reality it is open bell-shaped. MICHAUX gives the extreme measurement of the leaves as 35 inches in length, by 9 or 10 inches in breadth, and LOUDON copies his description; but Dr. ASA GRAY in his *Manual* states that they measure from 2½ to 3½ feet in length, and that the tree attains a height of from 20 to 40 feet. In shape the leaves are obovate-oblong, cordate at the narrow base, and pubescent and white beneath. It is a native of the Rockcastle and Kentucky Rivers, S.E. Kentucky, and southwards. The petals of the above-mentioned flowers measured more than 7 inches in length. In the same nursery M. Thompsoniana was flowering freely. This by LOUDON and KOCH is placed as a variety under M. glauca, but as the flowers are about four times the size of those of typical M. glauca, it may possibly be a hybrid between that species and one of the larger-flowered ones. It was first noticed about 1820, in a pot of seedlings, by Mr. THOMPSON, nurseryman, Mile End.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 4, issued by the Meteorological Office, London:—The weather has been generally fair and dry over the eastern, central, and southern parts of England, but very unsettled and rainy elsewhere. The temperature has been a little above the mean in "England, E.," but below it in all other districts excepting "Scotland, E.," where it has scarcely differed from the normal value. The highest readings were registered at the close of the week, when the thermometer in the shade reached 85° at Nottingham, Cambridge, and Rothamsted; 86° at Hillington, and 87° at Geldeston, Cambridge, and in London. These readings were all about 20° higher than the maxima registered at the commencement of the period. The lowest of the minima were recorded either on the 28th, 29th, or 30th June, but no very cold nights have occurred. The rainfall has been more than the mean in Scotland and Ireland, but less over England. In "England, E.," and "England, S.," the weather has been absolutely dry, and in the Midland Counties the total fall for the week has not amounted to half a tenth of an inch. In "Scotland, W.," the rainfall has been very heavy, and at Silloth on the 30th 1.96 inch were measured in the space of twelve hours. Bright sunshine has been very deficient in Ireland and the western parts of England, but in "England, S." it has reached 60 per cent. of the possible amount. Depressions observed:—At the commencement of the week there was a large shallow depression lying off our North coasts, producing moderate W. or S.W. winds over the whole country. On the 30th June a deeper disturbance appeared over Ireland, passing northward in the course of a few hours, and causing strong S.W. winds on many parts of our western coasts. This was followed on July 3 by another depression of less intensity, which also passed away north. On the 4th a new and still shallower disturbance appeared over the North of Scotland, subsequently travelling away north-east. The winds have been S.W. or W. all the week—light in the south-east, fresh to strong in the west and north.

—— GARDENING APPOINTMENT. — Mr. AMOS HOBDEN, late Gardener at Alscot Park, Gloucestershire, has been appointed Gardener to THOMAS PORTER, Esq., Whiteknights Park, Reading, Berks.

Home Correspondence.

A Plague of Mice and Wasps.—Questions are constantly asked, How is it we have such numbers of insects after such a severe winter? Well, we in East Surrey have our share of the insects which have survived, and to add to our troubles have a plague of mice of various species. The meadows, especially under Oak trees, are honeycombed, and the woods are alive with them. They eat of our Cherries on the walls, and nibble our ripe Strawberries, seemingly for pure mischief, as they cannot eat a hundredth part of the fruit they bite. Wasps also are more numerous than ever, although we had almost an immunity from them last year, owing to our persistent efforts in killing the queens in the spring and taking the nests, and for which we paid a goodly sum in cash. Last year we caught 337, whilst this year 827 have been killed, and they are still very numerous. I have an idea that when a queen has begun a nest other queens aid her, as at the mouth of a hole in the pleasure-grounds here as many as twenty were killed. I only wish we could as easily kill the mice, which threaten to eat up all our small fruit, and I am afraid they will eat all our Nuts as soon as they are ready. *Wm. Armstrong, Ford Manor, July* 4.

Autumn-Planted Potatos.—I was pleased to read a favourable account of Potatos planted in the autumn at last, for I have read in the *Gardeners' Chronicle*, not many months back, of the "uselessness of it," a statement that would certainly discourage many from trying it. I agree with all Mr. Lloyd says, having practised it for many years with the best results. I always put in a good row of Asbleaf Kidneys under a south wall, and this year I have been digging fine well-ripened tubers since June 18, and the spring planted ones in an equally favourable situation are not yet fit to dig. After such a severe winter it was thought by many that few would be seen above-ground in the spring. I had not much fear on that score, although mine had no extra protection but a slight ridge of soil drawn up over each row, and when dibbled-in the hole filled up with wood-ashes. I did not lose one set in a hundred, and if it was only observed how those left in the ground from the autumn digging have escaped, I think the most doubtful would see no cause to fear for the safety of the sets. I have practised it here for nearly forty years, and always with the best results. It is a great advantage to have a lot of October planted ones, as I need not dig the spring ones for the next month. *G. B., Walcot Gardens.*

The Royal George Peach.—Mr. Armstrong thinks very highly of Early Beatrice Peach. I have no doubt it has some good qualities—earliness for one—but I do not think I shall introduce the sort here, as it seems, taking all points into consideration, that we have not yet any early variety to compare with Royal George. I send you a fruit of a fair sample that you will see turns the scales at 12 oz.—a long way ahead of Early Beatrice at 3 oz. *E. Gilman, Ingestre Gardens.*

Magnolia fuscata.—There are two fine plants in the gardens here, one of them being out-of-doors on a south wall, and covering 100 square feet; it is now bearing hundreds of flowers open and in the bud. It flowers freely every year; the late severe winters have killed some of the branchlets back to the hard wood, but they are now breaking fresh again. This plant has not suffered so much as Magnolia grandiflora on an east wall. The second plant is in a greenhouse with only sashes in front, growing in a 20-inch pot,

and is 14 feet high, 6 feet through, and flowers very freely every year. The flowers are a little paler than those on the wall, but the perfume is quite as strong when the sun shines, or in warm weather. In cold or cloudy weather there is but little scent on either. *A. George, Bicton, Devon.*

Rhododendron californicum.—In the American Forests Report which appeared in your last number, Professor Sargent speaks of Rhododendron californicum, and asks "Has this plant been cultivated?" Yes. It was collected by Lobb, Messrs. Veitch's collector, and shown in 1855, and has been generally distributed by that firm; it is delicate pink with very dark leaves. My plant bloomed this year. Last year I crossed it with hardy hybrid John Waterer, and have a potful of seedlings. (See *Bot. Mag.*, tab. 4863.) *J. H. Mangles.*

North Houses.—Gardeners and builders are so infatuated with a south aspect for growing fruits, and with a north and south or east and west one for growing plants that there are comparatively few private places where north houses are ever thought of. And yet there is no more useful structure about a garden than a north house. Until Mr. Joseph Meredith built and planted a north house with Grape Vines at Garston no one ever thought that the Vine would succeed and produce good crops of Grapes in a north house. Yet the Vines grew and flourished, and I have seen crops of Black Alicante and Lady Downe's Grapes in that self-same house that many a one would be glad of in a vinery built in orthodox fashion facing the south. But my object in writing of north houses is, not to proclaim their utility for producing Grapes, but rather to point out their advantages for retarding flowering plants in establishments where large quantities are required at uncertain dates. Experienced gardeners find little difficulty in growing plants or fruits to any given time, but once grown it is not always easy to retard them for, say, a fortnight or a month. This is where professors in the art of mechanism have the advantage over the practical gardener—their work, if it is properly done, will bring its reward at any time, while that of the gardener must come in at specified seasons. Those who possess a north house, however, have secured the best auxiliary that can be obtained—the simplest and most effectual method of retarding plants. In the present state of the weather such a structure is invaluable for retarding Fuchsias, Pelargoniums, or, indeed, any class of plants that are coming into flower before they are required for use. A north house yields plants the necessary and natural amount of light at this season without coddling and shading; for, after all, shading is but a clumsy way of regulating the power of the sun's rays under our artificial system of cultivation. What a luxury it is for a private gardener to have a propagating-pit at the north side of a vinery or plant-house, and yet what valuable labour would be saved by such a simple arrangement. For propagating the thousands of plants that are annually required in gardens of ordinary size, such a simple structure would afford the most expeditious facilities for raising the requisite stock of plants, and it would be equally useful at this season for the accommodation of such plants as require abundant light, but sustain injury if exposed to direct sunshine. *W. Hinds.*

The Potato Disease.—Walking through a piece of Potatos (Cambridge Kidney) this morning in the garden here I noticed a suspicious looking spot upon some of the leaves. Upon lifting a root I found, to my surprise, a portion of the tubers affected with the well-known Potato disease. *H. Fisher, Flixton, Bungay, June 27.*

Alnwick Seedling Grape.—I think I can best reply to the letter on this Grape in your issue of the 2d by simply stating the following facts:—After it was certificated by the Royal Horticultural Society I erected a house for its culture 180 feet long, which is now fully cropped, and open to the inspection of any one who likes to pay it a visit. It was seen last year by many whose horticultural reputation is a sufficient guarantee for their opinions, and who, without exception, declared enthusiastically in its favour. It was then only about two-thirds cropped, and now the crop is complete, and will stand comparison with any crop of Grapes I ever saw. When in flower it is treated in the same way as Muscats, Mrs. Pince, and Black Morocco, and with such treatment sets more thickly than any other kind of Grape I am acquainted with. As an amateur it would be presumption in me to tell a professional gardener how to set Grapes, but Mr. Walker's failure last year might have pointed out what was wanted, and is no argument against its being a sure and abundant cropper. I have now grown it for ten years, nor have I ever failed to obtain an abundant crop. In several instances I have it grafted on the Black Hamburgh, but I prefer it on its own roots. In the face of such facts Mr. Walker might have spared your readers his ungracious insinuations with regard to a few good bunches seen in Covent Garden, the three at the Alexandra Palace, and its notable absence from the metropolitan and other exhibitions. I do not grow it for exhibition, but for profit, and with this object in view I think I have shown it often enough to prove that it can be well grown, but if these proofs are not conclusive, then the only other thing left for me to do is to invite those who doubt to come and see for themselves. *D. P. Bell, Clive House, Alnwick.*

—— My experience with the above-named Grape is quite the opposite to that of Mr. Walker (p. 20). We have a Vine of it in a late Muscat-house at the coolest end that does admirably. Last year—the first of its fruiting—it had eight bunches of as beautifully coloured Grapes as any one could wish for. The bunches individually were not large—perhaps 1¼ lb. each—but the leaves were large, and they set well, too. It kept very well until early in November, when we had to clear off the remaining fruit to fill the house with plants. This year I hope to be in a position to give it a better trial as to its keeping powers. This year's crop is good, viz., 9 bunches, averaging, say, quite 1½ lb. each; they have again set well, and promise to finish off as well as could be wished for. Were I about to plant a late vinery here I should unhesitatingly put several Vines of Alnwick Seedling in it. As is well known to many of your practical readers, soils have much to do with the success or failure of fruit. Generally our soil is a stiffish loam resting on magnesian limestone. *H. J. Clayton, Grimston, Tadcaster.*

Tacsonia exoniensis.—I received a plant, 1 foot high, from London last spring, and planted it out in the conservatory border in a mixture of loam, leaf-mould, and sand. By the end of the summer it had grown on to the roof about 20 feet high, and flowered. It was not injured in the least, although frozen several times last winter. It is now, and has been for the last six weeks, covered with blossoms. The flowers are innumerable; they are hanging in festoons, across bars, up wires—in fact I have led it by invisible wires to every place I wished, and in every graceful shape and form. My man is kept busy gathering up the fallen flowers. Tacsonia Von Volxemii did not stand the cold, although it is now breaking freely. They both strike freely from cuttings. I have spring-struck cuttings 20 to 30 feet high at present. *Thomas Edwards, The Gardens, St. Bride's, Haverfordwest.*

Shading Conservatories and other Plant Houses.—That a few hours' strong sun will destroy the beauty of most plants and frustrate the care and labour of months, and that under a certain quality of glass no plant can survive the strong rays of the sun are facts well known to all practical gardeners. Many inventions have been recommended and experimented on for awning, such as strained canvas on rollers, floral shading, patent cotton, &c.; others recommend lime and milk, or whitening and milk, both of which are mucky, and require to be renewed after each shower of rain. Now what I use I would strongly recommend to others—simply white lead and spirits of turpentine, say 1 lb. of lead to 1 pint of turpentine, made to the consistency of milk. If wishing the cloud heavier add more white lead. Applied with a clean paint-brush when the glass is perfectly dry it leaves a soft healthy shade, is cheap, clean and effective, and is easily removed when necessary by dissolving washing soda in soft-water, applied with cloth or sponge, of course beginning at the top. *J. M'Cullagh, Blessington, near Dublin.*

Earthworms.—Mr. D. T. Fish has certainly given us a very interesting and instructive paper on worms. I do not know that I can add anything to what he has said; but as I have studied the habits of these worms as well as those of other animals, I will only add that I have seen worms dug out of the earth 6 feet below the surface on the top of a stratum of sandstone, and that these worms carried the soil, which was of a different nature to the surface soil, from the subsoil, on the principle of equalisation and amalgamation, in order that the light soil might be mixed with the heavy soil, and thus ameliorate it. The roots of trees have a similar effect in causing the deposit of inorganic matters on the surface, which they absorb in solution, the inorganic matter having been dissolved by the water saturated with free gases from the bark of the roots and radicles. These matters, when deposited and retained in the leaves fall with them to the earth at the proper season, and we then get potash, silica, and lime in a position capable of being used by plants which require these materials. Another very important purpose is carried out by worms besides that of draining the land—*i.e.*, the boring of tubes to assist the roots of plants to arrive at those parts of the soil where the rain has been able to penetrate by drainage—say from 3 to 6 feet—a very useful measure in dry weather. When the roots have arrived at this depth they become in a great degree independent of rain, for at this depth there is generally moisture, and every shower will allow of water penetrating to the exact place where the roots are. Having been a sporting man all the former part of my life, I am always on the alert for anything of this kind. As I was standing near a heap of rubbish I saw a large worm suddenly issue from the heap in an excited condition. I was puzzled to ascertain what this meant, when almost immediately, but not before the worm had advanced a foot, I saw a cock-tailed beetle come up out of the hole whence this worm appeared; he held up his head and appeared to be sniffing and looking about; as the worm had disappeared he began to make casts, first on one side and then on the other. I heard no tongue, as he appeared more like the pointer than the hound. After he had gone about 2 feet in the worm's direction, he gave it up as a bad job, and returned, evidently in disgust, if I might judge from the state of his tail, back to his hole. Now, the reason why he could not smell out the worm was because it had gone over the edges of some dry leaves which could not hold the scent. It is a common thing for these beetles to eat earthworms. *Philodendron.*

Campanula pulla.—With respect to the cultivation of this plant, which you say on p. 822 is rather difficult, I have tried it in four situations, and also noticed the conditions under which it succeeds in other gardens. I believe that constant moisture in spring and summer, either natural or supplied, is as necessary to its welfare as to that of Gentiana verna. With me it perishes in a mixed border of light soil, where it is allowed to get dry, and thrives well at the base of a rockery facing a bank and having a southern aspect, growing in full sun. The soil is rather stiff, and the rockery always watered in dry weather. *C. Wolley Dod, Edge Hall, Malpas, June 29.*

Onosma taurica.—This is one of the most beautiful among herbaceous plants, sending out its shoots, which are somewhat prostrate, to the length of a foot or 18 inches, the ends being terminated by clusters of lovely tube-shaped rich yellow flowers. If it turns out to be a good grower, as I believe it will, judging from the appearance of one I had the pleasure of seeing in Mr. Thompson's seed-grounds at Ipswich, it will be much sought after, as it will be quite an acquisition in any border, and the fact of its having stood the past winter in safety shows how hardy and enduring it is. *J. S.*

Pear Beurré Robin.—In answer to "R. D. B." I may state that before I inquired for any information anent this Pear, I took the trouble to search Leroy and all the lists I had: and as I stated in my inquiry the only catalogue which described or included it was that of the late Mr. Standish, at whose sale the dozen trees I have of it were bought. In his list it is thus described, "1st size, 1st quality; Nov.—Dec. Very good." I can bear out every word of this meagre description, and add that it is an average cropper as far as I can at present judge. It certainly is not Doyenné du Comice or Beurré Robert, which are one and the same Pear, nor is it any variety with which I am acquainted. Perhaps the gentleman who has the "Royal Ascot" Nurseries now, may be able to throw some light on the matter. The history of this variety would be especially interesting, since, as far as I know, it is unknown to pomologists; it must, I think, be an old variety. *William Carmichael.*

Syringing Vines.—Whatever may be the amount of valuable information and weight of practical opinion entertained and expressed by intelligent gardeners anent this subject, there can be no doubt that the generality of experienced and practical Vine growers agree in condemning and disapproving of its continuance in practice. Under any circumstances, and in almost every locality, whether the atmospheric influences of that locality be dry or damp (which influences, I am convinced, ought to regulate, to some extent at least, the damping-down process of vineries sometimes)—where a well balanced and properly conducted system of damping down and ventilation is carried on, I perceive no absolute necessity of syringing the Vines while they are in flower—which is a very unusual thing now to do—and after the fruit is entirely set. I am very much afraid, where the syringing system of Vines is carried on until the ripening stage of the fruit, that the most practical and important consideration in the whole cultivation of the Vine is in a very large measure entirely lost sight of and neglected. Wherever really good first-class Grapes are grown, as a rule these have, I believe, never been subjected to the influences of the watery ordeal of the garden engine or syringe. Grapes that have been syringed after the fruit is set and swelling never occupy, as regards competition and exhibition, so far as I know, the same place or position at horticultural gatherings, or carry off the same competitive honours as those that are not syringed. In some districts of England at one time, about thirty years ago I think, it was quite a common practice with gardeners

to syringe the Vines with cold water in the afternoon or evening, and while the Vines were treated in this manner the mildew committed its ravages to an enormous and wonderful extent. If the practice of syringing Vines were still to be adopted and continued, as it was in those days, I am greatly afraid in vineries which are not erected on the most modern principles, and which do not derive the full benefit of the sun's influences and light, the Vine mildew in some cases would still find a home. There can be nothing worse than syringing or deluging the Vines overhead with water, and if it is cold water that is applied the evils resulting from it will be much greater and more detrimental to the fruit than if it had been hot or warm. Late or early afternoon and evening syringing of Vines, after the fruit is set and swelling, in those cases where the water is allowed to remain or hang upon the foliage and fruit during the night-time, has never contributed much towards supplying our dessert tables with good and valuable Grapes; and wherever the practice is adopted and carried on extensively, the practical and experienced Vine grower is not long in detecting, observing, and condemning it. The application of water to the Vines with the garden-engine or syringe tends, no doubt, to check the propagation and ravages of red-spider, but if the ravages of red-spider and other Vine pests are and can be kept at bay by a well regulated and properly balanced system of damping-down and ventilation—as any practical Vine grower knows they may be—this latter plan is certainly to be approved and recommended, and doubly so because it gives the Vines a better chance of finishing and colouring, while the syringing system, so far as I have seen and known its results, injures the bloom to a very great extent. In the case of large bunches of Grapes which are intended for competition purposes, if water is applied to them from the garden-engine or syringe late in the afternoons or evenings, when the shoulders are beginning to close in and meet one another, and the berries are becoming fully developed, the water will, in every case find a lodgment about the stems of the shoulders and berries, and will produce damp and decay, thereby rendering the bunch or bunches useless for the purposes for which they were intended. All true and practical reasoning is opposed to the syringing system, which is no doubt a means of "scaring" the attacks of red-spider, these being generally caused by mismanagement in some direction. Keeping the soil underneath the hot-water pipes always well moistened and sweet, is a matter of very great importance in the cultivation of the Vine, and for want of careful attention to this important matter I believe more red-spider is spread over the foliage than by any other means. Where plants are allowed to remain in the vineries it is needless for me to say they give rise to many impurities and numerous pests, and when such is the case it is a hard task to grow Vines and keep them free from thrips and parasites of every description. A dry, warm atmosphere or temperature at night, which is not freshened by a free circulation of air, is another of the red-spider originators. The Vine delights in a sweet well circulated atmosphere at night as well as during the day, and I feel confident that if this important matter could be more closely and carefully attended to the red-spider would be little seen and heard of in our vineries. It is well at all times to keep a sharp look-out for the ravages of red-spider, and more especially after the Vines have been subjected to too much heat from the hot-water pipes, as after such has been the case it generally makes its appearance in the shape of small red spots, which any one possessed of an observant eye may speedily detect. When observed in this condition immediately have the plants affected by it washed and the enemy destroyed by the application of wet sponges, and this is quite sufficient at any time, from the period of setting until that of the ripening, to keep the ravages of the red-spider in check. If vinery borders are thoroughly watered, and the damping down, shutting up, and ventilation are attended to carefully, there is no absolute necessity for syringing the Vines after the fruit is set up to the ripening stage, either to prevent the red-spider or any other of the Vine pests from spreading, at least to an extent that is likely to injure the fruit and foliage. *George Drummond, Broxmouth Gardens, N.B.*

Iris juncea (Xiphion junceum).—In their admirable display at the Royal Horticultural Society's show last week Messrs. Barr & Sugden hardly did justice to the blooms which they exhibited of this fine plant. To my mind it is the choicest of the summer-blooming bulbous Irises. The Spanish Irises (Iris xiphion, Xiphion vulgare) have a stiffness and formality which goes far to spoil the beauty of their colouring, while the English Irises (Iris xiphioides, Xiphion latifolium), especially the garden varieties, are somewhat straggling and delight to sport unwholesome-looking blotches. The lines of this Rush-leaved Iris, on the other hand, are full of tender grace and beauty, and its rich yellow tint is almost perfection. My wife the other day married a few of its golden blooms to a spike or two of a late-flowering lilac-coloured member of the spuria group of Irises (which I have not yet succeeded in exactly identifying), and the result was exceedingly charming. Iris juncea, moreover, has a pleasing fragrance denied to the Spanish and English Irises. I am not aware of any difficulties in cultivating it, and it certainly ought to be grown more freely than it appears to be. *M. F.*

Inula glandulosa.—This hardy herbaceous plant ought to be better known. I first saw it flowering abundantly in a town garden exposed to all the smoke of Chester, and I find it by no means particular about soil or situation. The flowers are of a brilliant orange-yellow, and fully 5 inches across. It is now the most conspicuous flower in my garden. *C. Wolley Dod, Edge Hall, Malpas, June 29.*

A Useful Garden Tool.—I send you a sketch (fig. 12) of a most useful garden tool I have here that was fashioned for me by a local blacksmith, and is esteemed by the labourers as a very light and effective implement. The soil here, at all times tough enough, is peculiarly so this season, and but for working this tool freely amidst the rows of Potatos, and, indeed, plants of all kinds, before using the hoe, we should have had great difficulty in getting the ground into anything like a friable condition. The great value of its dual character of prong and fork is, that should a tough Thistle or other big weed come in the way the hoe can at once sever the root deeply. We have also found it specially valuable to clean soil that has become hard baked in the sun or through wind, and will not till moisture comes yield to the spade or fork. It is also just as serviceable when used as a surface stirrer or pulveriser amongst flowers or small plants

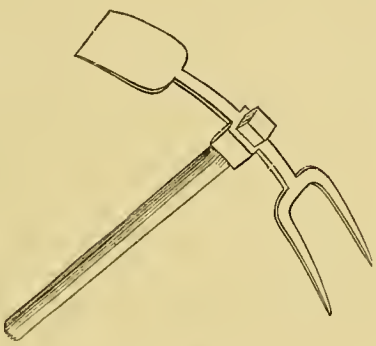

Fig. 12.—A USEFUL TOOL.

as amongst Potatos or other vegetables. The total weight of the tool is 4½ lb., inclusive of a handle 4 feet in length. This is made of Ash, and is, though small enough to be of easy grasp, yet strong and fit for any ordinary labour. If the implement be made a little less stout at the shoulders it need not exceed 4 lb. in weight. In making the tool due care should be exercised to have the two sides equally balanced. These are from the socket, when new, just about 7½ inches in length, and, as shown in the sketch, slightly incurved. The tines of the fork are flat and half an inch across near the point, and three-quarters of an inch at the shoulder, and the entire width is 4 inches, whilst the hoe is 4½ inches in width and depth. If made as light as possible by an ordinary blacksmith, of good iron and well-tempered steel, the ends can always be relaid, without the danger and difficulty that besets finely-tempered steel tools. *A. D.*

Reports of Societies.

Royal Botanic: *July 6.*—The last show of the season at Regent's Park came off on Wednesday last, and proved to be the poorest of the year, owing, no doubt, in a great measure to the violent thunderstorm which raged throughout the previous night, and which must have prevented many from leaving home. The nurserymen's miscellaneous groups, as usual, were amongst the principal attractions. The General Horticultural Company had a very fine bank of young Crotons, well grown and brilliantly coloured, and shown off to the best advantage by being set in a carpet of Maidenhair; finely coloured Dracænas, elegant Palms, and Pitcher-plants were also included. Mr. B. S. Williams had a group of the same size of mixed flowering and fine-foliaged plants, amongst the former being some fine Dipladenias, white Lilies, Anthuriums, and Orchids, including good examples of Odontoglossum cordatum, O. Alexandræ, and Promenæa citrina, a diminutive species, with small citron-coloured flowers. Messrs. James Veitch & Sons contributed a splendid group, most conspicuous in which were noble specimens of such gigantic leaved Aroids as Anthurium Warocquianum, A. Veitchii, and Alocasia Thibautiana, a fine mass of Asparagus plumosus nanus, richly coloured Crotons and Dracænas, free-flowering Begonias, a pan of the old Amaranthus tricolor, with very rich rose-coloured young leaves, the old ones having a broad tip of green at the end; some good Orchids, including Lælia purpurata and L. Dominiana rosea×, the last of Mr. Dominy's seedlings, and differing from the typical plant in its paler colour. Opposite to Messrs. Veitch's collections was one from Messrs. John Laing & Co., containing many fine-foliaged plants, and some finely grown Begonias, new Caladiums, Gloxinias, Coleus, Pelargoniums, &c. The Orchid bank was not so well filled as on the last occasion, but included many notable specimens. Mr. B. S. Williams was 1st for twelve and six specimens, respectively showing very fine examples of Brassia verrucosa major, Cypripedium barbatum superbum, Aerides odoratum majus, Oncidium macranthum, Lælia purpurata, Cypripedium superbiens, and C. Stonei. Mr. H. James, Castle Nursery, Lower Norwood, was 2d for twelve, and Messrs. Jackson & Son, Kingston, 3d, the former having a fine Epidendrum vitellinum majus, Oncidium crispum grandiflorum and O. curtum. In the amateurs' class for twelve Mr. Spyers, grower to Sir Trevor Lawrence, Bart., M.P., was a long way 1st, showing a magnificent specimen of Epidendrum nemorale with twenty spikes, the Necklace Orchid; Renanthera Lowii, with a spike of thirty-one flowers and buds and the usual two lemon-coloured blooms at the base; a very fine Masdevallia Harryana violacea, Lælia purpurata, with two grand spikes; the fine Cypripedium Veitchii, with fourteen blooms; a fine Dendrobium McCarthiæ, Aerides affine, the yellow Oncidium unifolium, &c. Mr. C. Coningsby, gr. to C. Dorman, Esq., showed amongst others a very striking Mormodes with deep bronze coloured blossoms, on a dull yellow ground. The 2d prize was won by Mr. James Child, gr. to Mrs. Torr, who had a grand specimen of Aerides odoratum majus, a good Dendrochilum filiforme, Oncidium curtum, and Odontoglossum vexillarium. Mr. Wiggins, gr. to H. Little, Esq., and Mr. Turner were the only exhibitors of show and fancy Pelargoniums, the former taking 1st prize in the amateurs' classes in both sections, and Mr. Turner the same in the corresponding trade classes. Mr. Wiggins also had a group of small plants, well flowered and highly coloured, and took a small Silver Medal. For six zonal Pelargoniums Mr. Catlin, gr. to Mrs. Lermitte, sen., Finchley, was 1st, and Mr. W. Meadmore 2d, but both were past their best. The finest six Ferns shown by amateurs came from Mr. Brown, gr. to T. A. Steele, Esq., Littlecote, Streatham—a flattish trained Gleichenia microphylla, about 8 feet in diameter; Davallia Mooreana, from 5 to 6 feet over; a grand Microlepia hirta cristata, 5 feet over; fine examples of Adiantum farleyense and Williamsii, and the seldom shown Davallia Tyermanni, in a specimen quite 4 feet in diameter. Mr. G. Wheeler was 2d, and Mr. H. James 3d. For six large Ferns, amateurs, Mr. C. Rann came in 1st, with three Tree Ferns and three large Gleichenias. For six stove and greenhouse plants, amateurs, Mr. D. Donald, gr. to J. G. Barclay, Esq., Leyton, was 1st, with a fine Statice profusa, 4 to 5 feet over, and densely flowered; a good Bougainvillea glabra, Dipladenia amabilis, Ixora Fraseri, &c. For a large mixed group Mr. G. Wheeler took a large Bronze Medal. For six fine-foliaged plants, nurserymen, Mr. B. S. Williams was 1st, with large, fresh, and well-furnished specimens of Geonoma Seemanni, Kentia australis, Encephalartos caffra, Dasylirion aerotrichon, and Croton angustifolius and majesticus. For six large specimen Ferns Mr. B. S. Williams was also 1st. For six stove and greenhouse plants, nurserymen, Messrs. Jackson & Son took the 1st prize, with a superbly bloomed Erica ventricosa Bothwelliana, a good Clerodendron Balfourianum, and a well-bloomed Kalosanthes, Dr. E. Regel, &c. Messrs. B. Peed & Son, who were 2d, had a medium-sized but splendidly-flowered Allamanda Hendersoni in their group. Mr. C. Rann, gr. to J. Warren, Esq., took the 1st prize amongst amateurs for six fine-foliaged plants with the greatest ease, having immense specimens of Latania borbonica and Areca sapida, a splendid Cycas revoluta, and noble bushes of Croton variegatus and angustifolius, &c. Mr. G. Wheeler was 2d, and Mr. R. Butler 3d. The open class for twelve stove and greenhouse plants brought Messrs. Jackson & Son again to the front. Mr. G. Wheeler had the best six Fuchsias, large bushes, fairly well flowered, but wanting in variety of colours. Messrs. Cannell & Sons sent a splendid lot of cut blooms of double and single zonal Pelargoniums, show and decorative sorts, &c., and fine seedling Delphiniums. Messrs. William Paul & Son, Waltham Cross, had some very fine cut Roses, a nice variety in excellent form. For six tuberous Begonias, amateurs, Mr. James Child was a good 1st, with large, well flowered specimens of Reine Blanche, J. W. Ferrand, Miss Bertha Kelliston, Monarch, and Lælia; and in the corresponding class for nurserymen, Mr. H. Coppin, of Shirley, Croydon, took the 1st prize with a very good lot. Mr. B. Morrell, gr. to E. Rutter, Esq., Richmond, exhibited a very striking group of seedling Gloxinias, well grown and freely flowered plants, the blossoms being unusually large and finely coloured. A small Silver Medal was awarded. Messrs. Jas. Carter & Co. contributed a large collection of Coleus and Petunias.

The display of cut Roses was also very good, and Mr. B. R. Cant again held his own with forty-eight varieties, with which Mr. Turner was 2d, and Messrs. Paul & Son, Cheshunt, 3d. For twenty-four trebles, Mr. Turner was a good 1st, with a fine lot of blooms, Mr. Cant coming in 2d, and Messrs. Paul & Son again 3d. Mr. G. W. Moorman, gr. to the Misses Christy, Coombe Bank, Kingston, sent the finest twenty-four trebles amongst amateurs, and Mr. J. P. Hawtrey, Slough, the second best. Mr. James Douglas took a 1st prize for twenty-four Carnations, beating Mr. H. Hooper who was 2d, but who took the highest award for two dozen Picotees. Mr. Douglas was also 1st with twelve trusses of Orchids, a very good lot of blooms set

off with Maidenhair; and Mr. E. Morse, of Epsom, had the finest twenty-four trusses of stove and greenhouse flowers, in which class Mr. C. Rann was 2d. Messrs. Hooper & Co., Covent Garden, had the best of hardy flowers, Mr. J. Douglas coming in 2d. The most complete collection of economic plants, native and exotic, came from Miss Thomson, Judd Place, Tunbridge; and the best lot of wild flowers, a very complete and neatly named collection, from Mr. M. R. Dixon, gr. to Captain Taylor, Glenleigh, Hastings. Mr. H. Hooper was strong as usual with Pinks and Pansies.

New plants were shown in considerable numbers, and Botanical Certificates were awarded to Messrs. James Veitch & Sons for Globba coccinea, Anthurium Kalbreyerii, Croton rubro-lineatus, Davallia Mariesii cristata, Phalænopsis violacea, Saccolabium Hendersoni, Utricularia Endresii, Lælia Dominiana rosea, Cattleya dolosa and MacMorlandii. To Mr. W. Bull, for Sarracenia flava limbata, S. flava erythropus, Lilium Parryi, Davallia Lorrainei, Aphelandra punctata, Masdevallia Harryana atrosanguinea, Odontoglossum vexillarium rubrum, Antigramma brasiliensis, and Kæmpferia Gilbertii. To the General Horticultural Co. for Croton Bergmann, and Croton Baron Frank Selliere. To Messrs. John Laing & Co., for Croton Laingii. Floral Certificates were awarded to Mr. J. Wiggins, for Ivy-leaved Pelargonium Lemoinei. To Messrs. John Laing & Co., for Caladium Comtesse de Condeuxa, C. Madame Margotin Scheffer, C. J. R. Box, and C. Mithridate. To Mr. Wiggins, for Pelargoniums (decorative) Lucy Lemoine, Annie Hemsley, Madame Thibaut; for show Pelargoniums Britomart and Christobel. To Messrs. Veitch & Sons, for Carnation Gloire de Nancy. To Mr. Turner, for Pelargonium Sunbeam. To Mr. Wiggins, for show Pelargonium Formosa; and to Mr. Cannell, for Heliotrope White Lady.

The exhibition of fruit was a more creditable one than we have seen here for some time. The most substantial prizes were those offered by the Fruiterers' Company for a collection of fruit, and for which there were two competitors. The 1st prize was won by Mr. Coleman, The Gardens, Eastnor Castle, who had Muscat of Alexandria, Foster's Seedling, Gros Maroc, and Black Hamburgh Grapes, the two latter being especially good; four Pines, Black Circassian, Elton, and May Duke Cherries; Hero of Lockinge, Eastnor Castle, and Colston Bassett Melons; Brown Turkey and White Marseilles Figs, Royal George and highly-coloured Bellegarde Peaches, and richly-coloured Elruge, Lord Napier, and Violet Rouge Nectarines; Sir Joseph Paxton and President Strawberries, &c.—a thoroughly representative collection, which did great credit to the exhibitor. Mr. Wildsmith, gr. to Lord Eversley, Heckfield, was a good 2d, showing a larger number of dishes, but beaten in detail by Mr. Coleman's finer finish and more even quality; nevertheless, his black Grapes, Peaches and Nectarines, Figs, Melons, and Cherries, were of an excellent order of merit. In the next class, which was for a collection of fruit, six kinds, Mr. Wildsmith came in 1st, and Mr. Coleman 2d, the former showing fine Black Hamburgh and Muscat of Alexandria Grapes, splendid Royal George Peaches, and Elruge Nectarines, the latter especially being highly coloured; a good Queen Pine and Heckfield Hybrid Melon. Mr. G. T. Miles was 3d, with very fine Foster's Seedling Grapes, his three bunches weighing 8½ lb.; a fine Queen Pine, and smaller but well coloured Peaches and Nectarines. Mr. Coleman's 2d prize collection included fine Black Hamburgh and Muscat Grapes, a Queen Pine, Lord Napier Nectarine, and Bellegarde Peaches, and a Colston Bassett Melon. There were eight competitors. Of Pines there were nineteen fruits to judge, and the veteran Mr. T. Bailey, gr. to T. T. Drake, Esq., Shardeloes, showed the way with the finest Queen; Mr. McIndoe, gr., Hutton Hall, Gainsborough, being 1st in the class for any other variety with a Smooth Cayenne, whose only fault was an over-large crown. The best of eleven baskets of black Grapes, all of good quality, came from Mr. P. Edwards, gr. to Mrs. Tristam, Liphook; Mr. Wildsmith being 2d, and Mr. Coleman 3d. Amongst twelve pairs of Melons, the best came from Mr. Carmichael, gr., Nowton Court, Bury St. Edmunds, aud which consisted of a splendidly flavoured scarlet-fleshed fruit, named Semper fidelis, and an almost equally fine flavoured Nowton Court, green-flesh, a remarkably good brace. Mr. Coleman was 2d, with Hendre Seedling, scarlet; and Dickson's Exquisite, green-flesh; and Mr. W. Allan, gr. to Lord Suffield, Gunton Park, was 3d, with Benham Park and Ne Plus Ultra. Mr. W. Allan beat a dozen competitors with Black Hamburgh Grapes, his bunches being of even size, the berries well swelled and finely coloured. Mr. Wildsmith was 2d, and Mr. P. Edwards, and Mr. W. Gray, gr. to Earl Stanhope, Chevening Park, equal 3d. Mr. Edwards was 1st in the class for any other black Grape. Of six baskets of white Grapes the best was a well ripened sample of Muscat of Alexandria, shown by Mr. P. Feist, gr. to J. Ushton, Esq., Bishopsgate House, Staines. Mr. J. Douglas was 2d, his berries being larger but not so well coloured. Mr. P. Feist also had the best dish of Muscats, next to him being Mr. H. Blundell, gr. to J. Holman, Esq., East Horthley. The finest two dishes of Peaches amongst ten lots shown were splendid examples of Royal George and Chancellor, shown by Mr. John Edwards, gr. to the Duke of St. Albans, Bestwood Lodge, Notts, who also took the 1st prize for two dishes of Nectarines in a good class, with large and splendidly coloured fruits of Lord Napier and Elruge, beating Mr. Coleman, who was 2d in both classes. Mr. G. T. Miles, with James Veitch and Sir J. Paxton, won the 1st prize for two dishes of Strawberries, in a good class; Mr. Coleman had the best Figs and Mr. Thos. Bailey was 1st with Cherries. Mr. W. Robins, gr. to E. Dyke Lee, Esq., Aylesbury, sent two dozen Melons, in variety; and Mr. Crump, of Blenheim, had four good fruits of his Blenheim Orange Melon.

National Rose Society: *July* 2.—The exhibition of Roses, held under the auspices of the National Society on Saturday last at the Crystal Palace, was in some respects a remarkable one. In the first place it was not so large a show as the Society has had, and yet when we state that there were thirty-two classes, and that over 130 prizes were awarded, it will be seen at a glance that it was by no means "poor." Then as to the quality of the flowers we do not remember to have seen the trade so badly represented, their flowers being, with but few exceptions, small and thin, and beaten hollow as a whole by the amateurs. But then consider what seasons the two last have been for the Rose, and what severe losses trade growers have had to contend against! The date, too, as events have proved, was quite a week too soon for them to get a large choice, and thus must we account for the nurserymen not being in their usual position—1st. Amongst the amateurs a long lead was taken by Mr. R. N. G. Baker, of Heavitree, near Exeter, the wonderfully fine quality of whose flowers, in size, substance, brilliancy of colour and freshness, almost made one doubt whether his plants had known anything of the rigours of the last winter. Mr. Baker was simply *primus*, taking the 1st prizes for forty-eight and twenty-four single trusses and for twelve distinct varieties, three trusses of each. If any of his blooms were better than others, judged by the relative merits of each sort, we should specially name those of Marquise de Castellane, Duke of Edinburgh, Duchesse de Caylus, Mons. E. Y. Teas, Etienne Levet, Thomas Mills, Madame H. Jamain, Ferdinand de Lesseps, Alfred Colomb, A. K. Williams, Dr. Andry, Madame A. Lavallée, Dupuy Jamain, Beauty of Waltham, Comte de Raimbaud, Auguste Rigotard, Marguerite de Brassac, Marie Baumann, Penelope Mayo, La France, Mdlle. Marie Rady, and Hippolyte Jamain. The 2d best forty-eight came from the Rev. J. P. Tomlinson, Rocklands, Torquay; and the 3d from Mr. T. B. Hall, Rock Ferry, Cheshire. For twenty-four singles there were five competitors, and the 2d and following prizes went to Mr. C. Davies, of Aynhoe, the Rev. J. B. Tomlinson, and Mr. John Hollingworth, of Maidstone. With a dozen trebles there were only a couple of competitors, the second exhibitor and prize-taker being Mr. J. Hollingworth. For twelve Teas or Noisettes Mr. C. Davies was well 1st in a fairly good class, having fine fresh blooms of Maréchal Niel, Mons. Furtado, Catherine Mermet, Belle Lyonnaise, Madame C. Kuster, Marie van Houtte, Souvenir de Paul Neyron, Comtesse Nadaillac, Souvenir d'un Ami, Jean Ducher, and Niphetos. Mr. G. P. Hawtry, of Slough, was 2d, Mr. J. Hollingworth 3d, and Mr. T. B. Hull 4th. With thirty-six single trusses, distinct, there were half-a-dozen competitors; and in this class Mr. Thomas Jowett, of the Old Weir, Hereford, came to the front, but not quite in his usual form. Nevertheless, his blooms of Princess Beatrice, Etienne Levet, La France, Alfred Colomb, Exposition de Brie, Charles Rouillard, Mons. Alexis de Père, Marquise de Castellane, Mrs. Baker, and Madame Lacharme, were the finest in the class. The 2d prize went to Mr. J. Brown, gr. to A. J. Waterlow, Esq., Great Doods, Reigate; while Mr. W. Harrington, of Gupens, near Romford, and Mr. J. Davis, of Wilton, were bracketed equal 3d; and Mr. J. H. Pemberton, of Havering-atte-Bower, was placed 4th. With eighteen distinct singles, Mr. Jowett was beaten for the 1st position by Mr. W. J. Grant, of Hope End, Ledbury; T. F. Burnaby-Atkins, Esq., Halstead Place, Sevenoaks, coming in 3d, and Mr. Edwards, gr. to the Rev. Canon Farrar, Stisted Rectory, Essex, 4th. The best twelve singles came from Mr. J. Ridout, gr. to T. B. Haywood, Esq., Woodhatch Lodge, Reigate; and Mr. J. H. Pemberton had the finest six trebles. The last-named exhibitor was also successful in coming in 1st with nine Teas or Noisettes of very good size.

The first eight classes in the schedule were confined to nurserymen, those competing in the first four not being eligible for the second division. Here Mr. B. R. Cant turned the tables on Mr. Turner, beating him for 1st place in the classes for seventy-two singles, and forty-eight and twenty-four trebles respectively. In the premier class there were five competitors, and the 3d prize went to Messrs. Curtis, Sandford & Co., of Torquay, Messrs. Mitchell & Sons, Piltdown Nurseries, Uckfield, being 4th. Mr. Cant's finest blooms in a poor class was of Mdme. Nachary, Constantine Tretiakoff, Sophie Coquerelle, Duke of Edinburgh, Madame C. Kuster, Madlle. Marie Cointet, Annie Laxton, Devoniensis, Général Jacqueminot, Mons. E. Y. Teas, Ed. Morren, Souvenir d'Elize, Prince Arthur, Baroness de Rothschild, Dupuy Jamain, and Marquise de Castellane. For forty-eight trebles the same competitors took the first three awards, Messrs. Paul & Son, Cheshunt, being 4th. Here Mr. Cant had many of the varieties above-named, together with Catherine Mermet, Mdlle. M. D'Ombrain, Madame F. Jamain, Louis van Houtte, Countess of Rosebery, Exposition de Brie, Madame P. Langier, Le Havre, Rubens, and Elie Morel. For the twenty-four trebles, the prizes went to the same exhibitors, and in the same order, the best blooms staged in this class being of Captain Christy, Maurice Bernardin, Madame Gabriel Luizet, A. K. Williams, Fisher Holmes, Duchesse de Vallombrosa, Horace Vernet, Mdlle. C. Verdier, Marguerite de St. Amande, Madame Lacharme, Marie Baumann, Mdlle. P. Langier, Rubens, Duc de Wellington, and Comtesse de Sereyne. The class for twenty-four Teas or Noisettes—a very good one—brought Mr. G. Prince, of Oxford, to the front with medium-sized blooms, clean and pure in colour, of Madame Villermoz, Catherine Mermet, Souvenir de Madame Pernet, Perle des Jardins, Belle Lyonnaise, Homère, Innocente Pirola, Souvenir d'Elise Vardon, Anna Olivier, Rubens, and Souvenir d'un Ami, &c. Mr. Cant was 2d, Messrs. Mitchell & Sons 3d, and Messrs. Paul & Son 4th.

In the second division the Cranston Nursery Co., Hereford, took the lead by securing the 1st prizes in the classes for forty-eight singles and eighteen trebles with fresh, well coloured, and otherwise fairly good blooms of many of the sorts already named. In the first named competition Mr. J. Walters, Mount Radford Nurseries, Exeter, was 2d; Messrs. George Bunyard & Co., Maidstone, 3d; and Messrs. Keynes & Co., Salisbury, 4th. Mr. Walters also took the 2d award for eighteen trebles, Messrs. Keynes being here 3d, and Messrs. G. Bunyard & Co. 4th. The 1st prize for eighteen Teas also went to the Cranston Nursery Company, who staged a very pretty lot; Mr. J. W. Piper, of Uckfield, coming in 2d, Mr. Walters 3d, and Mr. John Mattock, New Headington, Oxon, 4th. For twenty-four distinct single trusses there were only three competitors, and the prizes went to Messrs. Kinmont & Kidd, of Canterbury; Mr. Piper, and Mr. Frettingham, of Nottingham.

Other amateur classes for twelve, nine, and six distinct blooms, and for six Teas respectively, were also fairly well contested, but call for little comment. Mr. W. H. Wakeley, Macklands, Rainham, was 1st for twelve; Mr. John Wakeley, Church House, Rainham, 1st for nine; and Mr. C. E. Cuthill, West Humble, Dorking, 1st for six; and Mr. Edward Mawley, Addiscombe, Croydon, had the best lot of Teas. Of suburban-grown Roses, shown in stands of six, there were ten lots—a very good class; and here the honours fell to Mr. John E. Coleby, St. George's Road, Wimbledon; Mr. W. Scott, Clinton Villa, South Wimbledon; Mr. T. Foote, gr., Leigham Court, Streatham Hill; and Dr. Pitcairn, Brookless, Wimbledon Hill, S.W. Another class for six, distinct, open only to amateurs who have never won a prize at an exhibition of this Society, brought out eighteen competitors, and for the most part a good lot of blooms. The 1st prize stand was in all respects, from the Roses to the Moss, an exceedingly good one, shown by Mr. Alfred Singleton, Jarvis Villa, Steyning. Mr. John Burton, Sawtry, near Peterborough, came in 2d; Mr. J. W. Moorman, gr. to the Misses Christy, Combe Bank, Kingston, 3d; and the Rev. F. Page Roberts, Scole Rectory, Scole, 4th.

For new Roses, a dozen distinct, not in commerce previous to 1878, Mr. C. Turner and Messrs. Paul & Son were awarded equal 1st prizes, the best blooms in these stands being of Charles Darwin, Harrison Weir, Jules Finger, Wilhelm Kohle, a promising flower of the Marie Baumann type; Mrs. Harry Turner, Countess of Rosebery, very fine; Barthelemy Levet, a very good peach-pink; Duchess of Bedford, Egeria (Bennett), pink; Dr. Sewell, very dark; Madame Morane, rose-pink; and Madame Eugene Verdier. The 2d prize was withheld, and the 3d awarded to Messrs. Curtis, Sandford & Co., Torquay. Mr. Turner was the only exhibitor of any new seedling Roses not yet in commerce or announced, and took a 1st prize with General Roberts, a very good dark red, and, as seen by the grand plant shown along with the three blooms, a variety with very good foliage.

The Silver Medals awarded for best blooms went to A. J. Waterlow, Esq., Reigate, for Marie Rady, the best H.P.; to Mr. C. Davis, Aynhoe, for Catherine Mermet, the best Tea; and to Mr. G. Prince, for Maréchal Niel, the best Noisette.

Farningham Rose and Horticultural: *June* 29.—Farningham is a picturesque Kentish village situate in a beautiful part of the county in a luxuriant valley watered by the River Darent, noted for its excellent trout fishing. In this village and adjacent to it dwell a number of gentlemen who give special attention to the Rose, and thus it is that a society has been established that holds annually a Rose and general horticultural exhibition. The show took place in a convenient field opposite the parish church. Three spacious tents being required to hold the exhibits, and the large number of persons forming the better classes of society which were drawn to the show by the fine weather, showed the lively interest felt in it by the residents of the district. The most generally interesting part of the show being the Roses, reference is first made to this aspect of it. The display of this popular flower was as good as perhaps could be expected under the circumstances of a severe winter, and a retarded and dry spring and early summer.

In the division for Roses open to all comers the 1st prize for thirty-six varieties, single blooms, went to Mr. B. R. Cant, Colchester, who had good blooms of Etienne Levet, A. K. Williams, Prince Arthur, Madame Lacharme, Marie van Houtte, Duchesse de Valombrosa, Duke of Teck, Charles Lefebvre, Catherine Mermet, Louis van Houtte, Duchesse de Morny, Gloire de Dijon, &c.; 2d, Mr. J. Wakeley, Farningham, with Baron Bonstettin, Charles Lefebvre, Thomas Mills, Duke of Wellington, Marquise de Castellane, Dr. Andry, &c.; 3d, Messrs. George Bunyard & Son, Maidstone. In the class for twelve Teas or Noisettes Mr. Cant was again 1st, having charming examples of Reine d'Or, Annie Oliver, Madame C. Kuster, Boule d'Or, Rubens, Devoniensis, Maréchal Niel, Madame Willermoz, Marie van Houtte, Catherine Mermet, &c.—a very good lot. No other exhibitor competed. With twelve Roses of any one variety T. F. Burnaby Atkins, Esq., Sevenoaks, was 1st, with good examples of La France; 2d, Mr. B. R. Cant, with Madame Lacharme.

In the division open to subscribers to the Society residing within eight miles of Farningham some additional interest was imparted to the competition owing to the Silver Medal of the National Rose Society being given in addition to the 1st prize. This went to T. F. B. Atkins, Esq., who had considerably the best flowers, and

staging in the class for twenty-four Roses good examples of François Michelon, Charles Lefebvre, Maréchal Vaillant, Marie Baumann, Comtesse d'Oxford, John Hopper, Fisher Holmes, Dr. Andry, and La France; 2d, Lord Stanhope, Sevenoaks (Mr. R. Gray, gr.). In the class for twelve varieties, the 1st prize and Bronze Medal of the National Rose Society was awarded to Frank Burnside, Esq., the hon. sec. of the Society, who had good examples of François Michelon, Marie Baumann, Ferdinand de Lesseps, Mons. Etienne Dupuy, Catherine Mermet, Maréchal Niel, Etienne Levet, and A. K. Williams, among others; 2d, the Rev. J. M. Fuller, Bexley Vicarage. In the class for six varieties, A. T. Warren, Esq., was 1st; Mr. R. Gray taking the 1st prize in class 7, for six Tea or Noisette Roses; and T. Burnaby Atkins, Esq., the highest award in class 8, for the best six Roses of any one variety; staging Duke of Edinburgh.

There was also a division for members of the Society living beyond a radius of eight miles of Farningham, but exhibitors were somewhat limited in number. The best twenty-four blooms came from Mr. W. H. Wakeley, Rainham; and the best twelve from Mr. J. Wakeley.

In the Rose tent were also some of the table decorations. In the class open to all comers Miss Seale, Sevenoaks, was 1st, with a good arrangement in the style of this well-known exhibitor; 2d, Mr. J. Bolton, Sevenoaks; 3d, Miss E. Wallis. In the amateur class for three vases Miss Staples, Sevenoaks, was 1st, with three nice pieces somewhat imperfectly finished off; 2d, Miss Dalton, Farningham. Miss Staples and Miss J. Watts had the best bouquets in the amateur's class; and in that for all-comers Mr. Seale and Mr. J. Bolton were relatively 1st and 2d. The arrangements in wild flowers were very pretty indeed, and the contents of some of the vases showed there is a generous wealth of those in the neighbourhood.

There were a large number of plants of good quality, but the arrangement followed scarcely admitted of their being shown off to the best advantage. We think it would have been much better to have put the plants in the centres instead of round the sides of the tents, raising them above the level of the ground on low stages, except in the case of the taller plants, which could be stood on the grass. The tables that are placed in the centre, and occupy the loftiest and most commodious portion of the tents, could then go at the sides, and the general effect would be much more pleasing to the eye. It is rarely that the most is made of country shows, through lack of a little cultivated taste in arranging the exhibits.

The groups of plants arranged for effect made a pretty display, the best in the larger class coming from H. B. Mildmay, Esq., Sir W. H. Dyke, Bart., M.P. (Mr. J. Abbott, gr.), being 2d, and Mr. J. Chapman, of Dartford, 3d. In the class for the smaller group W. Spottiswoode, Esq., Sevenoaks, occupied first position.

The leading class among plants was for six stove and greenhouse subjects, and here W. Spottiswoode, Esq., was well ahead, with a good lot, consisting of Anthurium Scherzerianum, Clerodendron Balfourianum, Allamanda Schottii, Dipladenia Brearleyana, Clerodendron fallax, and Franciscea calycina major; 2d, T. F. B. Atkins, Esq., Sevenoaks (Mr. A. Gibson, gr.), who had Dipladenia Brearleyana and D. amabilis in good form, Clerodendron Balfourianum, Allamanda Chelsoni, Ixora Prince of Orange, and Stephanotis floribunda; 3d, H. B. Mildmay, Esq. (Mr. J Burt, gr.). In the class for four plants there was also a good competition, but time did not permit of copious notes being taken. Mr. Burt was a good 1st with six fine-foliage plants, staging Areca lutescens, Dracæna Baptistii, Croton Weismanni, Croton variegatus, Anthurium crystallinum, and Yucca aloifolia variegata; 2d, R. S. Dunbar, Esq., Greenhithe (Mr. Armstrong, gr.), whose best plants were Cocos Weddelliana, Dracæna Shepherdi, and Pandanus Veitchii.

Ferns were a leading feature, the best group of six plants coming from S. C. Umfreville, Esq. (Mr. G. Pendred, gr.), who had Alsophila excelsa, Pteris cretica albo-lineata, Davallia Mooreana, Adiantum farleyense, A. cuneatum and A. formosum; 2d, W. Spottiswoode, Esq., with Cyathea dealbata, Davallia Mooreana, Gleichenia dicarpa, Adiantum gracillimum, and A. farleyense.

Among other flowering plants Orchids were an attractive feature. The best four came from Mr. Burt, who had Epidendrum prismatocarpum, Oncidium flexuosum, Lælia purpurata and Odontoglossum vexillarium; 2d, D. B. Crawshay, Esq., who had Phalænopsis amabilis, Odontoglossum vexillarium, Oncidium ampullaceum, Brassia verrucosa. Fuchsias, zonal Pelargoniums, Achimenes, Gloximas, Caladiums, table plants, and other subjects were creditably shown, the competition being good.

There was a nice display of fruit for the district. The best collection of eight sorts (Pines excluded) came from Mr. J. Burt, who had Black Hamburgh and Buckland Sweetwater Grapes, Noblesse and Royal George Peaches, Figs, Strawberries, Cherries, and Melons; 2d, W. Spottiswoode, Esq., with Black Hamburgh and Black Prince Grapes, Strawberries, Cherries, Melons, &c. There was also a good competition in class 30, for six dishes of fruit. The best three bunches of black Grapes came from Lord Stanhope, who had good Black Hamburgh, Mr. Spottiswoode being next with Black Prince. The latter was well 1st in the class for white Grapes with some excellent Foster's Seedling, Mr. R. S. Dunbar coming in 2d with Buckland Sweetwater. With the exception of Grapes but few other fruits were shown. Vegetables were shown in the open classes, and largely by cottagers. The interests of the latter appear to be well looked after in a district which is purely agricultural, and in which they abound. The Society is evidently very much indebted to the Hon. Sec., Frank Burnside, Esq., who is a zealous worker as well as an enthusiastic florist.

Woodbridge Horticultural: *June 30 to July 1.*—This Society held their annual exhibition in the Abbey grounds on the above dates. The show was a success both as regards the quality and extent of the various productions brought together, which filled some half-dozen tents, the numerous classes for plants, cut flowers, fruits and vegetables, being well represented. One commendable feature in the show there is, that there are a large number of special prizes offered by residents in the neighbourhood and others who feel an interest in the promotion of horticulture throughout the district, and which in most cases brought out a keen competition. In the class for twelve miscellaneous stove and greenhouse plants, not less than six in bloom, Messrs. Gilbert & Son, Ipswich, were easily 1st, showing a good group, the best of which were Trachelospermum jasminoides, Allamanda Hendersoni, Bougainvillea glabra, Erythrina crista-galli, and Clerodendron fallax, associated with some well-grown fine-leaved specimens. &c. Mr. Gunn, gr. to R. Jones, Esq., Woodbridge, was awarded an extra prize in this class. In the class for six stove and greenhouse plants there were a number of competitors, Messrs. Gilbert being here also 1st. For six stove and greenhouse plants in 12-inch pots Mr. Gunn took the 1st prize, with a group in which was the red-flowered Heath, E. cerinthoides, and Trachelospermum jasminoides; 2d, Messrs. Gilbert. Single specimen stove or greenhouse plant: 1st, Mr. Mill, gr. to Lord Rendlesham, with a good example of Anthurium Scherzerianum, a large-flowered form, bearing twenty-four spathes; 2d, Messrs. Gilbert, showing a good bush of Erica Cavendishiana, well flowered. Six fine-foliage plants: 1st, Messrs. Gilbert; 2d, Mr. Gunn. In the class for six Ericas Messrs. Gilbert were 1st, with nicely bloomed small examples. Ferns, both tender and hardy, were present in considerable numbers, and in very good condition. With four stove and greenhouse kinds, tree species excluded, Messrs. Gilbert were 1st, having, along with others, a fine specimen of Davallia Mooreana; Mr. Mill being a close 2d. For a single specimen Fern Mr. Mill was 1st with Davallia Mooreana, 7 feet in diameter. Fern case: 1st, Mr. Irving, gr. to the Duke of Hamilton, with a tastefully arranged example. In the class for 12 hardy Ferns, and also in that of six, Mr. Irving came in 1st, staging nicely managed plants; Mr. Spink, gr. to T. W. Grimwood, Esq., taking 2d in both these classes.

Soft-wooded plants, as often seen at country shows, were very well done, particularly Fuchsias, Petunias, Gloxinias, and zonal Pelargoniums. For four Fuchsias Mr. A. Catlin was 1st with large, finely flowered plants; 2d, Mr. Spink. Four zonal Pelargoniums: Mr. Gunn 1st, staging compact, nicely bloomed plants; 2d, Mr. Spink.

Caladiums were nicely done, Messrs. Gilbert taking the 1st prize, and Mr. Eden, gr. to the Earl of Stradbroke, the 2d. Petunias were in beautiful order, and in a close competition for four single varieties Mr. Gunn was 1st and Mr. Spink 2d. Achimenes also were exhibited in nice condition, Mr. Gunn being here again 1st, and Mr. Kerridge, gr. to W. P. T. Phillips, Esq., 2d. Gloxinias, both named kinds and seedlings, were also well managed.

Prizes were offered for the best collection of perpetual flowering Carnations in pots—a very good way of exhibiting these most beautiful and desirable plants, as it shows their habit. Mr. Keen, gr. to J. G. Sheppard, Esq., took the 1st prize, with a large basket filled with a good assortment.

Groups of plants arranged for effect occupied one side of a tent, and here, as now usual at most exhibitions, was one of the principal features. Mr. Eden took the 1st prize for a nicely balanced group, consisting of the ordinary small-flowering examples, relieved with Dracænas, Palms, and Ferns. Mr. Mill was a close 2d. Azaleas were represented by a couple of single specimens, which, although not large, showed by their floriferous condition that there is no difficulty in keeping these most effective plants thus late in the season. 1st, Mr. Kerridge, with the fine red variety, Brilliant; 2d, Messrs. Gilbert, staging Souvenir de Prince Albert, another late kind.

Cut flowers, including Roses, were present in considerable quantities. With thirty-six Roses Mr. Cant, of Colchester, came in 1st. In the class for twenty-four Mr. Cant was also well to the fore; 2d, Mr. D. T. Fish, gr. to G. M. Gibson-Cullum, Esq. For twelve varieties: 1st, the Rev. H. T. Frere, Burston Rectory; 2d, the Rev. H. Page Roberts, Scoll. Six varieties: 1st, Mr. D. T. Fish, with a good half-dozen. Twelve Tea-scented Roses—with these the Rev. A. F. Foster Melliar was 1st, having a nice stand of flowers; 2d, Mr. Fish. Twelve blooms of La France: 1st, Mr. Fish.

Fruit was shown in good condition, and plentifully. There were five competitors in the class for eight dishes, in which Mr. Mills and Mr. Bethell, gr. to Sir Richard Wallace, were awarded 1st prizes. The former had very good Black Hamburgh Grapes, well finished; Golden Champion, also well finished and large in berry; a good dish of Stirling Castle Peaches, Pitmaston Orange Nectarines, and Lucas Strawberries. Mr. Bethell's best dishes were Black Hamburgh and Foster's Seedling Grapes, large and even in berry; Bellegarde Peaches, William Tillery Melon, and a beautifully-coloured dish of Elruge Nectarines. Mr. Fisher, gr. to Lord Waveney, whose exhibit was next in order of merit, had also a good collection; Mr. Irving and Mr. Tebenham were awarded extra prizes for their collections. Four bunches of Grapes, two black and two white: 1st, Mr. Fisher, Black Hamburgh and Muscat of Alexandria; 2d, Mr. Mill, who staged Black Hamburghs in beautiful condition, and Golden Champion, which collectively were little, if anything, behind the 1st prize winner's. Three bunches black Grapes: 1st, Mr. Mill, with Black Hamburgh; 2d, Mr. Fisher, showing the same variety. Three bunches white Grapes: 1st, Mr. Mill, Muscat of Alexandria; 2d, Mr. Tabenham, with good Buckland Sweetwater. Dish of Peaches: 1st, Mr. Mill; 2d, Mr. Fisher, who took 1st with Nectarines, one of the best dishes of Elruge we have seen for some time. Mr. Bethell exhibited, not for competition, a very fine collection of miscellaneous flowering and other plants that filled a considerable portion of one of the tents, and being nicely arranged were very effective. They consisted of a number of large medium-sized specimens, which were grouped so as to stand out in relief above a setting of smaller flowering and ornamental leaved plants, that collectively were remarkable for their healthy thriving condition, form and colour alike being disposed in a way to give to the whole an artistic and pleasing appearance. Mr. B. S. Williams also had an extensive and handsome group which occupied a small tent; they consisted of Palms, Ferns, Crotons, Dracænas, and many other handsome leaved species, combined with Orchids and other flowering plants.

Brentwood Horticultural: *June 30.* — The summer exhibition of this Society was held by the kind permission of Countess Tasker in the grounds of Middleton. The show, being near the town, combined with real flower show weather, made it a complete success. The quality of the plants exhibited reflected great credit on the exhibitors. The Silver Cup offered for a collection of twelve plants fell to Mr. Harris, of Chelmsford, whose plants were well worthy the award. Mr. Young, gr. to O. E. Coope, Esq., was 2d, with plants almost equal in point of merit. The 3d fell to Mr. Wise, gr. to W. A. Ogg, Esq. For six stove and greenhouse plants Mr. Bones was 1st and Mr. North 2d. With six plants judged for beauty of foliage Mr. Bones was 1st, with admirable specimens of Croton variegatus, Alocasia macrorhiza, Cocos Weddelliana, Dieffenbachia Bausei, Croton pictus: the Alocasia was a magnificent specimen, also a fine Anthurium crystallinum. Mr. Young was 2d, with a good Calamus, a Croton, Ananassa sativa variegata, a Croton majesticus, and an Areca Verschaffeltii. Exotic Ferns were well represented, Mr. Bones being 1st and Mr. Harris 2d. For three stove and greenhouse plants there was only one competitor, Dr. Quennell. Tuberous Begonias were well shown by Messrs. Saltmarsh, but not for competition; the plants were vigorous in habit, the flowers remarkably fine and embracing many shades of colour. The class for six Pelargoniums was entirely in the hands of Mr. Bones and Mr. Meadmore. With six Cape Heaths Mr. Harris was 1st, with clean, fresh, well-grown plants of Massoni major, Paxtoni, tricolor, Holfordiana, Cavendishiana, and Bothwelliana. Mr. Bones was 2d.

Hardy Ferns were shown in good condition by Mr. North, gr. to F. Willmott, Esq., Mr. Chater, and Messrs. Saltmarsh. Zonal Pelargoniums were well shown by Messrs. Saltmarsh, Meadmore and Burley. For twelve bunches of Zonal Pelargoniums Mr. Ford was 1st, with magnificent trusses, Messrs. Saltmarsh 2d, and Mr. Meadmore 3d. The competition for hardy herbaceous plants was keen, the 1st prize going to Messrs. Saltmarsh, 2d to Mr. North, and equal 3d to Mr. Clark and Mr. Harrington. For the best arranged basket of plants in pots Mr. Ford was 1st with a very tastefully-arranged basket, Mr. Burley 2d—hardly a whit behind—and Mr. North 3d. For six plants for table decoration Messrs. Saltmarsh were 1st with a neat set of plants; Mr. Wise was 2d.

Roses were not well represented, but Messrs W. Paul & Son contributed some stands of fine blooms not for competition. In the class for table decorations there were three competitors, Mr. Burley being 1st with a very light and tasteful arrangement.

For table decorations, composed entirely of wild flowers, Miss Haws secured the 1st position with a tasteful arrangement of grasses, Ferns, Water Lilies, Corn-flowers, and Poppies.

The exhibition of fruit was good, but the Grapes were slightly deficient in colour.

Collection of fruit, four dishes: Mr. Brunt, gr. to Lieut.-Gen. Fytche, Pyrgo Park, 1st, with a good hybrid green-flesh Melon, Elruge Nectarines, Téton de Venus Peaches and Black Hamburgh Grapes; Mr. Foster, gr. to E. Ind, Esq., 2d, with good Black Hamburgh and Buckland Sweetwater Grapes, an excellent Golden Perfection Melon and Royal George Peaches; Mr. Bones was 3d: Mr. Wilson, gr. to E. H. Hardwick, Esq., was awarded an extra prize for Black Hamburgh Grapes, a dish of Peaches and of Nectarines, and a dish of Strawberries. In the class for the best three bunches of black Grapes Mr. Harris, of Chelmsford, was 1st; Mr. Foster 2d, and Mr. Carver 3d. White Grapes, three bunches: Mr. North was 1st with fine well coloured bunches of Buckland Sweetwater, Mr. Foster 2d, and Mr. Bones 3d. Melons, for flavour: Mr. Foster was 1st with a splendid flavoured Golden Perfection.

The best six Peaches: Mr. Farrance was 1st with some good fruit of Noblesse; Mr. Bones 2d with Téton de Venus; and Mr. Foster 3d with Royal George. For six Nectarines Mr. Brunt was 1st with Elruge. Strawberries were shown in considerable quantities, but they were not so fine as usual: Raspberries, Gooseberries, Currants, &c., were not ripe, but shown in good quantity.

The collections of vegetables were good. For eight sorts Mr. Bones was 1st, Mr. Soder 2d, and Mr. Brunt 3d. Cucumbers on the whole were very indifferent, with the exception of those shown by Mr. Bones and Mr. Burley. The cottagers' productions were not so numerous as usual. An interesting feature of the show was a bee tent, where lectures and demonstrations were given by members of the Essex Bee-keepers' Association. The lectures were well attended, many persons taking great interest in the manipulations, &c. (*From a Correspondent.*)

Richmond Horticultural: *June* 30.—Since the Society's formation no more genial weather has graced the annual summer show than was experienced on Thursday of last week, when the usual exhibition was held in the Old Deer Park, and as a result the grounds were thronged with visitors, and the tents often were uncomfortably filled. In both a horticultural and financial aspect the show was a great success.

Certainly the trade groups not in competition formed a strong feature, one of the best being an admirable arrangement made by Mr. Bause for the General Horticultural Company. This was composed of a fine Cocos Weddelliana for centre-piece, whilst grouped around it were rich coloured Crotons, Dracænas, brilliant Gloxinias, and other flowering plants set in a carpet of Maidenhair Ferns. Mr. F. R. Kinghorn, of Richmond, had a very light and pleasing group, composed almost exclusively of foliage plants. The central figure was a handsome, cool-looking Todea superba. Messrs. Osborn & Sons, of Fulham, had a somewhat flatly arranged group of Palms and Caladiums dressed with Ferns. Messrs. John Laing & Co., of Forest Hill, put up a very bright group of Begonias, Gloxinias, Marguerites, Fuchsias, Dracænas, &c., carpeted with Ferns and blue Lobelias. Messrs. Jackson & Son, of Kingston, staged a very gay group of foliage and flowering plants, the latter including some good Orchids, Begonias, Ericas, and various hard-wooded plants, effectively arranged. A good spike of Phalænopsis grandiflora aurea was a striking feature. Messrs. Paul & Sons, of Cheshunt, had a very taking group of pot Roses that presented here a more striking appearance than at South Kensington just previously. Messrs. Fromow & Sons, of Turnham Green, also had a good group of plants. Mr. Wiggins, gr. to H. Little, Esq., Hillingdon, made a striking group with some of his show Pelargoniums that were immensely admired. Somewhat late in the day a Silver Medal award was made to the collection. Mr. Pestridge, of Boston Road, Brentford, had in a smaller tent a fine representative lot of his golden and silver tricolor Pelargoniums, richly coloured. One of the most attractive features of the show in the classes were the large groups arranged around the big plant tent. In these Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, was placed 1st, with an arrangement in that artistic exhibitor's best style. Out of a carpet of Maidenhair Fern rose some elegant Palms, Crotons, Dracænas, &c., the carpet being lit up with finely flowered Gloxinias and small plants of Caladium Belleymei. Mr. Brockham, manager to Messrs. Hooper & Co., Twickenham, took 2d place, with a very charming group that was only just beaten. It was much beyond the usual style found in these groups. Mr. W. Brown, of St. Mary's Nursery, Richmond, took 3d place, and Mr. Monro, gr. to Lady John Chichester, Twickenham, was 4th.

In the open class for stove and greenhouse plants Messrs. Jackson were 1st, with nine superb specimens, comprising Erica tricolor, rosea, ventricosa, Bothweliana, and Cavendishiana; Clerodendron Balfourianum, Darwinia tulipiferum, Kalosanthe Mr. Duppemis, a grand bit of colour; Dracophyllum gracile, Azalea eximia, and Darwinia fuchsioides. Mr. J. H. Hennell, gr. to F. A. Davis, Esq., Surbiton, was 2d, with some excellent plants, that included a grand Phœnocoma prolifera Barnesii, a fine Allamanda Hendersoni, well bloomed Ericas, &c. Messrs. Peed & Sons, of Streatham, were 3d. There were some grand Ferns from Mr. Hudson, who had huge Gleichenia flabellata, Mendelii, and semivestita; a splendid specimen of Davallia bullata, a fine Adiantum farleyense. Mr. Child, gr. to Mrs. Torr, Garbrand Hall, Ewell, who came 2d, had a very fine Microlepia hirta cristata, a grand Davallia Mooreana, and other good kinds. In the class for six Ferns, Mr. Morrell, gr. to J. S. Rutter, Esq., Richmond, had 1st place, and Mr. D. East, gr. to F. Wigan, Esq., East Sheen, was 2d; both had very fine plants. Fuchsias call for special notice; Mr. Crafter, gr. to Miss Finch, Kingston Hill, having some capitally grown bush plants, that were full of bloom, yet mostly old kinds. Rarely has a Fuchsia been shown more fully in bloom if it had finer flowers than was his specimen of Hugh Miller. Mr. Morrell was 2d with fine pyramidal plants full of bloom. In the class for six kinds, Mr. Bond, gr. to Mrs. Evans, New Hampton, was 1st with a collection that included the finest specimen of Lord Beaconsfield, a bush plant, that we have yet seen. Mr. Morrell was again 2d with some fine plants well bloomed. In the class for six show Pelargoniums Mr. Wiggins was, of course, easily 1st, having Prince Leopold, Illuminator, Setting Sun, and others. Mr. Croxford, gr. to Mrs. Dunnage, Norbiton, a rising young grower, was 2d with very good plants; whilst in the class for fancies he was placed 1st with medium sized well bloomed specimens of The Shah, Mrs. Mardel, Fanny Gair, Lucy, Juliet, and Countess of Dudley. Mr. C. Attrill, gr. to C. J. Freak, Esq., Bank Grove, Ham, came 2d. Mr. D. East had six superbly grown and coloured Caladiums. The finest lot of foliage plants were staged by Mr. Bates, gr. to J. E. Meek, Esq., poulett Lodge, Twickenham, that included Dracænas mabilis and Baptistii, well coloured; a big Cocos Weddelliana, fine Pandanus Veitchii, Caladiums, &c. Gloxinias in the classes were well shown, the nine shown by Mr. Morrell were remarkably good, and are referred to elsewhere. Mr. W. Brown had good flowered plants. Of zonal Pelargoniums there were many collections, generally well done, and very showy, Mr. J. Crafter coming 1st, with good dense well-flowered plants of Wonderful, Gladiator, Madame Vaucher, Princess Dagmar, and other old kinds. Mr. J. Bond, with fairly good plants, was 2d. Some capital collections of hardy Ferns were shown by Mr. C. Prickett, gr. to Dr. Francis, Richmond, and Mr. Morrell. Mr. Sallows, gr. to J. S. Flack, Esq., Twickenham, had good Achimenes and foliage Begonias. The cut Roses though numerous, were of poor quality. In the class for thirty-six trebles Messrs. Paul & Son, of Cheshunt, were the only exhibitors, with but a moderate lot of blooms, but showed to better advantage in the open class for twenty-four kinds, with Mr. Rumsey, of Waltham Cross, taking 2d place. None of the blooms call for comment. In the class for twenty-four single trusses, for amateurs, Messrs. Stevenson, of Teddington; Moorman, of Coombe Bank; and Hudson, were respectively placed. A few good boxes of greenhouse cut flowers were shown. Table decorations were fairly good, the three stands shown by Mrs. Hudson exceedingly so, though run close by those shown by Mr. W. Brown. Bouquets generally were lumpy and without grace. Amongst buttonhole bouquets the three consisting each of a bud of Safrano Rose, pink Bouvardia, Myosotis, and Maidenhair Fern, had no difficulty in winning the 1st prize. These were shown by Mrs. Beazley, Richmond. There were many of the usual style of garden designs, cottagers' and amateurs', cut flowers, and plants of the usual form.

Fruit generally was very good, the best Black Hamburgh Grapes coming from Mr. Bates, who had three superb bunches; whilst in the open class for black Grapes Mr. Feist, gr. to R. J. Ashton, Esq., Englefield Green, was 1st, with good Hamburghs, and was also 1st in the corresponding class for whites, with very good Muscat of Alexandria. Mr. J. Fry, gr. to J. Baker, Esq., Eastcote, had the best collection of six dishes of fruit—a very fair lot; Mr. Bates was 1st with four dishes. There were good Peaches and Nectarines shown, and very fair Strawberries. Messrs. Sutton & Sons' prizes for a brace of Melons were taken by Mr. Morrell, with Hero of Bath, and Mr. E. Beckett, Esher, with Hero of Lockinge.

Good collections of vegetables were shown, Mr. Beckett taking the 1st place in the open class for twelve kinds with a very nice lot, well grown and admirably arranged. A very fair lot, which took 2d place, was staged by Mr. Waite, gr. to Colonel Logan, Esher; and Mr. W. Brown, Petersham, was 3d. Mr. Bates had very nice table plants in the class for twelve, Mr. Prickett coming 2d. As there were a hundred classes it would be impossible in the limited space at our disposal to make further special reference to the individual exhibits. We have simply sought to show the salient features of what was at once a very large and most interesting suburban exhibition.

Harrow Horticultural.—This somewhat old-fashioned but vigorous little Society continues to flourish, in spite of hard times, co-operative stores, and the prevalence on its subscription list of the names of supporters who strive to hide their modest lights under half-crown bushels. Given a blue sky, green turf, hill and dale, wood and water, and, financially at least, success is certain. These latter accessories were most generously provided by R. B. Hayward, Esq., allowing the Society to hold its twenty-sixth summer show in Harrow Park. In addition to the attractions of the exhibition itself, and its picturesque surroundings, the gentlemen of the Harrow School Rifle Corps, with their able conductor, Mr. H. Weston, performed during the evening a capital selection of music. Had the secret got abroad that among the instrumentalists were Lord A., the Honourable B., and several members of the Harrow eleven, the worthy treasurer, General Mills, and his energetic and enthusiastic aide-de-camp, Mr. D. Hill, need no longer have feared such torrents of rain as rushed through the tents at last year's show. One side of the spacious marquee was partially open, affording charming peeps of the surrounding country. The specimen plants, which included some magnificent Ferns and Crotons, were arranged in the usual way down the centre of the tent; cut flowers, fruit, and vegetables on the tables by the sides. There were also several very charming groups arranged for effect; the 1st and equal 2d being awarded to D. Hill, Esq., Mr. E. Morgan, and Mr. D. Page. The 1st prize group was edged with Mesembryanthemums in a broken line, the pots covered with moss. Mr. Morgan's group was agreeably relieved by about a dozen plants of Lilium longiflorum. Fruit consisted chiefly of Grapes, Melons, and Strawberries. The judges were struck with the high quality, size, and finish of Mr. A. Naylor's Black Hamburghs. Designs for the table were of the usual character, but scarcely up to the mark; they were uncomfortably crowded, and seemingly put together at hap-hazard, and with little regard to harmony of colour or elegance of outline. The bouquets, too, were moderate, lumpy, and inartistic. We remember at a show held here some years ago a gardener putting up a so-called bouquet with four spathes of Anthurium stuck up at the corners of a square. The effect was rewarded by one of the judges with a seemingly appropriate epithet, the "mutton-chop bouquet." Cut flowers were plentiful, especially Roses. The best prizes in the competition were awarded to Messrs. Page, Wilkinson, and Hill. We noticed in the winning stands Madame Rothschild, Maréchal Niel, Marie Baumann, Marquise Castellane, Mons. E. Y. Teas, and Captain Christy. General Mills showed a magnificent basket of Roses, and Mr. Hay a large and effective group of plants (not for competition). The judges were Messrs. Dinsmore, The Cedars, Harrow Weald; Mr. Fry, of Eastcote; and Mr. Wilkinson. The attendance, we regret to say, was but meagre. *T. W., Harrow.*

The Leeds Horticultural Exhibition: *June* 29 *and* 30, *and July* 1.—Hitherto the Society has been very unfortunate in weather, that of last year being especially bad, and resulted in a loss of about £400. The committee, however, determined to try again this year, and were well supported by the exhibitors. Stove and greenhouse plants were not so numerous as we have seen, but some very fine plants were staged, the 1st prize for sixteen falling to Messrs. Cole & Sons, of Manchester, the 2d to John Barron, Esq., M.P., Leeds, no other collection being staged. Messrs. Cole & Sons' collection contained a very fine Croton Disraeli, and fine specimens of Erica Spenceriana and E. Cavendishiana. In the classes for six and three stove and greenhouse plants George Geldar, Esq., Headingley, exhibited some well grown plants, obtaining the 1st prize in each class. Groups of plants arranged for effect are always a striking feature at the Leeds exhibitions, and although not so numerous as last year they were very good. Mr. Robt. Simpson, nurseryman, Selby, took the 1st prize in the larger groups; the 2d prize falling to J. Barran, Esq., M.P. In groups arranged in 150 square feet, Mr. H. Oxley was 1st, Mr. Geo. Talbot 2d, and Mr. G. Gilder 3d. In addition to these, prizes for groups of 100 square feet, for amateurs only, were offered and competed for. Prizes were offered for six stove or greenhouse Ferns, and were won by Messrs. Cole & Sons, 1st; Mr. F. W. Tetley 2d, and Mr. S. Smith 3d; but many of them were very large—too large, in fact, and some were almost laid on their sides in a most unnatural way. These things are all very well in big groups, but do not command general admiration when used in small classes and staged in this way. In the class for six ornamental plants there was a capital competition, Messrs. Cole & Son taking a 1st prize with a grand Croton Weismanni, a very fine Cocos Weddelliana, a very fine Pritchardia pacifica, and other plants; 2d, Mr. Thomas Simpson, in whose lot was a very fine specimen of Encephalartos villosus in flower, a grand Dicksonia antarctica, and a fine Areca sapida; 3d, Mr. J. Conyers, in whose lot were four good Crotons. The Orchids were good, Dr. Ainsworth taking 1st prizes for six and three. His Aerides Lobbi Ainsworthianum was especially fine; Aerides Veitchii and A. Larpentæ were also good specimens. His three consisted of Vanda Bensoni, Cattleya Mendelii, with a very rich coloured lip; and Dendrobium infundibuliforme. Walter Bateman, Esq., Harrogate, was 2d for six Orchids, and W. R. Champion, Esq., Halifax, 3d. For three Orchids, J. Conyers, Esq., was 2d. In Roses in pots the competition was restricted, and none of the collections exhibited first-class culture. Messrs. Pybus & Son and Mr. H. May were 1st and 2d in each open class. In the amateurs' class for six Roses in pots the 1st prize was withheld. Three twelves of large flowered Pelargoniums were staged, and were very fine indeed and keenly contested. Mr. C. Rylance was placed 1st, and Messrs. Lazenby & Son and Mr. H. May equal 2d. For six French and spotted Pelargoniums some excellent plants were staged, and here Messrs. Lazenby & Son were placed 1st, Mr. Rylance 2d, and Mr. May 3d. For six Pelargoniums, amateurs, Mr. W. L. Joy was 1st, and Mr. F. W. Titley 2d. In the class for six zonals there were four competitors, and the 1st and 2d lot were as fine as they well can be, marvellous plants grandly flowered, but Messrs. Pybus & Son carried the 1st prize with freshness, good colour, and good growth; Mr. W. L. Joy 2d, Mr. T. Simpson 3d. Some good double-flowered and tricolor Pelargoniums were shown, but another year the bronzes should form a separate class, and not be included with the tricolors. Fuchsias and Calceolarias were not of more than ordinary culture, but the Gloxinias were good, and made a telling display. Bedding plants here, as at York, are always a feature, and the twelve fancy Pansies in pots exhibited by Mr. R. Mann, Shadwell, were much admired.

In cut flowers Roses were a feature, Messrs. Cranston & Co. taking 1st prizes for forty-eight and thirty-six blooms, Mr. H. May 2d, and Mr. W. Robinson, Bramham, 3d in the latter class. Messrs. Cranston & Co. were also 1st for twelve Tea-scented Roses. In the amateurs' class for eighteen varieties Mr. T. Jowett, Hereford, was 1st, Mr. F. W. Tetley 2d, and Mr. W. Allanby 3d. For twelve Roses Mr. T. Jowett was again 1st. Bouquets are always strong here, Mr. C. Rylance being placed 1st for bridal bouquet, and Mr. R. Featherston 1st for ball-room bouquet. Pansies were shown well, especially fancies, and as they have not been seen much at these exhibitions lately they were welcomed. The collections of twelve varieties of cut flowers brought out a strong competition, F. R. Leyland, Esq., Woolton Hall, Liverpool (F. Faulkner, gr.), being especially strong with a grand lot, consisting of Lapageria rosea, Allamanda nobilis, A. Hendersoni, Erica insignis, E. ventricosa rosea, Ixora Colei, I. coccinea, Cattleya Mendelii, Lælia purpurata, Erica Aitoniana, Dipladenia amabilis, and Stephanotis floribunda. Mrs. J. S. Taylor was 2d, Mr. W. Bateman 3d; there was also a good competition for six bunches of cut flowers.

The fruit display was a very good one, and of good quality throughout. In the collection of six varieties Mr. F. R. Leyland was well to the front with a capital lot, consisting of Foster's Seedling and Black Hamburgh Grapes, Highcross Hybrid Melon, Téton de Venus Peach, Elruge Nectarine, and a Queen Pine; 2d, Mr. Clayton, gr. to John Fielding, Esq., Grimston Park; 3d, Sir H. M. Thompson, Bart., Kirby Hall. In the collection of four fruits Mr. Leyland was again 1st, Mr. S. Hornsby, Grantham, 2d, and Mr. Clayton 3d. Mr. Clayton also obtained the special prize given by the Mayor for a collection of fruit, as well as 1st prize for a Queen Pine. For three bunches of black and three bunches of white Grapes Mr. Wallis, gr. to Sir H. M. Thompson, Bart., was 1st with a good lot; Mr. John Ward, gr. to J. Padgett, Esq., Guisborough, 2d. In Strawberries, both in dish and on plant, James Veitch was fine.

Mr. Samuel Hartley, nurseryman, Leeds, contributed a fine stand of cut herbaceous plants, and Messrs. James Dickson & Sons, of Chester, sent a collection of cut herbaceous Pæonies, which were very fine, especially Etendard du Gand, Homère, De Candolle, Général McMahon, Madame Furtado, Vicomtesse de Forelle, Madame Libon, and Isabelle Kurlitzki. Mr.

Short, who was in charge of them, stated that they have 312 varieties in their collection, nearly all of French origin. They are indeed grand things when grown as exhibited here. By the side of these were two collections of hardy rock plants, nicely staged and exhibited by Mr. John Wood, Kirkstall, near Leeds. They consisted of forty-one Saxifrages and about forty Sempervivums, all named, and many of them rare. These were awarded a Special Certificate, and richly deserved it. A similar award was also given to Mr. W. H. Hilton, London Road, Liverpool, for a great assortment of hand-painted enamelled cast-iron pot covers, which were greatly admired. These are very light, of various sizes, with saucers to match, are cheap and elegant, and the flowers on them are beautifully painted.

Colchester and East Essex Horticultural.—The Colchester and East Essex Horticultural Society have this year made quite a new departure in holding their show in the grounds of Whitham House park, which, although perhaps not satisfactory to the subscribers in and around Colchester, owing to the distance from them being great, will no doubt benefit the Society financially by bringing it more immediately under the notice of the inhabitants of other outlying towns and districts, who previously had not taken any part or interest in it. The principal feature at the exhibition was the stove and greenhouse plants in competition for the premier prize given by the High Steward of Colchester, G. H. Errington, Esq., which brought out two fine lots of twelve each, the coveted award going to Mr. Thomas Harris, of Chelmsford, whose specimens, though not so large as those of his opponents, were on the whole cleaner and fresher, and remarkably well done. The best things in his collection were a Croton variegatus, of elephantine proportions, perfect in shape and colour; a finely flowered Anthurium Scherzerianum, Stephanotis floribunda, Statice profusa, and Trachelospermum jasminoides; while the ornamental foliaged plants amongst them comprised a healthy Theophrasta imperialis, a Latania borbonica, and a Chamærops humilis. Mr. A. T. Canning, gr. to T. Miller, Esq., of Halstead, came in 2d, with a splendidly flowered Stephanotis floribunda, Statice profusa, and Erica Candolleana; the best of his foliage plants being a huge Corypha australis, a big Latania borbonica, a nice Cycas revoluta, and Yucca aloifolia variegata.

In the class for six, competing for a Silver Cup given by Jas. Round, Esq., and Col. Brise, the members for the eastern division of the county, Mr. T. Harris again came to the fore with a grand Clerodendron Balfourianum, Anthurium Scherzerianum, Erica Cavendishiana, E. æmula, a Stephanotis, and a Statice profusa. Mr. A. Sharp, gr. to D. Cardinal, Esq., of Halstead, came 2d, his best plants being Allamanda Hendersoni, and Darwinia tulipifera. For six ornamental foliage plants Mr. Burrell, gr. to W. Duffield, Esq., was placed 1st, he having a very fine Croton variegatus, Pandanus Veitchii, Dracæna Cooperii and Guilfoylei. Mr. Harris came in 2d with a highly meritorious lot, the best among his being Pandanus Veitchii, Dracæna amabilis, D. Cooperii, and a richly coloured Ananassa sativa variegata. Ferns were fairly represented, the premier half-dozen being more regular and uniform than the rest. The Fuchsias and the rest of the plants exhibited did not call for any special notice, and in cut Roses it is only necessary to mention Mr. B. Cant's name among the successful exhibitors as taking the 1st prize for twenty-four, to know that they were good, although, being full early for him, they were not up to his usual high order of excellence. His finest flowers were Madame Castellane, Prince Arthur, A. K. Williams, Duke of Edinburgh, Duchesse de Vallombrosa, Catherine Mermet, and Etienne Levet. Mr. F. Cant came 2d, among his best flowers being Abel Grand, Horace Vernet, Dupuy Jamin, Madame Ducher, and Madame Willermoz. In the amateurs' class for twelve (for the President's prize), Mr. J. Clements was 1st, and Mr. Bishop, gr. to O. S. Onley, Esq., 2d. In the fruit department the Buckland Sweetwater Grapes shown by Mr. J. Steward were particularly good, as were also the Black Hamburghs contributed by Mr. A. Sharp, but they were badly shown in a basket instead of on a stand, and the 3d prize lot had been rubbed in carrying, or they would undoubtedly have been placed in a very different position. Some wonderfully fine Barrington Peaches were contributed by Mr. Laning, who also had the best Nectarines; and there was a magnificent lot of Dr. Hogg Strawberry that were most tempting to look on.

CIENKOWSKIA KIRKII.—A good many of the Gingerworts, although producing handsome flowers, are hardly subjects for general cultivation, owing to the fact that the flowers and leaves are not produced at the same time. That objection, however, does not hold good in the present instance, and as seen at Kew, there cannot be much doubt that this species is worth growing in even the most select collection of warm-house plants. It is a neat dwarf grower with blossoms about 3 inches across, of a beautifule pale rose-purple colour with a bifid golden blotch on the inner perianth segments opposite the anther. To Dr. Kirk, H.B.M. Consul at Zanzibar, is due the credit of discovering and introducing so pretty and interesting a plant; it first flowered in this country in 1871, and was figured in the *Botanical Magazine*, but the present plants considerably surpass those first introduced both in vigour and in size of flower.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 6, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
June	In	In.	°	°	°	°	°	°	°		In
30	30.05	+ 0.23	75.8	50.0	25.8	61.1	— 0.1	51.0	69	S.: S.W.	0.00
July 1	29.84	+ 0.02	81.7	56.0	25.7	68.1	+ 6.9	54.0	61	S.W.	0.00
2	29.94	+ 0.12	75.0	58.0	17.0	64.3	+ 3.2	54.8	71	S.W.	0.00
3	29.98	+ 0.16	82.8	57.3	25.5	68.4	+ 6.8	57.5	68	S.W.	0.00
4	30.03	+ 0.22	88.0	62.5	25.5	73.6	+ 12.3	62.4	72	W.: S.W.	0.00
5	29.84	+ 0.04	92.5	63.0	29.5	76.3	+ 14.8	66.2	71	W.: S.S.W.	0.00
6	29.64	— 0.11	70.0	53.1	16.9	59.2	— 2.4	54.8	86	E.: W.	1.09
Mean	29.90	+ 0.10	80.8	57.1	23.7	67.3	+ 5.9	57.2	71	S.: W.	1.09

June 30.—A fine day and night.
July 1.—A very fine and warm day. A fine night.
— 2.—Generally overcast, but a fine day.
— 3.—A fine warm day; a stiff breeze. Fine night.
— 4.—A fine hot morning and hot day; stiff breeze. A good deal of lightning during the evening. Rain began at 11 o'clock.
— 5.—A very hot day; temperature 92°.5 in shade. The last instance of such high temperature at Blackheath was in July, 1876, when it was 90°.3. In July, 1868, the highest temperature at the Royal Observatory was 95°, the highest this century. Lightning was abundant from 9 P.M. Some rain began to fall at 11 P.M., and a severe thunderstorm began about midnight, and continued till daybreak. Rain in the storm, 0°.5 inch.
— 6.—A cold, dull day; a very heavy rain from half-past 10 to half-past 11 A.M., to the depth of 0°.582 inch. The night was clear and cold. The comet was seen. The mean temperature this day was 17°.2 of lower temperature than that of the preceding day.

LONDON: *Atmospheric Pressure.*—During the week ending Saturday, July 2, the readings of the barometer at the level of the sea increased from 30.09 inches at the beginning of the week to 30.19 inches by the morning of June 26; decreased to 30.14 inches by 3 P.M. on the 27th; increased to 30.33 inches by the evening of the 29th; decreased to 30 inches by July 1 at 3 P.M., and was 30.15 inches at the end of the week. The mean reading for the week at the level of the sea was 30.12 inches, being 0.18 inch higher than last week, and was 0.12 inch above the average of the week from forty years' observations.

Temperature.—The highest temperature in the week was 81°.7 on July 1, and the lowest of the high day temperatures was 62°.8 on June 27. The mean of the seven high day temperatures was 72°.7. The lowest temperature in the week was 50°, on the morning of June 30. The highest of the low night temperatures was 58°, on July 2. The mean of the seven readings was 53°.2.

The greatest range of temperature in one day was 25°.8, on the 30th; but that on July 1 was 25°.7; the smallest daily range was 8°.2, on June 27. The mean of the seven daily ranges was 19°.5.

The mean temperature of June 26 was 59°.5; 27th was 57°.5; 28th was 58°.2; 29th was 60°.2; 30th was 61°.1; July 1 was 68°.1; and of July 2 was 64°.3. Of these the first five days were below their averages by 1°.7, 3°.8, 3°.1, 1°.1, and 0°.1 respectively; and the last two days above their averages by 6°.9 on Friday and by 3°.2 on Saturday.

The mean temperature for the week was 61°.3, being 1°.5 of higher temperature than in the preceding week, and of the same temperature as that of the average of sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, and placed in the full rays of the sun, was 158° on June 30 and July 1; the mean of the seven readings was 133°.

The lowest reading of a thermometer with its bulb on short grass and exposed to the sky was 43° on the 30th, and the mean of the seven readings was 47°.

Rain fell on one day, to the depth of 0.02 inch.

ENGLAND: *Temperature.*—During the week ending Saturday, July 2, the highest temperatures exceeded 80° at Blackheath, Cambridge, and Norwich. The highest reading in the week at Bradford was 64°.3, at Liverpool 65°.3, and at Leeds 66°. The mean from all stations was 72°.9. The lowest temperatures in the week were 42°.4 at Wrottesley and 43° at Birmingham. The highest of the low temperatures were Blackheath 50°, Norwich 50°, and Liverpool 50°.9. The general mean from all stations was 47°.2.

The greatest ranges of temperature in the week, amounting to 30° or more, were at Blackheath, Cambridge, Norwich, and Nottingham; the smallest ranges were Liverpool, 14°.4; Bradford, 15°.7; and Leeds, 18°. The general mean was 25°.7.

The mean of the seven high day temperatures exceeded 72° at Blackheath, Cambridge, and Nottingham, and were below 65° at Liverpool, Bradford, and Leeds. The general mean was 68°.2.

The mean of the seven low night temperatures exceeded 52° at Brighton, Blackheath, Norwood, and Liverpool, and fell short of 50° at Wrottesley, Nottingham, Sheffield, and Hull. The general mean from all stations was 50°.9.

The mean daily range was greatest at Cambridge, 24°.1, and at Nottingham, 24°; and smallest at Liverpool, 9°.8, and at Bradford, 11°.7. The general mean was 17°.2.

The mean temperature for the week exceeded 60° at Blackheath, Cambridge, and Norwood, and was less than 56° at Wrottesley, Liverpool, and Bradford. The general mean was 57°.7.

Rain fell on an average of two days; the greatest amount in the week was 0.44 inch at Hull, 0.37 inch at Nottingham, and 0.34 inch at Plymouth. At Liverpool no rain fell. At Blackheath the fall was 0.02 inch, at Leicester 0.08 inch, and at Bradford 0.08 inch. The general mean was 0.18 inch.

SCOTLAND: *Temperature.*—During the week ending Saturday, July 2, the highest temperatures were 71° at Dundee and 70°.5 at Aberdeen. At Paisley the highest temperature in the week was 63°, and at Greenock was 63°.2. The general mean was 66°.8. The lowest temperatures were 42° at Dundee and 43°.4 at Aberdeen. At Paisley the lowest temperature in the week was 48°, and at Greenock was 47°. The general mean was 44°.9.

The mean temperatures were highest at Leith, 56°.7; and Edinburgh, 56°.4; and lowest at Greenock, 54°.6; and Aberdeen, 55°.3. The general mean was 55°.8.

Rain.—The largest fall was 1.66 inch at Greenock, and smallest, 0.45 inch, at Edinburgh and Dundee. The general mean for all was 0°.78 inch.

JAMES GLAISHER, F.R.S.

Law Notes.

SPILSBY COUNTY COURT: June 15 (*before J. Stephen, Esq., LL.D., Judge*).—*Important Seed Case.*—GEO. HOWSHAM *v.* JOHN SHARPE.—Mr. Toynbee for plaintiff, and Mr. Page for defendant.

Mr. TOYNBEE, in opening the case, said plaintiff was a corn merchant, residing at Wainfleet, and defendant a seed merchant, residing at Bardney, and the claim was for £50, part damages sustained in consequence of the defendant refusing to accept a quantity of Turnip seed. Plaintiff had some Swede Turnip seed growing at Wainfleet, and Mr. Sharpe was anxious to purchase it. They met at Lincoln, and defendant made an offer of 15*s.* per bushel, but plaintiff wanted 17*s.* Defendant afterwards sent a telegram to plaintiff, offering 16*s.* 6*d.*, which the latter, by telegram, agreed to accept. Next day defendant wrote a letter to plaintiff confirming the offer made by telegram, and requesting plaintiff not to tell any one what he had given for the seed. Mr. Sharpe's man afterwards went over to Wainfleet to look at the crop and "rogue" it, by pulling out the bastard sorts. Plaintiff said that it was a purple-top Swede, and defendant's man, on going over to look at the crop, was perfectly satisfied with it. When the seed had been harvested some time plaintiff wanted his money, but defendant said he must keep it a bit longer, as it would lose a lot of money. The fact was (said Mr. Toynbee), Turnip seed, instead of going up, had gone down. In August Mr. Sharpe sent for a sample, and was satisfied with it. About October plaintiff met defendant at Boston market, when the latter said he would pay him £200 on account the following week. During the week, however, defendant wrote to plaintiff, saying that the stock was too green, and was not true to name, and declined to have it. Defendant wrote saying it was a coarse stock of green Swede. He (Mr. Toynbee) believed that a part of the defence going to be set up was that the sample of seed defendant obtained in August was sent as a trial sample, but to this he gave a complete and most positive denial. The Turnip seed, it was stated, was afterwards sold at 12*s.* 6*d.* per strike, and the actual loss on the difference in price was £67 8*s.*

Mr. PAGE, for defendant, raised a legal objection that there was no contract. The telegram purported

to contain the offer was not produced, and without the telegram the contract was not proved. His Honour pointed out that there was the letter of defendant's also which followed, and after some little argument overruled the objection. After a considerable amount of evidence had been given on both sides, His Honour recapitulated the evidence to the jury, and stated it left the question as to what was the contract. He regretted to say that it was one of those cases in which they would have to judge which party they placed most credence in. The Jury, after retiring three minutes, stated they were unanimous in giving a verdict for plaintiff for the full amount. *Boston Independent.*

Natural History.

The Goldfinch.—This favourite bird has become less numerous as the agriculture of the country has improved. It may seem inconsistent with the gorgeous appearance of the goldfinch that his welfare, like that of hawks, bustards, and bitterns, should be dependent on a wild and savage state of the country, and that civilisation should be as fatal to him as to them. Yet so it is; for, innocent as he is in his habits and domestic in his tastes, he cannot subsist without waste land and a large supply of weeds. Consequently, the enclosures of modern times, and the parochial economy in regard to odd corners and wayside margins, have diminished his opportunities of obtaining food. The goldfinch, however, is still found in all parts of Great Britain and Ireland from April till November. Yarrell says that he nests in every English county except Northumberland; and as a local naturalist has lately named half-a-dozen spots in that county where, at the present time, he builds, it seems probable that the Wild Birds Protection Act has rendered this bird more numerous than it was some years ago.

The migratory habits of the goldfinch must have been observed by all who watch the movements of birds. It happens that I reside where every year I can watch the goldfinch from his first arrival till his departure from our shores.

In some districts and in severe winters, in company with the brown linnet and other birds, it sometimes finds its way to the stackyards or cattle fields and farmsteads, in search of food. This is not common, and is no doubt due to the quantity of waste land in those localities. The goldfinch is sensitive to cold. It suffers severely in hard weather, and, except in favoured spots, where it finds food throughout the year, it quits our shores to winter with the swallow and the nightingale. It nests in orchards and other village sites, on the boughs of Apple and Pear trees, or of the Sycamore and Horse Chestnut, lays the first of its four or five eggs before the middle of May, and repeats these processes three times during the summer. The very large scattered population which is thus produced, feeds in early autumn in little flocks of half a dozen or more, flitting and twittering from one patch of seed-bearing weeds to another. Every one has seen them on the ground, busy with the Chickweed, Groundsel, or Dandelion, or clinging to Thistle-heads and Burdocks. As the autumn advances, and seeds grow scarce, the numerous contingents of the great flock which is about to assemble draw towards the south coast. They make their exit from this country from that part of the Kentish coast where the cliffs are nearest those of France, and they feed along the downs of Sussex *en route* for the flitting place. I have had but too many opportunities of observing that during the passage of the downs, not far distant from this parish, these birds, as well as linnets and others, have to run the gauntlet of the bird-catchers, who net them by thousands of dozens. Happily, the Act has recently restrained them.

No wonder the goldfinch is a favourite cage-bird, for there is no bird more tractable and friendly. Some persons may remember an Italian bird-trainer's collection of goldfinches, linnets, and canaries, in the streets of London, in which the birds severally went through the most wonderful performances. One stood on his head with his claws in the air, another was a milkmaid with pails on her shoulders, another a soldier mounting guard with a firelock in his claw. The same bird acted as a wounded soldier, and was wheeled in a barrow to the hospital, after which it flew away before the company. Another of these performing goldfinches turned a small mill, and the last which I shall mention stood in the midst of exploding fireworks, and showed no sign of fear.

Docile though he be, Goldie is rather a restless bird in confinement, and requires a large cage in which to hop about and cling to the wires, first of one part then of another. He is well known as a songster of considerable merit, and produces when paired with the canary a better songster than himself. *K.*

The Harvest Mouse.

I have often watched the harvest mice running up and down the culms of standing corn, on the tops of which their nests wave in the wind. They will allow you to come close to them, which I have done sometimes when walking through my Wheat-fields before harvest. Some animals apparently measure the distance between them and you, not by the customary standards, but by a standard of their own. I can see from my windows at this moment a blue tit, a golden-crested wren, and a chaffinch amusing themselves among some shrubs outside, and they seem to think five intervening yards between them and me sufficient. The larger wild birds adopt a different standard; so do some of the quadrupeds; but at the distance of two or three yards I have watched harvest mice clinging to the culms of Wheat with their prehensile tails coiled round the stems, and they have watched me, shy, but satisfied with the space between us. They measure from nose to tail 2¼ inches, and the tail is 2 inches long. Gilbert White, who first discovered and described the harvest mouse, found that two of them in a scale weighed down just one copper half-penny, or the third of an ounce, avoirdupois. The common mouse of our houses and corn-stacks weighs, when full grown, one ounce lumping weight, and measures from nose to rump 4¼ inches, the tail measuring the same.

In the *Memoirs of British Quadrupeds*, Mr. Bingley gives a capital description of the personal habits and appearance of the smallest mouse. As a cage pet, she runs up and down with great ease, thanks to her flexible long toes. She has a habit of resting on her hind feet, like the jerboa or kangaroo, and in this easy independent attitude, for so small a creature, she looks around her, stretching out her body and peeping all round with a bright eye. She cleans herself very gracefully; Diana bathing with her nymphs was not more shy and elegant than the harvest-mouse when, her meal over, or her water-lapping ended, she sits up and passes her pretty little paws repeatedly over her body. She likes Wheat, but prefer, Maize, and with Maize at 4*s.* per bushel, or less, her maintenance and that of her family would not cost much, prolific as she is, producing more litters and more young ones in a litter than any of her congeners. If you supply a caged harvest-mouse with corn—Maize by choice—and proper materials for a nest, you will be amused with her proceedings. She will build the nest in a corner, and store it with corn, and with the true instinct of some of the corn-storing quadrupeds, she will eat out and destroy the germ of each grain, so as to prevent it from sprouting. It is not one of the hybernating mice. Supply it with a piece of folded flannel and some grass, and within a few days you will find the grass neatly packed between the folds of the flannel and mixed with the nap of the latter, torn off for a bed. The little animal will be active by day; the work will be done by night. Mr. Bingley opened a nest in October and found 40 grains of Maize; at the end of November it was gone except about half-a-dozen grains.

The harvest mouse was discovered at Selborne, in Hants, not far from the borders of Hants, Surrey and Sussex. My own knowledge of its habits is confined to the two last-named counties, where I have spent in the harvest fields in past years hours of greater leisure than I enjoy at present. Is it common in the North of England? In Waterton's *Natural History Essays* it is not mentioned. Does it feed on grain only?

In Sir William Jardine's edition of White's *Natural History of Selborne*, 1829, we read the following quotation from Mr. Bingley's book:—"About the middle of September, 1804, I had a female harvest mouse given me. It was put into a dormouse cage immediately when caught, and a few days afterwards produced eight young ones. I entertained some hope that the little animal would have nursed these and brought them up, but having been disturbed in her removal about 4 miles from the country, she began to destroy them, and I took them from her. The young ones at the time I received them (not more than two or three days old) must have been at least equal in weight to the mother. After they were removed she became reconciled to her situation, and when there was a noise would come out of her hiding-place at the extremity of the cage, and climb about among the wires of the open part before me. One evening as I was sitting at my writing-desk, and the animal was playing about in the open part of its cage, a large blue fly happened to buzz against the wires; the little creature, though at twice or thrice the distance of her own length from it, sprang along the wires with the greatest agility, and would certainly have seized it had the space between the wires been sufficiently wide to have admitted her teeth or paws to reach it. I was surprised at this occurrence, as I had been led to believe that the harvest mouse was merely a granivorous animal. I caught the fly, and made it buzz with my fingers against the wires. The mouse, though usually shy and timid, immediately came out of her hiding-place, and running to the spot seized and devoured it. From this time I fed her with insects whenever I could get them, and she always preferred them to every other kind of food that I offered her." *K.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

Capsicin.—Can any of your correspondents tell me if fumigating with Capsicin paper is safe at this time of year, and whether it is effectual against red-spider?—and, if so, what quantity should be used, where it can be procured, and what it costs? *D.*

Iris fœtidissima.—I remember seeing, in an old number of the *Phytologist* (I regret I cannot find the exact reference) the record of a cream-coloured Iris fœtidissima being found in Dorsetshire, I think, not far from Swanage—I mean, with cream-coloured flowers. I have not come upon this in any collection or catalogue, and if any reader of the *Gardeners' Chronicle* knows of its existence I should be very pleased to become possessed of a living root by purchase or exchange. It is, of course, a mere botanical curiosity. In the same periodical there is also a record of, I think, a Dr. Battersby having found a double-flowered Iris fœtidissima near Torquay. This I should similarly like to acquire. Iris fœtidissima ought now to be in flower, and now would be a convenient time for moving the plant. *M. Foster, Great Shelford, Cambs.*

Tulip Thieves.—In a Dutch Bulb Catalogue before me, "Tulip Thieves," in twelve sorts, are quoted at 2*s.* 6*d.* per dozen. What are these? *Z.*

Answers to Correspondents.

Aquarium: *A. J. X.* Either Vallisneria spiralis, or the Cape Pond Weed (Aponogeton distachyon) would do well.

Black Fly on Ivy: *Seventy-Six.* Boil 4 oz. of Quassia chips in a gall. of soft water for ten minutes, and as it cools dissolve in it 4 oz. of soft soap. Stir it well, and syringe the Ivies a time or two when cold, finally washing the plants with clear water.

Cucumbers: *J. E. Murray.* Is not the injury due to excessive watering? That would seem to us to be the cause of their being in such bad health.

Double Pansy: *R. & A. Morrison.* Please send a few flowers packed in damp moss. Those sent in cotton wool were completely shrivelled up.

Early Forcing Cauliflower: *A. D.* writes that he has shown this repeatedly under the name of Early Snowball, but failed to receive an award, which, however, was made to Messrs. Veitch by the Fruit Committee of the Royal Horticultural Society on a recent occasion. Assuming the facts to be as our correspondent states, he should address his remonstrance to the Fruit Committee in the first instance.

Fasciated Chrysanthemum: *W. E.* Such cases are not uncommon, and with such instances as the Cockscomb in view it is not surprising that you find it come true from seed.

Grapes: *C. C.* Send us a sample of the berries, and also of the "white excrescences."

Green Bracts: *W. T. T.* Not a very unusual occurrence. A green Dahlia is an illustration of this character.

Insects: *H. J. C.* Your Pelargonium leaves appear to be blotched by sunstroke or other cultural ailment. Only on the leaf, in your second stage of disease, we noticed some small holes made by gnawing insects, and minute pellets of excrement; and on carefully examining the leaf with a microscope we found several very minute newly-hatched caterpillars of one of the Geometrideous moths, very pale green, with minute black specks on the rings of the body. These we shall endeavour to rear, but they may easily be destroyed by fumigation, and cannot, we think, be the cause of the blistering of the leaves. *I. O. W.*

Names of Plants: *W. H. D., Crieff.* 1, The double white Rocket, but seems smaller than as commonly seen; 2, Kerria japonica.—*A. Reid, jun.* 1, Agrimonia Eupatorium; 2, Phyteuma spicatum—a rare

plant.—*I. O. L.* 1, a Crinum, but impossible to say which from the specimen sent; 2, Cratægus tanacetifolia; 3, the White Beam (Pyrus Aria).—*H. W. C.* Thalictrum flavum.—*W. Roberts.* 1, Asplenium bulbiferum; 2, Lomaria nuda bipinnatifida; 3, Pteris serrulata cristata, a poor form; another specimen marked 3 is not recognisable, because it is not in fructification.—*J. B. T.* The grasses, a mere wisp of flowering stems, are too imperfect for determination. You should send the herbage and the roots—in fact, perfect specimens. No. 2 looks like Festuca duriuscula.—*R. Gill.* Oncidium crispum.—*J. W. F.* Oncidium sphacelatum, probably. The Gongora we cannot name from the materials sent.—*Ch. Meehan.* Psoralea pinnata, a native of South Africa.—*S. W. L.* Thalictrum aquilegifolium.—*W. F. Gunn* 1, Please send a good specimen, and say where it comes from; 2, Glyceria maritima; 3, Glyceria loliacea.

PANSIES: *F. Rœmer.* The flowers, packed in layers of cotton-wool, reached us in a very bad condition—shrivelled, and not readily separable from the wool. Nothing worse could have been used. So far as we could judge, the flowers were about the same as those raised here from what is sold as German Pansy seed: some of them pretty, as, for example, a dark mulberry with wire edge of white, but they are much too small to be greatly appreciated here. The two novelties were, we suppose, mixed up with the rest, as we did not discover them.

SWEET WILLIAMS DISEASED: *J. G., Northampton.* Your Sweet Williams ("most dreadfully infested," as you truly say), are badly attacked by the fungus known as the Lychnis Brand (Puccinia lychnidearum. The fungus attacks many plants belonging to the same natural order as the Sweet William, and yours is the worst case we have ever seen. *W. G. S.*

TOMATOS: *J. G.* If you have the Trophy and Stamfordian Tomatos as they were originally sent out, the difference between them should be apparent, the fruits of the former being to some extent corrugated. It has, however, been so much improved by selecting and seeding the smoothest fruits, that when cut and placed together one can hardly tell the difference, and it would not be advisable to show them as distinct.

VIOLAS AND PANSIES: *Simple Brains* asks, What are the distinctive points between Pansies and Violas? In general Pansies are stronger growers, with larger flowers; but the two run together. The terms are used more as a matter of trade convenience than as marking any positive difference. Strictly speaking, of course both are Violas; but the Pansies have mainly come through V. tricolor and some of its allies, and the Violas through T. calcarata, V. cornuta, and perhaps T. lutea.

WILLIAM THE FIRST PEAS: *R. G. F.* When this Pea should be in flower, and subsequently fit to pick, depends upon the locality, the soil, and the time of sowing, on which points you give no information. In a general way, if sown at the same time as Sangster's No. 1 it should be in but a day or two later.

CATALOGUES RECEIVED.

E. H. KRELAGE & SON, Haarlem—Dutch Flower Roots, Miscellaneous Bulbous and Tuberous-rooted Plants, &c.

THOMAS METHVEN & SONS, 15, Princes Street, Edinburgh—Dutch and other Flower Roots.

COMMUNICATIONS RECEIVED.—J. S.—P. B.—E. W. S.—D. P. L.—E. J.—D. W. (thanks).—W. B.—J. A.—G. Maw.—G. B. T.—T. W., Harrow (thanks).—J. W.—R. E.—J. V. S.—An Observer.—G. D.—W. H.—A Lover of Fair Play.

Markets.

COVENT GARDEN, July 7.

Our market is now getting more active, soft fruit reaching us in good supply, and showing signs of fair crops. Grapes are heavy, and prices again lower. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apricots, per box ..	1 6– 2 6	Lemons, per 100 ..	4 0– 6 0
Cherries, per ½-sieve	4 6–12 0	Melons, each ..	2 6– 4 0
Currants, ½-sieve ..	5 0– 6 0	Peaches, per dozen..	4 0–12 0
Figs, per dozen ..	6 0– 9 0	Pine-apples, Eng., lb.	2 0– 4 0
Gooseberries, ½-bush.	2 6– 3 6	Strawberries, per lb.	0 6– 1 3
Grapes, per lb. ..	1 0– 6 0		

An advance of 20 per cent. on the above prices may be taken as a fair average of the retail value of the articles quoted.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0– 6 0	Herbs, per bunch ..	0 2– 0 4
Asparagus, English, per bundle..	0 9– ..	Horse Radish, p. bun.	4 0– ..
— Sprue, per bund.	1 0– ..	Lettuces, Cabbage, per doz. ..	0 6– 1 6
Beans, French, p. lb.	1 0– ..	— Engl. Cos, score	1 6– ..
— Broad, per bush.	6 0– ..	Mint, greeo, bunch..	0 4– 0 6
Beet, per doz. ..	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz. ..	1 0– 2 0	Onions, per bushel..	5 0– ..
Carrots, per buncb..	0 4– 0 6	— Spring, per buo.	0 6– ..
— New Fr., bund.	0 9– 1 0	Parsley, per bunch..	0 4– ..
Cauliflowers, English, each ..	0 6– 0 9	Radishes, per bun..	0 2– 0 6
Celery, per bundle ..	1 6– 2 0	Rhubarb, per bund.	0 4– 0 6
Cucumbers, each ..	0 6– 1 6	Small salading, pun.	0 4– ..
Endive, per doz. ..	2 0– 3 0	Spinach, per bushel	4 0– ..
Garlic, per lb. ..	1 0– ..	Tomatos, per lb. ..	0 9– 1 0
		Vegt. Marrows, doz.	3 0– ..

POTATOS, NEW:—Kidney, 8s. to 10s.; Round, 6s. to 7s. Malta, 8s. to 10s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	18 0–42 0	Foliage Plants, various, each ..	2 0–10 6
Arbor-vitæ (golden), per dozen ..	6 0–18 0	Fuchsias, per dozen	6 0–12 0
— (common), dozen	6 0–12 0	Ivy Geranium, doz.	4 0– 6 0
Begonias, per doz. ..	6 0–12 0	Lilium longifl., doz.	18 0–42 0
Calceolaria, per doz.	6 0–12 0	Lobelia, per dozen..	4 0– 6 0
Creeping Jenny, doz.	3 0– 4 0	Marguerite, white, per dozen..	18 0–24 0
Cyperus, per dozen	6 0–12 0	— Yellow, per doz.	12 0–30 0
Dracæna terminalis	30 0–60 0	Mignonette, per doz.	4 0– 6 0
— viridis, per doz...	12 0–24 0	Myrtles, per doz. ..	6 0–12 0
Erica, in variety, doz.	18 0–30 0	Palms in var., each	2 6–21 0
Euonymus, various, per dozen ..	6 0–18 0	Pelargoniums, doz.	9 0–30 0
Evergreens, in var., per dozen ..	6 0–24 0	— tricolor, per doz.	3 0–12 0
Ferns, in variety, per dozen ..	4 0–18 0	— scarlet, per doz.	4 0– 9 0
Ficus elastica, each	1 6– 7 6	Rhodanthe, per doz.	6 0–10 0
		Roses, various, doz.	12 0–30 0
		Spiræa japonica, doz.	9 0–18 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 6	Lilium longiflorum, 12 blooms ..	4 0– 6 0
Antirrhinum, 12 bun.	6 0– 9 0	Marguerites, 12 bun.	0 4– 0 9
Arum Lilies, 12 blms.	4 0– 6 0	Mignonette, 12 bun.	4 0– 9 0
Azalea, 12 sprays ..	0 6– ..	Pelargoniums, 12 sprays ..	0 9– 1 0
Bouvardias, per bun.	0 9– 1 6	— zonal, 12 sprays	0 4– 0 9
Calceolaria, 12 bun..	9 0–12 0	Pinks, white, 12 bun.	2 0– 6 0
Carnations, 12 blms.	1 0– 2 0	— coloured, 12 bun.	3 0– 6 0
Cornflower, 12 hun..	2 0– 4 0	Primula, double, per bunch ..	0 6– 1 0
Eucharis, per doz. ..	4 0– 6 0	Rhodanthe, 12 bun.	8 0–12 0
Forget-me-not, 12 bunches ..	3 0– 6 0	Roses (indoor), doz.	1 0– 6 0
Gardenias, 12 blms..	3 0– 8 0	— (outdoor), 12 bun.	4 0– 9 0
Heliotropes, 12 sp...	0 6– 1 0	— (Moss), 12 bun.	8 0–12 0
Hemerocallis (Day Lily), 12 blooms ..	1 0– 1 6	Spiræa, 12 bunches..	8 0–12 0
Iris, 12 bunches ..	6 0–18 0	Stephanotis, 12 spr...	3 0– 4 0
Lapageria, white, 12 blooms ..	4 0– 6 0	Tropæolum, 12 bun.	1 0– 3 0
— red, 12 blooms..	1 0– 3 0	Tuberoses, per dozen	2 0– 3 0

SEEDS.

LONDON: *July 6.*—The market to-day was very thinly attended, with scarcely any business doing. Samples of new Trefoil, Trifolium, and Italian Ryegrass—all, of course, of foreign growth—are now coming to hand, but no business of importance has yet resulted. In red Clover seed there is nothing doing. Fine white Mustard being scarce, is held for full rates. In feeding Linseed the tendency is adverse to the buyer. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the supplies of English Wheat were short, and of foreign moderate; the weather influence, however, checked demand, and business was restricted. White Wheats, where sold, showed 1s. decline on the rates of Monday se'nnight; red unaltered. Flour was dull, and rates tended in favour of buyers. No change occurred in the value of Beans, Peas, or Maize, and the markets were quiet. Oats sold slowly but at steady value.—Trade was dull on Wednesday. No quotable change occurred in the spot value of any kind of grain but for arrival. American Wheats, prompt shipment, were offering on easier terms. Average prices of corn for the week ending July 2:—Wheat, 45s. 4d.; Barley, 29s. 3d.; Oats, 23s. 9d. For the corresponding period last year:—Wheat, 41s. 7d.; Barley, 31s. 11d.; Oats, 28s. 2d.

CATTLE.

At Copenhagen Fields on Monday a dull tone prevailed throughout the trade. Some early sales of the primer qualities of cattle were made at full prices, but all other qualities sold heavily, and the finest was very dull. Sheep and lambs also cleared off slowly, without material change in prices. The calf trade was dull. Quotations:—Beasts, 4s. to 4s. 6d., and 4s. 8d. to 5s. 2d.; calves, 4s. 8d. to 6s.; sheep, 5s. to 5s. 8d., and 5s. 10d. to 6s. 10d.; lambs, 7s. to 7s. 6d.; pigs, 4s. 2d. to 5s.—On Thursday trade, though quiet, was fairly cheerful. Both beasts and sheep moved off with more spirit, but did not apparently alter in value. Lambs were steadier, calves realised full prices, and pigs were dull.

HAY.

Tuesday's Whitechapel Market report states that there was a demand for best meadow hay, and rates were firm. Best Clover advanced to 130s., but the general market was dull. Best straw advanced 2s. per load. Quotations:—Prime Clover, 100s. to 130s.; inferior, 60s. to 95s.; prime meadow hay, 85s. to 120s.; inferior, 30s. to 75s.; straw, 30s. to 50s. per load.—On Thursday there was a moderate supply on offer. The trade was dull for Clover, but good for hay and straw.—Cumberland Market quotations:—Superior meadow hay, 115s. to 126s.; inferior, 70s. to 100s.; new hay, 84s. to 105s.; superior old Clover, 120s. to 135s.; inferior, 90s. to 110s.; new Clover, 95s. to 120s.; and straw, 48s. to 52s. per load.

POTATOS.

The Borough and Spitalfields Markets reports state that new Potatos are in moderate supply and steady demand. Cherbourg round, 6s.; Jersey, 6s.; kidneys, 10s. to 11s. per cwt.

Government Stock.—Consols closed on Monday at 101⅛ to 101¼ for delivery, and 101¼ to 101⅜ for the account. There was no alteration on Tuesday. Wednesday's closing figures were 101 to 101⅛ for delivery, and 101¼ to 101⅜ for the account. The final quotations on Thursday were 101 to 101⅛ for delivery, and 101 3/16 to 101 5/16 for the account.

NEW DOUBLE CLEMATISES.

ENCHANTRESS, a very large and distinct variety, good habit, and bearing very double white flowers; the exterior petals are very prettily flushed with rose in the centre. First-class Certificate Royal Horticultural Society.
Plates of this variety, 2s. 6d. each.

VENUS VICTRIX, another double variety; colour a delicate lavender; sepals very broad and finely formed. First-class Certificate Royal Horticultural Society.

The above two Varieties are now ready for distribution. Price 10s. 6d. each. Trade discount.

Messrs. THOS. CRIPPS AND SON, The Tunbridge Wells Nurseries, Kent.

Carter and Co.

OUR PELARGONIUMS, COLEUS, BEGONIAS, DELPHINIUMS, SWEET WILLIAMS, VERBENAS, and all the Novelties and New Bedding and Flowering Plants of the season.

ALL who wish for an entirely new and splendid display with Chrysanthemums should order the following SALVIAS at once, for now is the time to re-pot, &c.

*SPLENDENS BRUANTI
*PITCHERI
RUTILANS
*BETHELII
HOVEYII
} These bloom in November and December.

6d. and 1s. each; 5s. and 10s. per dozen.

Those marked (*) received First-class Certificates last November. See Catalogue of twenty-four distinct kinds.

First-class Certificates and Prize Medals.

Primulas and Cinerarias of 1881.

		Seedlings.
PRIMULAS—SWANLEY RED ..	3s. per doz., 18s. per 100 in pots, 26s.	,,
,, SWANLEY PURPLE ..	3s. per doz., 18s. in pots, 25s.	,,
,, SWANLEY WHITE ..	1s. 6d. per doz., 10s. in pots, 18s.	,,
,, SWANLEY STRIPED	1s. 6d. per doz., 10s. in pots, 18s.	,,
,, LILACINA	1s. 6d. per doz., 10s. in pots, 18s.	,,
,, COCCINEA	1s. 6d. per doz., 10s. in pots, 18s.	,,
,, Mixed	2s. 6d. per doz., 15s. in pots, 15s.	,,
CINERARIAS, Prize Medal, mxd.	1s. 6d. per doz., 9s. in pots, 16s.	,,

Postage and Packing free.

THE HOME FOR FLOWERS, SWANLEY, KENT.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s 6d. per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.

H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

COCOA-NUT FIBRE REFUSE, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; or vanload of loose, about 100 bushels, delivered free within 4 miles of London Bridge, 15s.; truckload of about 250 bushels, £1 3s. (truckload free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order.

CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
Fresh SPHAGNUM, 10s. 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

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PLANTAIN and DAISY EXTRACTOR.

The most Simple Invention before the Public.

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Plantain, &c., removed Without Destroying the Lawn.

Carriage Free of the Patentee, 4s. 3d. and 5s. 3d.

A. F. HURRY, Pampesford, Cambridge.

Wholesale Agent THOS. TILLEY, 12, Walbrook, London, E.C.; BEALE AND CO., Cambridge.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.

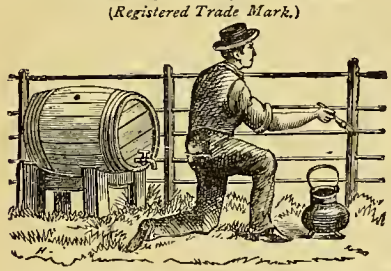
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

PAINT.—Large quantity for sale, specially prepared for Horticultural Buildings, Greenhouses, &c., 2½d. per lb.—all colours. Improved Zinc White Paint, 4½d. per lb. Cash.—A. LEETE & CO., 129, London Rd., Southwark, S.E.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone.

(*Registered Trade Mark.*)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

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H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.

TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 2d. per yard; 100 yards, 16s. 4 yards wide, 4d. per yard; 50 yards, 16s.

NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.

TIFFANY, 5s. and 6s. per piece of 20 yards.

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RAFFIA FIBRE for Tying.

TANNED GARDEN NETTING, SCRIM CANVAS and TIFFANY, SEED BAGS and SACKS, TARPAULINS and HORSE CLOTHS. Descriptive Catalogue post-free on application.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London.

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MARQUEES and TENTS, SECOND-HAND GOVERNMENT TENTS, 45 feet round, complete, 35s., suitable for the Garden, Cricket Clubs, &c.

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SHADING MATERIALS.—A large stock of TIFFANIES, CANVAS, NETTING, &c., of the best known makers, at special Prices to the Trade.

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RAFFIA FIBRE.—RUSSIA MATS.—We beg to offer tu the Trade Raffia direct from Madagascar, at wholesale price. We can offer Russia Mats to the Trade at very low prices this season.

MARENDAZ AND FISHER,

Russia Mat Warehouse, James Street, Covent Garden, W.C.

HAY RICK CLOTHS.

To cover 20 loads 20 feet by 24 feet,				£2	13	2
To cover 25	,,	24 ,,	by 30 ,,	3	15	2
To cover 30	,,	30 ,,	by 30 ,,	4	14	5
To cover 35	,,	30 ,,	by 34 ,,	5	7	3

All other sizes at proportionate rates. Carriage paid to any railway station in England. Terms, cash. Samples on application.

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HORTICULTURAL WINDOW GLASS,

15-oz. and 21-oz., in Boxes containing 200 feet.

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B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting up purposes, in 200-ft. and 300-ft. cases.

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SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz.,	300 feet,	30s. 0d.,	if 21-oz.,	200 feet,	30s. 0d.
Fourths ..	,,	,,	34s. 6d.	,,	,,	34s. 6d.
Thirds ..	,,	,,	38s. 6d.	,,	,,	38s. 6d.
Seconds ..	,,	200 feet,	42s. 0d.	,,	,,	48s. 6d.
Best ..	,,	,,	51s. 0d.	,,	,,	61s. 0d.

Also 26-oz., 28-oz., and 32-oz. Glass.

SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½	× 5½	.. 8s. 6d.,	9s. 6d.,	10s. 6d.,	11s. 6d.
8 × 6 to 10½	× 8½	.. 9s. 0d.,	10s. 0d.,	11s. 0d.,	12s. 0d.
11 × 9 to 14	× 10	.. 10s. 0d.,	11s. 6d.,	12s. 6d.,	13s. 6d.
15 × 10 to 18	× 12	.. 11s. 0d.,	12s. 0d.,	13s. 0d.,	14s. 0d.
20 × 12 to 20	× 18	.. 11s. 6d.,	12s. 6d.,	13s. 9d.,	15s.; if

21-oz., 14s., 15s. 6d., 17s. 6d., 19s.

SHEET LEAD, WHITE LEAD, OILS, TURPENTINE, and COLOURS.

Gentlemen's Gardeners, Amateurs, and Others

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TILE PAVEMENTS, for Conservatories, Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.

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VASES, PEDESTALS, FOUNTAINS, GARDEN EDGINGS, &c.,

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PLAIN AND ORNAMENTAL PAVINGS; TILES FOR LINING WALLS OF Conservatories.

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Table Decorations and Vases, Fountains, &c., for the Conservatory, in

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Show Rooms, Albert Embankment, S.E.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

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SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

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KENT PEATS or LOAM supplied at lowest rates in any quantities.

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For HOUSES, YARDS, GARDENS.

For WATER or LIQUID MANURE.

For TANKS or WELLS of any depth.

Supplied with Pipes ready for fixing.

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Pump Manufacturer,

BISHOP STORTFORD.

2-WHEEL HAND GAPPING DRILLS.

Will sow every description of Farm and Garden Seeds.

There is no spring and slide to get out of order and damage the seed, being worked by a brush. The rows can also be put in at equal distances without a line.

Price, with 2 wheels, 20s. each.
,, with 1 wheel, 16s. each.
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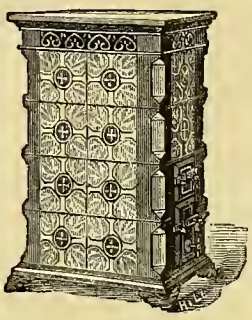

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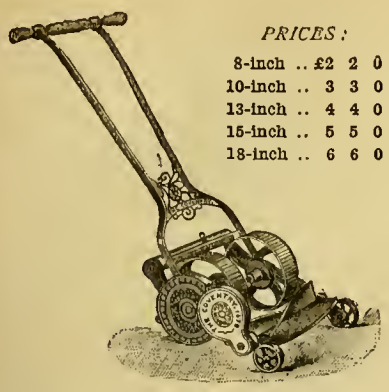

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13-inch ..	4 4 0
15-inch ..	5 5 0
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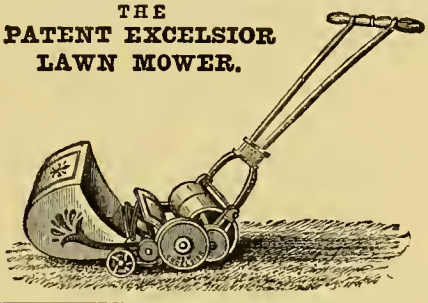

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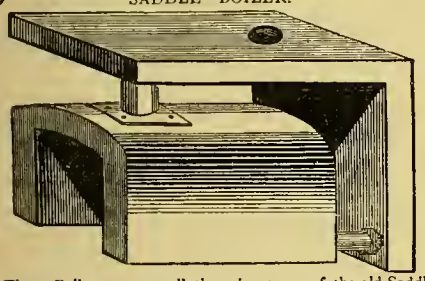

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Elbows (No. 12)—	,, 1 1	..	,, 1 8	..	,, 2 0	,,
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Pipes (6 ft. long)—	2-in., 1 5	..	3-in., 2 3	..	4-in., 2 11	each.
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Elbows (No. 3)—	,, 0 8	..	,, 0 10	..	,, 1 0	,,
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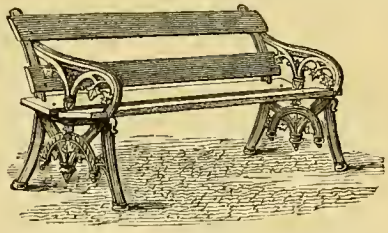

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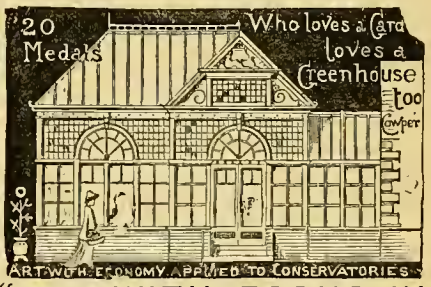

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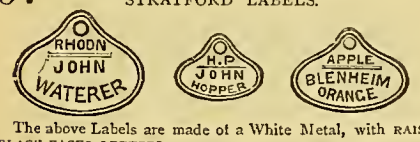

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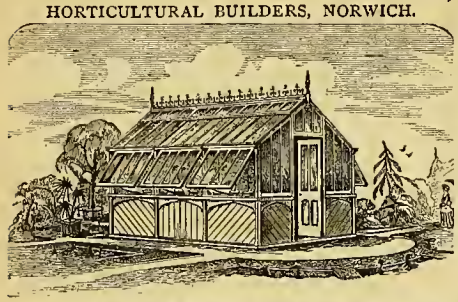

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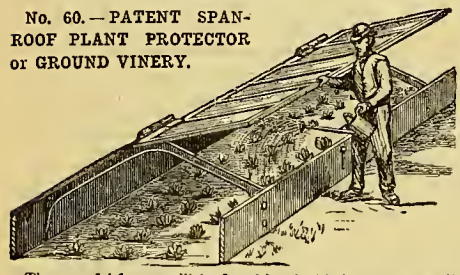

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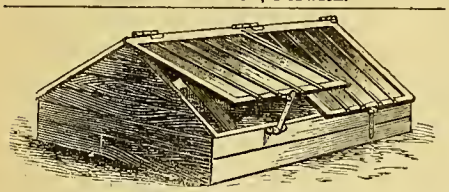

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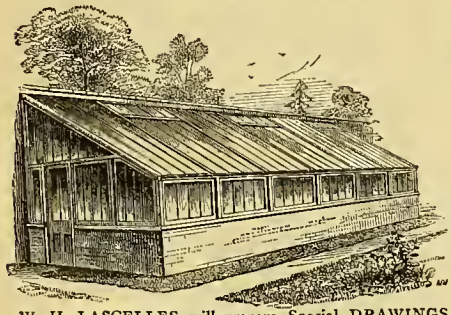

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THE

GARDENERS' CHRONICLE.

Established 1841.

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SUTTONS' CINERARIA. THE BEST.
"The best I have seen, both for variety of colour and size of flower."—J. R.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' PRIMULA. THE BEST.
"The admiration of all who see them."—W. P. J.
Price 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' BEGONIA. THE BEST.
"The form, size, substance, and colour of the flowers are perfect."—W. H.
Price 2s. 6d. and 5s. per packet, post-free.

SUTTONS' GLOXINIA. THE BEST.
"The Gloxinias are really magnificent."—W. M.
Price 2s. 6d. and 5s. per packet, post-free.

SUTTON AND SONS,
The Queen's Seedsmen,
READING, BERKS.

The Very Best Selections.
CALCEOLARIA, CINERARIA, PRIMULA, GLOXINIA, BEGONIA, each, 1s. 6d., 2s. 6d., and 5s. per packet. These, as well as Seeds of all sorts, of best quality, post and carriage free.
JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

LILY OF THE VALLEY.—Best and earliest variety for forcing. Strong single crowns. Early orders will oblige.
SEEMANN AND GOEPEL, Wandsbeck, near Hamburgh.

LAPAGERIA ALBA, the finest and largest stock in Europe, strong hardy plants which have been wintered in cold frames, from 15s. to £15 15s.
LAPAGERIA ROSEA, good specimen plants, from 21s. to £10 10s. each. The Trade liberally treated, for cash.
W. HOWARD, Southgate, N.

DUTCH BULBS.—Cheap Route.—Buyers when ordering should request the Growers to Consign them to
WATSON AND SCULL, 90, Lower Thames Street, London, E.C., Forwarders to all parts of the World; they will then secure speed with cheapness.

GERANIUMS.—The best of the New, all that took Prizes or Certificates.—Denny's Romeo, Dudu, &c., eight varieties, post-free, for 6s.; Catlin's (Carter & Co.), five varieties, for 4s.; Cannell's, ten varieties, for 7s. 6d.; Pearson's, ten varieties, for 7s. 6d.; Cuttings half-price. All the best Doubles in Cultivation. Also PELARGONIUMS Regal and others. See CATALOGUE.
RICHARD PANNETT, Nurseryman, Chailey, Sussex.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

Bedding Plants for the Million.
JAS. HOLDER AND SON can supply strong, healthy Plants of Scarlet and Variegated GERANIUMS, VERBENAS, GAZANIAS, AGERATUMS, LOBELIAS, Single PETUNIAS, DAHLIAS, SALVIAS, CHRYSANTHEMUMS, FUCHSIAS, HELIOTROPES, IRESINES, MESEMBRYANTHEMUM, CINERARIA MARITIMA, &c. Eight dozen for 20s.; box and packing free. Cash with order. Crown Nursery, Reading.

To the Trade.
RAPE SEED and WHITE MUSTARD.
H. AND F. SHARPE will be pleased to submit SAMPLES of the abovenamed SEEDS, of the finest quality, and at very moderate prices.
Seed Growing Establishment, Wisbech.

FLORAL COMMISSION AGENCY.—Nurserymen and Gentlemen having a surplus quantity of choice FLOWERS and FRUIT, are requested to communicate with W. CALE, Commission Agent, 4, Tavistock Row, W.C.

WANTED, CONSIGNMENTS of PEACHES and other FRUITS, CHOICE CUT FLOWERS, CUCUMBERS, TOMATOS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WARREN AND CRAIK require MARÉCHAL NIEL and WHITE MOSS ROSES, not for Commission.
43, Jermyn Street, St. James, London, W.

WANTED, good STRAWBERRY RUNNERS (true), of Sir Charles Napier, for forcing. Send sample and lowest cash price per 1000, to
H. BENNETT, Shepperton, Walton-on-Thames.

MORRISON WOOD AND CO., WHOLESALE Manufacturing Confectioners, The Abbey Steam Works, Stratford, E., are open to BUY for Cash, RASPBERRIES and ALL OTHER FRUITS for Preserving purposes, and will be glad to receive offers from Gardeners and Dealers.

Double-flowered Bouvardia, Alfred Neuner.
MR. WILLIAM BULL can now supply this pretty and desirable novelty, as announced by him last January, by the dozen or 100, at 10s. 6d. each.
Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

LOMARIA GIBBA for SALE.
6 dozen in 48's, large furnishing stuff.
R. FARRANCE, Florist, Chadwell Heath, Essex.

DOWNIE AND LAIRD beg to intimate that their splendid collections of Show and Fancy PANSIES, also VIOLAS, are now in full flower. Inspection invited at Pinkhill, near Edinburgh.

To the Trade Only.
E. H. KRELAGE AND SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland. The Wholesale CATALOGUE (No. 353A) of Dutch Flower Roots, and miscellaneous Bulbous and Tuberous-rooted Plants for 1881-82 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

POT ROSES and CLEMATIS.—A large and very extensive collection of the above, including the finest varieties, now ready. Orders respectfully solicited.
W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester.

ROSES.—Cut Blooms can be supplied every morning by the doz. or 100. About 30,000 trees to cut from. Write and ask price.—W. LOWE, Nurseryman, Beeston, Notts.

PRIMULAS.—Good plants of the best strains only—Williams', Bull's, &c.—8s. per 100, or 70s. per 1000.—W. JACKSON, Blakedown, near Kidderminster.

Primulas — Primulas — Primulas.
Twelfth Year of Distribution.
WILLIAMS' superb strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS same price. Package and carriage free.
The above are quite equal to those I have sent out in previous years. Cash with order
JOHN STEVENS, The Nurseries, Coventry.

Gardenia intermedia.
MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

Hyacinths, Tulips, &c.
BUDDENBORG BROTHERS, Bulb Growers, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

Orchids, &c.
THE NEW PLANT and BULB COMPANY'S SPECIAL LIST (No. 51) is just published. Post-free on application.
Lion Walk, Colchester.

CHRYSANTHEMUMS (Summer Flowering Section).—SNOWFLAKE (White): large quantity, in 48's and 60's. MADAME C. DESGRANGE (White with Lemon Centre); large, after the way of Elaine, but dwarf, early, and robust; strong plants in 48's or 60's. Prices on application.
W. C. WATSON AND SONS, Marlborough Nursery, 57, Halliford Street, Islington, N.

RAPE and MUSTARD.
Samples and prices on application to
CHARLES SHARPE AND CO., Sleaford.

STRAWBERRIES.—Strong roots for fruiting next year. 4s per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

STRAWBERRY RUNNERS.—Strong, healthy, and well-rooted, from twenty of the best varieties in cultivation. Price LIST, &c., on application.
Manual on Strawberry Culture, with Sample Box of Plants and Fruit, post-free 1s.
W. LOVEL & SON, Strawberry Farmers, Weaverthorpe, York.

CRESS SEED, new crop, for Sale; also CAULIFLOWER PLANTS (Veitch's Autumn Giant), 6s. per 1000. Cash.
FREEMAN AND FREEMAN, Seed Growers, Norwich.

PLANTS.—Nonpareil CABBAGE, Hardy Green COLLARD, and Sprouting BROCCOLI—in any quantity; well-rooted and guaranteed good Plants in every respect, 2s. 6d. per 1000; packages 1s. extra, (returnable). Post-office Order or Cheques with Order to
R. BATH, Crayford, S.E.

SALES BY AUCTION.

Wednesday Next.
CATTLEYA AUREA and OTHERS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, July 20, at half-past 12 o'Clock precisely, by direction of Messrs. Shuttleworth, Carder & Co., 191, Park Road, Clapham, S.W., a grand importation of ODONTOGLOSSUM CRISPUM, VEXILLARIUM, PESCATOREI, and PHALÆNOPSIS; CATTLEYA AUREA, imported last Autumn, and breaking freely; also two beautiful varieties of CATTLEYA GIGAS—all in good condition.

May be viewed the morning of Sale, and Catalogues had.

Cattleya Mossiæ.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 21, at half-past 12 o'Clock precisely, a large importation of CATTLEYA MOSSIÆ, and its varieties. Collector writes:—"Among the Cattleyas are a quantity of a beautiful variety of Mossiæ, which has a certain likeness to Trianæ; the labellum is much frilled, deep yellow in the interior, dark red in the middle, with a blush or rather white border. It is a variety flowering in February." Many of the above are in large masses.

On view the morning of Sale, and Catalogues had.

Epidendrum bicornutum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 21, at half-past 12 o'Clock precisely, an excellent importation of this lovely and scarce ORCHID, many of them in magnificent large masses.

On view morning of Sale, and Catalogues had.

Dendrobium canaliculatum and Bletia Blumei.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Gardens, W.C., on THURSDAY, July 21, at half-past 12 o'Clock precisely, an importation from Queensland of the New DENDROBIUM CANALICULATUM, which gives many fine spikes on a plant, with from forty to fifty flowers on each spike; it is very free blooming, and the flowers deliciously fragrant. Also some good Tubers of the pretty and rare BLETIA BLUMEI, with pink coloured flowers.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 21, at half-past 12 o'Clock precisely, a collection of ESTABLISHED ORCHIDS, including many choice and rare kinds, among them the following:—

Cattleya Trianæ Atalanta	Masdevallia trochilus
,, Lawrenciana	,, Harryana sanguinea
,, Mossiæ alba	,, Backhousiana
,, gigas	Saccolabium Hendersonianum
Lælia anceps alba	Cypripedium Spicerianum
Odontoglossum corradine	Aerides Huttoni
,, facetum, new	Angræcum falcatum variegatum
Batemannia Burtii	,, grandiflorum
Calanthe pleichroma	,, sesquipedale
Cœlogyne asperata	Cymbidium Hookerianum
Dendrobium Smilliæ	Lælia anceps alba
Dendrochilum filiforme	Masdevallia Wallisii
Odontoglossum polyxanthum	Oncidium sessile
Cypripedium Druryi	Cattleya Warneri
Odontoglossum Andersonianum	Odontoglossum Chestertoni

On view morning of Sale, and Catalogues had.

The Concluding Portion of the celebrated Collection of ORCHIDS, of JOHN DAY, Esq., of Tottenham.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 28, at half-past 12 o'Clock precisely, the concluding portion of the celebrated collection of ORCHIDS of John Day, Esq., of Tottenham, comprising amongst other fine things the following:—

Aerides nobile	Lælia anceps alba
Odontoglossum Edwardi	Anguloa eburnea
Cattleya gigas	Phalænopsis Manni
Vanda Parishii	Dendrobium Schrœderi
Dendrobium Ainsworthii	Lælia anceps Dawsoni
,, Gouldianum	Cymbidium affine

On view the morning of Sale, and Catalogues had.

Monday Next.
IMPORTED and ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, at 12 o'Clock precisely, about 400 Lots of ESTABLISHED ORCHIDS, from various collections, amongst which will be found a few plants of the scarce Phalænopsis sumatrana, P. casta, Odontoglossum Andersonianum, Angræcum sesquipedale, Dendrobium Ainsworthii roseum, and many other rare species. Also 800 Lælia majalis, being the remainder of a consignment received direct from Mexico for unreserved sale.

Catalogues at the Mart, and 8, New Broad Street, E.C.

WANTED, a SEED BUSINESS, in a Country Market Town. Moderate ingoing. Address, with particulars,
No. 10, KEITH AND CO., George Street, Edinburgh.

WANTED to RENT, on Lease, a NURSERY, within 12 miles of London, with some Glass upon it, or about 2 acres of Land suitable for same. Send lowest terms to
F. H. ELY, Estate Agent, Wimbledon, Surrey.

Florist and Grape Business for Sale.

FOR SALE, by Private Bargain, the GOODWILL, FITTINGS, and STOCK, of that Old-established FLORIST BUSINESS in Kilmarnock, Ayrshire, carried on by Mr. Francis Findlay. The Greenhouses, Vineries, &c., which have been rebuilt within the last 6 years, amount per valuation to £586, and the Stock, including Plants, Vines, &c., to £178 12s. The Ground is held on feu, and will be conveyed to a purchaser. Offers will be received up to the 22d current by the Subscribers, in whose hands also the Valuations can be seen.

The Premises will be shown either by applying to the PROPRIETOR at the Nurseries, or RANKIN AND STEVENSON, Solicitors, 5, Portland Street, Kilmarnock.

FOR IMMEDIATE DISPOSAL, the LEASE and STOCK of a SMALL NURSERY, about three-quarters of an acre. Excellent situation, improving neighbourhood. Apply to
E. CHITTY AND SON, Seedsmen and Florists, Highgate, N.

TO LET, a SEED BUSINESS, in one of the principal thoroughfares in Bristol—Shop and Warehouse together. Rent moderate.
Apply to R. G. FORTT, Seed Merchant, Bristol.

ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY.
GRAND SUMMER SHOW of PLANTS, FRUIT, VEGETABLES, BEES, HONEY, and BEE FURNITURE, JULY 31 and AUGUST 1. THREE HUNDRED and FORTY POUNDS in PRIZES. ENTRIES CLOSE positively Monday, 25th instant. Schedules and Entry Forms of
C. S. FUIDGE, Secretary.
39, York Street, Lower Avenue.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.
GRAND ANNUAL AUTUMN EXHIBITION, WEDNESDAY and THURSDAY, September 14 and 15, at the Royal Pavilion. FIVE SILVER CUPS offered for miscellaneous Groups of Plants, Ferns, &c., Double-flowered Zonal Geraniums, and Fruits. Schedules of Prizes will be ready shortly, and can be had of the Secretary, or of the Superintendent, Mr. E. Spary, Queen's Graperies, Park Street. By Order
EDWARD CARPENTER, Secretary.
Secretary's Office, 96, St. James' Street, Brighton.

NEW DOUBLE WHITE BOUVARDIA, "ALFRED NEUNER."
The following is the Raiser's Description:—"This is a gem of the first water, equal, if not superior, in profuse blooming quality and vigorous healthy growth to the valuable single white variety, Davidsonii. The flowers are rather larger than those of the single-flowering, and composed of three perfect rows of petals of the purest waxy-white colour, each floret resembling a miniature Tuberose. The trusses are large and perfect, and are freely and without interruption produced, even on the small side shoots. This double Bouvardia will prove indispensable in all fine cut-flower work."
Orders now being Booked for Execution in strict Rotation. Stock limited. Price, 10s. 6d., 15s. and 21s. each. Usual discount to the Trade.
Sole Agents in Great Britain:—JAMES CARTER AND CO., The Queen's Seedsmen, 237 and 238, High Holborn, W.C.

ROSE BLOOMS.—Rose Blooms of best quality, at 7s. per 100. Cash with all orders.
EDWIN HILLIER, Winchester.

Mangel Wurzel Seed.

JOHN SHARPE is now prepared to supply samples and special quotations to the Trade.
Bardney Manor, Lincoln.

To the Trade.—Roses, &c.

CHARLES WILSON, of Summerhow Nurseries, Kendal, begs to offer to the Trade and large Buyers generally, Tea, Noisette, and China ROSES, in 4½-inch pots, at £3 3s. per 100, or £28 per 1000, purchaser's selection. C. W. having many thousands in stock, they cannot fail to give satisfaction. Also Scarlet, White, and Pink BOUVARDIAS, mixed, at 6s. per dozen, now ready for shifting into 4½-inch pots, being in 3-inch pots for convenience of carriage. ADIANTUM CUNEATUM, at 25s. per 100, or £10 10s. per 1000. Orders booked for Double White PRIMULAS, to be delivered in August. Price on application. An inspection of his large Stock and extensive Nursery is respectfully solicited. Plants given to compensate for carriage. CATALOGUE on application. Please note the address—SUMMERHOW NURSERIES, KENDAL.

TO THE TRADE ONLY.
PRIMULA SINENSIS, double white, 6s. per doz., 40s. per 100.
,, double lilac, in variety, 9s. per dozen.
CLOYE CARNATION, Dimmick's pure white, hardy and very free, 25s. per 100.
LYCOPODIUM KRAUSSIANA AUREA, vigorous habit, golden-yellow, and quite constant, 6 to 9 plants in a pot, 4s. per dozen pots.
We have a large stock of these three articles, and the plants are all good. Orders will be supplied in rotation as received. Cash with order from unknown correspondents.
C. DIMMICK AND SONS, Nurserymen, 146 and 147, High Street, Ryde, Isle of Wight.
N.B. Carriage paid to Portsmouth.

Wholesale Trade Only.
We offer, for the Autumn of 1881,
CONVALLARIA MAJALIS (Lily of the Valley), first quality, 700 for 30s., carriage paid to the frontier. Stock half a million. Three months' credit; two per cent. discount for cash.
HEUER AND STARK, Nurserymen, Eimsbuttel, Hamburg, Germany.

The Future Bedding Zonal.

HENDER'S CRIMSON VESUVIUS.—Sport from Vesuvius; Trusses much larger, and of splendid form; Colour, rich crimson, similar to Dr. Denny's Commander-in-Chief, or Keynes' Fire King.
"Judging from the immense size of the truss of your new Vesuvius, and the colour of the flowers (a fine deep crimson), I have no doubt but what it is a great improvement on the old Vesuvius."—W. PATERSON, *Gr. to* Her Majesty the Queen, *Balmoral Castle, May* 2, 1881.
List of Testimonials, post-free. 5s. each. To be sent out early in August. Usual discount to the Trade.
HENDER AND SONS, Bedford Nursery, Plymouth.

A. M. C. JONGKINDT CONINCK begs to call attention to his large stock of
DIELYTRA SPECTABILIS
LILIUM AURATUM } Home-grown
,, MARTAGON }
SPIRÆA ARUNCUS
,, FILIPENDULA, fl.-pl.
,, JAPONICA
,, PALMATA
,, ,, ELEGANS
TRADESCANTIA VIRGINICA, in four varieties
TROPÆOLUM SPECIOSUM
And many other Hardy BULBS and FLOWER ROOTS, which he offers at very low prices.
Dedemsvaart, near Zwolle, Netherlands.

Dutch Bulbs.
To SUPPLY the TRADE.
SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, beg to announce that their Crops of HYACINTHS, TULIPS, &c., look very fine.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
☞ Please observe Name and Address.

GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE,
3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.: 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
Fresh SPHAGNUM, 10s. 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

COCOA-NUT FIBRE REFUSE, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; or vanload of loose, about 100 bushels, delivered free within 4 miles of London Bridge, 15s.; truckload of about 250 bushels, £1 3s. (truckload free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order.
CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

HURRY'S
PLANTAIN and DAISY EXTRACTOR.
The most Simple Invention before the Public.
Over 2000 Sold last Season.
Plantain, &c., removed Without Destroying the Lawn.
Carriage Free of the Patentee, 4s. 3d. and 5s. 3d.
A. F. HURRY, Pampesford, Cambridge.
Wholesale Agent THOS. TILLEY, 12, Walbrook London, E.C.; BEALE AND CO., Cambridge.

Great Success of
SMITH'S WEED KILLER.—The only way to keep your carriage drives and gravel walks free from weeds is to use Smith's Weed Killer, a liquid preparation which, when mixed with cold water and applied with an ordinary watering-can, will prove thoroughly destructive to all vegetable growth. Testimonials from all parts of the United Kingdom.
Prices:—4 gallons, sufficient to make 100 gallons when mixed, 7s. 6d.; 16 gallons, to make 400 gallons, 28s.; 40 gallons, to make 1000 gallons, £3 5s. Carriage paid to all stations. Iron drums allowed full price on return. Address
MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

Hooper's—
The Covent Garden Seed Warehouse
SUPPLY EVERY GARDEN REQUISITE
In the Highest Quality.
Also every Good Thing Advertised.
CATALOGUES READY.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the latber into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

NEW HOYA.

HOYA GLOBULOSA (HIGGINSII).

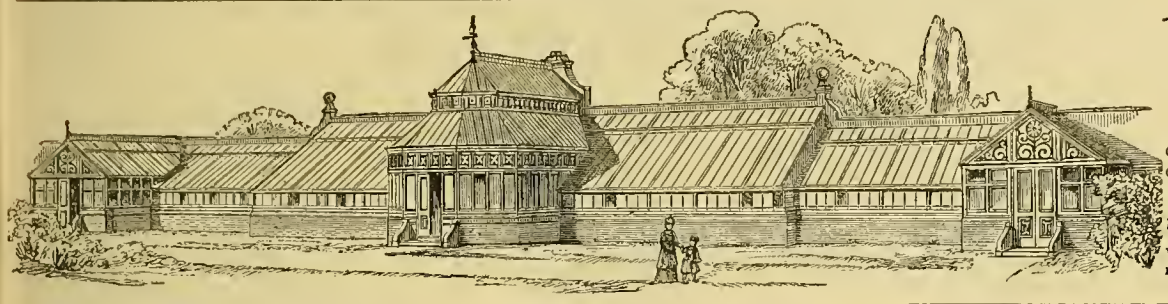
"Under the name of Hoya globulosa, Cranston's Nursery and Seed Company, Hereford, exhibited, at the meeting of the Royal Horticultural Society, on April 13, 1880, a charming Hoya, so pretty and distinct as to merit and receive a First-class Certificate of Merit.

"We can confidently recommend is as a most useful and valuable plant, blooming profusely and thriving well under the same treatment as other Hoyas. The flowers are of a bright straw colour, the coronal protuberances white, the interstices of a shining brownish-pink, forming a very pleasant contrast; the trusses large and freely produced; and the leaves of a shining green colour, with dark green veins." *Floral Magazine.*

Strong Plants, now ready, 10s. 6d. and 15s. each.

TRADE PRICE ON APPLICATION. COLOURED PLATES ONE SHILLING EACH.

CRANSTON'S NURSERY & SEED CO. (Limited),
KING'S ACRE, near HEREFORD.



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Horticultural Buildings of every description made, erected, fitted, and heated.
Estimates and Plans gratis.
"Art with Economy," Part I., Illustrated, post-free, 12 stamps.
Mr. Fawkes' New Illustrated Work of Reference on Horticultural Buildings, post-free, 10s. 6d.
Prospectus sent gratis.

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1 Cwt. and Oil Mixture Carriage Free.

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WOOD, IRON, BRICK, STONE and COMPO, CONSERVATORIES, GREENHOUSES, FRAMES, &c.
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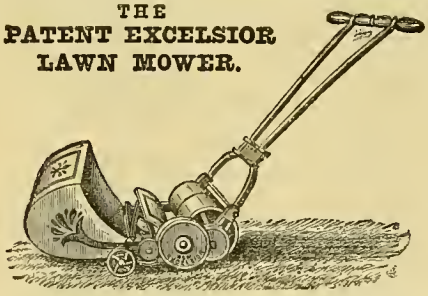

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THE

Gardeners' Chronicle.

SATURDAY, JULY 16, 1881.

THE NATIVE PINE OF SCOTLAND.

ONE of the heraldic badges of the Earl of Seafield is, I believe, a Pine tree, and one more appropriate could hardly be imagined, for the late Lord Seafield was the greatest planter of Pine woods in that part of Scotland where the Pine named after the country formed a primeval forest, and where at the time of my visit the Earl's Pine woods and plantations covered 40,000 acres, and were to be extended up to 60,000 acres.

In the last century, before the native woods of Scotland had been thinned, or a market found for their produce, they were useless to their proprietors, and were allowed to rot in the ground like the timber of a South American forest. But the time arrived when a trade sprang up, and when all Pine woods within reach of water carriage acquired a value. In 1730 the York Building Company laid out £7000 in Pine timber which grew on the banks of navigable streams, and which they worked up by saw mills and transported in floats to the coast. This was the first tapping of the native Pine woods of Scotland, and since that time the proprietors have continued the clearance of timber as opportunity offered, and new plantations have been formed. "Do you call this a forest?" said a southern gentleman who found himself on a bare Scotch moor. "Where are the trees?"

Hundreds of thousands of acres of bare moor or forest have been planted within the past forty years, and in fact at any time since the great planter, the Duke of Athole, set the example. We may hope that the new forests will enrich their owners like the old ones. In 1786 the Duke of Gordon sold Glenmore Forest to an English company for £10,000, and a number of trading vessels and a frigate named the *Glenmore* were built of the timber. The size of the timber enabled the Company to present the Duke with a plank nearly 6 feet in breadth. Some of the trees measured 15 feet and 20 feet in circumference, but they were not, of course, tall plantation Pines, but forest trees with short trunks. There are many remains of the ancient forests in different parts of the Highlands, especially those of Glenmore, the forests of Braemar and Invercauld on the Dee, and Lord Seafield's Abernethy and Rothiemurchus forests on the Spey; and notwithstanding the destruction just referred to, the area of Pine woods is now greater than at any previous time—thanks to the planters!—and one acre of planted Pine yields as much timber as several acres of natural forest.

I measured some trees near Lord Seafield's house about 80 feet above the Spey and 400 feet above the level of the sea, on dry, sandy, porous soil, in two plantations of seventy years' and eighty-three years' growth respectively. At 6 feet above the ground the girth of four of the younger trees was 8 feet 5 inches, 6 feet 4 inches, 7 feet 1 inch, and 6 feet 5 inches; that of four older trees was 9 feet 6 inches, 9 feet, 9 feet 8 inches, and 8 feet 4 inches. They

diminish in girth very gradually, and are good timber up to a height of 75 feet and 80 feet. When a plantation has reached its maturity the trees will stand probably from 17 feet apart—which will give 150 trees per acre—to 14½ feet apart, which will give 207 trees per acre. The plantations require from sixty to seventy years to mature. The plants are set, in a young plantation, at 4½ feet apart, giving 2151 plants per acre. They are thinned at seventeen years old, and again at from twenty-five to thirty-five years old.

In this district the Scotch Pine becomes a bush in exposed localities at about 2500 fee above the level of the sea, but the climate improves with the planting, and as one plant nourishes another in a young plantation so one wood nurses its neighbour. I walked through some young plantations 2000 feet above the sea, situate behind Kinvachie Lodge a shooting box on this estate, where the trees are thriving and promise timber of fair size owing to the improvement of the climate by the extensive new plantations lower down: some capital young plantations had made an annual growth of from 16 inches to 22 inches.

It is curious to observe how self-sown Pine trees are at the present time climbing some of the hill sides, a phenomenon which the foresters explain in this way. Formerly, they say, a native forest covered the lower levels and seed was blown or scattered over the slopes. The ascent of the hills is rendered possible by the shelter afforded by the advanced guard of Pine trees in their ascent. Slowly, and with much apparent circumspection, the young plantation climbs out of the valley, and at each advance fresh seedlings spring higher and higher up the hill under the shelter which each advancing crop affords.

The planting of moorlands is effected by the customary method of "slitting," and three-year-old plants are preferred, one-year seedlings, one year bedded and one year transplanted. In the Abernethy district, near one of the saw-mills where the Pine is converted into sleepers, staves, scantlings, and sawn timber for buildings of all kinds, Mr. Samson, the forester, showed me at his house a nursery of 13 acres containing 3,000,000 of Scotch Fir plants. The site is about 800 feet above the level of the sea, and is excellent for hardening the young plants, but not for bringing on the seedlings, and therefore the whole of the seed collected on the estate is sold to nurserymen at Forres, Inverness, and Edinburgh, from whom the seedlings are repurchased and planted here. Planters should be careful to obtain the true native Scotch Pine, like that of the Forest of Abernethy, which is said to excel any other variety in Britain.

In this great natural and partially replanted forest we wandered all day, with squirrels, red deer, and black game for our companions. The capercailzie, which formerly frequented this part of Scotland, has entirely disappeared. Some parts of the forest are as wild and picturesque as the Black Forest itself, and here and there we stumbled upon Swiss scenes, hills and hollows all planted with Fir, Fir trees above, Fir trees below, generally erect, but here and there upset by the wind, and lying in picturesque confusion with their uptorn roots exposed. A great storm of wind entered the forest, January 24, 1868, and uprooted a number of trees. In a deep hollow, amid Scotch Fir trees, standing and overthrown, we surprised some red deer and a calf. They were off instantly in haste, but stopped after a short run behind the fangs of an upturned Pine, where they stood with their long necks bent and stretching to examine us. I had always thought the Scotch Pine a shallow-rooting tree, and had often observed what a thin cake of root-bound earth attaches to the butt of a Fir tree which has been torn up by wind. In this porous soil, on the contrary, the Scotch Pine sends down its roots to a great depth. Many of the upturned fangs, drawn vertically out of the subsoil, are 6 feet long, and the broken fibrous roots below them must have extended 3 feet deeper into the ground.

The magnificent growth of the timber is no doubt due to the depth of root-hold. The butt of an uprooted tree which I measured reached 11 feet in circumference, and at 5 feet from the ground the tree would have measured at least 9 feet. The produce of the compact sands which prevail in many districts could not possibly attain such a growth in plantations for want of sufficient root-surface and feeding ground. Roots can only penetrate deeply when drawn down by moisture taking air with it. Circumstances here enabled them to do this to a depth of 10 or 12 feet. The soil consists of decomposed gravel and coarse sand, forming porous beds, in which the mountain rills reaching the valley from the boundary ranges sink and are swallowed up, and reach the Spey by percolation through the subsoil, without visible current. As every inch of soil over an acre of land weighs a hundred tons, the Pine forests here enjoy 7000 or 8000 tons more feeding ground per acre than in other districts.

At the hill called Tom Gown we received an answer to the question whether Nature or the late Earl and his wood manager, Mr. J. Grant Thomson, is the better planter, with a view to the quantity of produce. The native forest was cut fourteen years ago, and Tom Gown now bristles with a Nature-sown crop in patches of very unequal size and growth. They look exceedingly well, and from the artist's point of view are preferable to a full crop, which would obscure rather than adorn Tom Gown's rugged features. But from a planter's point of view the case is different, since there is not at present half a crop. We passed Feroch, and then entered the glades of Lyn Garrie Banks to visit a patriarch. Standing there in her own department Nature is triumphant. She planted this tree two centuries ago, and no bare stick of the plantations, though standing 80 feet high (which is tall for a Scotch Pine) can vie with it. The forest Pine, standing alone and assuming its natural shape, is altogether different from the trees which have lost their side branches from growing near together. The trunk of this specimen tree in Abernethy Forest is rough and squat, and furnished with a gigantic head and a tangle of branches fit only for firewood. Its appearance is magnificent. The branches extend to a height of 65 feet, the trunk measures 12 feet 5 inches in circumference. It stands 900 feet above the level of the sea. Notwithstanding that the amount of timber may be in proportion to the expanse of foliage, it would be evidently bad economy on the part of planters of the Pine to allow it to retain and develope its side branches, and in the course of two centuries to expand a gigantic short trunk and wide-spreading head full of knots and firewood instead of timber. The plantation system, and the gradual destruction of the side branches developing the upward habit of growth and timber without knots, comparatively small in size, but six times as long as that of trees standing at wide intervals, is the most profitable plan.

The largest plantation tree in Lord Seafield's Strathspey property, called the "King of the Firs," and standing in Milton Park, near Castle Grant, measures 8 feet 8 inches in girth at 5 feet from the ground. It stands a gently tapering pillar of 60 feet, with 15 feet of branches in the head. A forest Pine in Balloch Buie measures 14 feet at 6 feet, and stands 60 feet high to its topmost branch. The largest of the forest Firs measures 17 feet 9 inches, and stands 60 feet high. The Scotch Pine, therefore, stands about 40 feet lower than the Larch, Silver Fir, and Spruce. I ought perhaps to add that among the enemies of the Pine, in addition to squirrels and rabbits which bark the young trees, are blackbeetles and similar pests, which destroy the young shoots. Mr. Grant Thomson enumerated among useful birds in the plantations the woodpecker, starling, chaffinch, sparrow, goldfinch, greenfinch, tomtit, swallow, wagtail, thrush, robin, redstart, titmouse, blackcap, nuthatch, flycatcher, whitethroat, and wren. Mr. M. Dunn, of the Palace Gardens, Dalkeith, read a paper to the Scottish Arboricultural Society in 1876 (*Journal* of the Society, p. 471) on "The Insects Injurious to Forest Trees and their Remedies."
A Planter from the South.

New Garden Plants.

ZEPHYRANTHES MACROSIPHON, *Baker.**

This is a pretty new Zephyranthes, imported lately by Messrs. Veitch from Mexico. It is one of the largest-flowered species of the genus, in this respect being nearly upon a par with Z. carinata (*Bot. Mag.*, t. 2594), with which it agrees in the bright red colour of its flowers, but from which it may be distinguished at a glance by the short stigmatic lobes, and perianth with a tube as long as the segments.

Bulb ovoid, about 1 inch in diameter, with brown membranous tunics reaching some distance above its top. Leaves 3—4, contemporary with the flowers or a little later, linear, 1 foot long when fully developed, ¼ inch broad, bright green, shallowly channelled down the fall, rather fleshy in texture. Scape terete, about as long as the leaves. Spathe 2-valved, 1½ inch long, tubular in the lower half. Pedicel about 1 inch long. Perianth funnel-shaped, bright rose-red, 2¼—2½ inches long, the obovate obtuse permanently suberect segments as long as the tube, above ½ inch broad. Filaments inserted at the throat of the perianth-tube; anthers linear, ½ inch long, falling short of the tip of the perianth-segments; pollen bright yellow. Style reaching to the base of the anthers, its stigmatic lobes spreading, suborbicular. *J. G. Baker.*

TRICHOCENTRUM PFAVII, *n. sp.*†

This is a lovely novelty; the flowers stand usually in pairs on a raceme, equalling in size those of Oncidium Gardneri. The sepals and petals are spathulate, blunt, half-brown, half-white. The lip is cuneate flabellate, bilobed, crisp, white, with a red blotch on the middle of the stalk, which gives a very elegant appearance. There are two acuminate spreading teeth on the stalk. The rounded oblong wings of the column have a border of brown spots. This is one of the fine discoveries of a new Swiss collector, Herr Pfavi, who kindly sent me a living plant, a nice sketch, and dried specimens from Central America. I dedicate this species, as well as the fabulous Sobralia Pfavii (No. 80), to this ardent and enthusiastic orchidist, with the hope that his difficult task may finally prove to be satisfactory to himself. *H. G. Rchb. f.*

CIRRHOPETALUM ABBREVIATUM, *n. sp.*‡

A curious little Cirrhopetalum, with the usual small trigonous bulbs, ordinary leaves, a very short peduncle, much shorter than the leaves, few small flowers, with cohering, short, blunt, broad lateral sepals. The triangular, subulate, fornicate upper sepal and the tepals ciliate. Tepals and lip purple. Other parts of the flower white, with numerous small purple spots in rows. Chin very argute, retrorse, very striking. I obtained this in September last from Messrs. Henderson, Pine-apple Nursery, Maida Vale, through the kindness of Mr. James O'Brien. *H. G. Rchb. f.*

* *Zephyranthes macrosiphon*, Baker.—Bulbo ovoideo brevicollo; foliis 3—4 subsynanthiis linearibus vix pedalibus viridibus facie late canaliculatis; scapo tereti foliis æquilongo; spathæ valvis lanceolatis, dimidio inferiori connatis; pedicello pollicari; perianthii infundibularis rosei 2¼—2½ poll. longi segmentis obovatis obtusis tubo æquilongis; antheris linearibus; stigmatibus parvis orbicularibus. *J. G. Baker.*

† *Trichocentrum Pfavii*, n. sp.—Foliis cuneato-ligulatis acutis; pedunculo breviori vulgo bifloro; sepalis tepalisque spatulatis obtusis, labello cuneato flabellato bilobo crispo, carinis dentiformibus acutis geminis in ungue ante basin (et supra maculam purpuream), calcari conico brevissimo; columnæ alis semioblongis ascendentibus. Am. Centr. det. dom Pfau.—*H. G. Rchb. f.*

‡ *Cirrhopetalum abbreviatum*, n. sp.—Pseudobulbis trigonis; foliis cuneato-ligulatis obtuse acutis; pedunculo abbreviato; umbella pauciflora; bracteis lineari-lanceis ovaria pedicellata vix æquantibus; sepalo dorsali triangulo setaceo fornicato ciliato, sepalis lateralibus oblongo-ligulatis obtusis contiguis; tepalis falcatis ciliatis; labello falcato ancipiti columna utrinque obtusangula, mento arguto ungulato retrorso Bulbophyllum abbreviatum. *H. G. Rchb. f.*

Cirrhopetalum trigonopus, *n. sp.**

An elegant small Cirrhopetalum, with triquetrous, sharp-edged bulbs, and cuneate oblong-ligulate leaves. The purple peduncle bears an umbel of flowers with free lateral sepals, an acuminate, fornicate odd sepal and two falcate subulate petals, those and the odd sepal fringed. The ancipitous dark mauve lip is covered by warts. The column has blunt lateral angles. The whole of the flower is washed with a light lilac, and blotches of the same colour are scattered over the lateral sepals.

I obtained good materials from the Pine-apple Nursery of Messrs. Henderson, Maida Vale, through my] excellent correspondent, Mr. James O'Brien. *H. G. Rchb. f.*

SIR WILFRID LAWSON'S GRAPES.

Grape-growing, like most other departments of gardening, has both its ups and downs. We see cultivation in its zenith here one year, there the next, the winner of chief honours for the season having occasionally to "take a back seat," pressed out of position by the superior productions of rival competitors. So it has been in time past, so it is likely to be in time to come. First honours for Grape cultivation seem far more difficult to hold than a front position in any other department of horticultural art where high skill is in demand. The principal reason, at any rate, is quite obvious to every culturist. There must be a certain amount of youth in the Vines to sustain and finish those marvellous examples of cultivation that we have all seen throughout the country, and particularly at those national exhibitions which have given an impetus to the cultural capabilities of the Grape-vine heretofore unknown. There is no doubt that there had been excellent Grapes shown long before the days of Meredith, but to him, I believe, belongs the merit of elevating Grape culture into a science in so far, at least, as finishing and putting upon the table Black Hamburghs such as had not been equalled before his time, and never excelled since. There are other names which must crop up to every pomologist, and every reader of pomological subjects, which have come and gone, as it were, in the race for position during the last twenty years; and it is not to be wondered at, because their Vines, as well as themselves, are getting aged, and the same amount of stamina for first-class production is not in them, crop them as they may. The Vines at Brayton, the country seat of Sir Wilfrid Lawson, M.P., are at a capital age, and in a first-class condition for telling a story about, and here it is.

There is a range of houses which has been previously described in these columns—of six houses, four of them vineries and two Peach-houses, each house measuring 36 feet by 16 feet, or a length of range of 216 feet, with an interior border of about 16 feet, and an exterior one about as broad, and from 3 to 4 feet to the concrete bed. The compost—judging from the crop in all respects suitable—is a sound fibry loam incorporated with bones; no other foreign ingredient. The Vines are single rods, about one under each rafter, the first two houses being nine years planted, the second two houses five years planted. The extreme length of rod, from ground level to top, will be about 20 feet, the houses being lofty, comparatively speaking, and the artificial climate by no means a stifling one.

No. 1 house, commonly called the Black Hamburgh-house, contains eight Hamburghs, two Sweetwaters, and one Duke of Buccleuch. The Hamburgh Vines are certainly remarkable as not only bearing large bunches with very large berries, but carrying a heavy crop. I counted upon one Vine eighteen bunches on a rod not cropped to the top of the house, and these bunches would average 3 lb. each, or a weight on the rod of 54 lb. No one could credit, unless he saw for himself, what marvellously fine Grapes these are, and how well they are likely to finish. It seemed almost a sin to crop a house of Grapes like this, and they were all alike heavy. The leaves of these Vines are not so large as I have seen, but they are of a leathery texture, and clean and beautiful to look upon. The Duke in this house is certainly splendid, bearing eighteen bunches on a 12 feet rod, showing, however, its inherent weakness—spotting. On my remarking as to this to Mr. Hammond, he said, "If I had a house of it I would not have a spot on it; it is a very thin-skinned Grape, and if its growth gets the least check to operate against swelling off the berry its skin can't withstand it in the same way as its thicker-skinned neighbour, the Black Hamburgh, and hence spotting ensues. It ought to be kept moving steadily from growth to finish." "This means, I presume, it ought to get something of the treatment of Muscat of Alexandria—warmish treatment from start to finish?" "Exactly so; and I would graft every Vine of it on the Hamburgh, as on its own roots I had to dig it out."

No. 2 house consists of Lady Downe's, Gros Colmar, Black Alicante, Mrs. Pince—and such Mrs. Pinces as would fill a silver bread-basket. The Alicantes are very remarkable fruit, as regards size of bunch, and judging from the size of berry, only now in course of second swelling, these will all be marvellously fine fruit, fit for any exhibition table in the three kingdoms. There was not a single rod that was carrying less than 40 lb. of fruit, some of the bunches quite 6 lb. weight, and without a tie to suspend their shoulders.

No. 3 house is five years planted, and, looking at the crop, is to be the most successful of the lot, although four years younger than those described. The Alicantes here are unique. I counted on one rod fourteen great bunches, which at a modest estimate of 4 lb. the bunch brings half a hundred-weight of Grapes. Gros Colmar offers best here worked on Lady Downe's. Raisin de Calabre is, as usual, a monster in point of size, and good to eat (at least, so Sir Wilfrid and Lady Lawson say) after Christmas. The Golden Queen, looking to its more recent introduction, is the feature of this house. The bunches even Dominie Sampson would pronounce, if he had seen them, "Prodigious!" It makes a very handsome bunch, and undoubtedly is a great acquisition to Grape growers and Grape showers particularly.

No. 4 house shows some remarkable variations. For instance, at the one end of the house are Trebbianos, some of them very grand bunches, some of them that we would easily mistake for the Golden Champion with the black puncture; while at the other end are very ordinary examples of Muscat of Alexandria. This seems the weakest point in the whole of the Brayton group of Vines, showing clearly that Muscats, to be done well, ought to have a house for themselves instead of planting them among a late lot of sorts. Muscat Hamburgh is doing fairly well, but it evidently will not stand heavy cropping so well as some of its compeers. Raisin de Calabre is grand—superlatively so—looking from the base of the rod to its extremity.

All this is brought about by what no one can gainsay—first-rate cultivation. There is plenty of air moving about, warmed by the stack of pipes, caused by ventilation front and back, which contributes, no doubt, to health and consolidation, which helps to bar out the vital enemies—spider and thrips. The Peach-houses are equally good, bearing great crops, which in time are likely to finish well. *A.*

THE CHAUNTRY.

This beautiful residence, which is situate about 2 miles to the west of Ipswich, belongs to Charles Binney Skinner, Esq., brother of the once famous Orchid grower. He some few years ago purchased it of Sir Fitzroy Kelly, the late Lord Chief Baron, who during 1853-4 expended large sums of money in improving the house, and erecting an elegant entrance lodge, with grand ornamental gates leading from the Sproughton Road into the park. The elaborately wrought gates, and the ironwork connected with them on each side, used to be picked out in blue and gold, but are now toned down by being bronzed, and are certainly less gaudy and very much improved in appearance by the change. The view from the carriage front of the mansion is a commanding one, overlooking the vale of the Gipping, with its fertile meadows, meandering stream, and the hilly and well wooded country beyond. The pleasure-ground lies on the east side, and is divided from the park by a ha-ha all round, which admits of the two being blended together, and, as it were, merging the one into the other.

A striking feature on the lawn consists of two Spruce Firs, whose lower branches run out and cover the ground to a distance of from 10 to 15 feet beyond the spread of the others above them, and send up at regular intervals young shoots which have the appearance of being miniature trees, but on close examination I could not find that any of them were rooted. The Portugal Laurels, too, seem imitating these Spruces, as they send out their boughs in a similar way, while others near by have formed dense symmetrical bushes at least 40 feet through, and are none the worse for the recent hard winter. The finest trees about the grounds are the Wych Elms and Beeches, which are grand—especially the latter, some of them having huge straight stems, with bark so clean and healthy as to look quite polished. Running along one side of the pleasure-ground is a lake, called the "canal pond," a very appropriate name, as it is of a stiff, formal shape, without a single break in its sides to hide its artificial origin and bring it into character with its appropriate surroundings; but there is another lake in the park, where Mr. Skinner has had erected a very complete model laundry, which shows well what a piece of ornamental water should be.

The flower garden was laid out by the late Mr. Nesfield in his usual style of slopes, sunken panels and intricate scrolls of Box—a fashion now happily going out, as it has nothing whatever to commend it. In most situations gardens of that kind are sadly out of place, and nowhere perhaps more so than at the one now under notice, as the ground rises quickly beyond. The beds, however, are well filled, and the colours arranged with great taste and effect. The conservatory is a small ornamental span-roofed structure attached to the mansion, but being always shaded by the latter is only suited to a certain class of plants in the summer. Leaving here for the kitchen garden, which is shut out from notice by shrubs, the first thing to attract attention is a lean-to orchard-house, 130 feet long by about 10 wide, the roof of which is made with 3 inch battens placed 15 inches apart and glazed in, the ventilation being provided for by flaps at the top of the back wall, and the sashes hung on hinges at the front. The wall there is a low one, 9 inches thick, and the plate being only 4½ inches, an admirable place is afforded for standing a row of Strawberry pots, where, as they get shade from the timber, their roots are not subjected to quick drying, and they therefore always do remarkably well. As the house referred to was only just covered in the trees, which are maidens, had only been planted last winter, a single row being placed along near the middle of the border, and another to train and cover the back wall, and the soil being hard and poor there is no fear of either lot growing rampant.

Pines, Melons and Cucumbers are well grown in a semi-span-house in three divisions, and another similar structure running parallel with it is used for small plants for table decoration and forcing, others for cut flowers or any purposes for which they may be required. Leaving these and entering the kitchen garden proper the first house is a mixed one so far as the planting is concerned, as in it are Figs and Peaches and Nectarines trained as loose standards, and so heavily laden with fruit as to require support for the branches. Early Beatrice, growing with the others, is found to be at least a month before Royal George, Elruge, and Lord Napier Nectarines, but the fruit is too small to be of much value. In the vineries Mr. Hotson has adopted the long spur system, not so much from choice as from necessity, for the Vines being weak when he took charge he found it was the only way he could get them to break well and give him good bunches, which they are now doing all the way up the rods. On examining the borders to ascertain the state of the roots, as also when destroying some Vines to replant, Mr. Hotson found the stems had been laid in some 5 or 6 feet, after the manner that used to be advocated, but no wonder that they did badly, as he found them with their bark white with fungus, and the greater part of it rotten and dead.

Leaving the vineries we enter another orchard-house, 110 feet long, constructed very much after the manner of the one just noticed, which house is filled with Peaches and Nectarines, Plums and Pears, as healthy and full of fruit as trees can well be, but to keep them in the state they are has been no easy matter, as, the structure being unheated, mildew often shows itself, and black-fly needsc ontinued watching. The way the house is managed is to set it

* *Cirrhopetalum trigonopus*, n. sp.—Pseudobulbis pyriformi triquetris; foliis valdé coriaceis cuneato-oblongo ligulatis obtuse acutis; pedunculo umbellato; bracteis lanceo-setaceis, mento obtuso antrorsum declivi; sepalo impari fornicato triangulo subulato ciliato; sepalis lateralibus ligulatis obtuse acutis lateralibus involutis; tepalis triangulo setaceo-falcatis ciliatis; labello ancipiti compresso latere falcato superfice verrucosa; columna utrinque obtusangulo. Bulbophyllum trigonopus. *H. G. Rchb. f.*

wide open all the winter, so as to keep the trees back as much as possible, after which they have plenty of air both day and night, and no syringing till the weather gets quite settled and hot, but when they have water a thorough soaking is given, previous to which the border is mulched with fresh horse droppings, to prevent the water running to waste. The trees are kept tolerably thin of shoots by free disbudding, Mr. Hotson's aim being to get fairly strong wood on his Peaches and Nectarines, and to have it well ripened, which he considers is half the battle towards securing a good set.

The kitchen garden has a slip round, which comes in handy for growing early Potatos, Strawberries, and many other things, and when a garden is so arranged both sides of the wall can be utilised. As regards Strawberries for forcing, Mr. Hotson holds that there are none to equal Keens' Seedling for earliness, flavour, and good cropping qualities, and that for succession and late work the old British Queen is still without a rival: in which opinion I think he will have many supporters. *J. Sheppard.*

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.—IV.

Subgenus II. PLATYASTER.—Perianth-tube straight or slightly curved, the lanceolate segments spreading or ascending when fully expanded. Filaments equilaterally divergent from the suberect style.

* Tropical Asian Species.

17. *C. amœnum*, Roxb. Hort. Beng. 23; Fl. Ind. ii. 127; Herb. Amaryll. 255, tab. 44, fig. 6; Kunth, Enum. v. 562.—Bulb globose, 2—3 inches in diameter, without any distinct neck. Leaves about a dozen to a rosette, linear, suberect, bright green, 1½—2 feet long, 1—2 inches broad, tapering gradually to the point, the margin slightly scabrous. Scape 1—2 feet long, not much compressed. Flowers 6—12 to an umbel; spathe deltoid, green, membranous, 2 inches long; pedicels none or very short. Ovary oblong, with 4—5 ovules in a cell. Perianth-tube 3—5 inches long, straight or rather curved, greenish; segments spreading, lanceolate, 2—3 inches long, ⅜—½ inch broad at the middle, pure white. Filaments bright red, little shorter than the perianth-segments; anthers linear, about ½ inch long.

A native of the Eastern Himalayas and Khasia Mountains, ascending in Sikkim to 6000 feet above sea-level. Roxburgh had it originally from Silhet, where he says it is called Gocinda by the natives. The specimens in Wallich's distribution are wild ones from Nepaul and fine cultivated ones from the Calcutta Botanic Garden. No figure has been published, but there is one in the Roxburgh series, and a very fine one in the Cathcart collection, now at Kew, from Sikkim specimens. Herbert mentions a variety candidum from Ceylon, with a neck to the bulb, and there is an allied plant from Rangoon, called C. verecundum by Carey, with dark green pitted more obtuse recumbent leaves.

18. *C. humile*, Herbert, in Bot. Mag., t. 2636; Amaryll. 256; Kunth, Enum. v. 563. — Bulb small, globose; greenish, with a very short neck. Leaves linear, about a foot long, spreading, thicker than in amœnum, and pitted over the face, subacute. Scape about a foot long, slender, subterete. Flowers 6—9 in an umbel, cernuous in bud. Spathe-valves 2—3 inches long; pedicels at most as long as the ovary. Perianth-tube about 3 inches long, tinged green; segments linear-lanceolate, spreading, about 2 inches long, ⅜ inch broad, white. Filaments bright red, rather shorter than the perianth-segments; style longer than the perianth limb.

Brought from the East by Captain Craigie about 1826 to Mr. Milne, of the Fulham Nursery, a single bulb only, which was sold to Mr. Cattley, after whom the genus of Orchids was named. I know it only from the published figure and descriptions. It seems to come in between defixum and amœnum.

19. *C. longifolium*, Roxb. Hort. Beng. 23; Fl. Ind. ii. 130. C. pratense var. longifolium, Herb. Amaryll. 256; Kunth, Enum. v. 563.—Bulb ovoid, 4—5 inches in diameter, with a short neck. Leaves 6—8 to a bulb, linear, 1½—2 feet long, and suberect in dry soil, 1½—2 inches broad, channelled down the face, tapering gradually to a point, firm in texture, with close ribs and an entire margin. Scape lateral, compressed, a foot or more long, about ½ inch diameter. Flowers 6—12 in an umbel, cernuous before expansion; pedicels none, or very short. Spathe-valves lanceolate-deltoid, greenish, about 3 inches long. Ovary oblong, with 3—4 ovules in a cell. Perianth-tube greenish, 3—4 inches long, often curved; segments lanceolate, arcuate, ascending when fully expanded, white, nearly as long as the tube, ½ inch broad at the middle. Filaments bright red, about 1 inch shorter than the perianth-segments; anthers very narrow, ¾—1 inch long. Berry globose, 1½—2 inches diameter; seeds sometimes as many as ten.

A native of the plains of India, on low ground liable to inundation. Herbert says that in the flood season the leaves are elongated, and the plant flowers sometimes with its umbel floating. It is a well-marked species, the flower coming just about midway in type between the extreme points which the genus contains, the tube being often more or less curved, and the lanceolate divisions not fully spreading. There are several varieties, of which the principal are C. lorifolium, Roxb., from Pegu, founded on a form with recumbent leaves 5 feet long, and C. elegans, Carey, *Bot. Mag.*, t. 2592, also from Pegu, with a longer neck to the bulb, decumbent scape, and a perianth-tube 1 inch shorter than the limb, a very unusual character, the latter 3½, and the former only 2½ inches long. My description of the type is mainly taken from a living plant belonging to Mr. Bull. We still want a published figure of the ordinary form of the species.

20. *C. Strachey*i, Baker.—Leaves lorate, 2 feet long, 1½—2 inches broad, thin in texture, tapering gradually to an acute point, the cartilaginous margin distinct and slightly denticulate. Scape robust, 1½—2 feet long. Flowers 12—15 to an umbel. Spathe-valves lanceolate, 2½—3 inches long. Pedicels ½—1 inch long. Ovary oblong, ½ inch long. Perianth-tube slender, 3—3½ inches long, straight or slightly curved; segments of the limb lanceolate, spreading, 2—2½ inches long, ⅜—½ inch broad at the middle. Filaments nearly as long as the perianth-segments. Anthers very narrow, ½ inch long. Style bright red, longer than the perianth-segments.

Known to me only by a fine dried specimen in the Kew herbarium, dried by Strachey and Winterbottom, from gardens in Kumaon. It differs from all the neighbouring species by its long pedicels.

21. *C. gracile*, E. Meyer, in Rel. Haenk. ii. 120; Herb. Amaryll. 258; Kunth, Enum. v. 566.—Leaves linear, 1½ foot long, 1½ inch broad, narrowed to both ends. Scape about a foot long, not thicker than a pen. Flowers 6—7 to an umbel. Pedicels none, or very short. Spathe-valves lanceolate, 1½ inch long. Perianth-tube 3 inches long; segments of the limb lanceolate, less than half as long as the tube. Filaments one-third shorter than the perianth-segments.

A native of the Philippine island of Luzon; known to me only from the published description.

22. *C. Cumingii*, Baker.—Leaves linear, about 1 foot long, 1 inch broad, thin in texture, tapering gradually to a point, the cartilaginous edge very obscure and entire. Scape slender. Flowers 10—12 to an umbel. Pedicels at most ½ inch long. Spathe-valves lanceolate, membranous, 2 inches long. Ovary oblong, ¼—⅓ inch long. Perianth tube straight, very slender, 2—2½ inches long; segments lanceolate, spreading when fully expanded, nearly or quite as long as the tube, ⅓—½ inch broad at the middle, filaments bright-coloured, little shorter than the perianth segments. Anthers very narrow, ½ inch long. Style as long as the perianth limb.

Another Philippine species, No. 1382 of the collection distributed by Hugh Cuming, found in the province of Albay, in the south of the Island of Luzon.

23. *C. Balfourii*, Baker, in Bot. Mag., t. 6570.—Bulb 3 inches in diameter, with a short neck. Leaves 10—12 to a bulb, lorate, spreading, under a foot long, the outer ones 2—2½ inches broad at the middle, the inner narrower, glabrous, firm in texture for the genus, with a narrow entire cartilaginous edge. Peduncle axillary compressed, 1½ foot long. Flowers very fragrant, 10—12 in a centripetal umbel. Spathe-valves pale, lanceolate, about 2 inches long; pedicels stout, ¼—½ inch long. Perianth-tube greenish, 2 inches long; segments pure white, oblanceolate, just as long as the tube, ½ inch broad at the middle. Filaments erecto-patent, rather shorter than the perianth-segments; anthers small, linear-oblong. Style red, declinate, reaching to the top of the filaments.

A very distinct new species, discovered by Dr. I. B. Balfour in his exploration of Socotra. My description is taken from a specimen that flowered at Kew last autumn. *J. G. Baker.*

(*To be continued.*)

ABIES BIFIDA.—This, which is merely an immature form of A. firma, is peculiar in the coloration of its young foliage. This spring we observed that the bark of the shoots of last year's growth, as well as the bases of the leaves, were of a peculiar puce colour. After lasting for a few weeks this tint has entirely disappeared, and is supplanted by the usual green hue.

TANGHINIA VENENIFERA.

In the Economic-house at Kew, this extremely interesting plant is now in bloom. It is the Tanghin or Ordeal Bean of Madagascar, and is decidedly a pretty shrub, with leathery entire leaves, and terminal cymes of showy Vinca-like flowers, white, with rosy-red eye. This species, the only one of the genus, has played an important part in Malagasy policy until comparatively recent years, indeed, it was looked upon as an unerring agent in the detection of crime. The missionary Ellis, to whom British gardens were first indebted for those wonderful plants, the Lattice-leaf, Ouvirandra fenestralis, and Angræcum sesquipedale, states in his *Visits to Madagascar* that scarcely had the missionaries left the capital in 1836 when persons suspected of being Christians were required to prove their innocence by drinking Tanghin water, which to many of them proved fatal. In an old volume of the *Botanical Magazine* a figure of the plant is given, together with a most interesting account of the way in which the ordeal was managed. It seems that King Radama, who afterwards abolished the custom, was indisposed, and his family, some of the chiefs, and the skid—an officer of some standing at court, who united in his own person the functions of priest and physician—willed him to have recourse to the ordeal by Tanghin to discover who had caused the royal illness. After considerable pressure the king consented, and the whole of his servants, numbering more than a score, including the skid, were separately shut up at night without being allowed to take food, and the next day were brought out before the assembled people. The skid, after some prayers and superstitious evolutions, took out a kernel, placed it on a smooth stone, and with a similar smooth stone beat it up into a soft paste. The victims were then brought separately forward, and on denying their guilt had their arms fastened behind them, were placed on their knees before the skid, who put a portion of the pounded kernel on the tongue and compelled them to swallow it. The action of the poison commenced in most cases in about half-an-hour, and convulsions were followed by insensibility in every case but two; these lucky individuals had escaped on account of their stomachs having refused to retain the portion given them. The skid himself was one of those who died. Those who did not succumb were supposed to lead a charmed life, and were regarded as the peculiar favourites of the gods. All the bodies were thrown into a large hole, and as each of the spectators had to throw a stone on them, complete burial soon took place.

GUNNERSBURY HOUSE.

NESTLING by the side of the better known seat of Baroness Rothschild, at Gunnersbury Park, is Gunnersbury House, the residence of H. J. Atkinson, Esq., which at one time formed part of the same estate, and was formerly the residence of the Princess Amelia. The house is in the Italian style, prettily situate on raised ground looking southwards over a sloping sward unbroken by flower-beds to a piece of water surrounded by groups of fine trees, Beeches, Elms, Conifers, Tulip trees, and the like. The situation is rather exposed on the eastern side, not only to the wind but to the smoke of London, and the soil is of a dry gravelly character, so that the destruction among the specimen Conifers has been rather serious during the last two winters. Among those hurt more or less severely are the Deodar, Abies Nordmanniana, A. Pinsapo, Wellingtonia, and the Douglas Fir, while a noble Cedar of Lebanon was so damaged by the storm of January 18 that it had to be removed. Cunninghamia sinensis, of which there is a fine large tree, was only slightly browned; while Araucaria imbricata, Golden Yews, the Japanese Retinosporas, Thuyopsis borealis, T. gigantea, Cupressus Lawsoniana, of which there is one of the earliest plants grown, were unhurt. A small glazed corridor adjoins the mansion, in which are Camellias in pots on the one side, planted out in the border on the other, and it is difficult to say which are the better. Climbing plants grow overhead, among them Habrothamnus elegans may be mentioned as one of the best, few months in the year being without its dense masses of rosy-pink flowers.

The stoves are remarkable, considering the limited accommodation they offer, for the number and variety of the specimen plants—Palms, Tree Ferns, Thamnopteris Nidus, Anthurium Scherzerianum, and the usual run of ornamental plants—which are grown. The

specimens are of good size and well managed, as is testified by the successful career of Mr. Hudson as an exhibitor. Passiflora quadrangularis in one house was, at the time of our visit, showing its noble blooms, and several of its large egg-shaped fruits were swelling. Alocasia Lowii, with leaves 27 inches long, and A. metallica were doing well here. A good plant of Cycas revoluta was showing its striking mass of flowers, and among the usual occupants of such structures the now old Croton undulatus was as fine, or finer, than many since introduced. The range occupying a terrace midway down the garden consists of seven compartments about 180 feet in length, the central one forming a conservatory filled with Palms, among which Euterpe oleracea and Chamædorea glaucifolia, some 12 feet high, in 8-inch pots, may be mentioned as specially noteworthy. Tree Ferns and some huge bushes of Gleichenia, such as G. Mendelii and G. flabellata, form noble specimens; Davallia bullata is also grown in fine style.

The early vinery is planted with young Hamburghs about three years old and doing well. Next to this is the Peach-house, in which Lord Napier is grown as a specially good early variety. The Muscat-house, the Vines in which are also three years old, was bearing its first full crop in a very satisfactory way. Another house is devoted to Hamburghs, and still another is occupied as a late vinery, in which Lady Downe's and other late kinds are very promising. The border is outside, only the temporary Vines being planted inside. Queen Pines were swelling fruit satisfactorily in a pit with Strawberries, Sir Joseph Paxton being the favourite variety, on a shelf at the back. Cucumbers and Melons occupy other pits. Bedding-out is carried on only on a small scale, on some small terraces, close to one of which is a grotto fitted up with stalactites, and leading to a cool bath-house supplied by a never-failing spring of water, which is a boon to the whole establishment. There is a small Rose garden sheltered from the east by a high wall, and earlier in the season a fine display of flowers is obtained from the old bushes of Rhododendrons and Azaleas. The hardy fruit and vegetable departments are relatively very extensive and well managed, but call for no special remark. Mushrooms are grown in an unheated vault, and this season afforded an illustration of the virtue of patience. The bed had been spawned in September last, and in the ordinary course the crop was looked for in ten or twelve weeks, but it is only recently that the succulent dainties have made their appearance, in quantities, however, compensating for their tardiness. A curiosity in tree growth remains to be mentioned. Many years ago an iron seat in two semi-circular pieces was placed around the trunk of a weeping Ash, which has grown down over it so as to overlap the seat on either side.

Fig. 13.—Exochorda grandiflora: flowers snow-white.

EXOCHORDA GRANDIFLORA.

This little known but very beautiful Chinese hardy shrub was originally described in these columns by Dr. Lindley (1858, p. 925), and has since been figured in the *Botanical Magazine*, t. 4795, and recently in Lavallée's *Icones Arborum*, t. xi. and xii. It forms a mid-sized bush with rather slender, erect, or spreading branches, and thin glabrous stalked oblong or oblong lanceolate toothed leaves. The snow-white flowers are arranged in racemes along the ends of the branches, each about 1½ inch in diameter, with five oblong or suborbicular shortly stalked petals. The structure of the flower is almost precisely that of a Spiræa, and the fruit is a top-shaped capsule divided into five prominent lobes. It was introduced from Northern China by Mr. Fortune, and has proved hardy at Segrez during the last two winters, as also at Kew, whence we derived our specimens; the flowers shown in our illustration (fig. 13) are considerably smaller than the average. It is one of those deciduous shrubs which no garden should be without. Two other species are known to botanists, E. serratifolia, also from North China, and E. Korolkowi, from Turkestan, recently described by M. Lavallée.

Parnassia nubicola. — Though not nearly so handsome as our native "grass of Parnassus," P. palustris, this species has perhaps more than mere botanical interest to recommend it. It is a native of temperate and alpine Himalaya from Sikkim to Kashmir, and is frequent at altitudes of from 6000 to 12,000 feet. The leaves are cordate or ovate, and the stout flower-stem grows about 4 inches high, and bears four or five prominent ridges under the fruit. The petals are whitish, and the rather larger sepals a light green. Plants are now in bloom at Kew, and a figure, which will appear in the *Botanical Magazine*, is being prepared.

HAYES PLACE.

Hayes Place had been an unnoted wayside residence for many generations, till, in the middle of the last century, it was bought by Pitt and made for ever interesting as the abode of England's greatest minister.

At the time of the purchase, in 1757, the house was small, and the estate comprised very little land beyond the garden; it was quite too insignificant, in fact, for the coming Earl. The honours of a statesman generally reach him late—Mr. Pitt's were fast approaching. In 1761 his wife, Hester, the daughter of Lord Temple of Stowe, was ennobled by the title of Baroness of Chatham, in recognition of the services of her husband. Five years later the Earldom of Chatham was conferred on Pitt himself. Having become passionately attached to Hayes, he rebuilt the house and enlarged the property, and planned and planted some ornamental woods which rose to view from the windows of his living rooms, so that his eye henceforward rested on trees of his own planting, standing on his own ground. These "woods of Hayes" are now exceedingly ornamental, and are, as landscape gardeners might say, effectively placed at the extreme limits of the small estate, rising irregularly in a waving and lengthened line on high ground upon the boundaries, with a pleasing stretch of pastoral valley between them and the house. And down this valley a rivulet wanders and joins the Ravensbourne just at the outskirts of the parish of Hayes. And down the valley the great man's "eagle eye" must have often wandered with delight, looking from his bay windows till it reached the limits of the view at Bromley—then a small country place, now a town of 15,000 inhabitants. I thought when standing where Chatham has often stood, that I never saw a town 4 miles distant on a site more sunny and more pleasantly uplifted, where the houses must be dry, and where all outer circumstances which render life comfortable must abound—a town, too, half-an-hour only from the London stations.

During Chatham's ownership, when his plantations still were young, a curious instance of incontinency occurred, and led to a divorce between him and Hayes. At an impulsive moment the ardent owner, pressed by cares of state, or fancying that his recent possession of the Burton Pynsent property, in Somersetshire, would suffice, at an erring moment, afterwards most deeply regretted, ardent lover of Hayes as he had been, to the surprise of all, and it can only be spoken of with bated breath as a great man's trip, which is not to be confused with an ordinary scandal—he sold his beloved Hayes. This happened in 1766, at the time when he was made Viscount Pitt of Burton Pynsent and Earl of Chatham. We will hurry through the strange recital. He sold the place to a member of the Walpole family, and in the following year he turned his back on Burton Pynsent, that toy of an hour, and, at his earnest and importunate request, Hayes once more became his own, and they never parted afterwards. From the period of the brief aberration I have noticed, and of the final reconcilation to this place of his fond affection, he spent much of his time here, and on quitting the helm of political affairs he resided at Hayes continually. Blessed is the man who, in his retirement, has a hobby to amuse him. Better any occupation, however humble—better a thousand times a "farm and carters," or a taste for budding Roses—than the weariness of nothing to do and nothing to care for. Lord Chatham's tastes were cultured. He was a capital gardener and most energetic planter and improver. As a landscape gardener he displayed admirable sense and taste. A person accustomed to these matters cannot survey his grounds without perceiving the taste and judgment of his work, and Mr. Meston, of Spring Gardens, who has been entrusted by Mr. Hamboro, the present owner of Hayes Place, with the improvements that are now in progress, is conscious that a master hand preceded him, whose work must be respected. There is, in fact, little to do but restore the work of Chatham, complete or repair his designs, and obliterate the encroachments upon them. The extensive lawn, for example, which embraces three sides of the house and extends to the park, and which Lord Chatham left open and unobstructed, with just a few masses of shrubs and some noble specimens of the Cedar of Lebanon—this noble lawn has been dotted over with shrubs, with the express design apparently of frittering away the view, blocking the beloved plantations, and shutting out Bromley—pleasing, thriving, high-lying Bromley—smiling in the sunshine just at the right distance where a country town becomes an ornament several miles off. The various single shrubs that now spot and spoil the lawn Mr. Meston intends to remove; but Heaven forbid that he should grub up anything that Lord Chatham planted, and especially those trees and plants, those Hollies and Yews, evergreen and ornamental, which he planted by torchlight!—ardent, noble, enthusiastic old man as he was.

It may have been to make amends for the year I have already referred to—the year of estrangement and alienation—that Chatham carried on the work of planting afterwards, day and night, by torchlight and sunlight. He could never do enough for his beloved Hayes. The gravel walks formed by him are still substantial and good. The little lake in its dell among trees and winding walks, fed from the spring above, mutely speaks of his pains and persistency! I should like very much to know if the quarter of an acre of Crocuses, blue, yellow and white, have sprang from bulbs of his planting. His *chef d'œuvre*, as a work of gardening art, is the entrance drive. Hayes had been but a village residence. It is situated in the street immediately opposite the church, and two roads—the main road and a cross road—form its boundary at the back of the house and grounds for more than half a mile. In planting out this intrusive street Chatham proceeded with such consummate art that on entering by the lodge nearest Bromley you find before you a winding road and an apparent wood, thick with Yew and Holly, through which you may drive to the front door without discovering that the wood is a mere belting, and that the highroad lies not far distant, on the left, the whole way. The lawn is also a perfect specimen of the landscape gardening art, and the house is a remarkably well-built convenient residence, in the best style of an English country house, and containing twice as much room as many far more pretentious dwellings. In these days of big houses it may not be considered large, but I suppose it would conveniently hold a family of fifty, including servants. The passages upstairs, from the attics downwards, are admirably lighted by means of four glass domes. Mr. Hamboro is renovating the mansion throughout, and is laying down some Oak floors, but in other respects it will be as Chatham built it, and it may be said with truth that the house and grounds of the great statesman who built up a new England and raised his country to a height of power and eminence unknown at any former age (see his monument in Westminster Abbey), might be taken as a model of a country residence, good enough for comfort, if not great and grand enough for state.

William Pitt, the younger, was born here in 1759, and here, May 11, 1778, the Earl of Chatham died, after the well-known scene in the House of Lords. *H. E.*

ICKWORTH PARK.

This is the princely seat of the Marquis of Bristol, and lies about 3 miles south-west from the town of Bury St. Edmunds. As regards its early history, according to Gage's *History of Thingoe Hundred*, it appears that during the reign of King Edgar, Theodred, bishop of the East Angles, gave to the monks of St. Edmund certain lands, including the manor of Ickworth, and among the tenants in chivalry of Baldwin, abbot of St. Edmunds, was one Wluard, to whom at the time of the Norman survey Baldwin granted the manor of Elvedon, some 10 miles north from Bury St. Edmunds, and now the seat of His Highness Maharajah Dhuleep Singh. This Wluard, it would appear, afterwards gave back the manor of Elvedon to the monastery in exchange for that of Ickworth, and it is presumed that he then assumed the name of De Ickworth, for a Sir William de Ickworth appears to have been in possession of the manor about the year 1184, and his descendants, or successors of the same name, possessed the manor until about the sixth year of the reign of Henry VI., when it came into the family of Drury. It came into possession of the family of its present owner by intermarriage with the Drury family, soon after the middle of the fifteenth century. Sir Thomas Hervey was knighted by Charles II., and was advanced to the dignity of Baron Hervey of Ickworth in the second year of Queen Anne, and was created Earl of Bristol during the first year of the reign of George I. The site of the ancient manor house was to the north of the church, and at some distance from it; it is said to have been burned down in the time of the first earl, when the family moved into another house in the park, at a short distance from it, and known as the lodge, which became the residence of the family until the year 1828. But the foundation of the present mansion, or "building" as it is generally called, was laid by the then Earl of Bristol about the year 1792, and was planned upon a scale of great magnificence, with the design, it is said, of its being a temple of the fine arts, &c., as well as an elegant residence. The building, which in outline resembles the Albert Hall, is principally composed of brick and tile, beautifully stuccoed, and it consists of an oval centre, connected with wings by extensive corridors, and is faced by a portico on the north, or entrance side. The whole stands upon a basement, which contains the various offices. The length of the building is 625 feet. The central part is crowned by a dome, which rises 105 feet, and forms a landmark which is seen from very distant parts of the surrounding country. Its diameter is 120 feet north and south, by 106 feet east and west. The corridors are quadrants of circles, and they intersect the centre so as to leave two-thirds of its largest diameter in advance on the south, or flower garden front.

The centre is composed of two orders of architecture—viz., the Ionic and the Corinthian, three-quarter columns supporting the entablature. The lower entablature is plain, the space below it being enriched with a series of subjects modelled in relief; and the upper entablature has its frieze also filled with reliefs, all the designs being from the *Iliad* and the *Odyssey*. On the summit of the dome are balustrades, which entirely conceal everything in the form of flues or chimneys.

The portico on the north side of the house is supported by four solid stone columns, with pediments, some 30 feet high, and they stand at a distance of 18 feet from the entrance, or front door, from which extends a broad expanse of fine gravel, bounded by a terrace or balustraded retaining wall, with stone coping some 5 feet high. In front of this, on the lawn or park side, and on a lower level, hidden from the mansion by the terrace wall is a border some 20 feet wide, and extending to the entire length of the wall, planted exclusively with sweet-scented flowers, such as the various kinds of old-fashioned Roses, Honeysuckles, Lavender, Mignonette, Violets, &c., so that the pleasing effect of this arrangement is perceived, although unseen. In front of the long curving corridors, extending to the wings on either side of the centre, are large wooden boxes, in which are growing healthy plants of the common and Portugal Laurel. These plants have a good effect in relieving the monotony which might otherwise be apparent; and strange to say, the plants did not suffer in the least degree from the severity of last winter, although other plants of the same species, in other parts of the grounds, suffered very much. The plants in the boxes were in no way protected, and the soil in which they grow must have been frozen solid for weeks together. The young wood, too, of the previous summer's growth could hardly be expected to have been particularly well ripened as, being on the north side of the corridors, the sun scarcely shines upon them at any season of the year. The only circumstance in their favour must have been the absence of anything like sudden change of temperature.

A circular lawn of the richest verdure stretches in front of the terrace wall which has been alluded to, and round this lawn the broad drive or approach to the front door of the mansion passes. The lawn is, as it ought to be, entirely free from trees and plants of all kinds, but a fine collection of healthy coniferous and other trees occupy positions upon the outer side of the drive. This collection includes many fine young Cedars of Lebanon, Cedrus Deodara, C. atlantica, &c. As regards the first-named, many of the plants show considerable diversity in their habit of growth, as well as in the colour or shade of their foliage, some being somewhat silvery, while in others the leaves are glaucous, or of a blue-green shade. They appear to have all been planted within the last forty years, many of them at a much more recent period, but all are healthy and well-furnished specimens of their kinds. Mr. Squibbs, the gardener, pointed out some fine plants of the Wellingtonia gigantea, which he had struck from cuttings, and in some instances such plants had actually outstripped the trees from which as cuttings they had been taken. All of them are now in fine

condition, and uninjured by the severity of the winter they have just passed through.

The extensive stables, &c., belonging to the establishment are at a distance of some 300 or 400 yards from the mansion, and are nearly concealed by evergreen and other ornamental trees. We regretted to see some fine Lombardy Poplars (Populus fastigiata) in a dying condition; this, however, Mr. Squibbs does not attribute to the severity of the two last winters so much as to some obscure disease which he thinks has attacked them. Many fine plants of the upright Cypress (Cupressus sempervirens stricta), 30 or 40 feet in height, which produce, or rather did produce, a remarkably fine effect in various parts of the grounds, are now sadly crippled by the terrible severity of last winter, as are also many fine plants of the pretty dwarf-growing Thuya, or Biota aurea, which is here extensively planted in large stone vases placed upon the terraces and elsewhere.

A small garden in which are grown chiefly hardy herbaceous plants, annuals of various kinds, with Pinks and Carnations for the purpose of furnishing cut flowers, is surrounded and sheltered on all sides by evergreen shrubs of various kinds, and on the north side by a high wall which separates it from the stableyards. On this wall Figs have been sucessfully grown for many years; so sheltered is the situation that further protection in their case has always been deemed unnecessary, but the last winter proved too much for them, and killed them all down to the surface of the soil. Near to this, however, we were pleased to see a remarkably fine example of the Taxodium, or Sequoia sempervirens, fully 50 feet high, which has been planted twenty-five years, and which escaped with only slight injury, together with a fine plant of Photinia serrulata, a native of China, which was killed to the ground during the winter of 1860, but withstood the severity of last winter with trifling injury.

The south front of the mansion, with its marble terraces, &c., is exceedingly beautiful, and a retaining terrace-wall separates from the park and encloses as pleasure grounds some seven or more acres, which are laid out in massive clumps or groups of evergreen shrubs, mostly margined with the common Yew, this having been allowed to attain to considerable height. These somewhat sombre groups have nevertheless a very noble appearance, and they harmonise well with the stately and remarkable edifice they are in contact with, and are, moreover, intersected by wide glades of the brightest greensward.

The terrace wall which encloses the pleasure grounds is curvilinear in form, and a broad gravel walk runs paralled with it, the whole being considerably elevated above the level of the pleasure grounds as well as the surrounding park. A gravel walk 18 feet wide extends from near the centre or dome of the building to a flight of broad stone steps which leads to this walk, from which a magnificent view of the finely wooded deer park, with its beautifully undulating surface, is to be obtained; and conspicuous among many objects of great natural beauty is a fine obelisk, which occupies a very commanding position in the park. It consists of a Doric pedestal 23 feet high, surmounted by a shaft of Kitton stone 72 feet, making its entire height 95 feet. It was erected by the inhabitants of the town of Derry, in Ireland, in grateful remembrance of the last Earl of Bristol, Bishop of Derry. So universally was this nobleman beloved and respected by the inhabitants that all denominations of Christians, Roman Catholics as well as Protestants, freely subscribed to it. His son, Frederick William had conferred upon him the dignity of Marquis of Bristol in the year 1826, and he died in 1859.

A lofty conservatory, some 60 feet long by 24 feet wide, forms a continuation of the east wing of the mansion, with which it communicates, and is entered on the east end by a flight of stone steps. It contains various species of plants, some planted out, others in boxes and in large pots, such as Palms of various kinds, Dracænas, Crotons, and Tree Ferns of large dimensions, while the back wall is clothed with Myrtles and Orange trees, and depending from the roof are Tacsonias and other climbing plants. In front of the conservatory, or nearly so, stand two very aged Oak trees in close proximity to each other, and they form the centre of a small flower garden. These remarkable trees have at some comparatively recent period been struck by lightning; one of them is now quite dead, while a large cavity in the trunk of the other has been filled up with brickwork, covered with Portland cement, and the newly formed bark is now rapidly covering the cement. *P. Grieve.*

(*To be continued*)

THE KEW ARBORETUM.

The Maples.—XIV.

Acer sikkimense, Miq., *Archives Neerlandaises*, ii., 471; *Flora of British India*, vol. i., p. 694. *A. Griffithi*, Hort. *A. cordifolium*, Hort.—Eastern temperate Himalaya from Sikkim, alt. 7000—9000 feet, and Bhotan to the Mishmi Hills.

This species is not hardy, and is not likely to succeed long in the open in any of the British Isles, except perhaps in such favoured spots as the Scilly Isles, &c. It makes, however, a pretty shrub, and is decidedly worth growing for the corridor or cool conservatory. In outline the leaves are like those of A. distylum, figured at p. 499 of the *Gardeners' Chronicle*, vol. xv., but the serration is obsolete, and there are five nerves instead of three, as in distylum. Has been long cultivated at Kew in the Temperate-house, where it is now fruiting.

Acer insigne, Boiss. and Buhse, *Aufz.* p. 46; Boiss. *Flora Orientalis*, vol. i., p. 947 (fig. 14).—Mountains of Northern Persia.

According to Dr. Regel A. pulchrum, Hort., should be referred here, but having seen (thanks to the kindness and courtesy of Mons. Boissier), a specimen of the true insigne, I have little hesitation in placing A. pulchrum as a synonym of A. diabolicum, Bl., recently figured and described in these columns. A. insigne is a recent introduction to European gardens; a good stock of it is in the possession of Messrs. Haage & Schmidt, of Erfurt, and other establishments also possess it. It is somewhat like the common Sycamore in habit, foliage, and fruit characters, but differs widely in inflorescence, which instead of being a pendulous raceme with hairy filaments to the stamens as in A. Pseudo-Platanus is an erect panicle, the filaments of stamens being glabrous.

Fig. 14.—Acer insigne.

Var. velutinum, Boiss. *Flora Orientalis*, vol. i., p. 947. *A. velutinum*, Boiss. *Diag.*, ser. i., vi., p. 28.—Woods, Ghilani, Eastern Persia.

Similar to the preceding, only differing in the tomentose under-surface of the leaves.

Acer cratægifolium, S. & Z., *Flora Jap.*, n. ii., t. 147, p. 84; Maximowicz, *Mélanges Biologiques*, tome x, p. 596; Franchet et Savatier, *Enumer. Plant. Jap.*, vol. i., p. 89.

A slender tree with unequally 3 or 5-lobed deep, bright green leaves, about 3 inches long, somewhat like those of the Hawthorn; hence the specific name. When in flower this must be a conspicuous plant; it has few flowered racemes of rather large white flowers, which are followed by peculiar long-stalked, horizontally winged fruits. Introduced from Japan by Messrs. Veitch.

Var. Veitchii.

A handsome and vigorous form of the preceding with finely-marked leaves, rose and dark green. This form I have not seen elsewhere than in the Coombe Wood Nurseries of Messrs. Veitch, and as it is a distinct and valuable ornamental plant, and for garden purposes must have a distinctive name, it cannot bear a better one than that of the enterprising firm to whom English gardeners are so largely indebted for interesting and beautiful plants from all quarters of the globe.

Acer capillipes, Max., *Mélanges Biologiques*, tome vi., p. 367, tome x., p. 597.—Central Nippon, subalpine woods of the province of Senano.

This at first sight is not unlike A. tegmentosum already figured in these columns, but differs from that species in its narrower leaves, in the sepals being broader than the petals, &c. I am not certain that this species is not in the collection of Messrs. Veitch, but from leaves only, and those produced by plants in a small state, it is frequently impossible to come to any definite conclusion respecting Maples.

Acer trifidum, Thunb., *Flora Japon.*, vol. ii., p. 81, tab. 143; Franchet et Savatier, *Enumer. Plant. Japon.*, vol. i., p. 17; Max. *Mélanges, Biologiques*, tome x., p. 603.—Central China, hills about Ningpo, and cultivated about Yedo in Japan.

A peculiar species with very variable leaves, entire, or more or less distinctly three-lobed, with lateral lobes ascending or spreading. The inflorescence is paniculate like that of the common A. campestre, but the flowers are smaller than in that species. Has been in cultivation for some years. *G. Nicholson, Kew.*

PLANT GOSSIP.

Leptosyne maritima.—Amongst the many valuable species introduced into English gardens by one of our most successful cultivators of ornamental herbaceous plants, Mr. W. Thompson, of Ipswich, the present one takes a place in the first rank. It grows about 2 feet high, has glabrous somewhat fleshy leaves—very much like those of our native Samphire in size and form—and large bright golden-yellow flower-heads, somewhat like Sunflowers, on a somewhat diminished scale. A native of maritime rocks in California. Now in flower at Kew.

Silene Elizabethæ.—This is a charming little rock plant from Italy, where in several places it grows between the fissures of mountain rocks. It is a dwarf, tufted species, with viscid foliage and large rosy-purple blossoms. Now blooming on rockwork at Kew.

Tecoma jasminoides.—This species was introduced to this country near the close of the first half of the present century. In 1843 it was figured in the *Botanical Magazine*, where it is stated to be "a climbing shrub of humble growth, a native of Moreton Bay, on the north-eastern coast of New Holland, where it was discovered by the late Mr. Allan Cunningham." It is now blooming in the conservatory at Kew, and its lovely flowers, white with a purple-crimson throat, contrast well with the dark glossy green of the pretty foliage.

Elæocarpus cyaneus.—As an easily-grown cool conservatory plant this species deserves a word of praise. Near the tips of its shoots it bears axillary racemes of fringed, drooping white blossoms, in size and general appearance much like the blue ones of that lovely little alpine, Soldanella alpina. Now in bloom in the Temperate-house at Kew.

Meconopsis Wallichi.—This species was first discovered by the present Director of the Royal Gardens, Kew, during his adventurous expedition in the Himalayas about thirty years ago. It is a tall plant with lyrate leaves and large drooping pale blue flowers, with orange-yellow anthers. The whole plant is covered with long, spreading rusty hairs.

Elæagnus longipes.—This deciduous Japanese shrub has withstood the past two winters with perfect success, a feat which cannot be claimed for even the hardiest of the evergreen species from the same country. At Kew and elsewhere it is now producing in abundance its long-stalked red fruits; as a member, and a decidedly ornamental one, of the mixed shrubbery, this should be much more extensively planted. A figure was given in our volume for 1873, p. 1014.

Orchid Notes.

Work in the Houses.—It is often the case that such strong growing genera as Anguloa, Catasetum, Lycaste, Mormodes, Phaius, &c., are found in a much more healthy and vigorous manner when they are not associated with other plants of a smaller growth, whose treatment is not always just the best that would otherwise be given to the stronger growing kinds. Having a greater regard for the smaller growing sorts, because they represent in many cases greater value, the larger ones suffer accordingly. When, for instance, some of those named are taken out of the Orchid-houses, and grown during the summer in a stove or intermediate plant-house, the altered conditions give a fresh impulse to the new shoots, and stronger and finer bulbs are more quickly formed, and as a consequence, in their respective seasons, much better spikes and flowers are produced. Many of those named remain for a number of months in a comparatively dormant condition requiring very little water, the large quantity of sap stored in the bulb being that by which the life of the plant is sustained. When the new growth commences it pushes away with rapidity, and the whole of the new bulbs and leaves are formed and matured in a short space of time. It will then be admitted that, during the time the growth is active, the position of the plant on the stage, &c., and the treatment given, should be such as to cause no check, but to ensure that all may progress as quickly as they can towards perfect development. Where many of this class are cultivated and started into growth, each in their respective time, it will soon become apparent that the space they occupied when they were potted in the early part of the season is now not nearly sufficient for them, they spread so far and wide themselves that they are cramped, and plants about them are in some measure smothered. There can be no doubt that all these Orchids in their native habitats enjoy a light, open, and airy situation; and these are just the essentials they must have if we would manage them successfully in our houses. It does not follow that all require just the same degree of heat. The old favourite Peristeria elata, potted in a strong loamy soil, will, whilst growing, stand almost any degree of heat; but still the position, the airy situation, the light, are as much required for the one as for the other. So too the Pleiones and the Calanthes, quick growing kinds as they are, and deciduous withal, also require to be subjected to the conditions I have described. Whilst these are growing, the lightest and best position that can be found in their respective houses should for the time required be assigned to them. The Pleiones and Calanthes can be grown well in pans and baskets suspended from the roof; here the leaves will be shorter and broader, the bulbs more plump and matured, and the spikes and flowers will push away in a more vigorous manner—a proof that the conditions I have described are those in which they most delight. When grown in such elevated positions they will require large quantities of water, with occasional syringings. If, too, the plants are raised on the stages, in the best places in their respective houses, plenty of water will be needed. If, however, a good number of these must be grown, it is much better if a division can be set apart for the majority of them, giving each plant plenty of room as it requires it, with strong light and fresh air freely admitted, and an occasional sponging to keep down red-spider or yellow thrips. *W. Swan, Fallowfield.*

Do Cattleyas Require Soil?

This is probably the most beautiful genus of orchideous plants we have, and one reason why they are so often found in a sickly state is, in my opinion, owing to the fact that their roots are covered over with soil. It is well known that Orchids are divisible into two classes—the "epiphytes," or those growing upon trees, and "terrestrial," or ground Orchids, which grow in the earth. That the two classes require very different treatment must be obvious to the most careless observer, and yet how often is this elementary truth overlooked. Inasmuch as on the health of the roots everything depends, it is, of course, of the greatest consequence to ascertain the best mode of preserving them in a vigorous state. If this is not done the plant cannot make a good growth. It will be admitted that in order to insure success in the cultivation of Orchids or any other class of plants we should as much as possible assimilate our artificial treatment to their natural wants; but do we carry this out in practice? Is it natural to grow epiphytal Orchideæ in pots, in lumps of turf, &c.? The derivation of the name appears to be at variance with such practice—*epi*, upon; and *phuo*, to grow or be produced, The late Mr. J. C. Lyons, who wrote a very valuable little work on the *Management of Orchideous Plants*, said that—"Provided a good and effectual drainage be insured to the roots, it was not of material consequence on what they are grown. They do not derive any nourishment from that to which they attach themselves; they grow equally well on a live tree, a dead or rotten branch, or a stone, deriving their sustenance from the moisture of the atmosphere only: they grow on other plants, not out of them." A few months ago I was going through the Orchid-houses of Henry Shaw, Esq., of Buxton—an enthusiastic lover of plants—and Mr. Shaw told me that he did not intend growing Cattleyas again in peat and moss, but as epiphytal Orchidaceæ should be grown, on blocks. These Buxton Cattleyas were certainly in fine condition, much more vigorous than many I have seen growing in peat and sphagnum. If one went in search of healthy roots of Cattleyas, Vandas, Saccolabiums, or Aerides, &c., no one would be insane enough to grope amongst the peat and sphagnum, inasmuch as, as a rule, the roots are dead or in a sickly state in this material. No; the fine vigorous roots are always found away from the peat and sphagnum, and thus the plants tell us in the plainest language "We are true epiphytes—air plants; give us suitable atmospheric conditions or we die. Bury our roots in peat and sphagnum, and if they don't die, they will become very much enervated."

We have the following kinds, growing vigorously in nothing but broken potsherds and charcoal:—Lælia anceps, L. furfuracea, and Cattleya Mossiæ. We have also the same kinds growing in the old way in peat and sphagnum. The result of the experiment will be the doing away with the peat and sphagnum, and the growing of these plants in a more excellent, because natural way. It seems to me that this is a subject pregnant with interest and importance, and I have introduced it in order that it may be discussed by those who have had charge of important collections. *Bruce Findlay, Royal Botanic Gardens, Manchester.*

Warner's Orchids.

Mr. R. Warner requests us to state that the publication of the *Orchid Album*, to which his name is attached, will in no way interfere with the issue of his larger work, *Select Orchidaceous Plants*, which will be continued at intervals, as before, and of which the fourth part of the third series is just ready for issue, to be shortly succeeded by the fifth part, which is already in the hands of the printer.

Vanda teres.

Sir Joseph Hooker says, in the *Botanical Magazine*, that he "has been credibly informed of a single plant of Vanda teres in Birma being a sufficient load for an elephant."

GOOSEBERRY DISEASE.

Few horticulturists or botanists can remember a season when the diseases peculiar to Gooseberries have been so widespread and damaging as during the present summer. The Gooseberry has this year been greatly injured by the Gooseberry saw-fly, the Gooseberry moth, and the Gooseberry fungus. The two former pests were illustrated in a recent number, so that it is the latter pest only that will be adverted to in the present notice.

The name of the fungus which has lately caused such great destruction amongst Gooseberries is Æcidium grossulariæ, DC. It is not confined to the Gooseberry, but it attacks Currants also, including at rare intervals the red-flowered Currants of our gardens and shrubberies. The fungus more frequently attacks the leaves than the fruits, but this season it has badly assailed the berries, causing them to become prematurely ripe, and giving them an offensive appearance and disgusting taste.

The Rev. J. E. Vize, of Welshpool, was the first to call our attention to the pest this year, and immediately after his communication various other correspondents, and correspondents of this paper sent infected leaves and fruits to be named.

The Æcidium of the Gooseberry seems to be very capricious in its appearance; sometimes it is very common, at other times so rare that not an infected leaf can be found. It sometimes grows in local patches, spreading badly over one county, and leaving an adjoining county quite free. Mr. Berkeley describes it as "very common," yet when he published the volume of fungi belonging to the British Flora, he writes "I cannot find this year a single specimen." We have very seldom seen it ourselves, and a fungological friend who has for many years made fungi a speciality, writes, that he looked for it in vain for ten successive years—viz., from 1870 to 1880; he ultimately found it for the first time in 1880. It was then (and this year too) he writes, common on the fruit. Another fungologist who lives in a different part of England writes, that he finds the Æcidium in greater or less quantity every year; this observer writes, however, that he never saw it but once on the fruit. The same gentleman describes an attack of the Æcidium as seen on Gooseberries, in poor stony ground in North Wales, where the whole of the crop was infested to an extraordinary extent. The experience of Mr. Vize is that the fungus is one year very abundant, and another year very scarce.

We have several times in the *Gardeners' Chronicle* described and illustrated fungi belonging to the genus Æcidium, one of the more recent examples selected for illustration being the Æcidium of the Acacia (*Gardeners' Chronicle*, May 28, 1881, p. 688).

The accompanying illustration (fig. 17) gives a fair idea of the general appearance of a small Gooseberry branch with two leaves and three berries all attacked by the fungus. Very little of the nature of the fungus can be made out by the unassisted eye; not more at first than a yellow or orange patch or daub, which, on careful scrutiny, resolves itself into a series of closely-packed little circles, cups, or *wheels*; hence the name of the fungus—Æcidium, like a wheel (?). A pocket lens will show that the leaves and fruits are finely dusted with the orange-yellow fungus spores, and a superficial examination will show that the leaves and fruits are more or less distorted, twisted, swollen, withered, and discoloured.

If we take a sharp knife and cut through one of the orange clusters of small wheels or cups as found on the Gooseberry leaf, the first fact to attract our notice will probably be, that the lamina of the leaf where the fungus grows is at least four times as thick as the natural green part of the leaf blade. Fig. 15 shows a section through a cluster of cups, enlarged eight diameters; the natural thickness of the leaf is shown at A and B, the abnormal thickening at C. At the place where the wheels grow the tissues are diseased, the leaf-cells enlarged in size and discoloured, and the affected portion of the leaf curved, concave on one side, convex on the other. If the little yellow circles are looked at very carefully with a lens it will often be found that there are about ten or a dozen very minute black specks in the middle of the company of yellow circles, and that upon reversing the leaf a larger company of these small black specks may be found on the other side of the spot on which the yellow ones grow. In fig. 16 a row of the larger orange-coloured cups, and the smaller black ones, are seen in section. We may as well say here that the top of fig. 15 represents the bottom of the leaf, and the lower part of the figure the top surface. This practice of illustrating is invariably followed: leaf fungi, as a rule, grow on the lower surfaces of leaves, and the leaves must be turned up to see the fungi. It is the same with the fungus of the Potato disease and the majority of leaf fungi—they grow on the under surface.

Fig. 18 is a small fragment of the abnormally thickened leaf-blade magnified 60 diameters, with the orange cups above and the black cups below: both are embedded in the leaf and seen in section, several hairs of the Gooseberry leaf are also seen on both surfaces. The two top cups (belonging to the lower surface of the leaf) are the Æcidia proper. Each cup is furnished with a bark of a single row of cells, named the peridium, and this peridium, bark, or coat, is stuffed full of minute globular yellow spores; the spores are slightly attached end to end, like beads on a string, and as they burst through the mouth of the peridium they often emerge in necklace fashion, but sometimes fly out singly or in pairs, and sail through the air, or alight on the hairs and leaf-surface, as shown in the illustration; these spores grow from mycelial or spawn threads at the bottom of the cup, and as the growth gradually goes on from below so the upper spores get pushed out from the top. In an early stage of growth the cup is quite immersed in the flesh of the leaf, as at D, but at length the mouth of the Æcidium gets well be-

yond the surface of the leaf, and in some species (as in Æcidium ornamentale of the Acacia, before referred to) the cup becomes greatly elongated and almost superficial. On the opposite surface to the heap of yellow cups there is often a collection of minute black dots not one-half the diameter of the yellow ones. The black dots are termed by botanists spermagones, each spermagone is furnished with a mouth or ostiolum, and a bark or peridium of compacted mycelium. From the inner walls of the spermagone numerous minute filaments or threads grow, and some of these are generally seen emerging from the mouth as shown in the three spermagones illustrated at F F F. On the tips of these threads minute colourless spore-like bodies are borne, termed spermatia, and these small spermatia emerge from one set of small flasks on one side of the leaf, just in the same manner as the yellow (and larger) spores emerge from the larger flasks on the other side of the leaf; the minute spermatia are seen emerging at G G G. The bristly mouth of the spermagone is often glued up with a tenacious liquid secreted by the spermagone; in wet weather this fluid gets softened out, and the spermatia sail about in it, like the zoospores of the Potato fungus on a wet leaf. The spermatia, however, are in no way comparable with zoospores; they should rather be looked upon as analogues of the antherozoids of Ferns, mosses, and the Algæ. In other and general terms the spores from large cups may be compared with ovules, and the spore-like bodies from the small ones with pollen-grains; the upper is probably a female production, the lower probably male. As it is by no means uncommon for the orange and the black flasks

FIG. 15.—GOOSEBERRY DISEASE.
Section through one of the yellow thickened blotches from leaf: enlarged 8 diam.

FIG. 16.—GOOSEBERRY DISEASE.
Spores of the fungus: enlarged 480 diam.

to grow in company on the same surface of the leaf, the two sets of spore-like bodies often come in contact, and nothing is more common than to see innumerable Æcidium spores thickly studded all over with spermatia, just as the antheridium fixes itself on to the oogonium in the fungus of the Potato disease. Tulasne holds the opinion that the spermatia are analogous with spermatozoids, but De Bary combatted the idea on the ground that he had made Æcidium spores germinate that were taken from plants where no spermagones were present. Professor De Bary's grounds, however, were very insufficient, for no one could prove that spermagones were not present on an affected plant. Had he, however, been able to accomplish this difficult task, spermatia might have been very easily brought from neighbouring plants. In the last edition of Henfrey's *Elementary Course of Botany* an intermediate course is taken, for Mr. George Murray there says (p. 460) the subject is "wrapt in mystery."

We were very fortunate in getting some first-rate specimens of infected Gooseberry fruits for examination, and we have selected three, seen in section, for illustration (see fig. 19); these three figures show the damaging effect of the fungus on the interior of the fruit. The orange cups grew thickly over the exterior of the berries, and in the central example the black cups of the spermagones were *intimately mixed* with the orange cups on the short stalk of the fruit at H. The skins of the fruits were greatly thickened and almost woody; the odour, like the taste, was very unpleasant, and strangest of all, there were as many orange pustules inside the fruit as outside. The interior flasks were, however, less regular in shape and pale ochre in colour, and the innumerable spores contained in the pustules were different in size and apparently in nature. The spores from the external cups are illustrated at J, fig. 16; these are furnished with a thick coat, and the con-

FIG. 17.—GOOSEBERRY DISEASE (ÆCIDIUM GROSSULARIÆ, DC.).
Affected leaves and fruit: natural size.

densed protoplasm within is slightly folded: at L is shown a similar spore with spermatia attached. The spores from the interior of the fruit were larger, without pedicels, furnished with a very thin coat, and filled with a protoplasm containing ochreous granules more like an Uredo-spore than one belonging to Æcidium.

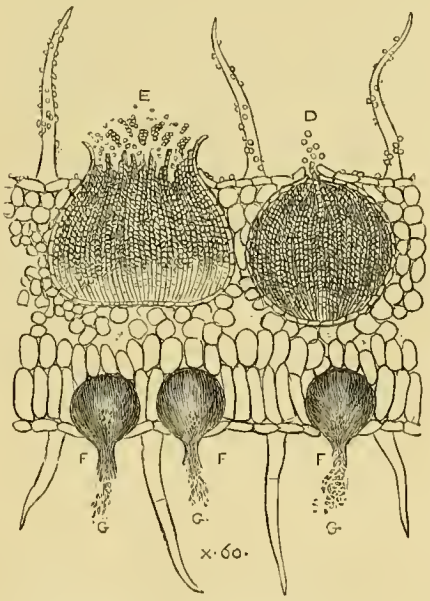


FIG. 18.—GOOSEBERRY DISEASE.
Section through blotch on leaf, showing the deeply-seated fungus growths: enlarged 60 diam.

The genus Æcidium will always possess great interest for agriculturists, horticulturists, and botanists, owing to the well founded presumption that all Æcidia are merely one condition of other fungi. Prof. De Bary has shown that the spores of Æcidium berberidis will not germinate upon the Berberry itself; in fact, the Æcidia are produced upon the Berberry by the germination of the spores of the fungus of corn-mildew. To ensure the germination and growth of spores of Æcidium berberidis they must in their turn fall upon the leaves of corn or some other grass, and then they do not reproduce the Æcidium itself, but corn-mildew, Puccinia graminis, an ally of the much dreaded Hollyhock disease (see *Gardeners' Chronicle*, June 13, 1874, p. 767). When the Æcidium spore of the Berberry falls on a leaf of Wheat it bursts, and the thread from the spore enters one of the organs of transpiration of the Wheat leaf. Here it forms what are termed Uredo-spores, simple ovate, ochreous spores filled with granular protoplasm (similar to those we found in abundance in the interior of the Gooseberry); these Uredo-spores go on growing, bursting, and germinating during the summer, and at length from their own threads the Puccinia of the Wheat or corn-mildew arises. The spores of the Puccinia are not round, or ovate and simple like the spores of the Æcidium and Uredo, but long and divided by a septum in the middle, as in the Hollyhock fungus. Now these compound Puccinia spores are like resting-spores, for they live and rest all through the winter on the decaying leaves and stems of corn and grasses. In the spring they germinate on the decaying material, produce threads, and these threads carry (not corn-mildew spores, but) Berberry-blight spores. Such of these spores, then, as alight on the Berberry leaf pierce the cuticle at once, enter the flesh, and produce the flasks of the Æcidium inside: the flasks speedily push their mouths through the cuticle, the spores get blown away, and those which happen to fall on corn blight it with the mildew.

On grounds such as these, it is assumed that the

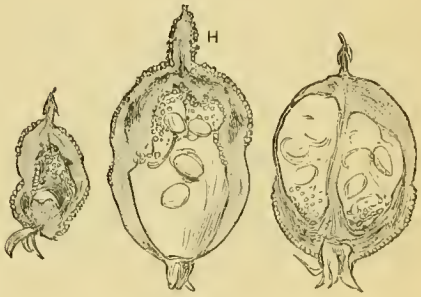


FIG. 19.—GOOSEBERRY DISEASE.
Section through diseased fruits: nat. size.

Æcidium of the Gooseberry is merely one condition of some other fungus, probably a Puccinia, Uredo, or both. On to what plants then are the spores of the Gooseberry Æcidium carried, so that it may take another and more permanent form, at length pass the winter unscathed, and attack the Gooseberries next summer? No one knows. There is a slight gleam of new light in this paper, in the fact of the Æcidium mycelium of the Gooseberry being capable, under certain conditions, of producing Uredo-like spores, and this fact strongly points to the possibility of some Uredo and Puccinia being the ultimate condition of the Æcidium.

We are in the dark to the same extent with many species of Puccinia. Is the Hollyhock disease at one stage of its growth an Æcidium upon some totally different plant? This is possible, but no one knows for certain. At any rate we have been unable to make the spores of Puccinia malvacearum germinate upon the leaves of Hollyhocks or of any other Malvaceous plant. When the Puccinia spores go to rest in dead and rotten Hollyhock refuse, they germinate in spring, and do not attack the Malvaceæ at once certainly, but probably make an attack upon some quite different plant. The Puccinia of the Hollyhock may have brought with it to this country some as yet undetected new British Æcidium. *W. G. Smith.*

BRACHYCOME IBERIDIFOLIA.—Few annuals of dwarf habit make a better show than this—the Swan River Daisy. It grows about 1 foot high, makes a neat compact little clump, and produces in great profusion its lovely flower-heads; the ray-florets of which vary from dark purple to lilac and pure white. Introduced to this country in 1841.

ROSE NOTES

Rose growers with short memories owe Mr. Shirley Hibberd a debt of gratitude for the full "list of Roses of the past half century," which he published in last week's number of the *Gardeners' Magazine*. As Mr. Hibberd says, it is not in the tedious task of preparing such a catalogue that a man has a peculiar conviction of infallibility. The only safe way of attaining such a conviction is to do nothing or to find fault. We can thoroughly appreciate, from like experience, the amount of honest labour put into this catalogue, and we can at once form some idea of the gratitude due to its compiler. We fear, however, that he will experience the fate of compilers of similar lists, and find that those for whose special benefit they are compiled, and who could not, if they would, draw up such a one for themselves, are the first to find fault. On our parts we are so grateful to Mr. Hibberd that we are already keenly anticipating favours to come, and hoping that this list may form the basis of a series of historical notes, showing the gradual processes of evolution, not merely structurally and objectively, but æsthetically and subjectively, through which we have arrived at the Marie Baumanns and Alfred Colombs of our time.

Rosa lucida.

This is a "species" we can recommend to Rose lovers whose sympathies are not exclusively confined to H.P.'s, Noisettes, and Teas. The dark green shining foliage, whence the name, and the large rose-pink flowers, are very attractive. It is a native of North America, but has long been grown in the gardens of the faithful.

Sweet-scented Roses.

Will you or any of your readers kindly give me the names of a dozen of the finest Roses for perfume? I am much struck by the remarks of your correspondent "Wild Rose," and wish to take the advice given in his excellent notes in reference to fragrant Roses. *J. L.* [Mr. William Paul has kindly favoured as with the following list of twelve very sweet-scented Roses:—"La France (H.P.), Devoniensis (Tea), Gloire de Dijon (Tea), Charles Lawson (H.C.), Soupert et Notting (Moss), Fisher Holmes (H.P.), Saint George (H.P.), Pierre Notting (H.P.), Marie Baumaun (H.P.), Queen Eleanor (H.P.), Abel Grand (H.P.), and the Old Provence." Eds.]

Roses.

Ours have not done well this year, nor have they generally been satisfactory from light soils. Those who have deep clay soils always have a great advantage in dry seasons, although much is gained by mulching round the roots of the trees, as recommended for Dahlias. The decaying flowers should be cut off to a good bud, but do not cut off the buds lower down the stem. Cuttings of the half-ripened wood of Tea Roses, put in now under hand-lights, root very freely if they are carefully tended. The cuttings should be taken off with a heel, and if there are two eyes aboveground, that is enough. I put in from six to a dozen cuttings in a 6-inch pot, using fine sandy soil. The potting soil must not be allowed to become dry, and the lights must be kept close over them until roots are formed, when air must be admitted, gradually at first, and then quite freely. *Douglas.*

Notices of Books.

A Winter in Madeira. — Lord Henry Lennox, with his usual good nature, delivered an address on the subject of Madeira to the members of the Chichester Working Men's Institute, and if he had confined himself to the spoken address the working men of Chichester would not have had much reason to regret the hour or two they expended in listening to his lordship; but unfortunately, as we think, he has chosen to publish his address, and has laid himself open to criticism, which would otherwise have been uncalled for. In fact, the address is just what one would expect a familiar letter to a friend to be; but when printed and published, and dedicated to a "Serene Highness," the reader has a right to expect that the subject-matter brought before him shall be accurate, so far as it goes. The Madeira gardeners, we are told, are so "crassly ignorant that they seldom know even the names of the flowers or shrubs which are under their care." This may be so, but this lack of knowledge is not confined to them, for a few pages further on we are told that "the brilliant Bougainvillas, the purple (spectabilis) and the red (lateritia), which are so completely exotic that they have never yet, as far as I know, flowered even in the Hottest of Hot houses [*sic*] in England." Surely Lord Henry did not consult Mr. Rutland on this point before he penned that sentence. It is not so very long ago since the late Mr. Wm. Longman published in *Fraser*, if we remember rightly, the account of a trip to Madeira, which it is to be regretted did not fall into the hands of his lordship before he ventured upon publication, more especially as he complains of a lack of books on the subject of Madeira—a lack which pertains specially to his Lordship's library—we presume.

—— *The Micrographic Dictionary.*—A fourth edition of this useful work is in course of publication by Mr. Van Voorst, under the editorship of Dr. Griffith, and with the collaboration of the Rev. M. J. Berkeley and Professor T. Rupert Jones. A large number of new objects have been described and figured.

Florists' Flowers.

Auriculas.—If the repotting of the plants has been delayed until now there ought to be no further delay. Before repotting let the greenfly be brushed off, either by fumigating with tobacco-smoke or using a brush. The plants should be put in a cool place, where they are shaded from the sun during the hottest part of the day. The glass lights should not be placed over them unless to protect the plants from heavy thunder showers. The seed is now ripening in the pods, and ought to be carefully saved and sown at once. The produce of seeds sown at this time last year should be repotted. Our plants—or, at least, the strongest of them—are growing freely, three in small 60-sized pots; they will be now repotted singly into similar sized pots. Offsets of choice varieties should be carefully attended to, and be repotted as they require it.

Carnations and Picotees.

The hot weather hurried them into bloom at a very rapid rate. We were pleased to see a change to cooler weather, as the flowers, which are forced into bloom in a temperature of from 85° to 90°, cannot be of good quality. The weather has been very favourable to the development of greenfly. These and thrips are a great pest to us, and it is very difficult to get at them when the colour is showing on the flowers. It is always a good plan to fumigate well before the plants are taken out of the frame in the spring. The opening flowers must be attended to in order that the pods may be prevented from bursting. Tie them round with a strip of matting; and it may be necessary to slit down the pods a little on the side opposite to that on which they seem likely to burst.

Dahlias.

It is a good plan to syringe these overhead on the evenings of dry hot days, and see that they do not want for water at the roots. Where water cannot readily be obtained there is considerable labour in attending to such plants as these, and on this account there ought to be no waste. There is nothing better than a mulching of rotten manure over the surface. It prevents evaporation, and also keeps a more equable temperature round the roots. Earwigs and slugs are both troublesome pests, and should be watched for constantly: it is too late after the best flowers have been eaten. The plants will be growing freely now, and the shoots must be early fastened to sticks.

Hollyhocks.

The dry hot weather has caused a great increase of red-spider where it has not been kept off by syringing. Whether there is spider on the leaves or not, syringe them daily on the undersides, where the pest always appears first. Water freely, and mulch the same as the Dahlias. All the side-growths should be cut off as soon as possible; by doing this early more strength is thrown into the main stem. All the buds at the base of the leaves that are not flower-buds should be put in in the same way as Vine eyes to produce young plants. They do well in close frames or hand-lights.

Pansies.

The earliest struck cuttings may now be planted out on a rich piece of ground, and they should be protected from the direct rays of the sun; at this season they do well behind a wall or fence. It is now a very good time to put in cuttings to produce plants for early spring blooming, or for pot-culture. They ought to be in a shady place also, and the soil should be light. I use loam and leaf-mould in the proportion of one of the latter to two of the former. It is a good plan to put the cuttings into boxes, so that they can be moved readily from one place to another. Dip the cuttings in soapy water to kill greenfly before putting them in.

Pinks.

Now is the time to get all the stock of these propagated as speedily as possible, so that they may form plants that will produce a good head of bloom next year. The best blooms are obtained from young plants, and those that are older may find space in large herbaceous borders, as two-year-old plants produce a large quantity of flowers that are very useful to cut for vases, bouquets, &c. Seedling Pinks are as easily raised as Sweet Williams, if good seed can be obtained. Seedlings are flowering now, but all of them should be rejected except the moderately full flowers with well-shaped petals; these ought to have smooth edges and regular bright-coloured lacing. Flowers with rough edges and broken lacing must also be rejected.

Ranunculi.

We have had a grand bloom of these, both of the English and French strains. They are now over, and we have lifted the tubers, laying them out in a loft to dry, when they will be wrapped up in paper until planting time. The beds are useful for planting Pansies to obtain a late bloom. *J. Douglas.*

Garden Operations.

HARDY FRUIT GARDEN.

The storms of rain, which were pretty general throughout the country last week, will have greatly assisted the swelling of fruit crops where the ground was in a suitable condition to receive the moisture; but where the surface was very dry and the soil full of cracks, most of the water may have passed away without thoroughly moistening the mass of soil. Too great attention cannot well be paid at this season to the state of the borders of fruit walls to insure a sufficiency of moisture for the roots of heavily cropped trees; for it sometimes happens that a heavy downpour of rain upon parched ground is depended upon as having fully supplied their wants, while in reality the earth is quite dry at a few inches from the surface. If sufficient water can be applied by hose or garden engine to the foliage of the trees to soak the earth thoroughly as it runs down from the wall the double purpose of watering and cleansing will be at once effected. Attend to the extension shoots of Peaches and Nectarines, keeping them nailed-in, and continue to lay-in thinly other shoots as they require it, taking care that they are, as far as possible, laid-in in the direction they are required at the winter nailing, and tying-in closely the heels of any that do not start properly. The young growths are now pushing fast from bearing shoots that have been previously pinched-in: let all such secondary growths be removed as often as they push, only allowing them to extend one leaf beyond the point to which the shoot was last pinched. This close pinching of laterals will frequently cause the most gross shoots to become fruitful, and, with young trees at least, is preferable to the often recommended system of cutting back to a lateral which is to be trained in the place of the shoot removed. Apricots, Plums, and other stone fruits will also at this time of the year require to have all secondary growths removed, and the extension shoots carefully nailed as they advance in length. Swelling fruits may require more nails removed in order to give them room for perfect development; and many little details of culture will now require unceasing attention and almost daily watchfulness on fruit walls. Plums may yet be thinned if the fruits have set too thickly—ours are but a thin crop, being the only exception to an otherwise heavy crop of all stone fruits. Let suckers be carefully removed by pulling each up singly, which will generally bring the "robber" cleanly away. Assist the swelling of Figs on walls by keeping the points beyond the fruits pinched-in to three or four leaves; and attend to the tying-in of extension and other shoots frequently, as the wind takes strong hold of the massive foliage. As soon as the Strawberry crop is cleared off, and the necessary runners are laid, see to the removal of all other runners from plantations that it is intended to continue another year. Old batches may be cleared away, even when in still good bearing condition, to allow of some being planted each year without unduly

increasing the extent of ground under Strawberry cultivation. Take an early opportunity to prepare the ground for fresh plantations, if not already done by trenching and working in a quantity of rich manure. It is advisable to have the ground prepared in good time in order to allow time for it to settle, otherwise it takes some trouble to firm the ground for the well-being of the young plants, which can be saved, and the planting more effectually performed if the position has been prepared early. Strawberries may be successfully cultivated for many years without renewal by attention to liberal feeding, but the fruits are rarely so fine as those from regular successional plantations. Every means must now be used to protect the various ripening Small Fruits from birds. As there are few gardens where everything can be netted, it is often needful to resort to scaring the feathered depredators. A gun does this more effectually than any clapping of boys; but by whatever means they are to be kept at bay, it is above all necessary to be about by times in the morning when the appetites of the birds are keenest, and when even nets are not always proof against their extra boldness. Take every opportunity of gathering the fruit when thoroughly dry, both as a necessary condition for preserving fruit, and as a precaution against the blame for spoiled conserves that so frequently falls upon the gardener, when, possibly, some one else is to blame. *R. Crossling, St. Fagan's Castle.*

FRUIT HOUSES.

Vines.—Early vineries from which all the Grapes are cut must now have an abundant supply of air night and day, and if the laterals are crowded shorten them back, so as to fully expose the wood to the influence of the sun and air, so that it may be thoroughly ripened early. Water the borders thoroughly when dry with clear water, and if there are any red-spider or thrips about, syringe the Vines copiously every evening until clean. Early Vineries, if in good health, ought to keep the leaves in good condition for some time yet, as it plumps up the buds and they break more freely the following year. Never attempt to ripen the wood early by withholding water, for with full exposure to sun and air the wood will be ripening though the foliage remains good. Vines from which Grapes are being cut should be watered with clear water when necessary, and on bright days the paths and borders damped with tepid water towards mid-day when there is a full supply of air on. Succession houses, in which the Grapes are on the point of colouring, must have the borders examined, and if dry have a thorough soaking of clear tepid water, and after that they will go without damping down for a few days. When colouring, keep them as advised in previous Calendars. Muscats that are ripe will not now require any fire-heat, and must have air left on the back ventilators night and day, according to the state of the weather, damping the house down on bright days. Muscats that are ripening keep in a little drier atmosphere, damping down in the early part of the day, closing early in the afternoon, and keeping a little back air on all night. Very little fire will now be required, but on dull days a little will be beneficial; those that are still swelling require a brisk, moist heat, giving liberal supplies of tepid manure-water to the borders when necessary. Pull out all the laterals now that the trellis is covered with healthy foliage, leaving only what can be fully exposed to the light. Late varieties of Grapes, started as advised in previous Calendars, will not require any fire-heat while this hot weather lasts. If a change to dull, cold weather takes place turn a little heat on early in the day, and close early in the afternoon, regulating the laterals as they require it, and watering with tepid manure-water when necessary. Keep late houses of Hamburghs as advised in my last Calendar, giving a liberal supply of air on bright days. Newly-planted vineries must have the borders both inside and outside examined, and when dry have a good supply of clear tepid water. If the borders were made as previously advised, they will take a large quantity of water, and must not by any means be allowed to get dry. Give plenty of air early in the day, close early in the afternoon, and at closing-time syringe the foliage as well as damp the paths and borders, which will keep them clean and healthy. Pot-Vines for next year's fruiting require plenty of room, that they may be fully exposed to sun and light. Give them a good supply of manure-water now that the pots are filled with roots, and plenty of air on bright days. Those that are for planting will do closer together if short of room, but give these all the space that can possibly be spared. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

Those plants which were put into fruiting pots should have every facility given them to make a sturdy and rapid growth, and they will make more progress during the next ten weeks than they have made up to the present time. Close the houses early in the afternoons at 90°, and let the temperature reach 100° for a short time, as recommended for fruiting plants. Charge the atmosphere copiously with moisture, and keep on the shadings for an hour after closing. A good number of fruits will now be showing, these should be staked as the fruits are set and the crowns are well formed. If the accommodation will allow for Queens to be grown in one division they do better and can be treated differently, and the heat be well maintained. When succession plants require shifting put them into their permanent places so as to avoid unnecessary moving, which only breaks the best leaves. As the plants are moved from one place to another, never tie up their leaves, for if well grown they they sustain more damage than if left loose. Front ventilation is a very important matter, and yet very often overlooked even in the most modern structures. When this is the case provision ought to be made for a free circulation of the atmosphere by admitting a portion of the air in the front of the house. If no part of the front of the house is movable this defect should be remedied. I will describe a plan carried out here ten years ago, for although the houses were then but recently built yet no front ventilation had been provided in the first instance. In the front of the houses, betwixt the brickwork and front roof, is a fixed glass front 1 foot deep, divided into panes 1 foot square. I have taken out every fourth pane, and in the place of the glass is fixed, with a simple device, a sheet of perforated zinc exactly the same size. Then on the outside of the zinc a light door of the same size is fitted in with a screw and nut: this holds the door in its place. When the door is taken out the cold air enters, and the zinc moderates the cold currents which pass over the front pipes. In very hot weather both are taken out, which gives ample front ventilation. It is also found very convenient for watering the front plants, or cutting the fruit, or making any other examinations that may be required. *D. Wilson, Castle Hill, Devon.*

Orchard House.

The fruit has now passed the stoning period, and a high temperature will cause it to swell rapidly and well, if at the same time the trees are well supplied with water at the roots and over the leaves. If there is any lack of water a high temperature will do more harm than good. The house may be shut up shortly after 4 P.M. until the fruit becomes soft, and is near the ripening stage, when the ventilation may be reduced; but the ventilators ought to be open a little all night. Continue to apply surface dressings to any trees of late varieties on which the fruit has not swelled much. It may be as well to state that persons who have not much knowledge of general garden work, but who have taken up the culture of orchard-house trees as an amusement, would perhaps be more successful if they did not maintain such high temperatures; there is then always more danger of the crop being injured by a little neglect. The late Mr. Rivers advised fastening the front and back shutters, so that they could not be closed night or day. He had known instances of the trees being injured by neglect of opening the ventilators in the morning. It is a good plan to syringe the trees at 6 A.M., and open the ventilators a little immediately after; very small openings cause a circulation, and if the day promises to be bright and warm more air may even be admitted at 8; in very hot weather it may even be necessary to open the doors, as well as all the ventilators. If the fruit has been gathered off the trees in the early house a drier atmosphere is more suitable, with more ventilation. The trees should also have a thorough drenching with the garden-engine as soon as the fruit is gathered, to cleanse the leaves of red-spider, which seldom fails to appear with the drier atmosphere maintained while the fruit is ripening off. I have known cultivators who would be very sparing of water to the roots of the trees when the wood is ripening; but this is a mistake, even if the trees are planted out, and very much more so when the roots are confined to pots. Water should be supplied quite freely, as at this time the fruit-buds are forming for next season's crop. It is time enough to withhold water when the leaves show traces of decay.

Orange Trees.

These, being in a high temperature, must needs require a good supply of water at the roots and over the leaves, and this ought to be as warm as the temperature of the house, or warmer. Insect pests increase rapidly during the hot weather; mealy-bug will get upon the fruit, and cluster round it, doing much damage. We wash both it and scale off with a sponge and soapy water. It would be easier to keep the trees clean if they were in a house by themselves, but where they are mixed up with other plants the difficulty of managing them well is much increased. The aim of the gardener should be to obtain fruit at a time when foreign fruit cannot be had of good quality. A succession can usually be obtained from November until February, and that of a quality far superior to any imported. By resting the trees at intervals, fruit can be had every month in the year, and that from a few trees only. If fruit is ripening now less moisture and heat will be required than for those trees on which the fruit is yet green. The ripe fruit will also hang in good condition on the trees for two or three months if they are removed into a vinery, and placed under the Vines where Grapes are ripe. *J. Douglas.*

PLANT HOUSES.

Watering, &c.—The almost tropical weather that we have experienced of late will necessitate very careful attention to this point. When once a cultivator becomes well acquainted with the subjects he has to cultivate, this is certainly an easier matter. Some plants—Palms, for instance, and many of the strong, robust growing Ferns—may be watered *ad libitum* when they are well rooted and potted in good fibrous soil, with abundance of drainage. Palms, in fact, ought never to be allowed to become dry; and woe betide the Tree Fern that is in luxuriant growth and perchance gets overlooked and allowed to flag. A good coat of sphagnum moss around the stems of the latter will absorb a large amount of water, acting as a reservoir to the rootlets clustering around the stem. Of small growing Ferns one of the first to suffer from want of water is Pteris scaberula; this Fern scarcely ever recovers its beauty, if once neglected, till another crop of fronds appears. Nearly all fine-foliaged plants luxuriate in abundance of water, but exception must be made as regards Yuccas and such-like plants. The treatment of Ericas and other such Cape plants, and many New Holland subjects, as Dracophyllums, Pimeleas, and Boronias, with regard to watering, should be watched closely. It is better to leave this work in the hands of one person, who can then better judge when any given plant will require water. When this operation is performed with this class of plants, give sufficient water to thoroughly percolate the entire ball of earth, but do not in any case water the plant till quite convinced that it requires it. Rain-water is the best for all these tender, fine-rooted plants. If the pots of specimen hard-wooded plants should be exposed to the sun it will be a good plan to shade them with any material at hand—old sacking or mats will do; this will prevent a too rapid evaporation when the sun is shining brightly on their surface In my opinion more young cultivators fail in plant culture through not paying proper attention to the due requirements of plants with regard to water, than from any other cause.

Stoves.—Where short of room for small plants any young stuff such as seedling Gloxinias will, during this month and next, thrive well in a frame or pit; if they can be plunged in a slight bottom-heat so much the better. Sturdy dwarf plants with a fair crop of bloom may thus be had during the autumn. Achimenes in pots, pans, or hanging baskets should have abundance of water with occasional doses, of liquid-manure. Pick off all decaying flowers, or the foliage will soon become disfigured. If red-spider appears slightly dust with sulphur to check its increase. A few cuttings struck now of Eranthemum pulchellum will make useful dwarf plants for the stove during next winter. Older plants should be pinched a few times to give a stocky growth. Do not overlook the stock of winter-blooming stove plants. Where these are established it will be well to expose them to more light and air, which will keep the plants dwarfer and render them more floriferous. Dipladenias, Ixoras, and Allamandas will now make this structure gay with flowers, and give a good supply for cut purposes. In order to prolong the blooming period give occasional doses of liquid-manure as a stimulant.

Greenhouse, Pits, &c.—Any winter-blooming Epacrises or Heaths that are pot-bound may have a shift; this will help to keep them in better health when in flower. Tree Carnations should be pinched if they are becoming too tall; keep them staked and tied as they require it, but do not let them flower yet if a crop is desired in the winter. Bouvardias will do well now if turned out in a good prepared border and kept from flowering. Globe Amaranths and Celosias should receive attention now; they will do well in a cold pit, and render good service in the autumn. Browallias may be grown in the open air, stood on a bed of coal-ashes, and slightly protected from the wind; they will make better plants than if grown in houses and allowed to become drawn. Where any young stock is struck of Aloysia citriodora I would advise some plants to be grown with single stems to any convenient height, then pinched in so that a nice head may be had. Standard plants of scarlet and other Pelargoniums are also very useful subjects for the conservatory. Grown in this manner they are very effective when in bloom. It will be advisable now to look over all the stock of these plants, and prepare those for autumn and early winter flowering that are intended for that purpose; shift such as are pot-bound, and keep the flower trusses pinched off.

Conservatory.—In the arrangement of this structure many plants may now be used that are usually grown in the stove; these will impart a new feature and add to the effect, besides relieving the latter house for a while. *James Hudson, Gunnersbury House Gardens, Acton, W.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	July 18	Sale of Established and Imported Orchids, at the Auction Mart, by Protheroe & Morris.
Tuesday,	July 19	Carnation and Picotee Show, at South Kensington.
Wednesday,	July 20	Sale of Imported Orchids, at Stevens' Rooms.
Thursday,	July 21	Sale of Established and Imported Orchids, at Stevens' Rooms.

WHILE we have too much reason to lament the losses of the two last winters we are not left void of compensation. Scarcely within our recollection have the Hardy Trees and Shrubs been more full of bloom than they have been this season. Their extreme luxuriance will, we hope, serve to draw renewed attention to them, and remind gardeners of their great value. The Philadelphus speciosus we figure at p. 81, and for which we are indebted to Mr. Lynch, of the Cambridge Botanic Garden is a case in point. All the species are worth growing for the profusion of their snow-white and usually fragrant blossoms, but this, in particular, is remarkable for its very large flowers, which exceed those of P. coronarius or P. grandiflorus. Nothing can be more striking at this season than these lovely shrubs, and if Orange-blossom for a particular purpose be not forthcoming, what better substitute can we have than the flowers of the Philadelphus? And to mention only a few of these hardy shrubs which are worth cultivation let us look back, if we can, with the thermometer over 80° in the shade, to early winter, with the exquisitely scented Chimonanthus, the quaint Hamamelis, to the bright flowered Daphne Mezereum, the brilliant Jasminum nudiflorum, the white-flowered fragrant Lonicera Standishii and fragrantissima. A little later come the flowering Currants, the Ribes sanguineum with its varieties, and the R. aureum with its golden clusters, the lovely Rubus deliciosus, whose portrait we gave lately; the very striking Rosa rugosa, with its red and its white varieties, striking alike in foliage, in flower and in fruit; and then, as spring gives way to summer, the Amelanchier, the golden-belled Forsythia, the golden balls of the Kerria japonica, the Lilacs, the glowing bushes of Genista and Cytisus, the gold and bronze clusters of the Coronilla, the pure white of the Exochorda, that little known but very lovely shrub, whose portrait we also give in the present issue (fig. 13), and the massive flower-heads of Viburnum plicatum. Then come the Spiræas, with every tinge of rose and pink and white, not forgetting the very graceful S. Lindleyana, now with us just showing for bloom. The Weigelas, too, have been very full of bloom, and unusually rich in colour this season. The elegant Leycesteria formosa we fear has been killed by the frost, in any case we have not seen it this season, and our own shrubbery knows it no more. Then there is the curious Wig-plant, Rhus cotinus, whose plume-like inflorescence, of much show and little flower, always attracts attention, and whose leaves die off of so brilliant a colour in autumn. Ceanothus, with us, have suffered so severely that for this year we shall get no bloom; but Colutea, with its elegant foliage, bright flowers, and bladdery seed-pods, is in unusual beauty. Clematises have compelled attention by their splendour, and it is a matter of satisfaction to know that the winters have not hurt them. The curious Periploca is not so fortunate: like the Ceanothus, it is cut down, but not beyond hope of recovery. Hibiscus syriacus—the Althæa frutex of gardens—which begins to come with the Gladioli, but outlasts them, is another flowering shrub whose beauty and astonishing variety in both single and double flowers lead us to wonder how it is so much neglected as it is.

We have mentioned only a few of these beautiful things just as they occurred to us in writing—enough at any rate to show what beauty and variety there is in the class of deciduous flowering shrubs. Moreover they are of the easiest possible cultivation—they require merely to be planted and let alone; of course they repay any attention that may be given them, but they do not, like some things, refuse to grow unless they have it, and for the most part they are among the hardiest of the most hardy. We have many already, but Japan, America, Central Asia, Afghanistan, have many more to reward the diligent investigator. Floral Committees and such-like bodies might do more than they do in encouraging the introduction of new things even if they do not when first introduced come up to the standard set up by those exacting bodies.

—— Herr Hildebrandt.—Some time since we announced the death of this energetic botanical traveller. It seems we were premature in making an announcement, which now, however, is unfortunately true according to a telegram received from the Prussian Consul at Tamanarivo. We have to deplore the loss of one whose decease will be felt alike by those interested in the progress of science, and by his personal friends.

—— The Carnation.—The committee of the National Carnation and Picotee Society have arranged with Mr. Shirley Hibberd to deliver a lecture on the Carnation given in connection with the Society's exhibition in the conservatory of the Royal Horticultural Society, at 3 P.M. on Tuesday next.

—— Sweet Betsy.—We were interested the other day to find this name applied by the residents in and near the Isle of Thanet to the red Valerian, Centranthus ruber, which is so abundant on the chalk cliffs and railway cuttings in many parts of Kent, and which is also a very showy and very frequent occupant of cottage gardens. We do not find the name recorded either in Prior's *Popular Names of British Plants* or in the *Treasury of Botany*.

—— Mr. C. C. Babington, Professor of Botany at Cambridge, is the new President of the Cambrian Archæological Society. He will deliver the inaugural address at Church Stretton meeting in Shropshire on Monday, August 1.

—— The Census.—As a broad general result it appears that the population of the British Islands is over 35,000,000. Some of the agricultural districts show a diminution, the population of London and some of the larger towns being proportionately increased. The population of Ireland has diminished by 38 per cent. since 1841.

—— Bentley Priory.—This estate, near Stanmore, formerly in the possession of the Abercorn family, and for the last quarter of a century of Sir John Kelk, is announced for sale. Queen Adelaide lived here for a few years, and ended her life here in 1849. The *Builder* of the 2d inst. contains a description of the mansion, and alludes to the Cedars of Lebanon, Yews, and other trees which adorn the grounds.

—— The Crops in the North.—A Midlothian correspondent writes:—"We have had an average good season since the fine weather set in about the beginning of May. Hardy fruit of most kinds is an abundant crop, and swelling off nicely. Vegetables are doing well, except the Cabbage tribe—that has been nearly eaten up in most gardens around here by Cabbage-fly grub. Onions and Leeks are also suffering badly in many gardens from grub. Here I have kept both in check by liberal doses of soot, lime, and ammoniacal liquor from the gasworks; but we were not very badly attacked, and have lost nothing to speak of, while some of our market garden neighbours have lost acres of Cabbage, Cauliflowers, Savoys, &c.

—— Sexual Characters in Fritillaria atropurpurea.—Mr. Thomas Meehan has lately reported to the Academy of Natural Sciences of Philadelphia the occurrence of separate male and hermaphrodite flowers in Fritillaria atropurpurea, cases of bisexuality being rare in truly Lilliaceous plants. The plant produced four spikes, flowering May 15. The spikes were 15, 14, 13, and 11 inches high respectively, and had from twelve to fourteen narrow glaucous leaves each, and all of apparently equal strength. The tallest spike had but one perfect flower; another had the lower most perfect, but with four others above, all purely staminate. The other two had three flowers each, all staminate. These staminate flowers had anthers as large and as polleniferous as the hermaphrodite ones, and the perianth seemed in every respect as perfect, the only difference being in the total absence of all traces of a gynœcium. It was evidently the normal condition of the species, which, by the way, seems to run closely into Fritillaria parviflora.

—— A New Use for Coir, or cocoa-nut fibre, is announced from Jamaica, where we are told that the heels of boots and shoes are being made of this substance. The fibre is combined with a strong glutinous cement, placed under heavy pressure, and afterwards stamped into form. The substance so prepared is said to form a very good substitute for leather, and to resist both moisture and ordinary wear and tear. It is stated that this invention has a fair promise of success.

—— A New and Beautiful Melastomaceous Plant has, we learn lately, been sent by Messrs. Henderson & Son, of the Pine-apple Nursery, Maida Vale, to the Royal Gardens, Kew. It is a dwarf herbaceous plant, with a perennial woody rootstock, which throws up annual tetragonal stems 6—12 inches high, bearing opposite, elliptic, bright green leaves, and terminating in loose panicles of bright mauve-purple flowers. It is an exceedingly attractive plant, being abundantly floriferous, and producing flowers of good size, individually about three-quarters of an inch across. It is a native of Paraguay, and therefore likely to prove hardy, and will no doubt in time become a general favourite. The plant in question is an undescribed species of Cambessedesia, which will (shortly we hope) be described and figured in the *Botanical Magazine*.

—— White Clover.—In the neighbourhood of London this plant (Trifolium repens) seems flowering more profusely than usual this year. In wet seasons the flowers are very subject to assume more or less of a leafy condition, but this season they are perfect. The appearance of this plant on newly-made ground is more frequently observed than satisfactorily explained. Lately we have noticed it in great abundance along the line of foundations of an iron church pulled down four or five years ago. The lines are perfectly marked out by the Clover, and nothing but it is growing upon them, the space within and without the lines being occupied with the ordinary pasture herbs with a moderate amount of Clover.

—— Diphtheria.—In the *British Medical Journal* Dr. Tayler, of Penrith, traces an outbreak of diphtheria in a particular family to the growth of a fungus on a damp wall in a bedroom. Owing to the circumstance that the spouting became obstructed, the wall became saturated with wet, and after a week or two a growth of fungi appeared on the wall, which continued to increase in spite of scrapings and washings with solution of carbolic acid. The fungus in question was submitted to Mr. Berkeley, who identified it as Coprinus domesticus; this was associated with a mould, a form of Aspergillus. It is supposed, with some reason—we cannot say it is proved—that the spores of one or other of the fungi were the cause of the diphtheritic attack. In any case damp walls and mouldy plaster are not likely to contribute to health under any circumstances.

—— The Dalkeith Young Gardeners' Mutual Improvement Society.—The series of meetings of this Society were brought to a close for the season 1880-81 by a general meeting of the members a short time ago, at which a very satisfactory report of the proceedings of the past session was read by the Secretary. A preliminary meeting was held on September 17, 1880, at which Mr. Nimrod Sherwood was re-elected President for the year, and Mr. James Macdonald elected Secretary, in succession to Mr. Alex. Westland. From that date till May weekly meetings were held in the garden mess-room, at which many practical and interesting papers were read and subjects discussed, in an intelligent and courteous manner, to the mutual benefit of the members. Among the special subjects brought forward for discussion were "The Best Method of Propagat-

Fig. 20.—Philadelphus speciosus. (see p. 80.)

ing Plants by Cuttings in Spring," "The Fertilisation of Plants," "The History and Cultivation of the Banana, &c.;" and excellent papers were read on the following subjects:—"Hardy Fruits" and "Lessons from Nature," by William King; "The Cyclamen and Primula" and "Forestry," by James Grant; "Winter Vegetables" and "Economy in Gardening," by John McKinnon; "The Calanthe" and "The Strawberry," by Thomas Lee; "Soils" and "System, Practice, and Pleasures of Gardening," by Alexander Westland; "Forcing of Winter Vegetables" and "The Pine-apple," by James Dickie; "Treatment of Bulbs for Winter and Spring Flowering" and "Necessity of Gardeners Looking Forward," by Nimrod Sherwood; "The Melon" and "Gardeners and Gardening Literature," by James Macdonald; "The Rose" and "Garden Insect Pests," by William Milne; "Gardening for the Year" and "Winter-flowering Greenhouse Plants," by Robert Davidson; "The Classification of Plants" and "The Lily Tribe," by Laurence Houston; and on various other matters of practical interest to the members. The meetings, which have been well attended throughout, begin at 8 P.M., and occupy on an average about two hours.

—— Flowers in Season.—Messrs. Rodger McClelland & Co., of Newry, send us flowers of Boykinia major, a Californian plant with rough palmately-lobed leaves and terminal cymes of white Saxifrage-like flowers; also of Trochostigma volubile (Actinidia). This is a scandent shrub, with leaves resembling those of a Portugal Laurel, but with polygamous flowers about half-an-inch in diameter, with adnate petals and black anthers.—From the College Gardens, Dublin, come Inula glandulosa, which, as Mr. Wolley Dod very justly observes in our last issue, is a fine and distinct hardy perennial. It forms dense masses, 15 inches high, and the rich arrangement of its large flower-heads is very effective in the summer sunshine. Thalictrum dioicum grows 5 to 6 feet in height, each leafy stem bearing aloft great bosses of pale lemon-yellow blossoms; these have a soft moss-like appearance, and are peculiarly graceful as swayed to and fro reed-like in the wind. Eryngium amethystinum is just getting its steel-blue tint; and that old fly-catcher, Apocynum androsæmifolium (well figured in Darwin's *Botanic Garden*) is now opening its flowers in the hot July sunshine as fatal lures for the flies.—Mr. Vertegans sends us a double flower of Pyrethrum fruticosum var. Etoile d'Or. The flower is small and semi-double, but gives promise that with careful selection a fine race may be perpetuated. From Sir George MacLeay's garden come sprays of Bauhinia corymbosa, a very free flowering stove climber, with pinkish flowers, on which we shall have more to say on another occasion. It covers a roof 50 feet long and 18 broad. Lagerströmia indica is another stove plant, with panicles of crumpled rosy-lilac flowers. Very well known to our Indian friends.

—— Amphicome Emodi. — There are few more desirable conservatory and cool-house decorative plants than the subject of the present note. At Kew it just receives ordinary greenhouse treatment and does remarkably well. It is a Bignoniaceous plant, a native of the mountains of Emodi, near Srinaghur, and grows about a foot in height. The rather robust leaves are pinnate, and the large handsome blossoms have an orange-coloured tube, and a spreading rose-coloured limb.

—— The Daturas.—What glorious plants these make for cool-house decoration when planted out or fairly dealt with in pots. In the conservatory at Kew D. sanguinea and D. suaveolens are in full beauty, terally bent down with weight of blooms. The former is planted out—the latter in a No. 4 pot, but has not been recently repotted. Mr. Butts, the Foreman of the Ornamental Department at Kew, attributes his success to a judicious administration of cow manure-water. There are upwards of sixty large fragrant blossoms on D. suaveolens, measuring 11 inches or 1 foot in length by above 7 across the trumpet-shaped mouth. D. sanguinea has flowers far less in size, but their colour is very effective; this species is the "Florispondio" of the natives of the Isthmus of Panama, and in Seemann's *Voyage of the Herald* an interesting account is given of the part this has played, and still continues to play, in the superstition of tropical America. "The Indians of Darien, as well as those of Chocò, prepare from its seeds a decoction, which is given to their children to produce a state of excitement in which they are supposed to possess the power of discovering gold. In any place where the unhappy patient happens to fall down digging is commenced, and, as the soil nearly everywhere abounds with gold dust, an amount of more or less value is obtained. In order to counteract the bad effect of the poison some sour *chicha de maiz*, a beer made of Indian Corn, is administered."

—— Coleus.—At the flower show at Richmond there were to be seen some capitally grown specimens of these handsome foliage plants. The introduction of striped and fringed kinds now lend to a collection some decided variety, and far more beauty than used to be found. Tall pyramidal plants, though ever so well coloured, hardly show to such good advantage as do half-pyramids or bush plants. The Coleus requires to be looked upon rather than through, and such a result is better secured with good dense plants than with tall thin ones. Though Mr. Sallows, who took 1st prize, had the finest plants, one or two—Royal Purple especially — showing grand colour, yet the general effect found in the mass of foliage seen in the dwarfer plants shown by Mr. Bond was wanting. The latter plants will probably, if well coloured, make in the autumn some first-class specimens.

—— Nelumbium speciosum.—At Kew, in the Old Water Lily-house, the Sacred Bean has been wonderfully fine this year. In size of flowers and leaves it quite equalled the conception of the artist in one of the leading illustrated papers a short time ago, where, in sketches of tropical scenery, a canoe and its occupant were half hidden by the large peltate leaves. Unfortunately, however, instead of these springing singly from underground creeping rhizomes, several were shown growing together, and even branching from a stem. Some of the leaves of the Kew plants measure more than 28 inches in diameter, with an upright stout leaf-stalk about 4½ feet high; the stems crowned with the peculiar seed-vessel measure nearly 7 feet in height.

—— Sir Philip Crampton's Pear Tree.—We (*Irish Farmers' Gazette*) are glad to see that Sir Philip's fine Jargoelle Pear tree on front of the house, 14, Merrion Square North, Dublin, is this year carrying a goodly crop. Its numerous melting pendents will, no doubt, in the autumn be as attractive to the passers-by as was its thickly garlanded spray when one sheet of snowy white in spring.

—— Littonia modesta.—In the Cape compartment of the New Range at Kew this charming plant is now growing and flowering very freely. It is just twenty-eight years since the species first bloomed in this country at Kew, and a figure appeared in the *Botanical Magazine*. The flowers of the plant now at Kew are, however, nearly double the size of those of the figure. That this is not a large-flowered variety is evident from the fact that the blooms produced by the same plant last year were just ordinary ones; it merely shows that proper care will work a considerable change.

—— Gloxinias as Cut Flowers. — We remarked at Twickenham the other day a box of cut blooms of Gloxinias put up, but not in competition, as presenting a very charming feature amongst cut flower exhibits. Now that Gloxinias are so universally and so admirably grown, and the blooms show such size, quality, and variety of markings, some striking and novel classes would be made by calling for twenty-four and twelve kinds in bunches of three blooms each. As strong plants produce so many blooms, the taking off of three flowers would not materially rob the plants, whilst with care the blooms might still be made available for domestic decoration.

—— Schedule Conditions.—One of the difficulties which now and then present themselves to judges arises from the crude way in which classes are inserted in prize schedules. Thus at Twickenham there was a class for "Carnations, cut blooms," without any number or stipulation specified. Only one collection was shown, and the exhibitor stupidly had in several cases tied two flowers together, not around the stems but tightly round the calyx, so that the two blooms might resemble one large one. The officials wanted the judges to disqualify the collection, but this they declined to do, on the ground that the requirements of the schedule were in no case violated. Had the schedule asked for a certain number of kinds, single blooms, the course for the judges to have taken would have been clear enough; as it was, the committee, rightly as we think, decided to disqualify the exhibitor, on the ground that there was a manifest intention to deceive.

—— Trade Groups of Plants at Exhibitions.—There are now few exhibitions, especially near London, where groups of plants shown by nurserymen and florists do not form prominent features. It is perhaps not too much to say that local committees often regard these as amongst the chief attractions of the shows. Generally the trade growers are solicited to send plants or other exhibits, and generally they cheerfully acquiesce. So far that s all very well; but then comes the important question, Shall the judges be invited to take any notice of these groups, and if so, what shall be the nature of the awards made? It is always unfair to put these honorary groups into any kind of competition with each other, for the simple reason that competition is in the first place not invited, and therefore there seems to be no other satisfactory solution of the difficulty than in either making no award of any kind, or if made, putting it in the form of some fairly adequate compensation for expenses of carriage incurred. Of medals, the trade are in the position of the man who had already had too many rabbits—they have had enough. A tangible money payment as compensation for needful expenditure would generally give ample satisfaction, because it would be a recognition on the part of the committee that such groups had a money value for them. The apportionment of expense might easily be determined by the committee according to quality and extent of group and distance to be travelled to and from the show. Still, there remains the question of taking some public notice of the groups, because the visitors naturally infer that if no notice or award of any kind be shown, the group must of necessity be of inferior merit. The posting up of small written cards showing a high commendation is a questionable honour, whilst the awards are far too inconspicuous. Probably the best thing would be to have always in hand prominent printed cards announcing that "This group is not for competition," and has received "high" or "very high" commendation, as the case may be.

—— Incarvillea Olga.—The plant mentioned last week in these columns under this name as flowering at Kew, turns out to be another and totally distinct species with somewhat spreading two-lipped Tecoma-like blossoms, and which has already been described and figured as Incarvillea Koopmanni. Like the previously named species it comes from Turkestan, but its flowers are almost regular and are nearly erect.

—— Dryobalanops aromatica.—In a paragraph on "The Camphor Forests of Sumatra," published in the current number of the *Journal of Applied Science*, some interesting notes occur on the Dryobalanops aromatica. As is well known, this camphor is found in small crystals in cracks or interstices of the trunks. Trees containing this camphor in large quantities are comparatively rare. Not unfrequently Baros camphor is sold at Singapore for 10,000 guilders per picul. There is a great demand for it, especially amongst the wealthy Chinese, who use it to embalm the bodies of their dead previous to their sending them to China for burial in their native land. The wood of the Camphor-tree, though not particularly hard, is described as being used, not only for making boxes and other small articles, but also for building purposes, because the bulk of the wood-boring insects, the white ant included, will not touch it. That the people are not sparing with it, is shown from the fact that the great bridge over the Battang Taro River, now under construction, is wholly made of this wood. It is stated that, in consequence of the destruction of the trees for the sake of the wood, the species ere long must become scarce. At present the dense forests of Battak-land contain hundreds of thousands of Camphor-trees, but the Battak cuts away recklessly, without a thought of the future, and without planting fresh Camphor-trees. In the same way an end will soon come to the present large stock of Gutta in the Sumatran forests. What is found most abundantly in the districts to the east of Baros and Singkel is Benzoin; enormous quantities of it are seen in the Chinese warehouses at Baros. It is remarkable that the Battaks take great care that

other Benzoin trees rise up to replace those cut down, and neglect the increased cultivation of camphor and gutta trees. For the former, however, it is stated that they have simply to burn the old stumps and scatter the seed on the ground, while the planting of gutta and camphor trees require more trouble and care.

—— CLETHRA ARBOREA.—This grand old plant, which is much neglected, is now finely in flower in the conservatory at Smeaton, Prestonkirk, East Lothian, the seat of Sir J. B. HEPBURN, Bart. It is a very old plant, supposed to be one of the first introduced, and is over 15 feet high, and 15 feet through, and is planted out. At the present time it has fully 200 trusses of its beautiful pure white sweet-scented flowers, many of the trusses having ten sprays upon each. It has been under the charge of Mr. BLACK, the gardener here, for twenty-five years, and he informed us that it flowered very freely every year, and that it would have been much larger but that it has to be pruned every year, as the accommodation is limited.

—— TOMATOS FOR THE MILLION.—Mr. JOHN HEPPER, formerly gardener at The Elms, Acton, and who has long enjoyed a good reputation as a successful cultivator of the Tomato, is now illustrating in a remarkable degree at Mr. HAWKINS' Floral Nursery, Haven Green, Ealing, the capacity of well-grown plants to produce large quantities of fine fruit. In a span-roofed house of 216 feet in length there are growing 400 plants, 200 on each side, planted in a bed of soil resting on somewhat narrow wooden and slate shelves. The house is warmed solely by solar heat; the plants, which represent a good type of the large red Tomato, were raised from seed in March, and planted out at the latter part of April. Layers of turf were first of all laid on the shelves, and on this was placed a compost formed of good fibry loam and dung, and in this the Tomatos were planted. In it they have made a very robust growth; the plants average 3½ feet in length, but with stems of remarkable stoutness. They are trained straight up to the roof, and the laterals are kept thinned out. Already the plants are producing ripe fruit; as soon as they begin to show signs of colouring they are picked off and ripened on shelves. One remarkable feature of the plants is their short-jointed growth, and Mr. HEPPER calculates there are eight joints to the yard, and that the plants, after thinning, averaged eighteen fruit to the foot run. And such fruit too—large, symmetrical, and highly coloured. Let it be remembered that the shelves are narrow, and that the depth of the bed of soil scarcely exceeds 6 inches. As the roots find their way to the surface a little fresh soil is added, and copious waterings are given. The bunches are thinned out to about nine fruits by removing all the malformed ones. Mr. HEPPER confidently predicts a great weight of fruit from this house, and its appearance justifies his expectation. With constant attention and careful cropping Mr. HEPPER hopes to gather fruit up to Christmas. There are also four smaller span-roofed houses planted in beds for a later crop, but the plants are similarly trained. These houses give another 500 plants, and it is believed each plant will produce on an average fifty fruits. With such productiveness good Tomatos should be within easy reach of the million.

—— PHILESIA BUXIFOLIA.—In the garden belonging to J. D. C. GRAHAM, Esq., Dunlop House, Dunlop, Ayrshire, there is a beautiful specimen of this plant 3 feet through or more, and as much in height, which is literally covered with its beautiful, bright, deep pink flowers. It is growing in a cool house, and is one of the loveliest plants possible to conceive. What a splendid plant it would make for exhibition purposes. It is very easy to cultivate, and is well worthy the attention of those requiring a plant of sterling merit.

—— THE PELARGONIUM SOCIETY will, by permission of the Royal Horticultural Society, wind up its affairs for the season in the usual agreeable manner by a field-day at Chiswick. The arrangements will comprise a general meeting for business, an inspection of Pelargoniums under trial, and a luncheon in the great vinery. The date determined on is Wednesday, August 3.

—— NEW GOLDEN MIGNONETTE.—Messrs. H. CANNELL & SONS send us flowers of this new Mignonette, which is a stout growing variety, with broad bluntish leaves, and spikes of flowers in which the orange-brown of the stamens is conspicuous. It is from this colouring of the anthers, we suppose, that it is called "golden." It seems to be a pretty and distinct variety, and is doubtless effective when seen grown in a mass. The flowers are powerfully fragrant.

—— PISUM SATIVUM VAR. UMBELLATUM.—This curious plant is growing in the Cambridge Botanic Garden. It is interesting, in common with the Cockscomb, and that case of a fasciated Chrysanthemum, mentioned under the column of "Answers to Correspondents" last week, as an instance of fasciation being reproduced by seed. This Pea appears always to come true. It is rather a pretty plant, the standard of the flower being white, and the wings a kind of carmine. The distinguishing name, umbellatum, appears to have been given because the fused stems grow more or less free near the top of the plant, where flowers and free stems are produced in a confused manner from about the same point. It is an old plant, and is described in DE CANDOLLE'S *Prodromus*, but is not there considered a monstrosity. Year after year we get it from correspondents as the Crown Pea, the Mummy Pea, &c., often with a legendary—very legendary—story connected with it. We figured it in our volume for 1873, p. 45.

—— SARRACENIA FLAVA.—This species has survived the past severe winter in the Cambridge Botanic Garden without protection, and is now pushing up several leaves.

—— PUBLICATIONS RECEIVED.—*The Chemistry of the Farm.* By R. WARINGTON, F.C.S. (BRADBURY, AGNEW & Co.).—*Pompéi (sic); Revue Illustrée d'Archéologie Populaire et Industrielle et d'Art.*—*Monographiae Phanerogamarum*, vol. iii., including monographs of Philydraceæ, by Professor CARUEL; of Alisneaceæ, Butomaceæ, Juncaginaceæ, by M. MICHELI; Commelinaceæ, by Mr. C. B. CLARKE; and Cucurbitaceæ, by M. COGNIAUX.—*Arboriculture*, 2d edition. By JOHN GRIGOR.—*La Vigne Americaine.*—*L'Orchidophile.*—*Proceedings of the Agri-Horticultural Society of Madras.*—*A Manual of Injurious Insects, with Methods of Prevention and Remedy, &c.* By ELEANOR ORMEROD, F.M.S. (SWAN, SONNENSCHEIN & ALLEN).—*Handy-Book of Fruit Culture under Glass.* By DAVID THOMSON. 2d edition (BLACKWOOD).

—— A CHISWICK FÊTE REVIVED.—History repeats itself—with a difference. On a blazing day in July, a local Society with much pluck and spirit sets to work, if not to recal the old glories of Chiswick—for that would be invidious—at least to show one way in which what is left of the old Chiswick garden may be turned to account. It is pre-eminently a local show, and it is extensive enough and good enough to show that local talent is not to be despised. We write in the present tense, for the judging is not over as we write, so that we must postpone a detailed account for our next issue. Suffice it to say that the exhibition occupies the whole of the great conservatory, screened from the sun by the Vines and a veil of canvas—the two together, however, forming no match for the sun. Groups for effect form a prominent feature in the schedule; but the long, narrow, central space is about as trying a position for the purpose as could well be imagined, and not even the General Horticultural Company (Limited) has been able to overcome the difficulty. For six foliage plants and six Ferns Mr. HUDSON, gr. to H. J. ATKINSON, Esq., Gunnersbury, is a long way ahead, though he has as virtual, if not actual (we have no schedule before us), good competitors in the shape of Messrs. HOOPER & Co., Mr. BROWN, nurseryman, Richmond; Messrs. FROMOW, Turnham Green, and others. Mr. HUDSON'S Grapes, we imagine, will secure the prize, black and white, though his neighbour at Gunnersbury Park Gardens (Mr. ROBERTS) would be placed 1st had he entered for competition. This exhibitor shows, from the gardens of Baroness ROTHSCHILD, a fine collection of fruit, including Black Hamburgh Grapes, well finished, Foster's Seedling, Best of All Melon, Violette Hâtive Nectarine, Brown Turkey Figs, and Queen Pines, of fair size. From the Baroness' gardens come also miscellaneous groups of plants which fill their appropriate positions with effectiveness. Mr. LITTLE sends a good set of Pelargoniums, on which we shall have to report more fully at another time. In a circular tent hard by the dinner-table decorations, bouquets, and such-like are arranged. Here again Mr. HUDSON takes 1st honours, though for button-hole bouquets he is, and rightly so, placed 2d. In this tent, too, is a group of plants, arranged for effect by Mr. CROUCHER. This exhibitor is still rather whimsical in his arrangement, but the group, as a whole, is much better than the more ambitious one shown at South Kensington lately. Cissus discolor twines round the stems of the Palms, fleecy Oncidiums send forth their sprays in a very pleasing and natural manner from amid the foliage of Cycads and Palms, Odontoglossum vexillarium gives colour, and quaint Cactuses give a tinge of oddity which is not unwelcome in contrast with the more elegant foliage plants. Under the welcome shade of a tree Messrs. LEE & SON, of Hammersmith, show a very nice group of variegated shrubs, including Conifers and deciduous shrubs, and with small pot Roses intermingled. This group is very noteworthy, though, we believe, not for competition. Acanthopanax, with variegated leaves, resembling those of an Ampelopsis in miniature, is especially effective. There is a substance about its leaves which contrasts well with the flimsiness of those of the variegated Negundo. On the whole the Chiswick, Turnham Green, and District Horticultural Society is to be congratulated on its efforts, and as an indication for the future we would wish to give it every encouragement.

—— VIRGINIAN STOCKS.—Messrs. CARTER & Co. send us samples of two new and handsome forms of Virginian Stock, which appear likely to be valuable additions to our hardy border annual flowers. Crimson King is in the way of, but darker in colour than the common kind, the flowers opening of a rich rosy-purple, and when fully expanded being of a fine, deep violet hue. Fairy Queen appears to be less robust, but the colour of the flowers is crimson-purple, very bright and effective, and the habit is compact, with dark, purplish-green foliage. Both will be desirable annuals when fixed to their respective characters by careful selection.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 11, issued by the Meteorological Office, London:—The weather has been continuously rainy and unsettled in Scotland and Ireland, but in England two fine periods have been experienced—one at the commencement and another at the close of the week. The intermediate days were cloudy and unsettled, with a severe thunderstorm in many places on the night of the 5th and in the course of the 6th. Temperature has been below the mean everywhere; in the Wheat-producing districts the deficit has been only 1°, but in the grazing districts it has amounted to 2° or 3°. In Scotland the highest readings were experienced on the 11th, but over England and Ireland they were registered on the 5th, on which day the thermometer rose above 85° in nearly all parts of eastern, southern, and central England, to 90° at Loughborough, 91° at Nottingham and Strathfield Turgiss, and 92° in London. On the following day the maxima in the same districts were from 15° to 25° lower, and at Liverpool as much as 28° lower. Rainfall has been a little less than the mean in "Ireland, N.," and about equal to it in "England, S.," and "England, S.W." In all other districts it has been more than the mean, the excess being considerable in "Scotland, E.," "England, N.E.," and "England, N.W." Bright sunshine has not been very prevalent in any district. The amount has been greatest in "England, S.," least in Ireland and Scotland. Depressions observed:—On the evening of the 5th a small depression passed over Southern England from the south-westward, while at the same time a larger disturbance came in over our north-western coasts. In the rear of these the wind rose to a gale from north-west on our western and northern coasts on the night of the 6th. Some very small subsidiary depressions succeeded on the 8th and 9th, giving us variable south-west and north-westerly breezes, while on the night of the 10th a rather deep disturbance passed in a north-easterly direction outside our western and northern coasts, causing fresh southerly gales in some places.

COLONIAL NOTE.

Ceylon.—The Report of the Royal Botanic Gardens for the year 1880 is before us. Dr. Trimen, the present Director, reports that his first procedure on taking office was to clear away much of the jungle which had been allowed to grow up, to remove dying and dead trees, and to open up and protect the magnificent scenic trees for which the gardens are famous. The cultivation of Cinchona has been largely extended in Ceylon, C. officinalis being remarkably well adapted to the climate. C. crispa also does well, bark from it selling in Mincing Lane at 7*s.* 6*d.* per pound. C. Ledgeriana, the most valuable species, is propagated with difficulty, but may be readily grafted on C. succirubra. Dr. Trimen cells attention also to the extreme importance of preventing the flowers of this valuable kind from being cross-fertilised by the pollen of less valuable kinds. [If the coppicing system be generally adopted the tree might be prevented from flowering, its perpetuation being secured by cuttings or grafts.] Cocoa, india-rubber, cardamons, and other tropical products, have been largely grown. The herbarium and library are in fair condition, and a beginning has been made with a museum of structural and economic botany.

Home Correspondence.

Shading Conservatories.—I notice that a correspondent advises the use of white lead and turps as a shade to conservatories, for which purpose it may answer very well, but the getting it off with soda must be a work of some labour, and, what is even more objectionable than that, is the destructive action the alkali has on the paint, which perishes only too fast without bringing strong soda-water in contact with it. As to lime coming off, I have had it applied as a shade for a great many years, and never had any trouble with it in that way unless the season happened to be very wet, or the lime slack and weak, in which latter case an easy remedy is to put milk in it, which being of a greasy nature causes the lime to stick fast enough for it to stay on till the autumn, when it leaves its hold gradually, which is a great advantage, as the plants become used to the change. Where only a very slight shade is required I find a fishing-net strained over the roof of a house quite sufficient to break the sun's rays, and during great heat, such as we had on the 4th and 5th, this is a great help to prevent the shrivelling of Grapes or the cooking of ripe Peaches and Nectarines, as often occurs when they are too near the glass, or when the ventilation is somewhat defective. *J. Sheppard, Woolverstone Park.*

The Beurré Robin Pear.—The gentleman who inquires about Beurré Robin cannot have thoroughly hunted his Leroy, or surely he would have found it as Doyenné Robin. The practice with nurserymen is to prefix "Beurré" to any Pear at random. I shall be glad to hear whether he thinks I have marked it down aright at last. The difference in period of maturity would be the result of climate. If I am right, I shall crave a graft of it in due season. It is not in Dr. Hogg's, but it is in Mr. Scott's list. *R. D. B.*

Spiræa palmata.—Although there are now many fine herbaceous plants in cultivation, none can, I think surpass this in beauty, as not only is its palmate foliage striking, and the habit of the plant good and bold, but its large umbelliferous heads of lovely violet-pink flowers are exceedingly handsome, and vie with the most showy. Besides being valuable in the herbaceous border plants of it force well, but when wanted for that purpose they should be planted in the open, where they can easily be well watered, as it is almost impossible to get them to develope fine crowns without it. In pots they invariably get starved, and red-spider then assails them, which insect soon cripples the leaves, but with plenty of moisture at the roots they can always be kept healthy and clean. It follows, therefore, that the best place for permanent plants is a wet situation, such as that near a watercourse or pond, and if they have a little shade it will be found that they last a long time in perfection. When grown in beds or borders it is a good plan to mulch them round early in the summer with half-rotten dung, and then to give them a thorough soaking with liquid manure and repeat the latter occasionally till they throw up their bloom. *J. S.*

Locomotion in Plants.—Your account of a "locomotive dicotyledon" (p. 42) is only a part of a very large and very interesting subject—the different ways in which plants spread and establish themselves. Another part of the same subject is to notice how foreign plants get established in different gardens. Every garden has its own speciality, and a careful notice of the plants that get thoroughly naturalised in any garden will not only give some hints as to the plants for which that garden is best suited, but will also add something to the history of the distribution of plants. In this garden I have several exotics so naturalised—I mean by this, not spreading by the roots, but sowing themselves, and coming up in different parts of the garden. The following plants (among others) are so completely established here, that whether my successors are plant-lovers or not, I feel sure that these plants will be found here long after I am gone and forgotten :—Sedum cepæa, Crassula rubens, Oxalis Valdiviana, O. arborea, Anomatheca cruenta, Sisyrinchum bermudianum, Bulbine annua, Eryngium giganteum, Allium paradoxum, and other Allia. *Henry N. Ellacombe, Bitton Vicarage.*

Michauxia campanuloides.—There is a distinguished look about this handsome hardy biennial which makes it worth a little trouble. I raised four from a packet of seed in the spring of last year which were planted out in autumn, and all survived the winter; but three went off during the late spring frosts, and the one survivor is worth a description. It is just coming into flower, and has four main stalks, from each of which about twenty laterals grow, commencing a few inches from the ground. It is now 5 feet high, and more than 3 feet across, and already shows about 2000 flower-buds; but tertiary stalks are coming in the axils of the lateral stalks, so that the flowering would be endless but for the winter. In general appearance the plant is like a large plant of the native Succory, of which it has the stiff robust habit. A packet of seed sown this year has produced 200 or 300 plants. *C. Wolley Dod, Edge Hall, Malpas, July 9.*

Centipedes and Wireworms in Carrot Beds.—During the past two years my Carrot beds have been attacked by the Snake millipede, and the crop destroyed. Last year half the ground was watered with a strong solution of gas tar, mixed with water,

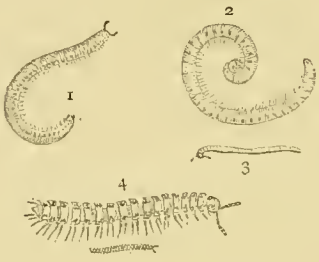


Fig. 21.—Millipedes.

a week previous to the seed being sown, but it made no difference. I am told that Rape-cape broken in pieces as large as small Walnuts will draw the centipede and wireworm off the Carrots, and am going to try this, but can you suggest anything better? *A. S. Z.* [Try paraffin and water, one part of the former to fifteen parts of the latter, and report the results. Eds.].

Phlox ovata.—I think Mr. Wolley Dod must be in error at p. 823, vol. xv., respecting the near relationship of Phlox ovata and P. canadensis: no two species with which I am acquainted are more distinct, so that I should doubt Mr. Dod's plant being true. Phlox ovata seems to me to be a giant form of P. verna (syn. P. reptans, syn. P. stolonifera), with large ovate glabrous leaves, the colour of the flowers being almost identical with each other. The only Phlox with which I am acquainted, and which seems to be identical with P. ovata, is Lady Liston's, viz., P. Listoniana rubra. The true Phlox canadensis, if I mistake not, is pale blue, as is also P. divaricata; both are North American species, and seem to be closely allied, though P. divaricata seems to have existed in gardens three-quarters of a century before P. canadensis. I have grown both plants side by side, but have failed to discover the distinction between them, height, colour of flowers, and general habit being identical, and I am still inclined to believe them to be one and the same species introduced at two widely different periods. *E. Jenkins.*

Alnwick Seedling Grape.—In reply to Mr. D. Walker's inquiries on p. 19, relative to the setting and treatment of the above Grape, I should like to add my testimony in its favour to that of Mr. Clayton's in your last issue, which drew my attention to the inquiry, which I had not previously noticed. Although my experience of it is very limited, it is satisfactory as to its setting (which seems the weak point of the variety in Mr. Walker's estimation), and I give it for what it is worth. Until last autumn I had not seen the variety except upon the exhibition table, but had, in November, an opportunity of seeing it done in perfection at Clive House, where there was no indication of shy setting. Mr. Bell made no secret of the fact that it, in common with several of our best late sorts, required attention in setting; and in a note on the place which appeared in the *Gardeners' Chronicle* of Nov. 27, I say, "There is not in the whole house of 1000 bunches a single evidence of shy setting; but in this, I am informed, they were assisted." I was so favourably impressed with the Grape that, being about to plant new vineries, I wrote at once to Messrs. Osborn to include two of the Alnwick Seedling. The Vines, small planting canes, were in due course planted on April 2, and are now carrying two bunches, on which, I believe, every berry set. I removed when thinning fully two-thirds of the berries, and the bunches are yet rather too compact, and are without a single undersized berry. These canes, are, of course, on their own roots, and are grown but a little further north than those of your correspondent, who wishes to be informed whether there is any peculiarity in stock or northern climate that commands a successful set. *R. Crossland, St. Fagans'.*

Gloxinias.—Your remarks on these at p. 50 induce me to send you the dimensions of some grown here this season. They were in 60-pots last year, and sown too late to throw up any flowers worth naming. Of flowers open and perfect counted on one plant a week ago there were twenty-four, and on others twenty-three, and so on to sixteen. Length of leaves, including petiole, which is very short, 12 inches; width across, 7 inches. The leaves, as a rule, clasp the pot, so that they have to be slightly elevated to avoid their points being injured through coming in contact with the stage. Width of flowers, 3 and 3½ inches. Their stems are so stout that they do not give way in the least by being moved about. They have been in flower more than a month, and are likely to be so for another, justifying your remarks as to their utility for exhibition as well as for home decoration; for the latter purpose they can be had (as we have some here) in 3½-inch pots, seven flowers on, and measuring 18 inches across. Strange to say, these plants have been grown 5 feet from the roof. Could you give dimensions of those exhibited at Richmond, as we neither see nor hear anything of horticultural interest in this part unless it is through the medium of your paper. *T. J.*

Campanula pulla.—Mr. Wolley Dod (p. 52) will find he can grow this beautiful Hairbell on a retentive base in a mixture almost entirely of peat, river sand, and a few small stones. If it can be flooded in dry weather occasionally, so much the better. *T. D., Hatfield.*

Galtonia candicans and G. princeps.—In my note upon the native habitat of G. candicans (see p. 20 of this volume of the *Gardeners' Chronicle*) I made some remarks upon G. princeps, asking if it had disappeared from cultivation, or if it was really not distinct from G. candicans. I have since been informed by more than one person that a plant of G. princeps was in flower at the Royal Gardens, Kew, a short time back, and that whilst quite distinct from G. candicans it is at the same time inferior to it in beauty, the flowers not being of so pure a white. *N. E. Brown.*

What is the Matter?—In my Jack-towel garden in the suburbs of London I suffered pretty severely from the consequences of the last and of the preceding winter, but I was in hopes that the worst was over; indeed, I was flattering myself that I had overestimated the damage, for within the last week or two I had observed shoots springing from beneath the soil of the Buddleia globosa, of Indigofera floribunda, of Escallonia macrantha, and other old friends, whom I had given over for lost; but within the last fortnight, like Dogberry, I have had losses—unexpected ones, too. Elæagnus pungens has suddenly died down to the trunk. Spiræa Lindleyana has suffered in the same way to a certain extent, as have two or three Rhododendrons—unnamed sorts, and Cotoneaster Simonsi. Worse than all, a nice little plant of Abies brachyphylla, some 3 feet, has died completely. It had been ailing for some time, but the final stroke was swift and sudden. Looking about for a cause, I can find none other but the frost of June, which caught the plants when growing freely; but if so, why only these plants and not others? *Alemon.*

Alströmerias.—No one seeing a bed or border of these in bloom can fail to be struck with their beauty, as their flowers are not only exceedingly rich and varied in their markings, but are very chaste, and just of that size and character which renders them specially suited for cutting. The best way to get them established is to sow seed either in pots and transplant afterwards with the ball entire, or in the bed or border where they are to remain, as it is useless attempting their division with a view to increase,

or to dig them up and remove them from one place to another, unless they happen to be caught just before the tubers start in the spring. As Alstrœmerias root very deep, and form their tubers a long way down, and are only really hardy in certain situations, the site chosen for them should be a warm, dry one, such as that afforded by a sunny border under a wall where the soil is light, free, and open, and if drained by putting in a layer of brickbats at a depth of 2 feet 6 inches or so, the plants will have a much better chance of standing the winter. The way we preserve ours, which have been in their present position upwards of twenty years, and are now a fine mass, is to cover the surface of the ground above them with half rotten leaves, which keep out frost, and are a capital protection to the young tender shoots in the spring. *J. S.*

Onosma taurica.—This strikes freely from cuttings bearing a little "old wood," taken in spring as soon as obtainable. We have now strong healthy plants well established from this year's cuttings, without a failure in striking them. Put them in heat, and you will be able to harden them off for planting out in three weeks. When permanently planted a dry loamy soil suits it better. *T. D., Hatfield.*

The Sawbridgeworth Seedling Peaches.—There has been for a long time more or less discussion anent the flavour of the Sawbridgeworth seedling Peaches. The different opinions cultivators have expressed are at first sight almost enough to force an exclamation "Let us stick to the old varieties!" Yet there can be no doubt that at least six of the late Mr. Rivers' Peaches are valuable introductions. No doubt the great diversity in opinion is caused by natural agencies affecting one district more than another, or by some misfortune unseen by the gardener attacking one particular tree. Again, some varieties flourish well in some situations and soils while in others they languish and grow weakly. For instance, I have before called attention to a peculiar habit of one of the first of these seedling Peaches, viz., Prince of Wales. Nearly three-fourths of the crop drop at the stoning time. No Peach can show a denser covering of blossom or apparently "set" its fruit better. This peculiarity, which I have noticed both indoors and outdoors, does not occur everywhere, and I am quite unable to assign a cause. However, this variety is not one of Mr. Rivers' six great ones, and will scarcely gain a place in a refined collection. Many of the Sawbridgeworth seedlings are good varieties, but hardly worth sending out in these days of overweening growth. Dr. Hogg, though it does ripen almost simultaneously with A'bec, ought to be in every collection; but what good purpose Dagmar, which ripens at the same time, fulfils, it would be hard to say, although let me remark Dagmar is a nice variety. I do not know what criterion the late Mr. Rivers set up in his own mind wherewithal to compare the earliest ripening of his seedlings, but certainly if it was Hales' Early the only two fit to live *ex mea sententia* are Early Beatrice and Early Rivers, the former on account of its earliness, the latter on account of its flavour. There have been various opinions anent Early Beatrice, but with me it has always been of good flavour and though small is a worthy pioneer of Hales' Early. It is also a free bearer and one of the strongest and healthiest of growers. Early Rivers, though sometimes naughty, is deliciously flavoured, superior in this respect to Early Silver or any other early Peach. But when writing about early Peaches I must say that I have not yet grown either Alexander or Waterloo. The same kind of criticism could be dealt out to more of these seedlings. But suffice it here to say that Albatross and Magdala are, I think, the best of a large batch such as Falcon, Comet and Condor, &c. Many again are of the largest size, but nobody without stretching a good many points can call them good flavoured—I mean such varieties as Princess of Wales and Lady Palmerston. No doubt they are good for market, but no one can conceive any gentleman coming for them in preference to such good late kinds as Desse Tardive and Tardive d'Oullins, not to mention one of Mr. Rivers' own raising, Sea Eagle. It is curious how seldom any of these new varieties are placed 1st at the leading shows. Dr. Hogg has enjoyed that honour on several occasions, but Princess of Wales and Lady Palmerston have, speaking from memory, seldom if ever done so. The six really good varieties which are likely to be included in all collections are, I think, Early Beatrice, Early Rivers, Dr. Hogg, Goshawk, Alexandra, Noblesse, and Sea Eagle. *William Carmichael.*

A New Hybrid Narcissus.—The past season has brought forth a few novel Daffodils and Narcissi, and among the last-named is a plant of great interest, which I now beg to illustrate (fig. 22). It came to me through Mr. Barr, who, under date June 15, writes as follows:—"I send you a specimen of a natural hybrid Narcissus, as also the letter which enclosed it. Look carefully at it and give me your opinion. It is the first natural hybrid I have seen, and considering the N. Pseudo-Narcissus of the district as no doubt abscissus (muticus of J. Gay), and an early-flowering var. of N. poeticus as its other parent, the theory is completely justified by the produce." The letter enclosing the specimen ran as follows:—"Bagneres de Luchar, Pyrenees,—I shall be obliged if you will tell me the name of the enclosed Narcissus, which I found near here. It was growing among N. poeticus, and in close proximity to N. Pseudo-Narcissus (common Lent Lily), both in great numbers. Is it a separate species or a hybrid?" Now as to the flower itself. In size and form the sketch is a careful representation. Dean Herbert proved years ago that if N. poeticus was hybridised with pollen of the common Daffodil the produce resembled, more or less, the plant known in gardens as N. incomparabilis. The present flower is, however, quite distinct from any form of that variable plant. The perianth-segments are of a pale primrose tint, and the cup is bright orange, nearly approaching to vermilion. This colouring, and the small size and graceful contour of the flower, gives a very nice effect. Some of the Leeds hybrids come very near to it in form and colour, but here the interest centres in this being a veritable wild plant. I wish very much the gentleman who gathered this blossom and preserved it so carefully had taken equal care to preserve for us flowers of the particular varieties of N. Pseudo-Narcissus and N. poeticus, among which he found it growing. By thus drawing attention to it, however, it is possible the plant may again be met with, and then fresh speci-

Fig. 22.—A NATURAL HYBRID NARCISSUS: FLOWER YELLOW, CUP ORANGE.

mens of both species and hybrid may be secured. Mr. Baker tells us in his *Review of the Narcissus*, when speaking of N. incomparabilis, that Professor Grenier, in his account of French Narcissi in the *Flore de France*, keeps up N. incomparabilis as a species, but regards N. Bernardii as a hybrid between the Daffodil and N. poeticus. "If (says Mr. Baker) this view is correct we have a true and a hybrid N. incomparabilis barely distinguishable from one another, like the true and the hybrid Oxlip." If the plant now figured be not N. Bernardii then it is no doubt a close ally, and one derived from the same parentage, but one in which the leaning is more towards the N. poeticus parent than towards the Daffodil. In any case the plant is a very neat and beautiful one, with its sulphur perianth and vivid orange cup. That it is quite distinct in size and port from the N. incomparabilis of our gardens will be seen at a glance, and it only remains to be regretted that there should be some slight doubt as to the precise varieties of the Daffodil and Pheasant's-eye Narcissus, which no doubt both contributed to its birth, and further there comes the longing for fresh bulbs of such a vivid and interesting natural hybrid. *F. W. B.*

Gardeners' Royal Benevolent Institution.—On Monday, the 25th inst., I hope that every gardener whose name I can find will receive a collecting card for the simultaneous collection that is to be made on Saturday, the 30th inst., in aid of the funds of this Institution. As we are desirous of making the success of the collection as complete as possible, the committee think it will not be asking too much of those gardeners who may be your readers, and whose names do not appear in the Horticultural Directories, to send in to me their names and addresses, so that I may send them cards. The Institution is now on its trial, and it depends upon gardeners, and upon gardeners only, to say by their exertions and co-operation with the committee if the pension shall at no distant date be increased by £4 a year. *E. R. Cutler, Secretary, Gardeners' Royal Benevolent Institution, Tavistock Row, Covent Garden, W.C.*

Lilium giganteum.—The dry weather has sadly interfered with the growth of my Lilies this season. I have a few now flowering, but the largest is only 10 feet high, and 11 inches in circumference; though there are twenty-three flowers expanded on one stem. I need hardly say I shall feel much pleasure in showing them to any one interested. *Chas. Noble, Bagshot.*

CHINA MATTING.

In a recent number of the *Journal of the Society of Arts* is a report by the United States Consul at Canton on the manufacture of matting in China. The substance of this report was contained in a paper by Dr. Hance in the *Journal of Botany*, vol. viii., p. 99; but as the subject is one of much interest, and the paper of the American Consul is fuller in many of its details, we make the following abstract.

It is well known that enormous quantities of matting are now made both for use in China as well as for export. It is used largely for sails on the native sailing craft, as it is much cheaper, if not more durable, than the ordinary sailcloth. It is also used for coverings for boxes and packages in which tea, sugar, cassia, &c., are exported; besides which, money-bags are made from it, being a very convenient mode of handling dollars, especially when broken up into small pieces by their constant stamping or "chopping," as is the custom in China.

The plant from which the mats are made is commonly known as "aquatic grass," or "rush." It is cultivated in the Shuihing department on the West River, about 75 miles in the interior from Canton. It is grown in a similar way to Rice, in fields flooded with water. It requires very little care in its cultivation, as it propagates itself by shoots from the root, and attains a height of from 6 to 8 feet. It is brought to market in bundles of about 12 inches in diameter, and if of proper length and good quality sells at about 10*d.* per bundle, each bundle being sufficient to make four bed mats, or six such as are used for making sails.

The district of Tung-Kuan produces large quantities of this material, but of a kind used almost entirely in the manufacture of floor-matting. It is said to grow better in the vicinity of salt water, when the water flooding it is somewhat brackish. It is planted usually in the month of June, from slips. These are allowed to grow for about two months, when they are replanted in rows, the soil being plentifully manured with beancake; it requires nearly a year to mature. When it is cut the stems are split in two with a knife, and when partially dried in the sun packed in bundles, and manufactured into matting at the city of Tung-Kuan, or brought to Canton, where there are several extensive manufactories. When brought to the factory, the grass, as it is called, is carefully sorted; it is then made into bundles of 2 or 3 inches in diameter, and placed in large earthenware jars holding about 10 gallons of water. It is then allowed to remain in soak for three days, when it is taken out and dried in the sun for a day. If it is to be dyed the ordinary red colour which has been for years much in vogue, it is placed in jars containing a liquid dye made by soaking Sappan-wood chips in water. It remains in these jars for five days, then dried for a day afterwards, again immersed in the dye for three days, when it is usually ready for use.

It is only within the last two or three years that other colours, such as green, yellow, and blue, have been used to any extent. The solution for colouring yellow is produced from the seeds and flowers of a plant common to China, the "Truifà." A yellow colouring matter is also made by boiling for several hours 25 lb. of flowers of Sophora japonica in 100 gallons of water, and adding when cooled 1 lb. of alum to each 10 gallons of the solution. Green and blue are produced from the twigs and leaves of the "Lamyip," or "blue plant," which grows in abundance near Canton. To the solution thus produced a small quantity of chemical dye is now added. In dyeing these colours the culms, or "straw" as it is

technically called, are soaked in water for seven days, and then immersed in the colouring matter for a few hours only, the dye being hot.

In relating a visit to one of the largest of these matting factories fifty looms are described as being in full work, eight of which were large and forty-two small. The large ones are identical with the ordinary silk looms, and are used in making the very wide, and also the damask or carpet patterns. Three men are required to work each of the large looms, their wages being from 1*s.* 3*d.* to 1*s.* 8*d.* per day. Eight yards of matting from each loom is considered an average result of a day's work. The small looms are rude and simple, each being worked by two small boys, who are paid from 7*d.* to 10*d.* per day each, and who daily weave 5 yards of the most perfect matting of the more ordinary patterns. The loom is composed of two uprights driven into the ground, about 5 feet apart, and about 4 feet in height; two cross-bars fit into sockets in the uprights, one at the top, the other about 8 inches from the ground.

The warps, which are strings of Chinese hemp 2½ yards in length, are then passed over the upper and round beneath the lower crossbar, and being drawn taut are fastened by both ends to a long, thin piece of Bamboo, placed parallel with and just below the lower cross-bar. The weaving-bar and the most important part of the loom consists of a piece of wood varying in length according to the width of the matting required, and about 2 inches square; through this small holes are pierced at different intervals, into which the warps are passed; the bar can thus be worked up and down in the warps by means of handles near the extremities. These holes vary in distance from each other, according to the pattern desired, alternately on top and bottom. The holes are enlarged, or formed into slots, converging at the centre of the stick. When the warps have been thus arranged, and bundles of different coloured straw, sufficiently damp, deposited near the loom, one of the boys raises the weaving-bar to the top of the warps, tipping it forward, the slits in the bar allowing the alternate warps to remain perpendicular, the holes carrying the others forward, thus separating them sufficiently to admit of a single straw being passed between them. This is done by a long flat piece of Bamboo, a notch being cut near the end, into which one end of the straw is placed, and then used as a shuttle.

When the Bamboo is withdrawn the weaving-bar descends, carrying the straw to the bottom; the bar is then raised again and tipped down, thus carrying the warps backward which had just before been passed forward, the work of the shuttle being repeated. As the weaving bar presses the straw down, the weaver gives the end of the straw a half turn round the outside warps, the operation being repeated until the warps are full, the edges trimmed, the warps untied, the matting, now 2 yards in length, removed, and a new set of warps put on. The matting thus woven is then dried in the sun and over a slow fire. The shrinkage consequent on this drying is nearly 4 yards in forty.

When dried the matting is stretched on a frame and worked down tight by the hand, then sent to the packing-house, where men are engaged in fastening the 2 yards' lengths together, it requiring twenty lengths to make the ordinary roll. The fastening together is done by taking the projecting ends of the warps of one piece, and by means of a large Bamboo needle passing them backwards and forwards through the ends of another piece, in fact binding them together; each roll of 40 yards is then carefully covered with a coarse, plain straw mat, marked and numbered ready for shipment.

It would seem from Dr. Hance's paper before alluded to, that two distinct plants are used in the manufacture of the above-mentioned mattings, the culms of Lepironia mucronata being used for sails, and those of Cyperus tegetiformis for floor matting. The "Lamyip," or "blue plant," used in dyeing the culms, is considered to belong to the natural order Acanthaceæ. Polygonum tinctorium is a well-known Chinese blue dye plant, and it might be supposed that this would be sometimes used. By far the largest quantity of these mats go to the United States of America, where it seems they are universally used in summer instead of carpets. The consumption in this country is also very great, their chief use with us being for bed-rooms.

Reports of Societies.

Royal Horticultural: *July* 12.

Scientific Committee.—Dr. Maxwell T. Masters, F.R.S., in the chair.

The Gooseberry Fungus.—Mr. W. G. Smith alluded to the presence of Uredo-spores in the interior of the fruits of the Gooseberries whose surface was attacked by Æcidium. It was not certain that these spores belonged to one and the same fungus, although it seemed probable they might do so (see p. 76).

Tulip-tree, &c.—Mr. Boulger showed flowers of a variety of the Tulip-tree from Bletchingley apparently different from the type. It was requested that further specimens be sent. The same gentleman also showed flowers of Gymnadenia conopsea of unusual size, and flowers of Arenaria balearica.

Tonga.—Dr. Masters showed specimens of the bark and foliage of Premna taitensis and foliage of Rhaphidophora sp., stated to be the ingredients whence the drug known as Tonga and considered useful in some cases of neuralgia were obtained in Fiji (see p. 83).

Monstrous Foxglove.—Rev. G. Henslow showed a drawing of flowers of a Digitalis in which the petals were deeply split into linear segments and partly converted into stamens.

Plants Exhibited. — From Mr. W. Bull, Antigramme brasiliense, a Fern which in the young state has small obovate lanceolate fronds, pale green in colour, with a central white stripe. From Mr. Bull a flowering specimen of the extraordinary Masdevallia chimæra. From Messrs. Veitch a specimen of Anthurium Kalbreyeri, a climbing Aroid with handsome shining digitate foliage, the segments obovate oblong, sinuately lobed. A Botanical Certificate was unanimously awarded. From Mr. Bull a flowering plant of Cienkowskya Kirkii, a handsome Scitamineous plant with stalked oblong acute leaves, milky on the under surface, and erect club-shaped spikes of large pale violet flowers, with a yellow eye. See *antè*, p. 57, and *Bot. Mag.*, t. 5994.

Floral Committee.—J. McIntosh, Esq., in the chair. At a small and comparatively unimportant meeting held to-day First-class Certificates were awarded to Messrs. James Veitch & Sons for Lælia Philbrickiana ×, a very fine hybrid, with rich purple and chestnut-brown spotted flowers, raised between Cattleya Aclandiæ and L. elegans, and described in our columns two years ago, vol. xii., p. 102; for Carnation Gloire de Nancy, a Continental novelty of the Malmaison type, having large, paper-white, deliciously fragrant blossoms; and for Croton rubrolineatus, a bold handsome leaved plant from the South Sea Islands, with long linear erect leaves, golden-yellow, crimson and green in colour. To Mr. William Bull, for Oncidium Gardnerianum (fig. 23), a well flowered plant with lemon-yellow flowers, spotted and barred with chestnut-brown on the sepals and petals, and the broad yellow lip margined with the same colour; for Iris Kæmpferi var. Seraph, a semi-double flower, with a white or lilac tinted white centre, and the outer portion or margin dark lilac; and for Cienkowskya Kirkii, described above. To A. Clapham, Esq., Kensington, for Athyrium Filix-fœmina acroladon, one of the beautiful dwarf-tufted forms in the way of crispum, but more diffuse at the apex of the fronds; and to Messrs. Cannell & Sons for Delphinium Leon Dubois, a very showy, semi-double, bluish-purple flower of great merit. Messrs. Veitch & Sons also showed Dendrobium cerinum, a species with small drooping panicles of small yellow flowers, remarkable for the long club-shapod spur to the the labellum. It was described by Professor Reichenbach in our volume for 1879, p. 554. The Cranston Nursery Company showed flowers of their new H.P. Rose Mary Pochin, a very bright flower, almost approaching a scarlet in colour, but thin and wanting in substance. Mr. R. Dean, Ealing, showed a very compact growing and free flowering deep blue bedding Lobelia, named Heckfield Favourite; and votes of thanks were awarded to Mr. C. Osman, the South Metropolitan District Schools, Sutton, for Pelargonium Osman Pacha; to G. F. Wilson, Esq., for Hibiscus Hugelii, a species with rosy-violet blossoms, and more resembling a Geranium; and to Mr. James Hodges for two fine blooms of the richly-coloured Cattleya gigas. Mr. Croucher, gr. to J. T. Peacock, Esq., showed one of the first blooms which opened on his plant of Odontoglossum vexillarium giganteum, to show its lasting habit. Mr. Bull also showed Aphelandra punctata with lanceolate leaves, with a white disc, and numerous small white spots; Senecio stenocephala, a remarkable hardy Japanese perennial, with long-stalked, ovate, hastate, sharply-toothed, glabrous leaves, and erect, club-shaped spikes, a foot long, of rather large yellow flowers, the petals or ligulæ being about 1 inch in length, bent downwards; and Pellionia Daveaniana, a Begonia-like plant of creeping habit, with small, oblique, lanceolate, glabrous leaves, bronzy green, speckled with milky spots.

A number of Pelargoniums were brought up from Chiswick for the judgment of the Pelargonium Society, and First-class Certificates were awarded to the following:—Henri Cannell (Lemoine), a fine semi-double zonal, crimson shaded with violet; No. 76, 1878 (Lemoine), a pretty decorative variety, with much frilled white, pink, and maroon-coloured blossoms; Madame Harmant (Lemoine), a decorative variety, with double bluish-white flowers; and Mont Blanc, a double white Ivy-leaved variety.

Fruit Committee. — H. Webb, Esq., in the chair. Some half-dozen or more Melons were submitted to the committee to-day, but only two call for any comment. These were a large, oval, white-fleshed variety of excellent flavour, labelled "Cashmere," and shown by Mr. Taylor, The Gardens, Longleat; and a specimen of the Nowton Court, shown by Mr. Carmichael, which was also of very good flavour. The former was awarded a Cultural Commendation. Mr. Wilkinson, gr. to Viscount Gage, Firle Place, Lewes, sent a handsome Queen Pine, and fine examples of Victoria and Pitmaston Orange Nectarines. From Chiswick Mr. Barron sent a sample of fruit of a Strawberry raised by Mr. Burnett, of the Deepdene, between Fragaria lucida and the variety called old Pine or Carolina, but it was of no value. Mr. R. Dean showed samples of the Early Comet Potato, a good early white kidney, raised between the American variety Success and Woodstock Kidney.

Fig. 23.—Oncidium Gardnerianum.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew Square, Edinburgh, on Tuesday, the 5th inst. There was a large attendance of members. In the absence of Mr. John Downie, President, Mr. M. Dunn, Dalkeith Park Gardens, was called to the chair. Mr. Alexander Scott, Royal Botanic Gardens, read a paper entitled "Notes on the Flora of Socotra." This island is situated in the Arabian Sea, near the Straits of Babel-Mandeb, and is about 20 miles long and 18 in breadth. There is a good deal of sand in the plains, but the valleys are well supplied with water. The mountains are from 3000 to 4000 feet above the sea level, and the average temperature of the island is about 80° Fahr. Mr. Scott, who accompanied Professor Balfour, of Glasgow University, as collector of plants in the expedition to that island in February, 1879, stated that they had found 500 species of plants, of which 150 were new to science. In the villages Water Melons were largely grown, and they grow to a great size, one of them being as much as a man could carry. Agriculture was very little known among the people, the only grain cultivated being Millet, and this was grown with very little cultivation. The growing of Cotton has been introduced, but its cultivation has been very much neglected. The next most important crop is the Date Palm. The trees were mostly found luxuriating on the banks of the streams. Oxalis Tradescanti, and another shrub, about 5 to 6 feet, of the Euphorbiaceæ, with a red truss similar to the Rhododendron, was found in one part of the island. Arenaria was found growing on the rocks in many places, and plants of Senecio were also seen. Bulbs of Pancratium were also brought home by the expedition, and one of them has been named after Professor Balfour, the leader of the exploring party. A few Ferns were found in nooks, the one most abundant resembling the Parsley Fern; they also discovered an Adiantum, something like palmatum, and two Silver Ferns. In the high elevations a few stunted shrubs were found growing here and there, the principal one being a Ficus of a very bushy nature. Plants of the Euphorbiaceous order predominate largely in the island! an Ipomœa with thick fleshy leaves was also discovered, as well as a Statice with pale blue flowers whose leaves were salt to the taste. A Composite flower like an Ageratum, and another resembling a Ranunculus, were found in the

valleys. From the Dragon-tree, which was peculiar in its growth, was obtained a gum called dragon's-blood, and from the Acacia tree gum-arabic is made. On the hillsides a Begonia was found luxuriating, also three species of Ferns, one of them resembled Adiantum caudatum. Hypericum and a Ficus which produced a good quantity of fruit were among the other plants found in elevated positions. Malvaceous shrubs were largely scattered over the island. The plants collected are at present being named and arranged, and more complete and definite notices will soon appear regarding the interesting and profitable results of the expedition. The expedition also collected 130 bird-skins and a few butterflies. The camel, ass, sheep, and goat, were plentiful in the island. A few antelopes were seen in several places. The soil of Socotra is of a reddish colour, but it apparently required tillage to make it fertile.

Mr. Isaac Anderson-Henry, of Hay Lodge, exhibited two plants of Androsace incisa, a new species raised by him from seed sent to him from hills above Rawalpinde, in the Himalayas. It was awarded a Certificate by the New Plants Committee. Mr. Anderson-Henry also showed a plant of Campanula, a cross between C. pulla and C. turbinata; Veronica, a new species raised by him from seeds sent from New Zealand; Maurandya, a new species raised from seed, and Clematis coccinea. Messrs. Dickson & Co. exhibited a stand of seedling Pinks, one of which, named Diana, received a Certificate; they also exhibited Orchis maculata, new silver variegated Ash, purple-leaved English Elm, new golden-leaved Black Italian Poplar, and Aucuba-leaved Ash. Messrs. Downie & Laird exhibited three stands of fancy Pansies, also fine flower-spikes of Orchis maculata. Mr. Robertson Munro, Abercorn Nursery, exhibited a new seedling Scolopendrum, of miniature form; Mr. Chapman, Easter Duddingstone Lodge, several varieties of Pæony flowers; Mr. George McKinnon, Melville Castle Gardens, a flower-spike of Yucca filamentosa variegata; and Mr. Potts, Lasswade, some alpine plants, the rarest of them being Saxifraga aizoides var. aurantiaca, found by him at Dalnaspidal, being the only plant found in Scotland.

Dundee Horticultural Association: *July* 1.—The monthly meeting of this Association was held in the Templar Hall, Dundee, on the above date, the President, Mr. D. Doig, in the chair. Mr. Robert Wilkie, Duncarse Gardens, read a paper on "The Cultivation of the Peach under Glass." In opening his subject Mr. Wilkie explained that notwithstanding its 300 years sojourn in our climate the Peach had not materially changed its character, it still retained its habit of early flowering, and this habit, combined with the early spring—unfortunately too familiar to most of us—has rendered the cultivation of this excellent fruit a subject of considerable difficulty and anxiety. Mr. Wilkie then treated of the various devices used for protecting the early bloom. These in earlier times were many and various, but since the reduction in the price of glass almost all had been superseded by the erection of Peach-houses of more or less pretensions. The most approved styles of Peach-houses, and the mode of preparing the borders, heating, &c., were then explained, after which Mr. Wilkie, in an interesting and remarkably lucid manner, treated in detail his whole system of Peach culture. On some points he differed considerably from many Peach growers; at no time did he approve of letting the temperature of the Peach-house fall below the freezing-point; during frosty weather he applied fire-heat just sufficient to keep out the frost, and in dull, cold days he found it better to heat the pipes and open the ventilators rather than to have the house shut up close in order to keep up the temperature. Fumigating with Tobacco required some care: too dense a cloud would sometimes cause the tree to cast both fruit and leaves. It was much better to fumigate slightly two or three nights in succession, or by taking advantage of a dull day the house may be kept in a smoky condition for six or eight hours. A smoke which can be dimly seen through, if maintained for that time will destroy every living aphis in the houses, and do no injury to the most tender flowers or foliage. He never practised evening syringing on Peaches or on any kind of plants whose foliage is exposed to the full blaze of the sun through undimmed glass during the warmer portion of the year, being of opinion that the leaves were thereby made tender and less able to bear the heat of the following day. In dry sunny weather he usually syringed copiously in the early morning, and with this treatment he succeeded in retaining fine healthy foliage, free from insect pests of all kinds.

An animated discussion followed the reading of this paper, some points being closely criticised. Mr. Wilkie showed, however, by exhibiting splendid specimens of the fruit grown under his care, that his treatment—however different from that of other successful growers—could well afford to stand upon its own merits.

Mr. Wm. Allison, Seaview Gardens, then read a paper on "Exotic Ferns." Mr. Allison spoke at some length on the cultivation of Ferns in the fernery or greenhouse. The great points in the successful cultivation of Ferns was to see that they never suffered for want of water, that they have a suitable moist atmosphere, with light, heat, and air, according to their various constitutions. He did not approve of syringing the plants overhead unless in exceptional cases, such as Hymenophyllums, Todeas, &c. Gymnogrammas, Nothoclænas, &c., were sure to suffer both in health and appearance by having their fronds syringed or wetted in any way. Except for the purely peat-loving varieties of Ferns he did not approve of using peat either wholly or in mixtures of any proportions whatever, preferring instead a good rich loam well mixed with sand, horse-droppings, and charcoal, with the addition of a little flaky leaf-mould if the loam was of a tenacious nature. The dung should be thoroughly dried and broken into small pieces before being used. In this mixture he found such sorts as Adiantums, Gymnogrammas, Lygodiums, Aspleniums, Pterises, Lomarias, and the different species of Tree Ferns, &c., thrive remarkably well, making a fine strong growth of firm texture. Bone-dust and cow-urine he found very beneficial in stimulating the growth, but the latter should be used only in the case of pot-bound plants, and much diluted with pure water. In potting Ferns he used a much larger proportion of crocks than for any other plants, Orchids excepted. When insect pests make an appearance the plants should be sponged or syringed with a solution of soft-soap and warm water, using clear water to finish with. This he considered the best and cheapest insecticide extant, prepared in a proportion of about 2 oz. of soap to a gallon of water. In speaking of the various means of propagating Ferns, Mr. Allison said he had been very successful in raising young plants of many different species in a small propagating-case in the plant-stove; there, over a heated chamber, the spores were sown on a bed of cocoa-nut fibre about 4 inches deep, germination quickly took place, and the young plants grew rapidly, seeming to luxuriate in the additional warmth at their roots.

Twickenham Horticultural.—Though established some twelve years as a cottager-garden society it is only during the past two or three years that the committee of the now Twickenham Horticultural Society have enlarged their borders so wide as to take in gardeners as exhibitors, and at its present rate of progress under good management it bids fair to become a good class suburban show. Held on Friday of last week in the beautiful grounds of the Orleans Club the high expectations as to the great success that would attend the show were somewhat rudely dashed by the tremendous downpour of rain which set in about mid-day and continued through the afternoon, holding up only just in time to permit the Princess Frederica of Hanover to present the cottagers' prizes as advertised. No better or more pleasant place in which to hold a flower show than the finely timbered Club ground could be found in the locality, and having regard to the disappointment resulting to the committee and to the expectant public, it is hoped that the privilege offered this year may be repeated next season. With the exception of some ordinary groups in competition one tent was devoted solely to groups sent by the trade and gentlemen to assist the show. Of these Messrs. J. Carter & Co., of High Holborn, had a fine collection of Petunias in pots; Messrs. C. Lee & Sons, of Hammersmith, showed a charming group of pot Roses faced with mosses; Messrs. Jackson & Son, of Kingston, a very fine and showy group of plants, including some lovely Ericas; Messrs. Hawkins & Bennett, of Twickenham, a delightful group of Maidenhair Ferns lighted with scarlet, pink, and white Pelargoniums; Mr. Laing, of Twickenham, had a showy group of ordinary decorative plants, in the centre of which was a huge basket of Roses; and Messrs. Hooper & Co. had arranged with good effect round the centre poles at one end some very showy groups of ornamental plants. At the other end Mr. Bates, gr. to J. G. Meek, Esq., Poulett Lodge, Twickenham, had performed similar good service. On one side was arranged by Mr. Wiggins a very brilliant group of show, fancy, and zonal Pelargoniums. In the tent holding the chief plant classes there was good competition, the 1st prize—six stove and greenhouse plants, being taken by Mr. J. H. Hennell, gr. to J. A. Davis, Esq., Surbiton, who had good Allamanda Hendersoni, Dracophyllum gracile, Erica Bothwelliana, Darwinia tulipiferum, &c. Mr. E. Beckett, gr. to J. T. Currie, Esq., Sandown House, Esher, was 2d with good specimen Kalosanthes coccinea superba: Clerodendron Balfourianum, Ixora Williamsii, &c.; Mr. J. Wells, gr. to C. Selwyn, Esq., Richmond, was 3d. Mr. Beckett was 1st with six fine-foliage plants with well grown specimens; and Mr. J. Parsons, gr. to T. Twining, Esq., Twickenham, came next. With six Fuchsias Mr. Wells was to the front, having Lady Haytesbury, Warrior Queen, Princess of Prussia, Minnie Banks, &c.; Mr. Beckett coming 2d with very good plants. Some good Gloxinias were shown by Mr. Sallows and Mr. Parsons. Mr. Sallows was the only exhibitor of Achimenes, having fine clumps in pans. With six Pelargoniums, show or any other, Mr. Wells was 1st, and Mr. Beckett 2d—the latter having good dense bottoms that will be serviceable next season. In the decorative groups Mr. Monro, gr. to Lady John Chichester, Twickenham, was placed 1st with a fairly pretty arrangement—a bolder yet more formal group, put up by Mr. Parsons, taking 2d place. Mr. Beckett was 1st with ten vegetables, a most creditable lot; and Mr. Monro was 2d with things badly arranged. Mr. J. Coombes, gr. to Sir H. Meux, East Sheen, had in the 3d lot a superior sample of Asparagus, and generally good things. Mr. W. Poupart, market grower, Twickenham, had a very superior collection of vegetables, fruit, and cut flowers that was much admired. Messrs. Veitch & Sons put up in the cut flower tent a delightfully fresh lot of cut Roses; Mr. Laing also sent several boxes of the queen of flowers. Messrs. Hooper & Co. had a pretty lot of cut blooms of hardy plants, amongst which the charming Lythrum roseum figured prominently, and Messrs. Page & Son, of Teddington, put up some elegant bouquets. Fruit generally was very good, and the ladies made up some pretty table decorations. The cottagers exhibited strongly, one of the best features being their window boxes, which were mostly well filled. Some sixty or more bouquets of wild flowers were shown, displaying much earnest but somewhat misdirected industry. In all respects the show manifested a good advance upon that of previous years, and was highly creditable to officials and exhibitors.

Ealing, Acton, and Hanwell Horticultural.—It was doubtless fortunate for the success of this Society's annual summer show, held in Miss Perceval's fine park-like grounds, at Ealing, on Wednesday of last week, that a tremendous thunderstorm, accompanied by a heavy downpour of rain, should have occurred during the preceeding night, and thus lowered the temperature and cooled the soil. The customary arrangement of the exhibits in three large tents was followed, one having large plants and plant groups, a second Roses and various cut flowers and fruits, whilst a third held the very extensive display of cottage garden produce—the open class vegetables, and also the collections in various forms of amateurs and single-handed gardeners. The chief trade collections came from Messrs. Charles Lee & Sons, Hammersmith, who sent a very elegantly arranged group of decorative plants, and included some finely flowered Begonias. Also from their Ealing Nurseries came a pretty collection of Roses in pots, amongst which, attracting much attention, was the hybrid white China, "White Pet," which flowers so freely in clusters like some of the old cluster Noisettes. This firm also had several boxes of superb Roses, many of great beauty and freshness, amongst them Madame Victor Verdier, Countess of Oxford, Madame Belinda Kerr, Marie Baumann, Dupuy Jamain, Constantine Tretakoff, Prince de la Porcia, John Hopper, and a new kind, Charles Duval, were all good. Messrs. Fromow & Sons, of Turnham Green, had a very pleasing group. A very good collection of plants that was not in competition came from C. N. Peal, Esq., of Ealing. These were admirably grouped, and formed a very attractive feature.

The competition groups in the larger classes always bring a good display, although the first place would seem to be a moral certainty for Mr. Hudson of Gunnersbury House Gardens, who, with an arrangement almost identical with that shown at Richmond, was soon adjudged the best; Mr. McPhin, gr. to Thomas Nye, Esq., Ealing, coming 2d, having for centre a fine pyramidal Fuchsia, and grouped around it small Crotons, Caladiums, Begonias, Gloxinias, and Ferns. Mr. G. Weedon, florist, Ealing, who was 3d, had some well-bloomed Kalosanthes and a margin of deep blue Lobelias, mixed with Lycopods. Mr. Elliot, gr. to J. M. Moore, Esq., Ealing, had a group of plants showing excellent cultivation and bright hues, but wanted a more graceful arrangement. With six Ferns Mr. Hudson was also 1st, having some large plants, taking also the 1st prize for six foliage plants with fine Croton undulatus, Gleichenia Mendelii, Thamnopteris australasica, Areca lutescens, Kentia australis, and a marvellous Alocasia metallica, some 6 feet through, and finely done. Mr. Bunn, gr. to E. M. Nelson, Esq., Hanger Hill House, was placed 2d with capitally grown Ferns, the plants clean, fresh and distinct. He had Cyathea excelsa, Adiantum cuneatum and gracillimum, Lomaria gibba, Dicksonia antarctica, and a good golden Gymnogramma. With six foliage plants Mr. Bunn was also 2d, having clean specimens of Alocasia Veitchii and metallica, Croton variegatus, Hibiscus Cooperi, &c. Mr. McPhin, though only 3d with Ferns that were remarkably clean and good, was well in with Fuchsias, having the best four, consisting of huge well bloomed pyramids of Crimson Globe, Charming, Elegance, and Beauty of Wilts. In the specimen plant class Mr. Hudson was 1st with a gigantic Cycas revoluta, some 9 feet across, in bloom; Mr. McPhin coming 2d, with a fine pyramidal Fuchsia. This exhibitor was 1st with four foliage plants, having good Pandanus javanicus variegatus, Caladium Triomphe de l'Exposition, finely coloured; Dracæna Veitchii, and Croton majesticus; also 1st with four stove and greenhouse plants, chiefly of foliage kinds. Mr. McPhin had some capital mosses in pans, and Mr. J. Sutton, gr. to Mrs. Wilkinson, who was placed 2d, was little behind with capital pans of Selaginella apoda, cuspidata, and another good kind. Gloxinias were fairly good, the finest plants coming from Mr. Darvell, gr. to C. J. Brown, Esq., Gunnersbury, whilst those from Mr. Hudson, were placed 2d, had perhaps the finest flowers and most showy hues. Thoughout all the plant classes there was good competition, but it fell to the lot of a few men to secure the leading prizes.

Owing probably to the Royal Botanic Show, only one trade grower competed in the open class for forty-eight Roses in threes, Mr. C. Turner taking the 1st prize with a beautiful lot of flowers that well deserved the position. Amongst them were fine Maréchal Niel, François Michelon, Abel Carrière, Marguerite Brassac, Glory of Waltham, Charles Lefebvre, Niphetos, Sir Garnet Wolseley, Alfred Colomb, and Duchess of Bedford. In the open class for gardeners Mr. Hudson was 1st with twenty-four kinds, his blooms being fresh and good. Mons. E. Y. Teas, Dr. Andry, Niphetos, Alfred Colomb, and François Michelon were first-rate. The best single H.P. Rose was Duke of Wellington, rich crimson; and the 2d best La France. The best single Tea was Belle Lyonnaise, and the next Devoniensis. For prizes offered by Joseph Moore, Esq., for the best natural arrangement of eighteen Tea Roses on growing moss Mr. Hudson was 1st, the flowers being set in at the customary intervals, but having large stems that permitted them to lie in the moss—Mr. Moore's own gardener, J. Elliot, coming 2d, with good flowers but a more formal arrangement.

Table decorations were of the usual kind, some very elegant and pretty, but exhibiting nothing striking or novel. Mrs. H. B. Smith, of Ealing Dean, sent a huge wedding-cake dressed with white flowers in a pyramidal form that was very much admired. It is about time that some one originated a new form of glass table flower stand, and specially one that will not admit of the base being filled with flowers and Ferns to an inordinate width; any good stand should have a pedestal elevating it not less than 6 inches from the table.

Mr. Hudson took 1st prize with a collection of fruit, having good Black Hamburgh and Foster's Seedling Grapes, Queen Pine, Elton Cherries, Lord Napier Nectarine, and good Melon. With two bunches of good Black Hamburgh Grapes Mr. Wardle, gr. to — Curwen, Esq., Twyford Abbey, was 1st, and Mr. Hudson 2d. With white Grapes Mr. Hudson was 1st, with Foster's Seedling. Some grand Strawberries came from Mr. H. Hayward, of Castle Bar, who had Sir C. Napier and Sir J. Paxton. Mr. Garland, gr. to C. Brighty, Greenford, showed, not in competition, grand examples of Sir C. Napier and British Queen.

In the open class for eight vegetables Mr. Wardle was 1st and Mr. Hudson 2d. The single-handed gardeners' classes were well filled, and there was good competition. The cottagers, as usual, gave the judges ample work, and though their exhibits were not quite up to the mark, there was no falling off in quantity, indeed the show altogether was a decided success.

Ipswich and East of England Horticultural.—This Society, by the kind permission of T. N. Fonnereau, Esq., held its first annual show in Christchurch Park, under very different auspices to those usually accompanying its meetings, as for years past the weather in those days was generally of such a wet or otherwise disagreeable nature as to deter people from venturing out, but on this occasion the sun shone forth with such brilliancy and fierceness that the numerous visitors were glad to seek the shade of the magnificent trees with which the highly picturesque grounds of the demesne abound. Not only is the park famous for its numerous gigantic Oaks, Elms, Chestnuts, and Limes, but the grand old house, which is of the Elizabethan period, is rich in historic associations, and besides other articles of great antiquity, contains the bedstead on which the Virgin Queen, as she delighted to be called, slept. The exhibition of plants was a small one compared to what it used to be when there were several other contributors; but although this was the case, those shown by the Messrs. Gilbert were highly meritorious, they being mostly young, clean, and well-grown specimens, and the collections of these gentlemen were therefore placed 1st, the six stove and greenhouse containing a fine Phormium tenax variegatum, Alsophila australis, Croton Johannis, and Caladium Prince Albert Edward. For six exotic Ferns, Mr. A. Payne, gr. to E. Packard, Esq., of Berkfield Lodge, was a good 1st, with a Gleichenia rupestris, Davallia pyxidata, Gymnogramma Mertensii, Adiantum concinnum latum and A. cuneatum. The Messrs. Gilbert came 2d in this class, but they were again 1st for Caladiums, which they showed in fine form and colour, the best sorts among them being Houlletii, Meyerbeer, Alfred Bleu, and Prince Albert Edward, the latter a really fine kind, and one of the most showy and useful that can be had.

Excepting the Gloxinias, which were remarkably good, there was little else in the plant way calling for special notice. There was, however, a splendid display of Roses, as the honorary secretary, the Rev. A. A. Berners, who has worked so arduously and successfully to lift the Ipswich and East of England Society from its deplorable position, has founded another, to be called the "East Anglian Rose Society;" this held its first meeting in connection with its foster parent, and as a tent was wholly filled with cut blooms of the queeen of flowers some idea may be formed of the great feast visitors had spread out before them, and it was particularly pleasing to many to find that the reverend gentleman, who, like many more of his clerical brethren, is an enthusiastic gardener, was one of the most successful exhibitors, he having taken no less than six 1st prizes in the principal classes, in competition with some very old stagers. In the class for thirty-six trebles, Mr. B. R. Cant, of Colchester, took the premier position with a magnificent lot, his La Boule d'Or, A. K. Williams, Dupuy Jamain, Beauty of Waltham, and Xavier Olibo, being of fine substance and colour. Mr. D. T. Fish, of Hardwicke, was a good 2d and Messrs. Bunyard 3d. For forty-eight singles, Mr. Cant was again 1st, as he was also for twenty-four, where his greatest strength was shown, as the blooms were perfect and unapproachable in the quality they displayed, especially the Marie Van Houtte, Rubens, Perle des Jardins, Captain Christy, Marie Baumann, and Marguerite de St. Amand. Mr. Rushmere, gardener to Sir C. Rowley, of Tendring, also came out well in this class, his best flowers being Triomphe de Rennes, Marguerite Lacharme, La Boule d'Or, and Beauté de Bonstettin; and the same gentleman was again 1st for eighteen, but here he was closely run by formidable rivals in Mr. D. T. Fish and Miss Penrice. In the open classes for Teas, Mr. George Prince of Oxford outdistanced competition, as he was an easy 1st, with the most beautiful blooms, and also obtained 1st honours for twelve of one variety. The great feature among other cut flowers was the collection from Lord Rendlesham's gardens, which was set up with great taste, and contained choice things, the principal being Odontoglossum Uroskinneri, O. Alexandræ, Epidendrum vitellinum majus, Anguloa Clowesii, Stanhopea tigrinum, a beautiful variety of Amaryllis, and Gardenias. Next to these the stands of herbaceous plants attracted most notice, those contributed by the Messrs. Gilbert being very fine, as they were shown in large bunches, and were all in capital condition; the most striking things amongst them were Galega persica lilacina, Coronilla rosea, Funkia Sieboldii, Alströmeria aurea, Dianthus multiflorus rosens, and D. striatiflorus.

In the fruit department Mr. Blair, gr. to Sir G. Broke Middleton, of Shrubland Park, took the lead for the collection of eight dishes, but he was very closely run by Mr. Allan, gr. to Lord Suffield, of Gunton Park, who had splendid Grapes, Peaches, Figs, Cherries, and Strawberries, but the Madresfield Court Grapes in Mr. Blair's lot were so perfect in finish as well as large in bunch and berry that they carried him in. For six Peaches Mr. Blair was 1st with remarkably fine fruit, and Mr. Allan 2d; but this order was reversed for Nectarines, as those of the latter were rather the best coloured. The show of Grapes was not large, but the Black Hamburghs, contributed by Mr. Allan, were all that could be desired, although not nearly so large as those shown by Mr. Mills, whose centre bunch could not have been much short of 5 lb.

Tiverton Horticultural: *July* 7.—There is a marked improvement in the character of the different productions that make up the exhibitions held by this Society now, as compared with a few years back, particularly in the plants shown by local exhibitors, both in the classes for large specimens and also such as come more within the description of general decorative subjects. There were two classes of plants staged for effect, varying considerably in the space to be occupied, so as to give an opportunity for exhibitors whose plant-growing accommodation varies in extent. In the largest competition Mr. Selway, gr. to Sir J. H. Heathcote Amory, was a good 1st, showing a very effective group, the plants suitable, well-grown, and nicely arranged; 2d, Mr. Lock, gr. to B. Cleeve, Esq., whose exhibit was also meritorious. For the group occupying a smaller space, Mr. Barnes, gr. to T. C. Daniel, Esq., occupied the post of honour with a pretty bright lot of plants well relieved by neat foliage subjects; 2d, Mr. James, gr. to Sir T. W. Walrond.

Six stove and greehouse flowering plants were very well shown by Mr. Selway, who had well bloomed samples of Allamanda nobilis, Stephanotis floribunda, Ixora Prince of Orange, and I. regina; Mr. Lock 2d, with a nice half-dozen, the best of which were Statice profusa, Erica ampullacea Barnesii, E. Candolleana, and Dracophyllum gracile. Six fine-foliage plants were likewise meritorious, Mr. Selway taking 1st with amongst others a large bush of Croton pictus, Cocos Weddelliana, and Dieffenbachia Bausei; 2d, Mr. Lock, who had well managed examples of Croton Weismanni, C. majesticus, and Alocasia intermedia.

Ferns came from Mr. Selway and Mr. Lock, the former having handsome medium-sized specimens of Gleichenia Mendelii, G. dichotoma, and Adiantum concinnum latum. The 2d prize collection contained a fine mass of Nephrolepis davallioides and Gymnogramma chrysophylla Laucheana.

There was only a small display of Orchids, but those present were well done, Mr. Perry, gr. to H. C. Mills, Esq., taking 1st for three with Odontoglossum vexillarium, O. crispum, and Epidendrum vitellinum majus, all finely flowered and fresh; 2d, Mr. James, who had in his lot a beautiful example of Dendrobium Bensoniæ. Single Orchid: 1st, Mr. James, showing a large and splendidly bloomed Dendrobium suavissimum; 2d, Mr. Perry, with a good plant of Aerides Lobbii.

Mr. R. T. Veitch, of Exeter, had, not for competition, a large and very effective group of flowering and fine-leaved plants, amongst which were well-grown specimens of the handsome Blandfordia grandiflora and B. nobilis, both well bloomed; Thunia Bensoniæ, Sarracenia flava, S. Drummondii, Aerides roseum, &c., intermixed with Palms, Ferns, and other fine-leaved plants. From Messrs. Lucombe, Pince & Co. came an extensive group, likewise not for competition, which comprised, in addition to the usual ornamental leaved subjects, a number of well grown and equally well bloomed examples of Allamandas, Ixoras, Dipladenias, and other flowering stock, along with the finest box we have seen for some time of one variety of Rose—the white Tea Niphetos, containing ninety-six flowers, alike remarkable for their size and clean fresh condition. Mr. Garland, gr. to Sir T. D. Acland, also had a similar group of plants, not for competition, which contributed much to the effect of the show, occupying a considerable portion of the centre of a large tent.

Roses were forthcoming in moderate quantities and excellent condition. For forty-eight, Messrs. Curtis & Sanford, of Torquay, took the lead, with a grand lot of flowers individually large and in excellent condition; 2d, Mr. Walters, who had also a fresh lot of blooms. With twenty-four, Mr. Teed, gr. to Mrs. Ensor, took 1st, with good flowers; 2d, Mr. Powell, gr. to the Earl of Devon. Twelve Tea Roses: 1st, Messrs. Curtis & Sanford, with a stand of splendid flowers; 2d, Mr. Walters, who had some very fine blooms. Twelve Roses: 1st, Mr. Teed, who, with twelve Teas in another class, also came in 1st.

Fruit, eight dishes: Mr. James took 1st, having, along with others, Black Hamburgh and Buckland Sweetwater Grapes, Royal George Peaches, and Meredith's Hybrid Melon; 2d, Mr. Perry. Black Grapes, three bunches: Mr. Powell was a good 1st, having Black Hamburgh; 2d, Mr. James. Three bunches white Grapes: 1st, Mr. James. Pine: 1st, Mr. Powell; 2d, Mr. Lock. Six Peaches: 1st, Mr. Teed, Royal George; 2d, Mr. Perry. Six Nectarines: 1st, Mr. Teed.

Stourbridge Horticultural: *July* 5, 6, *and* 7.—The horticultural exhibition that annually takes place in conjunction with the Worcestershire Agricultural Society was this year held at Stourbridge, and was very successful in each of the departments—plants, fruits, flowers, and vegetables. In the principal class for sixteen plants, half in flower and half fine-foliage, there were three exhibitors—Mr. Cypher, Cheltenham; Mr. Tudgey, gr. to J. F. G. Williams, Esq., Worcester; and Mr. Lott, gr. to E. Humphries, Esq., who took the prizes in the order of their names. It was a close run between the first and second groups, both exhibitors coming out in their best style. Mr. Cypher had amongst others Allamanda nobilis and A. Hendersoni, splendidly flowered; the rose-coloured Heath, E. Parmentieriana rosea, large and finely bloomed; Clerodendron Balfourianum and Dipladenia amabilis, well backed up by grand examples of Croton angustifolius and C. Johannis, both standing at the head of the long-leaved forms of these popular plants; with Cordyline indivisa, Encephalartos villosus, and Gleichenia flabellata, all very large, and in beautiful order. Mr. Tudgey's group contained Dipladenia amabilis, covered with large highly coloured flowers; Ixora amabilis, I. amboinensis, and Erica ferruginea superba, all in good condition, with huge plants of Cycas circinalis, and large Palms. With six flowering stove and greenhouse plants Mr. Cypher took 1st, staging a fresh even lot of specimens; Mr. Tudgey, who was 2d, had, along with others, a remarkable example of Dendrobium thyrsiflorum, bearing some eighteen large racemes of its delicate white and yellow flowers.

Twelve fine-foliage plants: Here again Mr. Cypher was to the front, as also in the class for six, Mr. Tudgey taking 2d honours in each. Mr. Cypher had Croton Weismanni and C. Disraeli, both well clothed with healthy foliage; the scarce Cycas Normanbyana, with Palms, &c. Conspicuous in Mr. Tudgey's plants were Croton Queen Victoria, highly coloured; and several handsome Palms, including Geonoma princeps, a beautiful distinct species. Mr. Cypher had 1st and 2d prizes awarded to him for two collections of six Orchids, he being the only exhibitor. Amongst them were good examples of Odontoglossum vexillarium, Cattleya Warneri, and Dendrobium Pierardi latifolia, which, although an old species now little thought of, is still when, as in the present case, profusely flowered, a fine exhibition specimen.

Twelve stove and greenhouse Ferns: 1st, Mr. Cypher, showing, with others, healthy examples of Gleichenia flabellata, G. Speluncæ, Cibotium Schiedei, and Thamnopteris Nidus; Mr. Tudgey, who took 2d, had a well grown lot several Filmy Ferns, amongst which was a nice specimen of Todea superba.

Fuchsias, Gloxinias, Caladiums, zonal, tricolor, and bronze Pelargoniums, along with other soft-wooded plants and hardy Ferns, were present in quantity, and collectively went to make up a good display, filling several large tents.

Mr. J. S. Haywood, nurseryman, Worcester, had a nice group of healthy young stove and greenhouse plants, not for competition; and from Mr. Boller, Kensal New Town, London, came a fine collection of Cacti, and other succulent plants, of which he possesses such a handsome assortment: these received a special prize.

Roses and other cut flowers were largely shown. For forty-eight Roses, distinct, Messrs Cranston, of Hereford, were 1st, exhibiting, as they usually do, very fine flowers. Thirty-six: 1st, Messrs. Cranston, with a good lot of blooms. Twenty-four and twelve: Mr. Jowitt took the lead, showing a nice lot of flowers. There was a keen competition in the classes for stands of flowers for table decoration, bouquets, crosses, and wreaths. In that for three dinner-table stands Mr. Cypher came in 1st, with a nicely arranged exhibit, not too heavy or overdone; Miss Wilks was 2d. Single stand: 1st, Miss Wilks; 2d, Mr. Gardener. With both brides' and ball-room bouquets Messrs. Jones & Sons, Shrewsbury, had little difficulty in scoring 1st honours, in each case exhibiting well made tasteful examples; Mr. Maylett being 2d in the class for balls, Mr. Godfrey in that for brides.

Fruit was very well exhibited, and forthcoming in considerable quantity. In the class for six dishes Mr. Barker, gr. to Sir H. Allsopp, took the lead, with a very good collection, including well finished Black Hamburgh and Muscat of Alexandria Grapes, a Colston Bassett Melon, and an unusually fine dish of Royal George Peaches. For six dishes, Pines excluded, Mr. Gough had 1st, showing handsome dishes of Black Hamburgh and Muscat Grapes, Barrington Peaches, and Pitmaston Orange Nectarines; 2d, Mr. Child, gr. to the Earl of Coventry, who had very fine Black Hamburgh Grapes and Pitmaston Orange Nectarines. Two Pines: 1st, Mr. Barker, with a pair of the Ripley Queen in nice condition; 2d, Mr. Hillman, gr. to H. Bramwell, Esq. Single Pine: 1st, Mr. Hillman, with a Queen; 2d, Mr. Mitchell, gr. to Sir G. Elliott. Two bunches of black Grapes (Hamburgh): With these Mr. Gough was well to the fore, staging beautifully finished examples alike good in both bunch and berry, perfectly black and well covered with bloom; Mr. Barker, who was 2d, had also very good fruit. Two bunches of any other black kind: 1st, Mr. Elt, Muscat Hamburghs, very well done, medium sized bunches, and berries large and well coloured; 2d, Mr. Oldfield, gr. to G. Arkle, Esq., who had Black Prince nicely shown. Two bunches white Grapes (Muscats): 1st, Mr. Gough, with Muscat of Alexandria, unusually well finished for so early in the season; 2d, Mr. Elt. Two bunches any other white kind: With these Mr. Bowen, gr. to Major Williams was 1st, having Foster's Seedling; 2d, Mr. Elt, who showed white Frontignan in nice condition. Peaches, single dish: 1st, Mr. Barker, with a grand dish of Royal George.

Romford and Essex Horticultural: *July* 7.—The annual exhibition of this Society was held in the grounds of Ralph G. Price, Esq., Marshall's Park, near Romford, The exhibition was considered to be one of the best ever held by the Society. It is getting rather late for flowering plants, but a very good collection of eight stove and greenhouse flowering plants was sent from the gardens of D. Macintosh, Esq., Havering (Mr. Bones, gr.), and a well flowered collection from C. E. Coope, Esq., Rochetts (Mr. Young, gr.). Mr. Young also exhibited a very good collection of foliage plants, while

the best stove and greenhouse Ferns were sent from the gardens of F. Whitbourn, Esq., Loxford Hall. The best flowering plants were Erica ventricosa Bothwelliana, Statice profusa, Bougainvillea glabra, Clerodendron Balfourianum, Ixora Williamsii; and a variety of Kalosanthes, in fine condition. Orchids from Loxford Hall were represented by Oncidium macranthum, O. Lanceanum, Epidendrum vitellinum majus a nice variety of Odontoglossom vexillarium, &c Roses were exhibited in great profusion for a country show, and, as usual at Romford, they were of really good quality. This was to be expected when such leading growers as Mr. B. R. Cant, of Colchester, were amongst the exhibitors. Mr. Cant was easily 1st for forty-eight Roses; and the Rev. J. H. Pemberton, of Havering, showed excellent blooms. Mr. Meadmore, of Romford, and Messrs. Saltmarsh, of Chelmsford, also exhibited good Roses. Fruit was better than usual. Mr. Farrance, of Chadwell Heath, showed wonderfully fine Noblesse Peaches and Sir Charles Napier Nectarines. The Strawberries from Messrs. Douglas and Meadmore were very fine indeed; and a meed of praise must be given to the Black Hamburgh and Muscat of Alexandria Grapes from C. R. Postans, Esq., of Brentwood (Mr. C. Carner, gr.); they were well ripened in both cases.

The amateurs (that is, those who do not employ a regular gardener) and the cottagers made a fine display of themselves, and it is very pleasing to record the fact that the productions in both these sections have improved very much indeed since the exhibition was established. There was considerable improvement in the section devoted to gardeners' productions, but much more in these; indeed, the cottagers surpass the gardeners in the production of some kinds of vegetables—the Potato to wit, while their flowers and fruits are better grown and exhibited than is usual at country shows.

Tunbridge Wells Horticultural: *July* 8.—The annual summer show of this Society, which has now been in existence for twenty-five years, was held in the great hall and grounds attached to the Calverley Hotel. Excepting that there was some falling off in several of the classes of large flowering plants, the exhibition was well up to the general character that for many years has marked this Society as one of the most successful in this part of the country. In the open class for eight stove and greenhouse flowering plants, Mr. Bolton, gr. to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks, took the lead with a neat lot, in which the fine old Clerodendron fallax bore some fifteen of its bright red panicles; C. Balfourianum and Ixora Williamsii being also well flowered. Mr. Pope, gr. to J. J. Barrow, Esq., Holmwood, Tunbridge Wells, was 2d, with a smaller group, containing a nice specimen of Tabernæmontana coronaria flore-pleno one of the purest of white flowers. Four stove and greenhouse plants—Mr. Bolton was the only exhibitor, and took the 1st prize. In the amateurs' class of six stove and greenhouse plants, Mr. Bolton was again to the fore, his best examples being Stephanotis floribunda and Statice profusa, still the best of the Statices. Four stove and greenhouse plants (amateurs): 1st, Mr. Bolton, who staged a finely bloomed plant of Anthurium Scherzerianum, bearing some forty flowers; 2d, Mr. Pope. For eight ornamental plants, Mr. Pope was well ahead, his best specimens being a large Croton variegatus, Pandanus utilis, the Date Palm, Phœnix dactylifera, and Areca lutescens; 2d, Mr. Bolton. Six fine-foliage plants (amateurs): 1st, Mr. Johnstone, gr. to the Marchioness of Camden, Bayham Abbey, who had large examples, amongst which were several fine Palms and Ferns; 2d, Mr. Pope. For eight exotic Ferns the 1st prize was won by Mr. Pope, with a handsome lot of large well grown plants. Six Ferns; 1st, Mr. Johnstone, who staged a clean, healthy, distinct half dozen; 2d, Mr. Wilkins, gr. to F. S. Williams, Esq., Shirley Hall, Langton. Twelve hardy Ferns: 1st, Mr. Scammell. Fuchsias were well shown, large, fresh, and finely flowered. In a close competition for six, Mr. Early, gr. to G. A. Brittain, Esq., Ferndale, took 1st, showing profusely furnished examples, the best of which were Peerless and Arabella; Mr. Turner, gr. to F. R. Lachur, Esq., 2d.

Achimenes were in faultless condition in every way: Mr. Scammell, gr. to C. Reilly, Esq., Tunbridge Wells, being 1st with a beautiful half-dozen, conspicuous in which were longiflora major, Mauve Perfection, and longiflora alba; 2d, Mr. Allan, gr. to G. Hanbury Field, Esq., Ashurst Park, whose collection was only a little inferior to the 1st.

Tuberous Begonias were also well represented, full of strong growth, and clothed with flowers. Mr. Bartholomew took 1st, and Mr. Allan 2d.

Double zonal Pelargoniums, often indifferently shown, were in beautiful condition. With six, Mr. Wilkins had 1st for large and finely-flowered examples of the Rover, Madame Thibaut, Marie Lemoine, and Wonderful; 2d, Mr. Allan, who also had well-managed plants. Single-flowered zonal Pelargoniums were likewise in nice order; for six, Mr. Wilkins had 1st, and M. Allan 2d.

Gloxinias were present in good form. Mr. Read, gr. to W. C. Cripps, Esq., Tunbridge Wells, was 1st for six; Mr. Allan 2d, with a fine lot of seedlings. Mr. Read was awarded an extra prize for twelve seedlings, all beautiful varieties of this much improved flower.

A circular tent was occupied by groups of plants arranged for effect, seven exhibitors competing, Mr. Early taking 1st, with a fairly grouped exhibit; Mr. Bolton 2d, and Mr. A. Bashford 3d.

Roses were well represented both as to quantity and quality of the flowers. In the class for forty-eight single blooms, distinct varieties, Messrs. Mitchell & Sons, Piltdown Nurseries, Uckfield, had 1st honours, with a fine lot of flowers. Mr. G. W. Piper, Uckfield, who was 2d, showed well. Twenty-four varieties, three blooms of each: 1st, Mr. G. W. Piper. In the amateurs' class the prize offered by Messrs. Mitchell for twenty-four was won by Mr. A. Slaughter, Jarvis Villa, Steyning. Twelve Tea varieties were beautifully shown, Mr. Slaughter taking 1st and the Rev. H. B. Biron the 2d prize. Twelve Roses, restricted to the Tunbridge Wells district: 1st, Mr. Chamberlain, gr. to Mrs. Christy, Tunbridge Wells; 2d, Mr. R. Bristow, Tunbridge Wells.

Table decorations, as shown at this and other societies, exhibitions in the surrounding district in threes and single examples, apart from all the paraphernalia more or less present when each exhibitor sets out a separate table, are much to be preferred, and when well done, as they usually are by several exhibitors who hail from this locality, are really attractive. In the competition for three Mrs. Seale, Sevenoaks, had 1st, showing in her usual style; Mrs. Fennell, Tonbridge, being a close 2d; and Mrs. Bishop, Croydon, 3d. With a single centrepiece Miss Blanch Charlton, Tunbridge Wells, was 1st, and Mr. Bolton 2d.

Fruit was well and largely shown. With a collection not limited to number of varieties, Mr. Hopgood, gr. to Sir Julian Goldsmid, Somerhill, came in 1st, showing in a nicely arranged exhibit good Black Hamburgh Grapes, a Pine, Peaches, Nectarines, Figs, a Melon, &c.; Mr. A. Bashford, gr. to Mrs. S. Douglas, being a good 2d; and Mr. Henderson, gr. to J. Deacon, Esq., Tunbridge, 3d. For a Pine, Mr. Fennell, gr. to E. Cazalet, Esq., had 1st, with a handsome Queen; Mr. Scammell, 2d, a fine example of the same kind. Of three bunches of black Grapes there were twelve exhibitors, mostly showing fruit of good average quality; Mr. Hopgood coming in 1st with well finished bunches; Mr. Harris, gr. to O. A. Smith, Esq., East Grinstead, 2d, also showing well. White Grapes, three bunches: 1st, Mr. Adams, gr. to W. H. Trego, Esq., Reigate Hill, Buckland Sweetwater, unusually fine, good bunches of large well coloured berries; 2d, Mr. Wilkins, who also had the same variety. Three bunches of Grapes, exclusive of Black Hamburghs and Muscats; 1st, Mr. Barnes, gr. to Lady Herschel, Hawkhurst, with Golden Champion, Black Prince, and Buckland Sweetwater; 2d, Mr. Bolton, Madresfield Court, Black Prince, and Buckland Sweetwater. Mr. Fennell was 1st for a dish of Peaches, Noblesse. Nectarines: 1st, Mr. J. Bashford, with large and well coloured fruit.

Southgate Horticultural: *July* 9.—This Society held its annual exhibition in the grounds at Osidge, the residence of Mrs. Bosanquet. The display collectively spoke well for the state of horticulture in the neighbourhood from which the various productions the show was composed of principally came. Ferns and fine-foliage plants were well shown, especially the former, which, consisting mainly of the dwarfer growing, more elegant habited species, had more interest attaching to them than when, as often now seen at exhibitions, they are chiefly confined to arborescent species. Soft-wooded subjects, such as Fuchsias, Pelargoniums, and Coleus are generally forthcoming here in good condition, and on the present occasion were better than usual. Those who have read Paul's *Rose Garden*, and are at all acquainted with the neighbourhood, and know the way in which the Rose thrives in North Middlesex and the adjoining county, would expect to find Roses a principal feature of the show, and in this would not be disappointed, as both the resident amateurs and several of the leading trade growers contributed to make up a good display.

For six stove and greenhouse flowering plants, Mr. Graver, gr. to J. Walker, Esq., Arno's Grove, had 1st with fresh healthy examples, amongst which were Clerodendron Balfourianum, Statice profusa, and a very large example of Brassia verrucosa, with some fifteen spikes of bloom; this old plant, although not possessing the bright colours of many species, is, from the elegant formation of its flowers, and their enduring properties, now much in request by those who require cut flowers for decorative purposes. Mr. Osborne, gr. to J. N. Mappin, Esq., was 2d, having in his group a large and finely-bloomed Kalosanthes coccinea.

Six fine-foliaged plants: 1st, Mr. Graver, a nicely grown half dozen, containing Cocos Weddelliana and Dieffenbachia Bausei. Six Ferns: 1st, Mr. Osborne, who, in a nice group, had fine specimens of Thamnopteris australasica and Davallia Mooreana; 2d, Mr. Graver.

In the class for six Fuchsias there was a close competition, Mr. Osborne taking 1st honours with a well-grown, well-flowered lot, amongst which Lady Heytesbury and Madame Cornilissen were the best; Mr. Burnett, gr. to R. D. M. Littler, Esq., 2d. Mr. Osborne was the only exhibitor in the class for show Pelargoniums, showing very good plants for so late in the season.

Roses, twenty-four: 1st, Mr. Duffield, gr. to H. K. Mayor, Esq., Winchmore Hill, with a stand of very good flowers, fresh, and a good assortment of colours, a point which not unusually is insufficiently kept in sight. Roses of the Marie Baumann form and colour are very beautiful, but too many of this character are often used, and this is a decided point against an exhibitor so confining his collection. Mr. Duffield was also 1st with twelve beautiful Rose-buds, very tastefully arranged with Adiantum and light grasses, a way in which these buds are here shown, and so displayed are very charming. Twelve Roses: in this class Mr. Graver and Mr. J. H. Dale were equal 1st, both showing very fine flowers. Dinner-table stand: 1st, Miss Baines; 2d, Miss Wren. Bouquet of outdoor flowers: 1st, Miss Baines; 2d, Mrs. Mayor. Button-hole bouquet: 1st, Miss Rose Baines; 2d, Mrs. Barker. Arrangements of flowers in jam-pots and soup-plates: 1st, Mrs. Barker; 2d, Mrs. Roberts.

Fruit was well done. Mr. Pulling, gr. to G. K. Smith, Esq., took 1st for three bunches of black Grapes, with Black Hamburghs; 2d, Mr. Osborne, who also showed Black Hamburghs. Three bunches of white Grapes: 1st, Mr. Burnett, who had very good Foster's Seedling; 2d, Mr. Pulling, Pearson's Golden Queen, nicely coloured. Melon, scarlet-fleshed: 1st, Mr. Pulling. Melon, green-fleshed: 1st, Mr. Osborne. Collection of hardy fruit: 1st, Mr. Mills, gr. to J. Miles, Esq.; 2d, Mr. Rose, gr. to B. A. Green, Esq. Three dishes of Strawberries: 1st, Mr. Mills; 2d, Mr. Graver.

Messrs. Cutbush, of Highgate and Barnet, and Mr. Rumsey, of Waltham Cross, each staged a large number of Roses, not for competition. From Messrs. Cutbush, Southgate, and Mr. B. S. Williams, came very effective groups of plants, consisting of the usual flowering and ornamental leaved kinds.

Bagshot and Windlesham Horticultural: *July* 5 *and* 6.—The annual show of this Society was held in Bagshot Park, by the kind permission of H.R.H. the Duke of Connaught. Owing to the beneficial influence of the Royal patronage, the exhibition was decidedly the largest and best yet held in connection with the Society, so much so, that it was found necessary to provide six large tents, in which to display the exhibits sent in. The tents which attracted most visitors were those specially devoted to the decorative and ornamental exhibits of lady subscribers, and to the gardeners' open class for groups of miscellaneous plants in or out of flower. There were five exhibits in both these classes, and the judges very properly awarded the palm to the exhibit in which most skill and taste in the general arrangement was displayed, rather than to those in which the beauty and value of the materials used was the chief attraction—Mrs. Twort, of Camberley, and Mr. Lloyd, of the Brookwood Asylum, taking the 1st prizes. Mr. Lloyd was altogether a very successful exhibitor of plants, as in addition to the coveted honours gained in the miscellaneous group class, he beat all other competitors in the class for six fine-foliage plants, as also in Begonias, Coleus, Fuchsias, Gloxinias, and show Pelargoniums. The most valuable prize offered by the Society, for twelve stove and greenhouse plants in bloom or foliage, and open to all within 15 miles of Bagshot, was secured by a new exhibitor, viz., Mr. G. H. Smith, gr. to Captain C. J. Lefroy, Itchel Manor, Crondall, whose plants were greatly admired for their beauty and perfection of growth. In the Fern classes Bagshot held its own, Mr. Francis, gr. to Mr. Michael Waterer, being 1st in stove and greenhouse varieties, and Mr. C. Rose, gr. to Mr. John Waterer, for hardy Ferns, with very even first-class specimens. Canon Girdlestone, of Windlesham, beat all the other competitors for cut Roses, showing a large number of splendid blooms.

In fruit there were some remarkably fine exhibits, Mr. Spreckley, gr. to J. A. Baxendale, Esq., of Worplesdon, taking the prize offered by the tradesmen of Bagshot for six dishes of fruit, his Grapes, both black and white, Nectarines, and Strawberries being of the very finest quality.

In vegetables Mr. Hill, gr. to Mr. Savory, was deservedly awarded the special prize offered by Messrs. Sutton & Son for a collection of twelve distinct varieties. Mr. Lloyd took the 1st prize for Peas, with some very choice Telephones.

In the division for amateurs, Captain Bunbury, of the Staff College, was a conspicuous and successful exhibitor, in the class for plants in group, and for cut Roses. We should like to see more amateurs competing another year. In the ladies' tent Mrs. Twort might well be proud of her success, as in addition to gaining Mrs. John Waterer's prize for the most tasteful dinner-table, she also took first honours in the class for stands or vases of flowers and foliage for table ornamentation, and 2d for a basket of wild flowers and grasses, being only just beaten in the latter by Miss Skipworth, of Windlesham. In cut flowers Mrs. Brunton excelled, with a charmingly arranged basket, both Mrs. Michael Waterer and Miss Georgina Fendall also contributing tasteful exhibits. Mrs. Babbage and Miss P. Babbage were deservedly awarded 1st and 2d prizes in the class for three vases or baskets arranged with flowers, foliage, or fruit, the prizes for which were presented by Miss Mary James. The classes for cottagers were on the whole well represented, and it was a pleasing feature of the show to find their Royal Highnesses the Duke and Duchess of Connaught offering a number of prizes for window plants—Isaac Clark and George Pope being the chief winners thereof. The attractiveness of the show was materially enhanced by the extensive collections of plants and flowers sent, not for competition, by Mr. John Waterer, of the Bagshot Nurseries, Messrs. Standish & Co., and Mr. Williams, the Liliums and cut Rhododendrons of the former in particular being greatly admired. Messrs. Cobbett, of Horsell; Jackman, of Woking; Mason, of Windlesham; Mr. Rothery, Canon Girdlestone, and others sent boxes of lovely Roses, and a box of Sweet Williams sent by Mr. Rothery attracted most favourable notice. The entries numbered in all 356.

The Duke and Duchess of Connaught, attended by Lady Adela Larking and the Equerry in Waiting, were conducted round the various tents by Mr. John Waterer, and appeared to be highly gratified with what they saw, evincing much satisfaction with the arrangements. The Duchess afterwards distributed the prizes—amounting to £70 in money—to the successful competitors, with her accustomed grace and affability. (*Communicated.*)

Farnham Amateurs' Rose and Horticultural Association: *July* 7.—The eleventh annual show of the Association took place in the gardens of Farnham Castle, by the kind permission of the Bishop of Winchester. The Association is affiliated to the National Rose Society, but notwithstanding this advantage, the

privilege of holding the shows in the beautiful gardens of Farnham Castle, and the excellence of the soil in and around Farnham for the cultivation of the Rose, it appears to make little or no progress in the number of exhibitors. The show this year, so far as it went, was excellent in respect of quality, but the number of exhibitors was so small and the Roses so few as to cause general regret. The Association's Challenge Cup for twelve Roses was won by the Rev. A. B. Alexander, Churt; and the Silver Medal of the National Rose Society, by Mr. Maxwell Lefroy, Itchel Manor, Crondall (Mr. Smith, gr.) The Castle gardens, greenhouses, &c., were looking well, and Mr. Smith, the Bishop's gardener, added materially to the show by tastefully arranging some fine specimens of Ferns, Coleus, &c., in the show tents. Mrs. Anderson, of Waverley Abbey (Mr. Smith, gr.), and Mr. Maxwell Lefroy, of Crondall, had some rare specimens of stove plants, foliage plants, Ferns, herbaceous Calceolarias, Gloxinias, and tuberous Begonias. The High Sheriff of Surrey, Mr. R. H. Combe (Mr. Kingdom, gr.), had a splendid show of cut Pelargoniums, which carried off the 1st prize. Some fine Cucumbers, in addition to those which took prizes in this class, were shown by Mrs. Paget, Rev. T. G. Browne, Rev. H. R. Julins, Mr. Bromley, and Mr. Andrews. The Bishop had also a fine lot of Grapes exhibited in one of the tents. It was pleasing to notice that the subjects brought forward in the decorative class were quite equal to those exhibited in previous years, and prizes were awarded to Miss Sampson and Miss A. Mason; besides the prize-takers the following also exhibited very fine specimens of artistic decoration, viz., Miss G. Longhurst, Miss Evelyn Holder, Manor Lodge, Aldershot; Miss Mason, and Mrs. Lang. Mrs. Harold Browne distributed the prizes. (*Communicated.*)

Alexandra Palace Rose Show: *July* 9.—Though of considerably less dimensions than the National Show of the previous week at the Crystal Palace, the display organised by Mr. J. F. Johnson at the Alexandra Palace on Saturday last was by far the most interesting. The flowers were of more even and higher quality all round, and the nurserymen occupied something like their usual position. Mr. Johnson did his best to break away from the usual arrangements made by Rose show managers, and succeeded admirably, the exhibition being one of the prettiest we have ever seen. The show was held in the large hall, and was enclosed on four sides by sloping banks of Roses, relieved by tall trumpet-shaped glasses filled with branches of highly ornamental flowering shrubs, and the stems draped with Ivy and other plants of a trailing habit. On two sides were oval-shaped beds of Roses, 1000 blooms in a group, placed in bottles of water, buried up to their necks in short grass—a bold and very effective arrangement, which required only to be more neatly finished off with green moss instead of withered grass to improve the idea. Down the centre of the parallelogram were four tables, for staging the Roses in two rows of boxes on each table, in the centre being a circular table for bouquets of Roses, &c., and at either end a large wire-work rosery, from which hung baskets of Roses in great profusion. To give relief to the whole a number of Tree Ferns and tall Palms were dotted about with capital effect. The idea which Mr. Johnson worked out was a good one, and only required a little more finish in detail to make the display as perfect as it was original.

The nurserymen's classes call for comment first. For seventy-two singles Mr. B. R. Cant again came in 1st, The Cranston Nursery Company 2d, and Messrs. Paul & Son, Cheshunt, 3d—all showing remarkably well, the flowers being large and fresh and the colours bright. Mr. Cant also had the best forty-eight trebles, being run closely by Mr. Turner, who was 2d, and the Cranston Nursery Company 3d. In the next class, which was for twenty-four trebles, Mr. Turner came in 1st, with Mr. G. Prince, Oxford, 2d; Mr. John House, Peterborough, 3d; and Mr. Cant 4th. For twenty-four singles Mr. Turner was 1st again, Messrs. Kinmont & Kidd 2d, Mr. House 3d, and Messrs. E. P. Francis & Co., Hertford, 4th. These are in the order as the prizes were first awarded, but later in the day duplicate 2d and 3d prizes respectively were recommended to be awarded in this class to the Cranston Company and Mr. Cant, for stands which, from having been misplaced by their owners, were overlooked by the judges when making their original awards. For twelve Teas or Noisettes Messrs. Paul & Son came in 1st, Mr. G. Prince 2d, and Mr. B. R. Cant 3d. The varieties shown in all these classes were—well, the same as usual, with slight changes in the ringing, and therefore need not be again enumerated.

The amateurs' classes, except in one or two cases, were not well contested, but all staged were very good. For forty-eight singles Mr. T. Jowett came in 1st, beating his famous rival, Mr. R. N. G. Baker, by several points. The same exhibitors also competed with thirty-six singles, and with similar results—Mr. C. Davies, Aynhoe, in this class being 3d, and Mr. J. Davis, Wilton, 4th. With twenty-four trebles the winners were the same, and in the same order; and for the same number of singles Mr. W. Harrington, Corbet's Tey, near Romford, came in 1st, beating the Rev. J. A. Williams, of Yardley Wood, Birmingham. Mr. Harrington also had the best twelve singles, and Mr. C. Davis the best twelve Teas.

For the best 1000 blooms to become the property of the lessees, Mr. Jowitt was 1st; the Cranston Nursery Company 2d, and Messrs. Paul & Son 3d. In the five classes for bouquets of Roses—mixed, white or light Roses, dark, pink, and yellow Roses—thirty-two were staged, and Messrs. Paul & Son took the 1st prizes in every class. For six trusses of any new Rose not in commerce, Mr. Cant was well 1st with Sir Evelyn Wood, H.P., a seedling with rose-coloured blooms suffused with purple; 2d, Mr. Turner with Alice Turner, H.P., pure bright rose, very soft in colour; 3d, the Cranston Nursery Co., with Mary Pochin, H.P., a red-centred flower with the outer petals shaded violet-purple. Mr. B. R. Cant's box of Marie Baumann was the best in the class for twenty trusses of dark Roses; and Messrs. Paul & Son's Souvenir de la Malmaison the best in the light coloured class.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, July 13, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
July	In	In.	°	°	°	°	°	°	°		In
7	29.98	+ 0.18	65.0	49.2	15.8	56.1	— 5.7	46.8	71	W.	0.00
8	29.80	— 0.01	63.0	51.5	11.5	56.0	— 6.0	50.8	83	W.; S.W.	0.02
9	29.84	+ 0.03	70.6	53.0	17.6	60.2	— 1.9	52.5	76	S.W.	0.00
10	29.98	+ 0.17	73.0	55.0	18.0	62.5	+ 0.3	49.0	62	N.W.; W.	0.00
11	29.99	+ 0.17	79.0	56.0	23.0	65.8	+ 3.5	53.9	66	S.W.; W.	0.00
12	29.91	+ 0.09	83.0	58.0	25.0	68.5	+ 6.1	58.3	70	S.S.W.	0.02
13	30.07	+ 0.26	81.0	54.2	26.8	66.1	+ 3.6	55.2	68	S.W.	0.00
Mean	29.94	+ 0.13	73.5	53.8	19.7	62.2	0.0	52.4	71	S.W.	0.04

July 7.—Cold day; strong wind; a few drops of rain. Fine night.
— 8.—A dull, cold day; slight rain. Fine night.
— 9.—A fine day and night
— 10.—Generally fine; occasionally dull; windy. Fine night.
— 11.—A fine day and night; warm.
— 12.—Dull morning; a little rain from 9 A.M. to 10 A.M. Fine and hot afternoon. Fine still night.
— 13.—A fine, warm day; good breeze. Fine night.

London: *Atmospheric Pressure.*—During the week ending Saturday, July 9, the readings of the barometer at the level of the sea increased from 30.15 inches at the beginning of the week to 30.23 inches by the morning of the 4th; decreased to 29.77 inches by 9 A.M. on the 6th; increased to 30.09 inches by the morning of the 7th; decreased to 29.96 inches by 3 P.M. on the 8th, and was 30.02 inches at the end of the week. The mean reading for the week at the level of the sea was 30.05 inches, being 0.07 inch lower than in the week ending July 2, and was 0.07 inch above the average of the same week from forty years' observations.

Temperature.—The highest temperature in the week was 92°.5 on the 5th; it was as high as 88° on the 4th, and 82°.8 on the 3d. The highest temperature reached on the 6th was 70°, and on the 8th, 63°; the mean of the seven highest day temperatures was 76°. The lowest temperature in the week was 49°.2, on the 7th (this reading was 43°.3 lower than the high temperature on the 5th). The mean of the seven low night temperatures was 55°.7.

The greatest range of temperature in one day (midnight to midnight) was 29½° on the 5th; and the smallest was 11½° on the 8th; the mean of the seven daily ranges was 20°.3.

The mean daily temperature of July 3 was 68°.4; of July 4 was 73°.6, and of July 5 was 76°.3; and these values are above their averages by 6°.8, 12°.3, and 14°.8 respectively. A very great change of temperature took place between the 5th and 6th; the mean temperature of the 6th was 59°.2; of the 7th, 56°.1; of the 8th, 56°, and of the 9th was 60°.2; and these days were 2°.4, 5°.7, 6°, and 1°.9 below their respective averages. The lowest temperature on July 5 was 63°, yet the mean temperature of the 6th was 59°.2, being 3°.8 lower than the lowest on the preceding day. The mean temperature of the 7th and 8th was more than 20° of lower temperature than that of the 5th.

The mean temperature for the week was 64°.3, being 3° of higher temperature than that of the preceding week, and 2°.6 above the average of the same week for sixty years.

The highest reading in the week of a blackened bulb thermometer in vacuo, placed in the full rays of the sun, was 175° on the 5th, and the mean of the seven daily readings was 132°.

The lowest reading of a minimum thermometer with its bulb resting on grass was 45°, and the mean of the seven readings was 50°.

Rain fell on two days to the amount of 1.1 inch, of which 0.5 inch fell during the thunderstorm common to the night of the 5th and 6th, and 0.58 inch on the morning of the 6th, between half-past 10 and half-past 11 A.M.

England: *Temperature.*—During the week ending Saturday, July 9, the highest temperatures exceeded 91½° at about London, Cambridge, and Nottingham; at Plymouth the highest reading was 79°, and at seaside places it was less than 84°. The general mean from all stations was 85½°.

The lowest temperatures fell short of 47° at Leicester, Cambridge, Wrottesley and Nottingham; was 51° at Truro, and 50° at Norwich and Leeds. The general mean was 48°.2.

The greatest ranges of temperature in the week exceeded 43° at Blackheath, Cambridge, and Nottingham; the smallest ranges were less than 32½° at Truro, Plymouth, Brighton and Sunderland. The general mean weekly range was 37°.

The mean of the seven highest day temperatures was or exceeded 76° at Blackheath, Cambridge, and Nottingham; the mean was below 69° at Plymouth, Bristol, and Liverpool. The general mean was 72°.

The mean of the seven lowest night temperatures exceeded 56° at Norwich, Sheffield, and Leeds, and were below 54½° at Brighton, Leicester, and Sunderland. The general mean was 55°.

The mean daily range exceeded 20° at Blackheath, Cambridge, and Nottingham, and was less than 14° at Plymouth, Bristol, and Liverpool. The general mean was 17°.

The mean temperature of the week was greater than 64° at Blackheath, Cambridge, and Norwich, and was less than 60° at Bristol and Liverpool. The general mean was 61°.6.

Rain.—The heaviest fall was 1.8 inch, at Bradford, 1.25 inch at Hull, and 1.11 inch at Blackheath. The smallest falls were 0.35 inch at Plymouth and 0.37 inch at Brighton. The general average fall was 0.76 inch.

During the night common to July 5 and 6 thunderstorms were very general. At many places the lightning was almost continuous from 11 P.M. on the 5th to 3 A.M. on the 6th; at some places it was accompanied with heavy rain, but generally the rainfall was small in amount. The atmosphere before the storm was very hot and close; the day following the storm was cold.

Scotland: *Temperature.*—During the week ending Saturday, July 9, the highest temperatures were 74°.9 at Aberdeen, and 72° at Dundee. At Greenock the highest temperature was 64°.2, and the general mean was 68°.4, being about 17° of lower temperature than England.

The lowest temperature was 35° at Paisley, but the next lowest in order was Edinburgh, 46°.4. The general mean was 44°.2.

The mean temperature was highest at Dundee, 58°.7; and lowest at Paisley, 55°. The general mean was 57°, or about 4° lower than in England.

Rain.—The largest fall was 1.95 inch at Aberdeen, and the smallest, 0.94 inch, at Greenock. The general mean was 1.4 inch, being nearly double that of the general mean in England.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Clematis indivisa lobata.—Will some practical friend inform me how I can propagate Clematis indivisa? Will cuttings strike? If so, what is the precise mode of treatment? *R. S.*

Answers to Correspondents.

Books: *H. Lea.* Mrs. Loudon's *Amateur Gardeners Calendar*, the last edition edited by W. Robinson, and published by Messrs. Warne & Co., will suit you best.

Collards: *Enquirer.* Coleworts, of which the variety known as the Rosette is the best.

Dasylirion: *W. G. C. S.* D. acrotrichum more often than not forms one of a group of from six and upwards of fine-foliaged plants at the leading shows. "A splendid plant" would count well.

Double Pansy: *R. & A. Morrison.* The variety is curious, and will be interesting as a border flower, but it does not appear to be adapted for bedding or general decorative purposes, the effect being confused and indistinct. It is different in colour from any double form we remember to have previously seen.

Insects: *W. Nock.* The Vegetable Marrows in the great Cinchona plantations of Gordon Town, Jamaica, have been completely riddled into minute holes by multitudes of one of the innumerable species of plant beetles (Galeruca sp.), which we cannot determine in consequence of the specimens having been put into some oily fluid instead of spirits of wine. Syringe the

leaves with gas-tar-water, or other insecticide fluid. *J. O. W.—E. W. S., Plymouth.* We found no traces of insects on your Nymphæa alba leaf. The white powder on one side of the leaf, and the little brown circular scales on the other, are certainly not insects. The latter seem like the seeds of some plant. We found no leech-like insect in the leaf. *J. O. W.—T. W.* Libellulidæ. The specimen sent is the blue-bodied male of the common Libellula depressa. *J. O. W.*

LARGE GRAPE: *T. Kettle.* It is not at all unusual to find flattened instead of the normal oval-shaped berries on the Black Hamburgh. The one you send is not nearly so large as some we have seen.

NAMES OF PLANTS: *J. & J. Gaitskell.* 1, Potentilla fruticosa; 2, Sedum Rhodiola; 4, S. Telephium; 5, S. Anacampseros; 6, Alchemilla alpina; 7, Sedum spectabile. The others we do not recognise.—*G. C. S.* 2, Iris?; 3, Lilium Martagon; 4, Nepeta Mussini; 5, Sedum Rhodiola. The others we could not identify.—*H. J. C., Highgate.* The Yellow Sultan (Centaurea suavcolens).—*M. B.* must send something like specimens of the plants he wants the names of. We have no time for determining microscopical scraps.—*F. B.* 1, Lilium, which we do not recognise; 2, apparently Solanum nigrum.—*J. K.* 1, Hypericum perforatum; 2, Scabiosa succisa; 3, Centaurea Jacea.—*J. Van der Swaelmen.* Corydalis glauca.—*C. W. Dod.* Acæna sanguisorba, and Boykinia aconitifolia.—*J. Morton.* Thlaspi arvense, and Salvia officinalis—a native of Southern Europe, and flowers not unfrequently in gardens.—*W. Glenmoray.* Fraxinus excelsior crispa.—*Mrs. Nicholson.* Venus' Comb (Scandix Pecten).—*T. S. P.* Probably Glyptostrobus heterophyllus.—*Enquirer.* 1, 3, 5, Athyrium Filix-fœmina; 2, Lastrea dilatata; 4, L. Filix-mas; 6, Pteris aquilina.—*X. Y. Z.* Calystegia pubescens.—*Ignoramus.* 1, Francoa appendiculata; 2, Cyanotis vittata; 3, Selaginella uncinata; 4, Adiantum curvatum; 5, Pleopeltes pustulata; 6, Platyloma falcatum.—*Loxboro.* Staphylea pinnata. The Cherry is an abnormal growth, producing flowers on the young wood.

NEW ZEALAND: *T. B. E.* Write to the Agent-General for the colony, Sir Julius Vogel, 7, Westminster Chambers, London, S.W.

ODONTOGLOSSUM VEXILLARIUM. — We are informed that Mr. Croucher, gr. to J. T. Peacock, Esq., received a Cultural Commendation, and not a vote of thanks, as we stated, for his specimen of O. vexillarium roseum at a recent meeting of the Floral Committee; and also that at the last Regent's Park show Mr. Croucher had a Botanical Certificate for his fine O. vexillarium giganteum.

PEARS: *F. W. & R. N. Hooper.* Your Pear leaves are attacked by a mite, Phytoptus pyri. Burn all the fallen leaves.

PELARGONIUM LEAVES: *Camjee.* The spots are the result of some check to growth, of what nature you should be the best judge.

ROSE *v.* PICOTEE: *G. B. B.* You must form your own opinion. It is entirely a matter of individual taste.

SPINACH MOTH: *Enquirer.* Next week.

TWIN CUCUMBER: *T. P.* Thanks. It is a very good specimen of a freak of Nature that seems to be more common this year than usual, judging by the number that have come under our notice.

VINES: *R. P., Cirencester.* A very bad case of shanking. In what condition are the roots?

COMMUNICATIONS RECEIVED:—W. B. H.—C. N.—W. N.—W. D. (No. Thanks for the suggestion).—E. W. & Sons.—J. R. J.—C. S. F.—D. S.—G. Bowles.—E. M.—G. M.—One taking Notes.—J. C. (thanks).—P. G.—G. R. M.—W. T. R.—J. O'B.—H. Henderson (next week).

Markets.

COVENT GARDEN, July 14.

Large quantities of soft fruit have reached us during the week, and prices realised have been good. English Pines are in request, St. Michael fruit being over. Trade brisk, except in Grapes, which still keep heavy. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apricots, per box	1 6– 2 6	Lemons, per 100	4 0– 6 0
Cherries, per ½-sieve	3 6–10 0	Melons, each	2 6– 4 0
Currants, ½-sieve	3 0– 4 6	Peaches, per dozen	4 0–12 0
Figs, per dozen	6 0– ..	Pine-apples, Eng., lb.	2 0– 4 0
Gooseberries, ½-bush.	2 6– 3 6	Strawberries, per lb.	0 6– 1 3
Grapes, per lb.	1 0– 4 0		

An advance of 20 per cent. on the above prices may be taken as a fair average of the retail value of the articles quoted.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Herbs, per bunch	0 2– 0 4
Asparagus, English, per bundle	0 9– ..	Horse Radish, p. bun.	4 0– ..
Beans, French, p. lb.	0 6– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
— Broad, per bush.	6 0– ..	— Engl. Cos, score	1 6– ..
Beet, per doz.	1 6– 2 6	Mint, green, bunch	0 4– 0 6
Cabbages, per doz.	1 0– 2 0	Mushrooms, p. baskt.	1 6– 2 0
Carrots, per bunch	0 4– 0 6	Onions, per bushel	5 0– ..
— New Fr., bund.	0 9– 1 0	— Spring, per bun.	0 6– ..
Cauliflowers, English, each	0 6– 0 9	Parsley, per bunch	0 4– ..
Celery, per bundle	1 6– 2 0	Radishes, per bun.	0 2– 0 6
Cucumbers, each	0 6– 1 6	Rhubarb, per bund.	0 4– 0 6
Endive, per doz.	2 0– 3 0	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	4 0– ..
		Tomatos, per lb.	0 9– 1 0
		Vegt. Marrows, doz.	3 0– ..

POTATOS, NEW:—Kidney, 8s. to 10s.; Round, 6s. to 7s. Malta, 8s. to 10s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	18 0–42 0	Foliage Plants, various, each	2 0–10 6
Arbor-vitæ (golden), per dozen	6 0–18 0	Fuchsias, per dozen	6 0–12 0
— (common), dozen	6 0–12 0	Ivy Geranium, doz.	4 0– 6 0
Begonias, per doz.	6 0–12 0	Lilium longifl., doz.	18 0–42 0
Calceolaria, per doz.	6 0–12 0	Lobelia, per dozen	4 0– 6 0
Creeping Jenny, doz.	3 0– 4 0	Marguerite, white, per dozen	18 0–24 0
Cyperus, per dozen	0 0–12 0	— Yellow, per doz.	12 0–30 0
Dracæna termionalis	30 0–60 0	Mignonette, per doz.	4 0– 6 0
— viridis, per doz.	12 0–24 0	Myrtles, per doz.	6 0–12 0
Erica, in variety, doz.	18 0–30 0	Palms in var., each	2 6–21 0
Euonymus, various, per dozen	6 0–18 0	Pelargoniums, doz.	9 0–30 0
Evergreens, in var., per dozen	6 0–24 0	— tricolor, per doz.	3 0–12 0
Ferns, in variety, per dozen	4 0–18 0	— scarlet, per doz.	4 0– 9 0
Ficus elastica, each	1 6– 7 6	Rhodanthe, per doz.	6 0–10 0
		Roses, various, doz.	12 0–30 0
		Spiræa japonica, doz.	9 0–18 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 6	Marguerites, 12 bun.	0 4– 0 9
Antirrhinum, 12 bun.	6 0– 9 0	Mignonette, 12 bun.	4 0– 9 0
Arum Lilies, 12 blms.	4 0– 6 0	Pelargoniums, 12 sprays	0 9– 1 0
Bouvardias, per bun.	0 9– 1 6	— zonal, 12 sprays	3 0– 6 0
Calceolaria, 12 bun.	6 0–12 0	Pinks, various, 12 bunches	3 0– 6 0
Carnations, 12 blms.	1 0– 2 0	Primula, double, per bunch	0 6– 1 0
Cornflower, 12 bun.	1 6– 3 0	Rhodanthe, 12 bun.	8 0–12 0
Eucharis, per doz.	4 0– 6 0	Roses (indoor), doz.	1 0– 6 0
Forget-me-not, 12 bunches	3 0– 6 0	— (outdoor), 12 bun.	4 0– 9 0
Gardenias, 12 blms.	3 0– 8 0	— (Moss), 12 bun.	8 0–12 0
Heliotropes, 12 sp.	0 6– 1 0	Spiræa, 12 bunches	8 0–12 0
Iris, 12 bunches	6 0–18 0	Stephanotis, 12 spr.	3 0– 4 0
Lapageria, white, 12 blooms	4 0– 6 0	Tropæolum, 12 bun.	1 0– 3 0
— red, 12 blooms	1 0– 3 0	Tuberoses, per dozen	2 0– 3 0
Lilium longiflorum, 12 blooms	4 0– 6 0		

SEEDS.

LONDON: *July 13.*—The attendance of buyers on the market to-day was, as might be expected, very small. As a result of the brilliant forcing weather, the new seeds are rapidly coming forward. Home-grown Trifolium and Turnip seeds of this year's growth are now obtainable. With regard to French Trifolium, of which it is said the crop is large, dealers here refuse to give the prices asked. Essex Rape seed and Rye will be ready for delivery in a very few days. The samples of the new French Trefoil which have come to hand show good quality, but the crop will, it is thought, prove short. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the supply of English Wheat was small, and prices remained the same as on the previous Monday. There were good arrivals of foreign, but sales were not pressed, and the trade was quiet at unchanged rates. Barley, Beans and Peas, whilst a slow sale, were all very firm. Maize was without quotable change, and Oats 3*d.* to 6*d.* cheaper, with a dull sale.—On Wednesday, in the case of Wheat, the tendency was against the holder, the liberal arrivals of foreign compensating for the small supplies of English. Spring corn was not appreciably altered in value, but Oats tended in favour of buyers.—Average prices of corn for the week ending July 9:—Wheat, 46*s.* 8*d.*; Barley, 27*s.* 9*d.*; Oats, 23*s.* 5*d.* For the corresponding period last year:—Wheat, 43*s.* 9*d.*; Barley, 28*s.* 10*d.*; Oats, 26*s.* 8*d.*

CATTLE.

At Copenhagen Fields on Monday trade was steady, and with an improved demand prices were against buyers. In beasts best Scots and crosses realised 5*s.* 2*d.* to 5*s.* 4*d.* per 8 lb.—others ranging between 4*s.* 4*d.* and 5*s.* For sheep the trade was strong, best Downs and half-breds realising 6*s.* 2*d.* to 6*s.* 4*d.*—other sorts fetching from 4*s.* 6*d.* to 5*s.* 10*d.* per 8 lb. Lambs went at 7*s.* to 7*s.* 8*d.*; calves sold at from 5*s.* 4*d.* to 6*s.*; and pigs at 4*s.* 4*d.* to 5*s.* per 8 lb.—Thursday's cattle trade was firmer in tone, and supplies were moderate. Both beasts and sheep were in demand, and were quite as dear as on Monday. Calves were steady.

POTATOS.

The Borough and Spitalfields Markets reports state that fair supplies of new were on offer, consisting principally of French. The demand was fair, and prices moderate, as follows:—Cherbourg round, 6*s.*; Jersey round, 6*s.*; kidneys, 10*s.* to 11*s.* per cwt. The arrivals into London last week were as follows:—803 packages St. Malo, 5280 packages Cherbourg, 5312 cases Barfleur, 318 baskets St. Nazaire, 2053 packages Rotterdam, 684 packages St. Vaast, 400 cases 52 barrels Dunkirk, 2405 packages Jersey.

COALS.

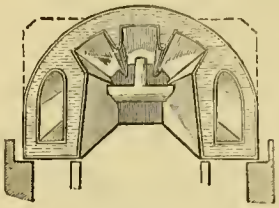
The following are the prices current at market during the past week:—East Wylam, 15*s.* 6*d.*; Ravensworth West Hartley, 14*s.* 3*d.*; Walls End—Hetton, 15*s.*; Hetton Lyons, 13*s.*; Hawthorns, 13*s.* 3*d.*; Lambton, 14*s.* 6*d.*; Wear, 13*s.*; South Hetton, 15*s.*; Tunstall, 13*s.*; Tees, 14*s.* 9*d.*; Harris Deep Navigation, 17*s.* 3*d.*; Bradford Navigation, 16*s.* 9*d.*; Westminster-Brymbo and Wrexham Navigation, 13*s.* 9*d.*

Government Stock.—The closing prices of Consols on Monday were, for delivery, 101 to 101⅛, and 101⅛ to 101¼ for the account. The final quotations of Tuesday, Wednesday, and Thursday, showed no alteration.

BEN'S BOILER

(REGISTERED).

Bronze Medal, Kensington, 1881.



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1600 feet .. 23 10
2000 feet .. 28 0
3000 feet .. 40 0

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Gas Stoves, Gas Boilers, Bentley's Water Spray, &c.

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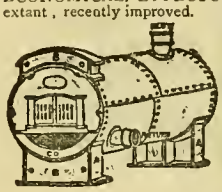

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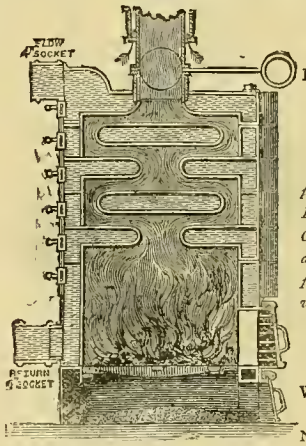

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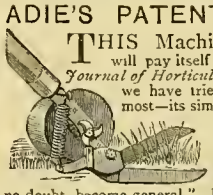

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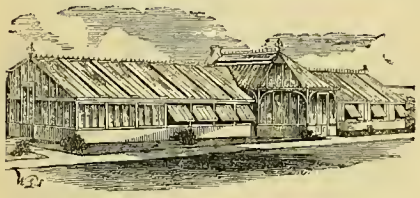

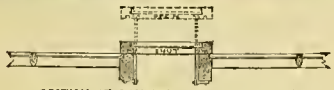

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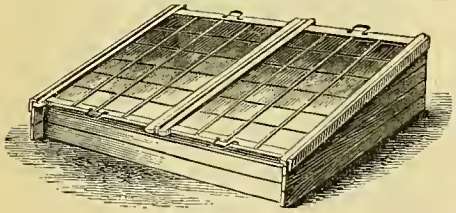

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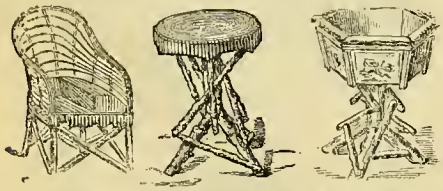

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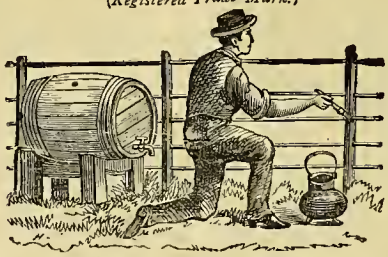

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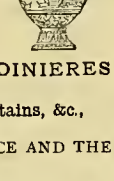

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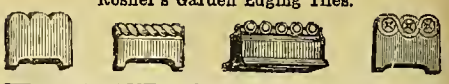

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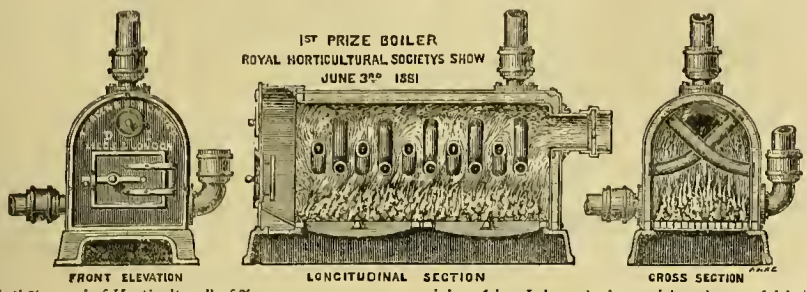

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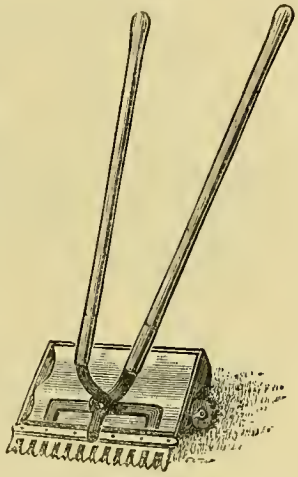

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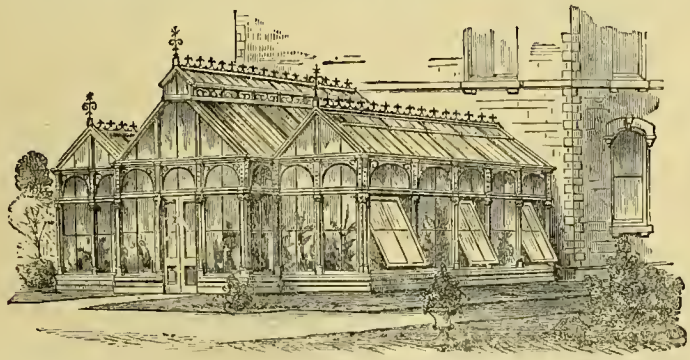

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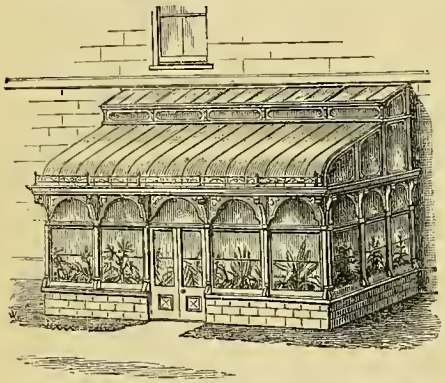

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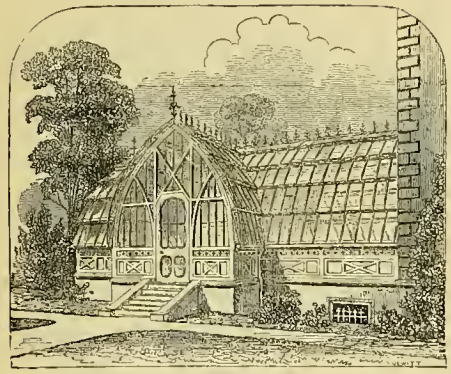

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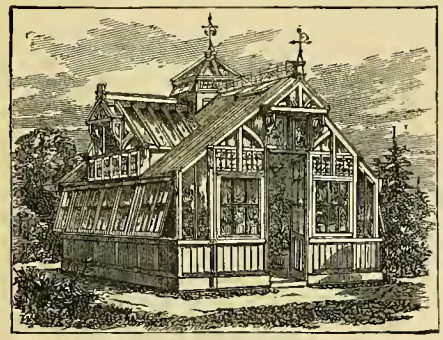

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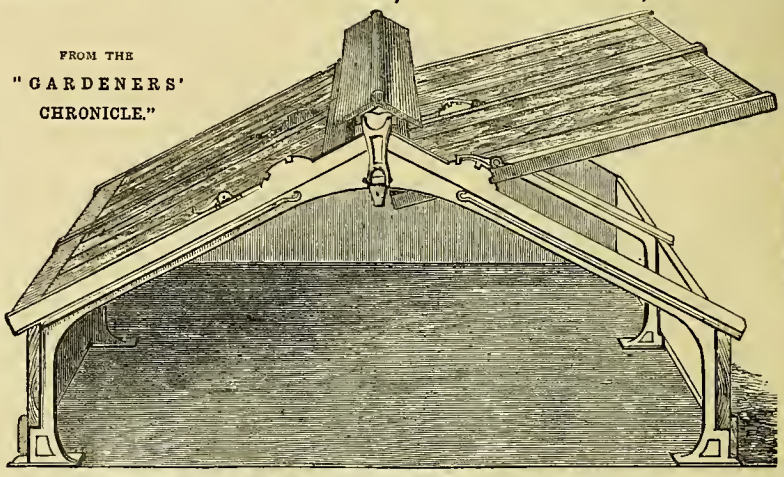

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THE

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Established 1841.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

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ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE.—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M.; Scientific at 1 P.M.; General Meeting for the Election of Fellows, &c., at 3 P.M., on TUESDAY next, July 26
N.B.—The Annual Exhibition of Bees, Hives, Bee Furniture, Honey and Honey Fair, by the British Bee-keepers' Association, will be opened at 1 o'Clock this day. Admission 1s.

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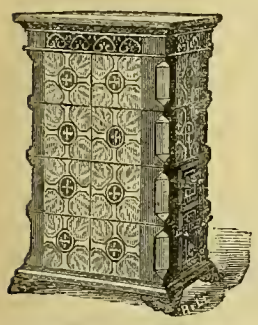

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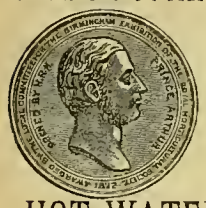

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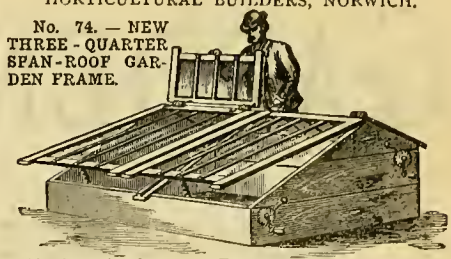

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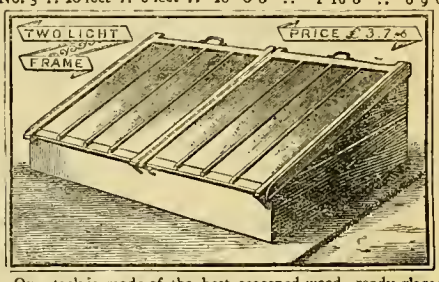

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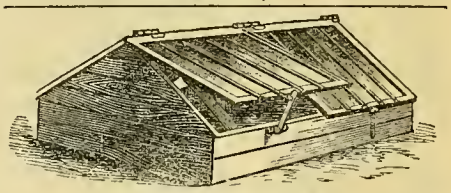

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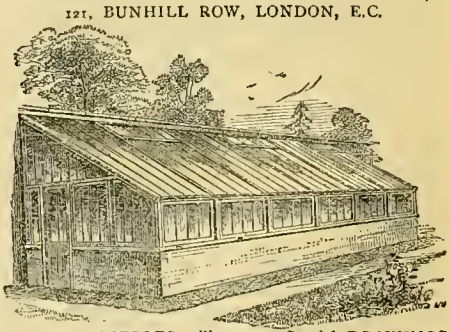

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THE
Gardeners' Chronicle.
SATURDAY, JULY 23, 1881.

CHISWICK *EN FÊTE.*

THE holding of a large and attractive flower show in the Royal Horticultural Society's Gardens at Chiswick, though far from reproducing the grand scenes and associations of a generation ago, necessarily leads the thoughts back to that time when the Chiswick shows and *fêtes* were the pride of Horticulture, the greatest attraction for the fashionable world, and the cynosure of the eyes of all who hung on expectant admission or felt themselves helplessly shut out. But since those select if brilliant days, flower shows have changed, and Chiswick has changed, for horticultural exhibitions now depend upon the patronage of the masses of the people for support and success rather than upon the select few: whilst Chiswick in all its externals has changed greatly—so much so that old students of thirty years since returning once more to the scene of their former work and studies might well wonder whether they had not lighted upon some diverse spot rather than upon the gardens and neighbourhood so endeared to them through life by their many pleasant associations.

That stern necessity for retrenchment which now and then comes like a Nemesis to all of us compelled the Society to part some time since with the eastern and southern portions of the gardens; but enough for all useful purposes seems to be left for the due discharge of those important floral and pomological duties with which the gardens are so intimately associated. Though the old entrance from the Green is still retained, yet it has fallen from its old estate to be a sort of back door, whilst the building of a finest very-hall adjoining the old cart road, and then the opening of an elegant street that presents, on a small scale, truer notions of the Parisian boulevard than perhaps any street in London, and which is known as the Sutton Court Road, has converged all the primary importance of carriage traffic upon the old yard gateway, which has given place to a suitable entrance and such other changes as befit its new position. With the vast residential changes that have been going on in the locality it became necessary that the gardens to some extent should change with it, and if the Council hope thereby to secure the support of suburban residents as Chiswick Fellows, as they have aimed to obtain the support of Kensingtonians for the London gardens, they have but acted as common sense would dictate. It is but fair to Mr. Barron to say that he has been the guiding spirit of these changes, for being on the spot and correctly gauging the requirements of the locality, he has endeavoured to make the gardens pleasant, attractive, and educational; and we trust that in these efforts he has not been unsuccessful, for if Chiswick has been once more *en fête* it certainly was not so because of the influx of the Upper Ten. It was the residents of the myriads of villas and good substantial houses that have grown up for miles round Turnham Green which filled the gardens decked out in all the fashion of the hour, lounged in the exceeding heat with all the dignity they could command, and bore their part in the

popular gathering in a manner which showed their taste and their appreciation.

Happily the beds of gaudy and overpoweringly coloured Pelargoniums have been relegated to more retired spots; the large lawn, smooth and well shaven, offers a delightful promenade that needs but a little more shade to render it delicious, and from beneath a wide awning strains of music were poured forth by artists who understood their business. Some of the members of the Council came down to spy out the land, and to find that it was not naked. Perhaps they may have perceived in this gay assemblage and local floral display the germs of some greater things for the Society in time to come if but the determination be made to swim in that stream which may in good time lead on to fortune.

The fine old conservatory at Chiswick still remains the noblest feature of the gardens, for though the other day the awning, so welcomely hung under the clustering Vines to shade the plants beneath from the rays of burning sunshine, did, perhaps, shut out from the gaze of some the wealth of Grapes that laced the roof overhead, yet in the autumn, when Nature shall deck with richest tints the myriads of bunches, visitors for the first time to Chiswick will have to admit that the spectacle is unique. But whilst this fine house may astonish, the long, erect vinery will be equally calculated to surprise. With the one exception of an Alnwick Seedling, that unfortunately sets its bunches thinly, it is planted all along the front from end to end with Black Alicante and Gros Colmar, all fruiting splendidly. Many of the Vines having travelled up the perpendicular front are now halfway across the horizontal roof, and another year probably will see not only the front but also the roof one mass of leathery leafage and glorious fruit. How far the sudden diversion of the sap-flow from a vertical to a horizontal current will affect the fruiting qualities of the Vines remains to be seen, but little or no change is probable. The Alicante is ever a safe colouring late Grape, but the Gros Colmar is not so reliable, and as a rule needs considerable firing to fully fix the needed purple hue. This year Nature with its unusual and indeed excessive warmth is so pushing on the fruit that we may expect to see colour scarcely second to that seen in the Alicante next autumn.

The conversion of the great orchard-house into a Rose-house is no doubt a change called for by the necessities of the age, with which horticulture must alway keep pace. Orchard-houses, the dreams of sanguine minds, have, with many other horticultural crotchets, gone into the category of collapsed aspirations, whilst these houses have become among the most practical demands of the day. But of all attractive features that the Chiswick houses present, none can excel, perphaps none can compare with, the truly grand collection of Begonias which Mr. Barron's house-foreman, Mr. Hemsley, has so superbly grown and flowered. It is not alone our opinion, but is shared in by able and good judges, that this is one of the finest displays of the flowering Begonia yet seen. The plants are large, compact, full of fine foliage, and marvellously flowered. Many are named kinds, many are seedlings raised at Chiswick, and both in quality and in effective arrangement make up a show that is alone worth going to see. These fill a large span-house, next to which a similar house is all aglow with double and single zonal Pelargoniums, well grown and finely flowered. If these have the best of the colour the Begonias excel in grace and beauty. In another house there is a superb lot of Gloxinias charmingly arranged amidst a setting of Adiantum gracillimum; in yet another double and single Ivy-leaf Pelargoniums, and the really beautiful white and mauve-flowered Solanum hæmatocarpum. Other houses are full of Pelargoniums, both species and florists' kinds; of Palms and Ferns, looking green and cool, though the temperature belies the appearance; in fact, houses and pits everywhere are all full of something that is useful or beautiful.

The gardens everywhere are singularly neat and clean, and throughout in the vegetable department well cropped, and in the floral department exceedingly gay. If the herbaceous borders, under the influence of the burning heat, show lack of colour the beds of tender plants make ample amends. It is when seasons such as the present occur that we realise the shortcomings of hardy plants as furnishers of a brilliant display of summer bloom. But for the tender plants we should fare badly. Still hardy plants are well cared for at Chiswick, and if just now they do not give much bloom the blame lies not with the cultivators. The rockwork at Chiswick seems to present, both geologically and florally, a natural phenomenon. It grows so fast that it has perhaps already reached the full measure of its bounds. It is a charming feature, and one of which the visitors of last week spoke with unbounded praise; though it was not the time of the year to see its denizens at their best yet many pretty things were in full bloom, amongst which the trailing Convolvulus mauritanicus proved a veritable gem. Of hardy flowers of simple kinds are some bright masses of Candytuft, showing how gay these may be for a time even though that time be fleeting. Masses of Cornbottles, and of the yellow Sweet Sultan, of Stocks, Nasturtiums, Violas, Sweet Williams, and of many other things made up a very pretty and attractive whole.

The large collection of fruit trees both on the walls and in the open ground are in fine condition, but the fruit crop is light. In that respect Chiswick differs little from the trees seen in many surrounding gardens, and the locality this season is not fruitful. Perhaps the present hot season will do more effectually what others seem to have done so imperfectly. In the vegetable department without doubt Potatos form a strong feature this year. Over 200 kinds, many of them seedlings, invite attention, and in almost every case they look remarkably well. It is some years since Potatos here have looked more promising, and the Fruit Committee have before them a task the which, if conscientiously discharged, may prove an onerous one. The earliest kinds are already fit for adjudication, whilst not a few promise, if the disease spares them, to be matured some two months hence. A large breadth of Peas also invite attention, as well as other useful products. That Chiswick is still doing honest and useful work there can be little doubt. Its mere pleasure or decorative character must always be a secondary one, whilst its work of utility will, at least in its present hands, ever have primary consideration. Mr. Barron is well supported by Mr. Thompson, and an intelligent and painstaking staff, all of whom are actuated by an earnest desire to maintain for Chiswick its ancient reputation and its modern good position in horticulture.

New Garden Plants.

Dendrobium (Pedilonum) Curtisii, *n. sp.**

A very handsome Burmese Dendrobe, discovered by Mr. Curtis, and flowering in July with Messrs. Veitch. It has stems like those of Dendrobium Devonianum, about 2½ feet high, and it seems to bloom from every joint, judging from the look of the old bulbs. The flowers are in the way of those of Dendrobium cumulatum, and are of the finest amethyst colour. The lip is ligulate acute, bearing an angle on each side in front of the centre, and a retrorse retuse flat horn at the base. The colour is white, orange in the middle, amethyst at the top. *H. G. Rchb. f.*

Scilla (Ledebouria) microscypha, *Baker.**

This is a new Cape Scilla of the sub-genus Ledebouria, belonging to the group often but quite erroneously called Drimia in gardens. It has a large bulb and fine large leaves, but the flowers when they come do not fulfil the expectations which these raise, as they are small and not brightly coloured. Its nearest alliance is with S. concolor and linearifolia, both of which are figured in Saunders' *Refugium*, the former at tab. 18, and the latter at tab. 194. The bulb was sent by Mrs. Bowker from one of the eastern provinces of Cape Colony, and flowered at Kew for the first time in May of this present year.

Bulb ovoid, about 4 inches in diameter, with copious brown tunics and an obconic neck. Leaves 6—8, contemporary with the flowers, oblong-lanceolate, sub-erect, 1 foot long, 4—4½ inches broad, glaucous-green, the outer leaves copiously barred with purple on the back towards the base, and with darker green stripes higher up. Scape as long as the leaves, all green. Flowers in a dense raceme finally 5—6 inches long, 2 inches in diameter; pedicels ½—¾ inch long; bracts minute, deltoid. Perianth ¼ inch long, green both inside and out, the segments reflexing nearly from the base when fully expanded. Filaments pale green, included. Ovary stipitate, with a discoid base; style green, ⅛ inch long. *J. G. Baker.*

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

As scarcely eight years have elapsed since the publication, in the pages of the *Gardeners' Chronicle*, in 1873, of Mr. J. G. Baker's "Review of the Known Species of Crocus," some apology is needed to justify what may appear to be a re-traverse of the subject. There are very few points to which exception can be taken in Mr. Baker's careful memoir, which added so much to our previous knowledge, and awakened an interest in the beautiful genus which had lain almost dormant since the time of Dean Herbert. Herbert was the first to suggest a systematic classification, and to gather together all that was then known of the species in cultivation; and notwithstanding the difficulties of transport at the time he introduced many more species than had been previously known. Although his enumeration of species is small compared with our present knowledge, his clear insight into the character of the genus and the grouping of the species has greatly assisted those who have subsequently worked at the Croci. Mr. Baker's more recent work brought together nearly all that was known of the genus up to 1873. Besides having had the advantage of consulting his monograph, I must express my obligations to him, as well as to M. Boissier, for much valuable help and advice in deciding many critical points. It is with the approval of Mr. Baker that I have grouped as two species the various forms allied to C. sativus that had heretofore been separated as distinct species, as well as the association of other forms which had before been considered as entitled to specific rank. As it will be some months before my illustrated Monograph of the genus Crocus can appear, it has been suggested to me that I should publish a short synopsis of the genus, and I do this with the special object of inviting criticism on my proposed arrangement and determination of the species, that I may have an opportunity of correcting any errors into which I may have fallen before the publication of my larger work. Feeling from the outset that it was impossible to correctly work out the genus from herbarium specimens without the concurrent help of the living plants, my first effort was to obtain for cultivation the various species that had not hitherto been introduced. Besides a considerable number of species collected by Mr. Elwes and myself in the South of Europe, North Africa, the Mediterranean islands, the Levant and Asia Minor, I have been greatly indebted to the kindness of many of Her Majesty's Consuls, the members

* *Dendrobium* (*Pedilonum*) *Curtisii*, n. sp.—Caule elongato teretiusculo sulcato; racemis pauciforis; sepalo impari ac tepalis oblongis obtuse acutis; sepalis lateralibus oblongis acutis in perulam obtuse acetam ovarium pedicellatum non omnino æquantem extensis; labello ligulato acuto utrinque angulato, basi deute depresso retuso retrorso; columnæ androclinio tridentato dente postico angusto, dentibus lateralibus angulatis depressis.—Ex Borneo imp. cl. Veitch. *H. G. Rchb.*

* *Scilla* (*Ledebouria*) *microscypha*, Baker.—Bulbo maximo ovoideo; foliis 6—8 synanthiis oblongo-lanceolatis pedalibus suberectis glauco-viridibus exterioribus dorso deorsum lineis copiosis transversalibus purpureis decoratis; scapo foliis æquilongo; floribus permultis in racemum oblongo-cylindratum dispositis; pedicellis flore 2—3-plo longioribus; bracteis minutis deltoideis; perianthii campanulati 3 lin. longi segmentis lanceolatis utrinque viridulis flore expanso profunde reflexis; filamentis pallidis perianthio paulo brevioribus; ovario stipitato basi discoideo marginato.

of the American mission in Asia Minor, to Sir Henry Layard, and to Cardinal Haynald, as well as to many friends, who have assisted me in the collection of nearly all the known species, and many new species from remote districts. I have also consulted the collections of Croci in most of the Continental and British herbaria, and having made dissections and drawings for my forthcoming monograph of nearly every species from living examples, I have had the advantage of a larger mass of material to work with than any one who has previously written on the genus. It is much to be regretted that Dr. Klatt, in his paper on the Iridaceæ, published in vol. xxxiv. of the *Linnæa*, should have exercised so little care in describing the Croci. The part of his memoir devoted to the genus abounds with obvious errors, both with respect to specific determination and geographical distribution. Most unfortunately he has also had access to the rich collections of Croci in the herbaria at Berlin and Vienna, in which he has renamed the specimens; and in the great majority of cases his determinations are obviously incorrect, including the alteration of labels of important type specimens, about which no doubt can exist. I feel bound to point this out, lest the work of a responsible author on the Iridaceæ may lead to perpetuating many unaccountable errors.

Classification and Sequence.—In attempting a natural grouping of the genus, and sequence of the species, a difficulty at once presents itself in the large number of well-marked characters possessed by individual species, which, as it were, interlace and overlap in the genus. Community of character in one organ thus brings together a different set of species to those which would be associated by the common characters of another organ. For example, if we take the structure of the corm tunic as a basis for primary classification, it would group together species that would be widely separated by the characters of the stigmata; and, again, the characters of the stigmata bring together in close proximity species which have obviously little natural affinity. This difficulty, which presents itself in many genera, seems especially prominent in the genus Crocus; and when I come to deal with it in a tabular form in my monograph I shall be able to show that the concurrent grouping of more than one common character is almost entirely absent, excepting in very small and isolated sections. Another point to be remarked on is, that very special secondary characters, *e.g.*, peculiarities of leaf-structure and flower-colouring, are grouped by geographical distribution rather than by the natural affinity of species. The flower-colouring of variations from the types seems remarkably related to geographical association; as an example, I would name the exact identity, in colour and markings, of the Santa Maura varieties of C. cancellatus and C. hadriaticus, though both are far separated as species, from their respective types; and what is still more remarkable, the form of C. cancellatus found on the Bithynian Olympus, where it is associated with Crocus aërius, puts on the exact colouring of C. aërius; furthermore, there is a complete set of variations in the markings of the flowers of C. cancellatus, exactly mimetic of the variations in colour of C. aërius, with which it is associated. It will be seen, therefore, that flower-colouring is one of the least important characters for natural grouping; and, indeed, that no one method of classification will enable the species to be arranged in strictly natural sequence, without making gaps which some other method would more easily bridge over. The arrangement of the species of the genus must, therefore, to a great extent, be a compromise.

Herbert adopted for his primary grouping the presence or absence of a basal spathe; subdividing his main sections by the character of the corm tunic. Baker classifies the genus into three sections, by the character and degree of subdivision of the stigmata; with subordinate groups for the spring and autumn flowering species.

I prefer Dean Herbert's classification, which I adopt with some modification, to that of Mr. Baker, as community of character in the stigmata seems to me to associate the species very unnaturally; and there is a much greater variety of type in the stigmata than can be properly represented by his three sub-divisions. Moreover, as in the case of C. longiflorus, individual flowers of some species represent every variety of structure from the entire to the finely divided stigmata, which would correspond with each of the three groups of Baker.

The following grouping of the species is based on Herbert's system of classification, excepting that I place in a distinct section those species having an annulate corm tunic, as *Annulati*; and I also prefer separating C. Fleischeri and C. parviflorus, with stranded fibrous tunics, from Herbert's *Reticulati*, and place them under a separate section I have termed *Intertexti*:—

Division I.—INVOLUCRATI.

Species with a basal spathe springing at the base of the scape from the summit of the corm.

Section I. *Fibro-membranacei*—with a corm tunic of membranous tissue interspersed with nearly parallel fibres.

Autumn Flowering.

1. iridiflorus	6. nudiflorus	10. Clusii
2. vallicola	7. asturicus	11. ochroleucus
3. Scharojani	8. serotinus	12. tazicus
4. zonatus	9. Salzmannii	13. Cambessedesii
5. karduchorum		

Spring Flowering.

14. Imperati	17. Biliottii	19. minimus
15. suaveolens	18. Malyi	(20. Boissieri?)
16. versicolor		

Section II. *Reticulati*—with a corm tunic of distinctly reticulated fibres.

Spring Flowering.

21. corsicus	23. montenegrinus	25. Tommasinianus
22. etruscus	24. banaticus	26. vernus

Autumn Flowering.

27. medius	29. sativus, and sub-species allied to sativus	30 hadriaticus
28. longiflorus		

Division II.—NUDIFLORI.

Species without a basal spathe.

Section I. *Reticulati*—with a corm tunic of distinctly reticulated fibres.

Autumn Flowering.

31. cancellatus.

Spring Flowering.

32. veluchensis	36. susianus	39. gargaricus
33. Sieberi	37. stellaris	40. Gaillardotii
34. dalmaticus	38. ancyrensis	41. carpetanus
35. reticulatus		

Section II. *Fibro-membranacei.*

Spring Flowering: lilac or white.

42. nevadensis	(44. hermoneus?)	45. alatavicus
43. hyemalis		

Autumn Flowering: lilac or white.

46. caspius	48. veneris	49. Boryi
47. Tourneforti		

Spring Flowering: orange, except candidus, which is white.

50. vitellinus	53. Olivieri	55. aureus
51. Balansæ	54. candidus	56. Korolkowi
52. Suterianus		

Section III. *Annulati*—basal tunic of corm separating into annulæ.

Spring Flowering.

57. cyprius	60. Crewei	62. chrysanthus
58. aërius	61. tauri	63. Danfordiæ
59. biflorus		

Autumn Flowering.

64. speciosus	65. pulchellus

Section IV. *Intertexti* (spring-flowering)—with a corm tunic of stranded or platted fibres.

66. Fleischeri	67. parviflorus

(*To be continued.*)

THE CARNATION.

ON the occasion of the National Carnation and Picotee Society's exhibition in the Council-room of the Royal Horticultural Society, a lecture on the Carnation was delivered by Mr. Shirley Hibberd. He said:—

The Carnation is the true Gilloflower and one of the oldest of all flowers when regarded as a subject of the florist's care. When we turn to the old books we find Gilloflowers and Violets innumerable. The Stock is a Violet, and so is the Lily of the Valley. Amongst the Gilloflowers we find the Wallflower, Stock, and Rocket, besides the Clove, the Pink, and the Sweet William, which was often called Sweet John, and our flower of to-day, the Carnation. If you will turn to Parkinson's *Paradisus* you will find at p. 318 a chapter headed "Carnations," and therein is a list of nineteen named varieties, comprising The Gray Hulo, The Chrystall, The Stript Sauadge, The Cambersine, and The Great Lombard. At p. 310 is a list of thirty "Gilloflowers," comprising The Bristow Blew, The Red Douer, The Daintie, The Sad Pageant, The Stamell, The Tawny, and Master Taggie his Rose. The arrangement of the flowers in two classes by Parkinson has no scientific value, because it depended chiefly on the relative sizes of the flowers: the largest, as a rule, were Carnations, and the smaller were Gilloflowers. But if we could hunt up the fifty or sixty sorts he was acquainted with, we should probably class his Carnations as Cloves, and his Gilloflowers as Carnations. It is a matter of some importance, however, to note that the Carnation is *the* Gilloflower of the old poets and herbalists. Other Gilloflowers were described with a qualifying adjective as "Stock Gilloflowers," "Cuckow Gilloflowers," and so forth; but these are the true Gilloflowers, and the name takes us to the sunny lands of the Latin races, for it has a Latin root, and it gives us the suggestion that the Carnation is not in a proper sense of the term a native flower. We have a wild Pink, indeed, and a most lovely flower it is, but it does not appear to possess the elements needful for the formation of such rich and refined flowers as are brought under our notice to-day. In common with many other garden flowers which are undoubtedly represented by wildings of the woods and fields, the influence of a south European climate appears to be and to have been needed for their full development. Hence we may treat with respect the probable reference to the Carnation by Pliny, in the eighth chapter of his twenty-fifth book, as the Cantabrica, which he says was discovered in Spain in the days of Augustus Cæsar. It is amusing to note that Pliny antedates the "soppes in wine" of the old English writers by describing the Spaniards as employing this flower to give a spicy flavour to their beverages. In Philemon Holland's grand translation we read, "At this day in their great feasts, where they meet to make merry sans-nombre, they haue a certain wassell or Bragat, which goeth round about the table, made of honied wine or sweetmead, with a hundred distinct herbs in it; and they are persuaded that it is the most pleasant and wholsomest drinke that can be deuised: yet there is not one amongst them all who knoweth precisely what speciall herbs there be in all that number, in this only they be all perfect, that there go a hundred several kinds thereto, according as the name doth import." Thus in the endeavour to trace up the geographical history of the Carnation we are reminded of the wisdom of our forefathers, who preferred to employ Carnations and Roses, and Borage and Woodruff, and Tormentil to flavour their drinks, than to combine destructive alkalies with equally destructive ardent spirits, or to take revenge on the blessed sunshine and the delightful thirst it engenders by swallowing frothy fluids with mysterious names and much more mysterious properties. To return to the flowers, it seems that the south of Europe gave us the first start in high-class Carnation culture, as it gave the first start, and sustains the latest fashion, in the selection and management of Daffodils.

Thus we are enabled to open the pages of the renowned John Gerard in a state of preparedness to believe that the Carnations he obtained from the worthy merchant, Master Nicholas Lete, were the first of their kind seen in this country. And the mention of its introduction by Master Lete, from Poland, affords me a proper excuse for declaring that the present exhibition is the tercentenary of the Carnation; for the work of Gerard was published in 1597, and we may reasonably contend that it was in or about the year 1581, or say, sixteen years before Gerard's book was completed, which carries back the history of the Carnation to a date exactly 300 years from the present time.

So far good: in these matters we must pay respect to authority. But we must not forget the Scriptural precept to "prove all things." On turning to Haydn's *Dictionary of Dates*, under the word Carnation, I find it stated, on the authority of Stow, that the flower was introduced from the Low Countries in the year 1567. It would not be difficult to harmonise this statement with the story of its introduction by Master Lete, for this we may be sure of, that it had been in the country some time before Gerard's *Herball* appeared. But I would suggest that the flower is really of greater antiquity than appears from these evidences. The "Carnations and streaked gilivors" that Perdita describes as the fairest flowers of the season were probably as old as any flowers of the English garden; for we cannot imagine Shakespeare, in such a scene and context, introducing any flowers that had but recently come into cultivation. The *Winter's Tale* was written in the year 1601, or only three years after the publication of Gerard's book; and Perdita speaks of these flowers as deriving their special qualities, or, as we should say, "proper-

ties," from the arts of the florist, and as therefore less worthy of her attention. They are such, she says, as "some call Nature's bastards," and she seems pleased to own that "of that kind our rustic garden's barren." This goes at least to show that there were many varieties of the flower known in the year 1601, and that they were so far common that the humblest lovers of the garden could afford to reject them if they were stigmatised as "Nature's bastards." Finally, to make an end of this part of the subject, it may be proper to state that we learn from Chaucer that the Clove Gilliflower was cultivated in this country in the reign of Edward III., and was commonly used to give a spicy flavour to ale and wine. This takes us to the middle of the thirteen hundreds, and perhaps we might, by the aid of the wild British Pink that may yet be found by the exploring botanist, be carried back to the third day of creation, when "the earth brought forth grass and the herb yielding seed."

This exhibition does not reveal to us all the glories of the Carnation family, but of certain classes of flowers that have been trained, as we may say, to certain standards of quality. I have heard to-day a question often asked at a Carnation show: Why are there no Pinks present? There are two reasons for the non-admission of Pinks to this show: one is that they are not Carnations, and the other is that they do not now exist as flowers, for they attain perfection in the month of June, and cannot be presented at a July show. Although, from the botanist's point of view, the Pink and Carnation are closely related, they are, in the view of the florist, separated by a wide gulf, for it is impossible to cross them, and consequently we cannot raise a Carnation from a Pink, or a Pink from a Carnation, or secure a race of flowers midway between them. The Carnation as a show flower is not allowed to sport into as many varieties as it pleases. It is, however, capable of producing almost every colour except true blue. The shades of red appear to be proper to it, a point in which it agrees with the wild Pink. It is from this circumstances it takes its name of Carnation, the exact meaning of which is flesh-coloured. You will remember that in the remarkable description of the death of Falstaff by Dame Quickly, in Shakespeare's *Henry V.*, the touching pathos is brightened by a stroke of wit, the effect of which is to remind us that the brave Sir John was a notable coward. The Dame says, "'A could never abide carnation; 'twas a colour he never liked;" real fighting and flesh wounds being not to the liking of Falstaff and his cut-purse followers. It is singular that this name, which equally with Gilloflower is de-derived from the Latin, apparently furnishes the basis of another of the old names of the flower; for the Carnation is the "coronation," the chaplet flower, which Spenser describes as "worn of paramours," its gay colour and spicy perfume doubtless rendering it a fine antidote to the proper melancholy of a lovesick swain.

All the colours we now find in the Carnation were known to the older florists, and John Parkinson descants on the beauties of the yellow Carnation in such a manner as to suggest that the yellow ground Picotee was not unknown to him, although he gives no definite hint of its existence. The true foundations in floriculture laid by him were soon freely built upon, for in the year 1676 John Rea had 360 sorts of Carnations; and from this time the popularity of the flower appears never to have waned in any serious degree.

The modern history of the flower dates from July 25, 1850, when the first proper exhibition in the south of England took place in the Royal Nurseries at Slough, and the National Carnation and Picotee Society was formally founded. It is with unspeakable pleasure I find in the records that in the first start of this society the names of Turner and Dodwell appear as the leading prizetakers, both at the show just referred to and the second show that was held at Derby on August 7 in the same year. Thus the year 1850 was a great year in the history of floriculture, and it seems scarcely possible, although it is perfectly true, that the two masters of the Carnation in that day are masters now, apparently younger, and more enthusiastic, but with an immensity of acquired experience to sustain their zeal and constancy. Their presence here to-day may be regarded as a delightful commentary on the declaration of Wordsworth, that "Nature never did betray the heart that loved her," and we may regard each of these as favoured by the Fairy Queen, who "crowns him with flowers and makes him all her joy."

It is an interesting and somewhat remarkable fact that the Carnation and its several relations, as Pinks, Picotees, and the like, endure with patience the smoke and dust of great towns. Mr. E. S. Dodwell has put the capabilities of the flower in this respect to the severest test imaginable, for he brings forth from year to year the most perfect blooms, taking a fair share of the prizes, as in the memorable year 1850; and his garden is favoured by a railway company with a perennial shower of blacks night and day the whole year round. Indeed, the Dianthus family appear to have somewhat of the same sociable temper as the singing birds: they appear to love the habitations of man, and hence the prudent botanist who wants a specimen of the true typical Dianthus caryophyllus will begin to hunt for it on castle walls, ruins, or on the roofs of old sheds and cottages. I remember making a grand find in a hunt of this sort. Being on the rampage with a friend, we made discovery of a cottage roof all glorious with tufts of wild Pink, Houseleek, Stonecrop, Rock Rose, Ragged Robin, and Stitchwort, all embedded in cushions of golden moss, and wreathed about with garlands of Roses. We resolved to derive from this floral roof a grand intellectual and æsthetic treat, and were preparing to make sketches and draw up a careful catalogue of the plants. The owner of the cottage came out and smiled approvingly when we told him we had found an Eldorado on his roof, and intended to make a picture that posterity would rave about, and that would turn the heads of all botanists, florists, painters, and dadoists; so that probably the world would begin to revolve in a new way, with a huge chimney for its future axis. But it came on to rain, and like a pair of cowards we fled, promising to be on the spot next morning to accomplish the task that should renew humanity. And we were there next morning, but the scene was changed. The worthy man was on the roof, scraping away with a hoe. He had cleared off all the vegetation to display the original red tiles, and he said, with a pride that to us was deadly, "I thought it a pity that you should paint my cottage with all that rubbish on it; for them tiles I put on myself, for that's my trade, and I'm proud of it; for I'm a tiler, every inch of me." What we lost individually is as nothing to what the world lost through this blundering vandalism.

The mention of Vandalism reminds me that I just now spoke of æsthetic delights. Fifty years ago the cultivators of taste in Germany were called æsthetics, because they sought and encouraged the cultivation of beauty. There are now amongst us, even in the bright world of flowers, those who profess to be æsthetics, and who coolly propose that we should undo and utterly waste the work of centuries in floriculture, and allow Nature to assert herself according to the original pattern of things as on the third day of creation. Yes; they dare to doom our double flowers to an ignominious oblivion, and they fondly hope we shall destroy our proper garden flowers, and plant in their place those that Nature cultivates so nicely in the woodlands and on the mountains. They really aim at destroying all our outdoor pleasures, because the wild flowers are far more delightful when we have to search for them in their own breezy haunts than they are when we bring them into the garden. Thus, if we lose our highly-cultivated flowers, and lose also the peculiar and ever fresh delight of searching for the wildings in their native haunts, there must be an end of gardening altogether. To put our beautiful garden flowers under a ban is the work of a Caliban, whose great delight should be with his long nails to dig Pignuts. Let him sing in his empty dream of delirious joy, "Ban, ban, ban, Caliban has a new master; get a new man." Caliban and his dadoistic friends will have their day and cease to be, and the good old garden flowers will continue to delight mankind and justify the labours of the florists.

It is interesting to note that two great authorities give the florists full credit for their making of the flower that has thus far occupied our attention to-day. Turner, writing about 1550, says: "The gardin gelouers are made so pleasaunt and swete with the labours and witt of man, and not by Nature." And Withering, in the eighteenth century, wrote: "The art of floriculture, sometimes despised with a reprehensible degree of fastidiousness, has in this instance transformed a plant, comparatively obscure, into one of the most delightful charms which the lap of Flora contains."

High Temperatures.—We have certainly had no occasion to complain of low temperature lately; but although we talk glibly of tropical heat, we have not yet reached a mean temperature of 111°, such as has been experienced at Pondicherry, nor of 116°, such as Burckhardt noted in Egypt; nor of 113°, such as has been recorded in the Euphrates Valley.

CORONILLA EMERUS.

In continuation of the series of deciduous flowering shrubs of which we have already given several illustrations, we now add that of C. Emerus (fig. 24), a very old inhabitant of our gardens, perfectly hardy, very showy when in bloom, the contrasted yellow and deep orange of its Pea-shaped blossoms being very effective. This is a shrub which will grow anywhere, even in towns, and there are few more showy. It is a native of France, and was introduced long ago to gardens, though now comparatively rarely met with. It is sometimes called Scorpion Senna.

ICKWORTH PARK.

(*Concluded from p. 75.*)

In front of the western corridor, on a fine expanse of smooth gravel some 45 yards long by 14 yards wide, reached by a flight of stone steps, are arranged twelve remarkably fine standard Sweet Bay trees. All are conical in form and uniform as regards dimensions, each being 10 feet high, measuring from the surface of the soil of the tubs in which they are growing. The tubs are 3 feet in diameter and nearly as much in depth. In front of this, and on the opposite side of a broad walk, is the principal flower garden, which is of considerable dimensions, formed in a sunk panel, and laid out in the geometrical style. At the time of my visit this was being planted with the usual kinds of bedding plants, and these when in full bloom, together with various ribbon and other flower borders, will add very greatly to the attractions of this remarkable place. The church, with its square tower, is some fourth of a mile west from the mansion. It was erected during the latter half of the thirteenth century, but has, of course, undergone considerable changes, but still retains some interesting features of its original character, and contains many interesting monuments to the Hervey family, some of them dating as early as 1464.

The kitchen garden lies about a quarter of a mile south-west from the church. The walls appear to be very old; the surface is greatly diversified, and its arrangements are singularly irregular. It contains, however, between five and six acres of good and rather heavy land, which produces excellent vegetables of all kinds, as well as healthy and productive fruit trees. It is bounded on the south side by a lake of considerable extent, and the boundary wall sweeps round from the margins of the lake in a sort of free-and-easy manner, no portion of it being straight; while the gardener's residence (a very commodious and comfortable one) stands at the south-west corner of the garden, and close to the margin of the lake. Some remarkably fine old Beech trees give shelter to the garden on the north side, and they are at a sufficient distance from the wall to prevent injury being done to crops in the garden by their roots. In a portion of the garden a divisional wall runs east and west, while four shorter but similar walls run north and south, terminating in ornamental piers at the south end, near to the lake. These walls furnish a vast amount of space for the purpose of training fruit trees.

In one of the compartments formed by these walls stands an interesting relic of former times in the shape of an antique greenhouse, strongly built, with opaque roof and sides, with partial glass door, and windows on the south side only. Over the door is a shield in stone with quarterings surmounted by an earl's coronet, with the motto, "*Je n'oublieray jamais.*" Under the greenhouse are deep and extensive vaults, for what purpose originally intended does not appear, but Mr. Squibbs now contrives to produce in them extraordinary crops of fine succulent Mushrooms during the summer months. Most gardeners find little difficulty in growing these much-appreciated esculents (where there is a house for the purpose) during winter, but this is not so easily accomplished during the hot and dry days of summer.

The various glass structures are arranged in no particular order, indeed, owing to the diversity of surface, this would hardly have been practicable; consequently the houses are detached, and placed in various parts. One of Beard's patent houses, a lean-to Peach-house, occupies a position near the centre of the north wall; it is 60 feet long by 13 feet wide, is unheated, and the trees are carrying a heavy crop, as well as being in a very healthy condition, and during the last twelve years they have not once failed

to produce heavy crops, and have always thoroughly ripened their fruit.

In another part of the garden is a range of vineries in three divisions, that to the west being chiefly planted with the Black Hamburgh variety. The central division contains the Muscat of Alexandria only, and the remaining division contains Lady Downe's, Alicante, and other late sorts. All the Vines are healthy and clean, and carrying heavy crops. They are all heated by common fire-flues, and Mr. Squibbs does not find overhead syringing necessary. In another vinery, heated by hot water, the fruit was ripe and very well finished, and consisted of various varieties, including Sweetwater, Black Hamburgh, Golden Champion, Pearson's Golden Queen (which is not so well flavoured as it was expected to have been), and Ferdinand de Lesseps, which is bright amber in colour, highly perfumed, with peculiar flavour. This house is a lean-to, 50 feet long by 16 feet wide. There is also a Fig-house, 60 feet long by 18 feet wide. The Figs are not trained to the back wall but to a perpendicular trellis some 4 feet from it. And there they are found to succeed remarkably well. The house, though old, is lofty, and is heated by hot-water. Vines are at present trained under the roof, but these are being replaced by Peaches and Nectarines.

In a small lean-to plant stove Roses and other plants are successfully forced, and for this purpose Mr. Squibbs prefers dwarf standards worked upon the Dog Rose. There are also three small span-roofed plant-houses glazed on Beard's principle and heated with hot water, where various kinds of stove and greenhouse plants are successfully grown. On the roof of one of them we observed a fine example of the Maréchal Niel Rose; on another Allamanda grandiflora, and Bougainvillea glabra, Stephanotis floribunda, &c. We noticed also a fine plant of the old Jasminum Sambac, useful for cutting, and a double flowering variety, named Duchesse d'Orleans.

The garden walls are old and worn, but the trees trained to them are generally healthy, and bearing good crops. As an excellent arrangement it may be mentioned that all the sewage from the mansion is conveyed in underground pipes to a large covered tank in the kitchen garden, from which it is pumped as required, and when not wanted can be readily turned into the park. The pleasure grounds and walks which surrounded the old hall or mansion (which has long disappeared) are still kept up in good condition, and form a delightfully secluded retreat. Near a long walk, known as the "Albana Walk," are many remarkable trees, including some very aged Oaks, one of which, with a peculiarly twisted stem, we particularly admired, and all of them appeared to have been at some time pollarded. There are also many fine examples of more modern introductions, such as a fine Picea cephalonica, Picea magnifica, elegant Cedars of Lebanon, and gigantic Yew trees, &c. The park corresponds with the mansion, and is of great extent, containing close upon 2000 acres of excellent land, a portion of it being well stocked with deer. It is said to be something like twelve miles in circumstance, and has at least ten entrance gates with lodges, or gate-houses, attached to them. Possibly the principal entrance, or, at least, that nearest to the town of Bury St. Edmund's, is near to the church in the very pretty village of Horanger. The iron entrance gates here are exceedingly massive, and of a unique pattern. A fine drive or coach road, some three-quarters of a mile in length, through a very pleasant portion of the park, leads to the north or entrance front of the mansion.

The park contains many remarkable and aged trees, chiefly Oaks, all of which, however, as far as could be ascertained, are of the pedunculated variety (Quercus Robur pedunculata). The great majority of the trees, however, are young, and in a vigorous growing condition, and were, we believe, mostly planted by the first Marquis little more than sixty years ago. In some instances they are becoming too much crowded, but as good taste and discrimination have evidently been exercised in their original arrangement, the thinning of them will be accomplished without difficulty, and this will no doubt in due time have the attention which may be found necessary. To Mr. Squibbs, who is a most successful cultivator, and who has for many years held the responsible and onerous position of chief gardener here, with, no doubt, satisfaction to his noble employers as well as with great credit to himself, I have only now to tender my thanks for his kindness in allowing me to see, as well as for calling my attention to some of the many objects of great interest contained in Ickworth Park. *P. Grieve, Bury St. Edmund's.*

Fig. 24.—Coronilla Emerus: hardy shrub: flowers yellow and red. (see p. 104.)

ALPINE PLANTS.

(*Continued from p. 43.*)

The Föhn.—The sun's chief helper in melting the snow is the Föhn, or south wind. The Föhn is a current of dry warm air, formerly supposed to come from Northern Africa, but which is now known to come from the southern slopes of the Alps. In any case it is the Föhn which is the most potent agent in melting the snow and ice, and in promoting the vegetation of Switzerland. This south wind blows chiefly in winter and in early spring, and when the sun has warmed the depths of the valleys and the snow has disappeared the Föhn is only met with at higher elevations, where it exerts more force during the night than during the day. This is explained by the fact that the temperature of the currents of air becomes lowered when in contact with the snow and glaciers, and becoming heavier by this contact these layers of warm air become precipitated into the valleys. In proportion to the height of the snow this phenomenon is witnessed more rarely, so that in summer it is only in the regions of perpetual snow that the effects of this wind are manifest. The effects of this southern wind are experienced throughout Switzerland, especially in the small alpine cantons, where it is very welcome, and where the peasants say: "Que le bon Dieu et son soleil ne pourraient jamais faire fondre les néiges si le Föhn ne s'en mêlait pas." It is there also that it blows with the greatest violence, and every one has heard of the precautions which the Glaronnais take against such accidents as that which destroyed their capital twenty years ago. As soon as the Föhn begins to blow the inhabitants of Canton Glaris put out their fires, and the law forbids them to relight them while this wind lasts. I have never seen a more striking example of its powers than on a foggy day when in the plains we were immersed in darkness, while on the mountains everything was bright and clear. One day I left Zurich early in the morning, to ascend the Utliberg, which overhangs the town. In the town the air was cold and moist. For several days the sun had not appeared above the horizon, and the ground was covered with snow. Skating was going on on the ponds, in a word, it was the depth of winter. I had not ascended a hundred yards when, quite suddenly, the sky became clear, the fog was below me, and the most brilliant sunshine illumined the mountains above. The snow was melting on all

sides, and the rivulets began to swell. At last, I arrived at the summit of the crest, when I felt quite suddenly a warm wind, which compelled me to take off my overcoat. There was not a cloud in the sky, the view was clear and of unparalleled magnificence, the most perfect tranquillity reigned in these heights, where the chain of the Glaronnais Alps and those of Uri rose before me in all their majesty. In the background the more distant peaks of the Valais and of the Oberland were seen. In the foreground were Rigi and Pilatus clothed in their snowy mantle. Although familiar with the Alps in winter never before had I seen so striking a picture. The Föhn in melting the ice and the snow rendered the atmosphere slightly moist, and allowed the eye to embrace a more extended range. Without the Föhn Switzerland would be much colder, and a large portion of its mountains, now thickly peopled, would be uninhabitable.

In the valley of Grindelwald, two hours of the Föhn are sufficient to cause a layer of snow 2 feet in thickness to disappear. Its action during twenty-four hours is more powerful than that of the sun for a fortnight. It marks the advent of spring in the alpine valleys, as in the plains it brings about the ripening of the Grape in autumn. In the higher Alps there are many valleys which would become veritable sepulchres of ice if it were not for this wind.

Avalanches. — Another singular phenomenon, and one much to be dreaded, is that of avalanches. They have, nevertheless, a mission to fulfil as regards the vegetation of the more lofty slopes, for without them the greater part of the slopes exposed to the north would never be cleared of snow. The avalanches constitute one of the grandest phenomena of Nature, and frequently cause incalculable damage. Generally speaking they are periodical in their appearance, they have their fixed starting points, their regular course, and their goal. It often happens that their fall may be predicted a week beforehand, and sometimes even the hour at which an avalanche will fall can be foretold. Nevertheless, it often happens that avalanches fall in places where they have never been known to fall before. Nothing is more favourable to the development of vegetation than this rapid disappearance of innumerable tons of snow.

Névé.—The névé is only met with in the highest zones at an elevation of more than 3000 yards, where glaciers can no longer be formed. It consists of fine dry granular snow. If it melts in the daytime, it freezes again at night. It is this which forms the immense and compact covering of the summits of the highest alps. It is this which causes them to shine so eplendently by day and night.

Glaciers.—The glacier is very different. There are nearly 680 glaciers in Switzerland, some of enormous extent; some are diminishing, others increasing; all are in motion. The glacier, unlike the névé, is not formed of particles of snow aggregated together, but of melted snow. In spite of the injury they sometimes occasion, they are the greatest benefactors to the country, inasmuch as from spring to autumn they are the source of the rivers of Switzerland and adjoining countries. At the sides of the glaciers are collected the moraines which form, as it were, the natural boundaries of the glaciers. It is upon them that many of the rarest alpine plants are found, and I cannot too strongly recommend the traveller to direct his attention to the botany of the moraines. As the glacier advances, it gradually pushes before it this mass, which forms a sort of platform on which the plants of the glacial district now grow, though there are evidences to prove that the area of the glaciers was once much more extended, and traces of its previous existence may even be seen in most parts of Europe, extending even to Scotland and Wales. *H. Correvon, Geneva.*

(*To be continued.*)

Napæa dioica.—For persons who are desirous of so-called sub-tropical effect and who have not much glass room during winter, the subject of the present note can be recommended as a perfectly hardy and striking foliage plant. It is a member of the Mallow family, which, even in the dry, sandy soil of Kew, attains a height of 6 feet or more. It has large, palmate, long-stalked leaves and tall flower-stalks bearing numerous inconspicuous blossoms. According to the manual of Dr. Asa Gray this is a rare plant in the United States, where it grows in limestone valleys. Its poetical name, freely translated "Nymph of the Grove," was bestowed upon it by Clayton, to indicate its preference for wooded valleys or glade.

SOMERLEY PARK,

The charming seat of the Earl of Normanton in the county of Hants, is situate in a district of unsurpassed natural beauty, on the south-west borders of the New Forest, and but a short distance from Ringwood station on the main line of the South-Western Railway. It was to Ringwood the Duke of Monmouth was taken after his flight from Sedgmoor. With this exception Ringwood does not enjoy the reputation of being the scene of many historical incidents, its chief claim to distinction being its brewage of strong beer and its manufacture of strong gloves. But it is a grand starting point for the tourist who is on pleasure bent to make excursions to many places of note in the neighbourhood, chief of which is, according to local repute, the valley of the Avon from Fordingbridge to Salisbury.

Passing through the park from Ringwood Station the Avon sweeps gently along through a fertile valley, the produce of which betokens the fertility of the soil and the shelter afforded by the surrounding hills. Upon either side of the drive the eye is attracted by the majestic size and apparent age of many of the trees, which are still in sturdy health, and clad in stately grandeur with foliage of the deepest and richest green. There are four entrances to the park, which in itself affords a variety of delectable views and undulating surfaces such as to render it at once a most charming retreat for a holiday ramble. The groups of trees and single specimens, from the giant Oak to the more modest proportions of the scarlet or white Thorn, are so judiciously disposed upon the greensward as to exite admiration in the hearts of those who love and appreciate rural life and a true English scene.

Proceeding towards the mansion the eye is struck by several specimens of Spruce and Oak, measuring from 11 to 20 feet in circumference. Ascending the east terrace a magnificent landscape suddenly appears to the eye, broken up by glimpses of the river Avon, and a range of hills rising gently from a sweeping valley, the descent to which is rather abrupt, but which is clothed with lovely trees, forming a huge amphitheatre of lively green. The mansion, which is a substantial irregular stone block, having a bold centre and two wings, stands upon an eminence, from which a vast tract of country presenting a great variety of landscape scenery, including the pleasant glades of the New Forest and the valley of the Avon just referred to, may be viewed, together with other objects scarcely less agreeable and interesting to the eye, or more gratifying to those whose tastes are in harmony with Nature's blending of hill and dale. The well-known lines by Southey would, I think, characteristically describe the scene:—

"A little while, Oh traveller! linger here,
And let thy leisure eye behold and feel
The beauties of the place; yon healthy hill
That rises sudden from the vale so green,
The vale far-stretching as the view can reach
Under its long dark ridge, the river here
That, like a serpent, through the grassy mead
Winds on, now hidden, glittering now in light."

The flower garden is on the south front, which is terraced, and has a grand fountain, at the base of which the yellow and the white Water-Lilies are very pretty and effective. The bedding is arranged in condensed masses, which is a principle of grouping colours that never fails to give satisfaction when it is executed by a capable man like Mr. Chilman, who sees his work completed in his mind's eyes before it is even begun. From this point also there is another glimpse of the winding Avon, and the spire of Ringwood church glitters in the sun as the eye travels westward over the New Forest. But perhaps the most charming sight of all is a grand group of Rhododendrons (ponticums) which clothes a mound at a considerable elevation in a blaze of purple, which is enclosed by trees having luxuriant foliage, which gives this conspicuous spot a very chaste and sombre effect. I may perhaps mention here that this is one of the many elegant conceptions which are characteristic of Somerley, which gives it an individuality of its own, and affords the best practical testimony of Mr. Chilman's capabilities in dealing with grounds which from their natural configuration present opportunities of improving Dame Nature and creating a general effect of subdued splendour.

The Rhododendrons upon the south front are of the choicest kinds, and are very tastefully disposed in their various colours. The sorts that appeared most striking for planting in select groups, and which were in full blow when I saw them, were Alarm, Baroness Rothschild, Mrs. Walter, Galbanum, and Countess of Normanton, which is a very striking and distinct variety. Upon the west lawn are several fine specimen trees, including an Araucaria, which was brought 3 miles with 7 tons of earth as a ball, and which is now a well-furnished and handsome tree. I also noticed a bed of Azalea indica alba, which when clothed with their pure white flowers are like balls of snow, and which make a very distinct feature when planted in groups on lawns and pleasure-grounds.

The conservatory is upon the west side of the mansion, and is so peculiarly constructed and shaded that few plants will succeed in it for long. It contains several works of art by Durham, Bailie, and others. The picture gallery adjoining the conservatory is said to be a remarkable one, and contains some of the grandest examples of art by Sir Joshua Reynolds, Gainsborough, Vandyck, and others. "The Adoration of the Shepherds," and the allegorical figures of Faith, Hope, Charity, &c., by Sir Joshua Reynolds, are said to be noble examples by that great master of art. The carriage entrance on the west side, known as the "fore court," is a spacious enclosure, and from it radiate two fine drives, one to Ringwood and the other (an artificial one) which runs straight in the direction of Cranbourne and Verwood.

Proceeding northwards from this point, you enter by a gate, and come upon a series of gardens which have been laid out and planted with much taste and skill by Mr. Chilman during the last fifteen years. Upon the right and left of the entrance walk are two herbaceous borders filled with a choice collection of hardy herbaceous and bulbous plants. A row of standard Portugal Laurels flanks the border upon either side. Upon the left, or west side, the lawn is enclosed by an irregular belt of choice trees and shrubs, while the centre is broken up by clumps of flowering shrubs and thriving young Conifers. Rhododendrons are largely used as a groundwork in securing the necessary privacy, while the outline or boundary is marked by the choicer kinds of Conifers intermixed with Lilacs, Laburnums, and other flowering trees and shrubs of a suitable character. The most noteworthy young Conifers are Abies grandis, A. lasiocarpa, Thuya gigantea, Abies Albertiana, and Juniperus chinensis aurea, sent out by Young, of Godalming. Still going northwards what is called the "upper garden" is reached, and this I may state is but a continuation of the one already described, although it possesses its own characteristics and features, which distinguish it from its neighbour. In this garden, which might almost be called a pinetum, there is a grand collection of healthy young Conifers, including Abies magnifica, A. grandis, Thuyopsis dolabrata, Picea orientalis, Pinus taurica, Picea Menziesii, and P. polita, with cinnamon-coloured bark. The Scotch variety of Laburnum is very beautiful here, and makes a distinct mark as a boundary plant overhanging a groundwork of dwarf-growing shrubs. I noticed a fine sample of the Tulip-tree (Liriodendron tulipifera) in an adjacent shrubbery, and also good specimens of Abies Albertiana and excelsa and Abies Nordmanniana, on a close-shaven lawn near by. A group of Rhododendrons (variety catawbiense) surrounding the Pseud-Acacia (Robinia) and a standard Camellia standing in the open are all objects of interest and beauty, yielding great variety and harmony of colour through the season. I also noticed a fine example of Photinia serrulata, and a Tulip-tree overhanging a drooping Laburnum, which had a very pretty effect. A Douglas Fir planted by Mr. Chilman has now reached a height of 30 feet, and a Wellingtonia gigantea, which was a mere scrub when it was planted ten years ago, is now as handsome a tree as you would find in the kingdom.

Curving to the right from this point there is a plot of well kept pleasure grounds, surrounded by noble trees, the most conspicuous of which are a group of Scots Firs, which tower in majestic grandeur over their dwarfer neighbours. Here also are several plant-houses connected by a covered way on arches, and a rosery which is adorned with wire trellising and clothed with climbing Roses. The collections of Roses, which consist of standards, half-standards, and dwarfs, are tastefully grouped, and are in capital health considering the severity of the past two winters.

But I must return to the plant-houses, and describe their occupants before going further. The first house

I enter is a plant-stove, in which are Bananas, Hedychiums (the Garland-flower), a fine variety of Vanda tricolor, brought by Mr. Chilman, a specimen Anthurium Scherzerianum, Oncidium sphacelatum, Cattleya crispa (with pale petals and dark blotch), Dendrobium densiflorum, Bougainvillea spectabilis, and a white sweet-scented Jasmine, called J. Sambac. The next house is occupied with Camellias, which consist of splendid bushes of Lady Hume's Blush and other popular kinds; also the Abyssinian Banana, Musa Ensete, with its lovely-tinted ribs, several creeping Roses, and Habrothamnus elegans. The house is octagon-shaped, with a dome in the centre, and seems to be well adapted for cultivating Camellias. The third structure is a greenhouse having climbing Roses trained upon the roof, which yield numbers of cut Roses in the early spring. The principal favourites for this purpose are the indispensable Maréchal Niel, Adam, John Stuart Mill, Comte de Paris, Belle d'Orléans, and Sir Garnet Wolseley. The occupants of this house are chiefly New Holland plants—a class with which Mr. Chilman's name was long identified as one of the most successful exhibitors about London when he was gardener to the late Nathaniel Smith, Esq., at Ashstead House, in Surrey, where he lived for over twenty years prior to coming to Somerley. I noticed Dracophyllum gracile, several Boronias, Darwinia tulipifera and Hookeriana, Chorozemas and Acacias, among the collection.

Passing from these houses to a range of forcing pits and houses not far distant I observed a nice sample of Thuya Vervaeneana, Catalpa syringæfolia, and a Laburnum, which is, to say the least of it, a curiosity in its way, having Cytisus purpureus and the common yellow all produced upon the same tree. A single bush of Kalmia latifolia is also worthy of passing remark. Approaching the pits and frames there is sufficient evidence that these have been used to the best practical advantage during the spring, and are now doing duty with plants for the summer embellishment of cool houses, or are occupied with Melons and Cucumbers for yielding succession crops. The Pine stove is filled with a useful collection of fruiting and succession plants, and the same remark applies to a small orangery attached to the range of vineries, which are four in number. The Vines have borne heavy crops annually for the past fourteen years, and still look capable of yielding useful crops for some time to come.

Sheltered between the vineries, which are detached, are some healthy plants (grown bush fashion) of Chimonanthus fragrans, Magnolia grandiflora, and Wistaria sinensis, all of which are very appropriate for the situation, and are, I fancy, very rarely seen as bush specimens.

The Peach crop, in two new span-roofed houses with transverse trellising, is of the first order, the young trees having quite filled the houses in three seasons. The new kinds (in addition to old varieties), which are considered very fine, are A'bec, Prince of Wales, and Sea Eagle. In another small block of houses there are useful and well-grown collections of furnishing and decorative plants, and good examples of Melon and Cucumber growing. Liliums in pots are also grown largely for autumn flowering.

The Beeches at Somerley are very fine, one giant measuring 21 feet in circumference at 4 feet from the ground, and this by no means an isolated example. The walks and drives leading from one part of the demesne to another are rendered attractive by the grouping of flowering shrubs on gentle slopes, and the planting of St. John's Wort upon all naked spaces, which has a very pretty appearance.

Upon entering the kitchen garden, which is somewhat peculiar in shape, different from the orthodox forms of square or parallelogram, I find a straight walk cuts it in two lengthwise, and another crosswise, and these are bordered by choice collections of herbaceous plants. The garden has been enlarged within a recent date with a view of extending fruit and vegetable culture, and so far the results have proved eminently satisfactory. A new lean-to Peach-house, 120 feet long, has a splendid crop of fruit upon young trees, in luxuriant health, which have nearly filled the back wall and front trellis in a couple of seasons. The wall trees, especially the Apricots on a south-east aspect, are doing remarkably well, an unusual circumstance in this district, or, indeed, anywhere lately. Outside the walled-in portion of the garden are large vegetable quarters, securely enclosed and ornamented by espalier-trained fruit trees, which is the latest addition to the garden. The espaliers are substantially made of wood, and the fruit trees, especially the oblique cordons, are growing as freely as anything in the garden. Asparagus pits, for forcing Asparagus without the trouble and expense of lifting it, 2 feet deep, 3 feet wide, with 2 feet spaces between, struck me as being a capital idea for general adoption, and one worthy of noting. The walls are, of course, pigeon-holed, and the 2 feet spaces are kept filled with fermenting materials when forcing is commenced for the season. Abundance of water is also provided for in a central position in the garden, which shows how carefully and practically the scheme of extension has been conceived and carried out.

This brief notice of so fine a seat would, I think, be imperfect if I omitted to mention a celebrated tree that was pointed out to me previous to leaving the park upon the day of my visit, and which should have been noticed earlier but for an omission of my own. The tree—a weeping Ash—was brought from Moyle Court, a distance of 3 miles, with 13 tons of earth attached to it, and with singular success; it appears to live and grow notwithstanding the ordeal to which it was subjected. The tree of itself is not so remarkable as the history of Moyle Court, which is now incorporated with the Somerley estate, and to which a melancholy history attaches in consequence of the fate of the Lady Alice Lisle, who was executed for giving food and shelter to two wretched fugitives from the fatal field of Sedgmoor. Moyle Court is now occupied as a farmhouse, but the staircase is yet shown where this good lady concealed the fugitives. The removal of the tree was, however, a work of some magnitude, and Mr. Chilman may well be proud of the success of the undertaking. Mr. Chilman is leaving Somerley after fifteen years' active service, but his work, which will live after him, is indelibly stamped upon the place, and is the best evidence of his skill and industry as a practical gardener. *Albion.*

RHODODENDRONS.

(*Continued from p. 42.*)

Of all vegetables of any size none lend themselves more freely to transplantation than Rhododendrons. Except during a hard frost, or when the plants are actually in bloom, or when the young shoots are in the tenderest condition, there is scarcely a day in the year when they may not be transplanted with impunity. Both the Messrs. Waterer have turned this peculiarity to most excellent account by creating each year in London what may be called a Rhododendron garden, rather than a show. The Hyde Park display is comparatively modern; but the huge tents, such as Mr. John Waterer's in Cadogan Place, are now almost to be numbered among the ancient sights of Londoners. It may seem very unnatural and inartistic to have beds, and banks, and shrubberies of planted Rhododendrons, with gravel walks and turf edgings, and the ups and downs of a real garden, confined for weeks together under canvas; but, in fact, it is very convenient in more ways than one. Many see the flowers who would not travel to the distant gardens. The plants, brought up to town in bud, open well, and safe from casualties under cover. They last much longer when thus protected from sun, and wind, and rain, and insects; and it must be added that the beauty of some of them is enhanced by the shade. The crimsons and the pinks, the predominant colours, glow more brilliantly, I think, under canvas; the purples, on the other hand, as one might expect, are somewhat dulled by the sombre light. Be that as it may, however, few could enter into these Rhododendron temples nowadays without a cry of admiration. One seems transported into a world of colour.

"In the Zemu Valley," writes Sir J. Hooker, "Rhododendrons occupy the most prominent place, clothing the mountain slopes with a deep green mantle glowing with bells of brilliant colours. Of the eight or ten species growing here every bush was loaded with as great a profusion of blossoms as are their northern congeners in our English gardens." Before a picture such as this—I pray my readers to imagine it—a mountain valley glowing with the brilliant bells of eight or ten distinct Sikkim species—say R. fulgens, Thomsoni, arboreum, Campbelliæ, campylocarpum, argenteum, Aucklandii, and so on—before a picture such as this even Mr. Waterer's tent must pale; but the Londoner may well be proud of his little Zemu Valley in Cadogan Place, and of the skill and untiring perseverance which, far from fog and smoke, have provided this feast of colour, and then transported it bodily to his very door.

Entering the tent one is almost dazzled at first by some of the rich red tints, which are saved, however, from seeming flaunting or gaudy by the masses of dark foliage whereon they rest. But crimson yields to pink, and pink melts away into creamy white in ever-changing cadence, and then a bold dash of purple supplies the needful shadow. Yonder, in sooth, is the burning bush of Moses; the snow, however, of its neighbour cools down the prospect; and so the visitor feasts awhile on the general effect of this gleaming sea of rosy colour, astonished that any combination so beautiful could be devised and accomplished by the art of man; for it is the art of man which has reared and tinted every one of these gorgeous plants in their profuse variety, which has rendered them all hardy in our vexing climate, and has finally brought them—some bending under the weight of thirty or forty winters—from afar, and now bids them bloom their best before us.

After thus enjoying the general effect, we proceed to examine particular plants, and presently we find ourselves confronted by the whole Waterer family disguised as Rhododendrons. The venerable John Waterer, whose exact pedigree I have often sought but never found, and his venerable spouse, Mrs. John, are there, glowing as usual in crimson health. Their descendants are all around; Fred Waterer and Michael Waterer [Surely this commemorates the "venerable John's" elder brother Michael, the founder of both the Knap Hill and Bagshot nurseries. Eds.], chips of the old block, but ruddier and stouter, as becomes their youth; Kate Waterer, with her hazel eye; and Helen and Bai Waterer, the loveliest of the flock, who, with their brother Jack and Bertram Currie, have fairly outdone and vanquished that notable flower, Alarm. Beyond the family circle, Lord Eversley, Mrs. John Penn, John Walter, and others, caught my eye. I was much struck by the excellence of some of the whites, particularly on my last visit early in July. The Queen is very good, although Madame Carvalho is my favourite.

So much from the point of view of an ordinary observer, who admires beautiful flowers, or the would-be purchaser; but the true fancier will go a little deeper, and curiously notice the traces of affinity obvious in all these plants—dividing, however, into two or three currents of race. There is, for instance, the old concessum type of flower (this variety was raised in Belgium), depending for its beauty on the white eye, and obliterating as much as possible the spotting of the corolla, as it is obliterated in some examples of the arboreum species, and in the ponticum of the South of Spain. In close relationship stand such flowers as Princess Mary of Cambridge, and others; and, collaterally, Alarm at the head of a host of improvements, alluded to above, with much the same colouring of the corolla, but very different in foliage and habit. Another class of flower is conspicuous for the very distinct marking on some or all of the segments of the corolla—perhaps a modification of the orange eye of the Pontic ponticum, or the black markings of some forms of arboreum, or the greenish of caucasicum or maximum. A third class is of the "self" type, and depends for effect on the distinctness and beauty of one colour, without much contrast or relief except that of its own foliage. These last are naturally most effective in large masses, and at a distance. Among them the brilliant crimsons are very numerous, and have arrived at great excellence.

As it is with the blossom so is it with the foliage—nay, one might add with the capsule and the calyx, and the arrangement of the flowers in the truss—they all speak more or less of the five or six species from which our hybrids spring. Ever since the memorable advent of R. altaclerense × (the first of the arboreum hybrids) you have the thick, succulent, tomentose leaf derived from the Indian stock. Somewhat flimsy, on the other hand, but copious and wind-withstanding, is the leafage derived from R. ponticum, which asserts its presence in some of our best whites. Paler, blunter, rounder leaves, with revolute edges, speak of catawbiense and caucasicum blood, the former predominating in many of our hardiest favourites, and the latter generally imparting a very short petiole, and a dwarf and early habit. R. maximum may manifest its influence by viscid

stalks, a tight truss, leaves curiously curled together in frosty weather, and an uncomfortable habit of prematurely thrusting up its leaf-shoots among the blossoms. Traces of campanulatum's densely tomentose leaf (the species was selling some forty years ago at five guineas the plant) are to be found in some gardens.

These and such-like discriminations may perhaps appear rather too nice and speculative in view of the complicated crossing and recrossing, which has taken place among our modern Rhododendrons. Nevertheless no speculations are misplaced which, in the multitude of our hybrids, make us think of the species whence they come, and lend a charm to our travels wherever Rhododendrons are found wild, even on such beaten tracks as near Gibraltar, and the countries in the neighbourhood of Constantinople. In those two spots—or, to speak more correctly, at the two ends of the Mediterranean basin, and nowhere else between (a fact commented on by M. A. de Candolle as "un fait curieux et d'une très grande importance pour la geographie botanique")—R. ponticum appears under diverse forms and names. On searching the authorities, say from the plate of Pallas downwards, and examining herbaria and living plants, a host of interesting questions arises which one longs some day to solve on the spot. So is it with the North American R. maximum and catawbiense, after a study of Pursh and Bigelow and Asa Gray, &c.; and so is it still more with the puzzling R. caucasicum, of which so many shams are in cultivation; but the greatest subject of our would-be travels and researches is not reached until we arrive at the vast range of that last but mightiest factor, the grand R. arboreum. Of this, for the present, I must say no more than that, as I apprehend its prodigious range and its numberless forms, I am persuaded that its history has yet to be written. Along the west and east Himalayan slopes, through the Khasya hills, on the Nilgherries, in Ceylon, in Assam and Burmah, this species shows its glowing fireball now to the eternal snows and now almost to the plains. But more of this, I hope, anon.

Before concluding, one last word for Mr. Waterer's plants. We owe him infinite thanks for the new phase of beauty which they have furnished for our gardens and our woods. With their aid many a barren hungry spot has this year been blossoming like the Rose, and while the species have been damaged by the winter, the hybrids have laughed Boreas to scorn. Nor let the jealous botanists complain of the mixing and confusion of the species. Depend upon it that he who intelligently cultivates hybrids, or raises hybrids, will be often thinking, both at home and abroad, of the specific types; from species he will probably rise to genera, from genera to the whole science of Botany, and perhaps contribute some day to extend its triumphs and its truths. *J. H. Mangles, Valewood, Haslemere.*

(*To be continued.*)

Orchid Notes.

The Phalænopsids at Clapton.

At p. 266 of our last volume we gave an account of the Orchids at Messrs. Low's establishment at Clapton and now present our readers with an illustration (fig. 25), of the Phalænopsis-house, as the plants then (the end of February) appeared in flower. The house is 66 feet long and 24 feet in width, and the wide centre stage presented a complete sheet of snow-white and delicately tinted blossoms as produced by the different species, P. amabilis, P. grandiflora, and P. Schilleriana, in their many forms. From inability to get the photographic instrument in a position to take in much beyond the near end of the house, our illustration does not convey an adequate idea of the immense quantity of plants in bloom, but enough is shown to give some conception of the thousands of these beautiful moth-like flowers present.

Lælia Dominiana rosea.

At the exhibition held at the Royal Botanic Society on July 6 this fine variety was exhibited and gained a First-class Certificate, or what is equivalent to one. There is a peculiar interest attached to it because it is the last of Mr. Dominy's seedlings, raised fifteen years ago and flowered for the first time this year. It was raised from seed obtained from Cattleya exoniensis crossed with Cattleya Dowiana. Surely nothing could more fully show the near relation of the genus Lælia and Cattleya than the result of this cross. The plant had three flowers on one strong spike. The flowers are not so large as those of either parent; and their great beauty consists in the rich crimson lip, which is 1¾ inches wide by 2¼ inches in length, and crisped at the margin; the sepals and petals are rose-tinted. It was exhibited by Messrs. Veitch. *J. Douglas.*

Phalænopsis violacea.

This is not one of the most showy Orchids, and may not be popular as an exhibition plant, but it is a very remarkable and beautiful species, and quite distinct. It will be sought after by every Orchid fancier, and ought not to be expensive, as the Messrs. Veitch have succeeded in establishing 150 plants of it. The flowers are 1½ inch across, with a violet-crimson centre, and margined with greenish-yellow; the lip is of a crimson tint. Many persons are unsuccessful in the culture of Phalænopsis; but this is either owing to their culture not being understood, and the house or temperature not being suitable for them. They nearly all require the highest temperature, a good supply of water at the roots, and a moist atmosphere when making their growth, and the less the roots are disturbed the better. It is not only ruinous to the plants, but the treatment is simply barbarous to wrench them out of the pans in which they are growing to make up exhibition specimens. Indeed, some of the more delicate species are better not moved from the house in which they are growing for any purpose whatever, and as long as they do well let the roots alone. They do not like to be interfered with. *J. Douglas.*

Peristeria elata.

When potting this Orchid last March one pseudobulb was taken from the old plant, and potted in the usual way, to increase our stock; and, soon starting into growth, it threw up three flower-spikes and three breaks; the latter all from the top of the bulb, and one spike of bloom also from the top, the other two at the bottom, one on either side. The growths are healthy, and of about equal strength, but the spike of bloom from the top is weaker than those from the bottom, it being 18 inches high, with six flowers on it, while the others are 26 inches high, one bearing eleven blooms, the other twelve, making a total of twenty-nine blooms, nine of which are now open. *N. Blandford, Gr. to Mrs. Haselfoot, Moorhill, Southampton.*

Vanda (Renanthera) Lowii.

This grand species is now flowering in the Victoria and Paradise Nurseries, Upper Holloway. The plant is 7 feet high, with robust leaves, and roots as thick as one's finger, and bears 194 flowers on six spikes, hanging down from the axils of the leaves, and one of which measures over 7 feet in length. The yellow female flowers are two in number at the base of the spikes, the brown-spotted male flowers are loosely arranged along the length of the spikes. The specimen, as may be imagined, is well worth seeing, and Orchid growers would do well to accept the invitation to his nursery which Mr. Williams gives. The Vandas, Aerides, and Saccolabiums in the same house are in perfect health, and beautiful to see, though of course not many of them are now in flower.

Odontoglossum vexillarium.

Two very fine varieties of Odontoglossum vexillarium were exhibited at Regent's Park on July 6. Mr. Bull, of Chelsea, had a variety named rubrum, the flowers of which are not of the largest size, but I do not remember to have seen one with such a deep rosy red tint. Mr. Croucher, gr. to J. T. Peacock, Esq., also exhibited the variety giganteum. This is also very distinct in growth, the flowers being large and of great substance, although there is nothing new in the colour. These two distinct varieties of the species likewise received the highest award given to Orchids by the Royal Botanic Society. The system of giving awards by this Society is not generally understood, as no matter how valuable or beautiful a species or variety of Orchid may be, it would merely receive a Botanical Certificate, whereas this award given by the Royal Horticultural Society is for plants of a curious or interesting character, but not such as would be valued as popular and showy decorative plants. The Royal Botanic Society ought certainly to give some kind of certificate to distinguish between plants of extraordinary merit as decorative plants and those of mediocre character. Odontoglossum vexillarium will always be grown because of its great beauty and the length of time the flowers remain in good condition on the plants. They will last in a moderately warm house for nearly six weeks, but it is rather a pity that they speedily droop when cut from the plants, and are put into water in a room. I have such a horror of thrips taking possession of this fine Orchid that it would be well to again utter a word of warning. It spreads rapidly and insidiously during the hot weather, and should be watched for and destroyed on its first appearance; both Mr. Spyers and Mr. Croucher tell me they destroy it by dipping the plants in tobacco-water without any soft-soap. I use soft-soap in the tobacco-water, and dip the plants in it, taking care not to let any of it get to the roots. *J. Douglas.*

Culture of Cattleyas.

I read with interest Mr. Bruce Findlay's remarks on this subject at p. 76. There are some truisms that everybody must agree to, such as "on the healthy state of the roots everything depends," &c.; but I cannot go with him when he recommends all Cattleyas to be placed on blocks or to be potted in broken potsherds and charcoal. They will make plenty of roots suspended in the air, on crocks, or potted in potsherds and charcoal; they will also for a time make good growths, but my experience tells me that they require much more attention when grown in that way, and they will not remain in health so long, nor grow to such a large size. We have had all sorts of instructions given as to how Orchids should be potted, what they should be potted in, &c.; and what has been the result of it all? Simply this, that the largest proportion of Orchids, including Cattleyas, are now grown by all the best and most trustworthy horticulturists in good fibrous peat and sphagnum. I was talking on this very subject with Mr. B. S. Williams, of Holloway, the other day, and mentioned a material (coir fibre) that had been used by Mr. Gedney in potting Cattleyas and other things in Mr. Day's collection. His reply was characteristic:—"When I can see plants better grown and flowered under a new system, then I will adopt it; until then I shall continue to use peat and sphagnum." Roots of Cattleyas do not become sickly and die in peat and sphagnum, if the material is good, and not overcharged with water at unseasonable times. Every good Orchid grower could show Cattleyas that have been grown over ten years in peat and sphagnum, and that are now in vigorous health, producing annually immense masses of bloom. It would be interesting to know for how long Mr. Shaw has grown such things as Cattleya Mossiæ on blocks, what has been the result as regards growth and bloom, and what about the amount of labour entailed in watering, &c. A Cattleya on a block must be watered every day, at least in summer; whereas a large specimen in peat and sphagnum would not require it more than two or three times in a month. My advice to Orchid growers is this: continue to grow your Cattleyas in peat and sphagnum until you have ocular proof that another method is better, and also grow them in pots. This, of course, although it applies to the principal species in the genus, does not apply to all. Cattleya superba does best fastened to a short length of Tree Fern, and many of the small growing species do best in baskets with peat and sphagnum, suspended near the glass. *J. Douglas.*

"The Orchid Album."

The first number of the *Orchid Album*, published by Mr. B. S. Williams, is before us. It contains nicely executed coloured figures of Oncidium concolor, Lælia Schrœderi, Cattleya Mendelii grandiflora, and Epidendrum vitellinum majus. We shall refer to this publication on a future occasion.

Anæctochilus setaceus.

This pretty little Orchidaceous plant has found a most congenial home in the damp, shady forests of Ceylon. As a terrestrial Orchid it is the most exquisite plant I have ever seen, and has drawn the attention of even the apathetic Singhalese, among whom its singular beauty has won for it the popular name of the "Wanna Raja," or "King of the Forest." It commands the attention and admiration of all who have seen it in its habitat. I have found it at an elevation from 1000 to 5000 feet above sea level, but perhaps in its greatest luxuriance about 2500 feet, where I found it in great abundance, growing in the shady, rocky banks of that mountainous line of hills that runs from Nagalla to Madema Newera, and which separate the central from the north central and southern provinces. The highest point where I have seen it growing is in the forests of Adam's Peak. It is often found growing together with Selaginella stolonifera. It is readily sought after by plant growers in Colombo, and most of the planters have a few plants of it in pots about their bungalows. I cannot say it is easily grown in pots, but generally it does well in a shady rockery among Ferns, where I have had it to perfection.

There is another small Orchid, Monochilus regius, bearing a slight resemblance to the Wanna Raja, which is often found growing along with it, called by the Singhalese "Iri Raja," or "Striped King." Its leaves are somewhat bronzed, but they are longer and narrower than those of the Wanna Raja, and, as its Singhalese name implies, it has two white stripes running through the length of each leaf. *J. Alexander, Ceylon, June* 24, 1881.

Odontoglossum vexillarium.

Mr. F. Yates informs us that he has an Odontoglossum vexillarium showing twelve flowers on one spike —a very unusual number, so far as we know.

Aerides Lobbii.

From Mr. Frederick Yates, Higher Feniscowles, we have received an unusually fine compound spike of this showy species. It consisted of one very long central branch, from whose sides came off at regular intervals seven lateral shoots, about half the length of the central one, and, like it, covered with flowers. A total length of 6 feet 10 inches of closely packed flowers on one spike is deserving of record.

Fig. 25.—The Phalænopsis-house at Messrs. Low's Nursery, Clapton. (see p. 108.)

TRADE MEMORANDUM.

Several inquiries have reached us with reference to Messrs. George Baker & Son, of Windlesham, near Bagshot, whose mode of conducting business does not appear to meet with approval.

COLONIAL NOTES.

Ceylon Flora.—I cannot allow the description given of the Ceylon flora by "H. J. E." in your issue of April 30 last to pass unobserved. He says (p. 560) that neither Ferns, mosses, nor creepers, are numerous. I find the indigenous species of plants mentioned by Dr. Thwaites in his *Enumeration of Ceylon Plants* to include dicotyledons, 1959; monocotyledons, 648; and Mr. William Ferguson gives in his list, Filices, 225; Lycopodiaceæ, 14; Marsileaceæ, 3; Equisetaceæ, 1: total, 2850; double the flora of Britain, and about one-thirtieth of all species in the world yet described.

Ceylon in proportion to its area must be regarded as equal to that of any portion of the globe. It is noted for its Ferns and Balsams, while Orchids abound. Ebony, Calamander, Satinwood, and other fine cabinet woods, are plentiful in the forests. Palms and Bamboos are specially beautiful and luxuriant, few objects in Nature being more grand than a Talipot Palm, Corypha umbraculifera, in flower, and few more graceful than the slendar Areca Palm, Areca catechu, or the tall, drooping Bamboo of the mountain forests. The beautiful flowering trees, such as Lagerstrœmia reginæ, Bombax malabaricus, scarlet Cotton-tree, with the varied foliage of several timber trees, give a rich contrast to the deep green of the forests. The brilliant Ixoras, Erythrinas, Buteas, Jonesias, and Hibiscus, enliven the forests with their splendour. The dense, impenetrable herbaceous plant mentioned is Strobilanthes, called by the natives "Nelloo," of which there are some twenty species, and is what constitutes the most abundant underwood in the forests.

The greatest variety of plants is found in the central, southern, and western provinces, which contain all the mountain ranges. To the north and east is comparatively flat pasture country, with poorer soil, lesser rainfall, and scrubby trees and bushes. There are few parts of the world so rich in fungi as Ceylon. *A., June* 14.

Canada.—On June 6 we had one of the severest frosts at so late a season ever known in these parts. The trees were nearly all loaded with fruit, and the Grape-vines also, and a great many of the former, and all the latter, were cut off. Of course all the early crops of Potatos, Cucumbers, Tomatos, Melons, &c., were also summarily disposed of. The Potatos, however, by the help of some beautiful warm rains, have recovered themselves, and are looking nicely and just about to bloom. On the 7th, 9th, 10th, and 11th also some sharp white frosts inflicted considerable damage; on the low lands principally, although not entirely, large acreages of Barley, Oats, Peas, and even of fall Wheat, succumbed to the Frost King's severity.

The crops on the high ground generally are looking extremely well, with the exception of the hay crop, which it is feared will be everywhere deficient.

The Onion-fly you have so opportunely illustrated is doing us the same injury you complain of, and for the first time; the Asparagus also is showing some signs of worm depredation. We have been planting this spring some Balm of Gilead trees. They have a very agreeable fragrance, and being fine shade trees as well, we wonder they are not more patronised in England.

For the last thirteen nights we have been visited by a comet of greater brilliancy than has been seen since the one of 1858. The tail, of some 12,000,000 miles in length, has been splendidly lighted up with fitful arrow-like streams of electric fire, and multitudinous lovely coruscations of all shapes have profusely beautified this gorgeous appendage of our welcome celestial visitor. He is passing away from us, however, at a great rate, and we cannot expect him to display his glories to us many days longer. *Minesing, Ontario, Canada, June* 6.

Singapore: *June* 7.—The flower show held on the 1st inst. was the best yet held here, H.H. the Maharajah of Johore, M. Whampoa, Syed Mahomed Alsagoff, Tan Keng Swee, and other native and Chinese exhibitors, trying their strength against European settlers. A Plum tree with sixteen nice fruit was a novelty in Singapore, as was a plant of Cyclamen persicum. Ferns, and what in England would be called stove plants, were largely shown, and among the Orchids a fine plant of Vanda teres and one of Vanda Lowii, with two racemes of flowers over 9 feet in length [see p. 108]. Dahlias and Chrysanthemums were poor. Vegetables and fruit were fairly

shown, and among the former were Tapioca roots, Turmeric roots, Sugar-cane, 24 feet in length; while among the latter Mangosteens, Cocoa-nuts, Nutmegs, and Liberian Coffee were shown, not quite what one would see at South Kensington. *Correspondent.*

"Tonga."—Since the publication of our previous note on this subject we have received the following communication from Mrs. Clendinning, together with specimens of the plants mentioned:—

Some months ago I saw in the *Gardeners' Chronicle* an account of the newly introduced remedy for neuralgia, named "Tonga," which had come from Fiji in the form of dried leaves and chips. These had been broken up into such small pieces that it had been found impossible to recognise the tree or plant from which they had been taken. Your correspondent said that enquiries had been instituted in Fiji as to the production, but in vain, as the secret was jealously guarded by those natives who were acquainted with it. On reading the above statement I wrote to my brother, Mr. R. L. Holmes, a resident in Fiji for some years past, urging him to seek for information in the matter. I have just received a letter from him, telling of his complete success, and giving some details of his discovery, which may prove interesting to your readers. He informs me that the medicine derives its name from Tonga, one of the Friendly Islands, whence it had been first introduced to Fiji. An old Tonga man, living on Tavinni, one of the Fijian group, was found willing to impart the secret to a Wesleyan clergyman, at the same time giving him specimens of the plants of which the medicine is composed, and which were indigenous to the island on which he was then living. On receiving these Mr. Holmes showed the plants to a Tonga native living near him, on Vanua Levu, who at once recognised them, exclaiming, "These are our medicine," giving them at the same time their native names—viz., "Aro" and "Nai Yalu." My brother subsequently found the plants growing plentifully on his plantation, and describes them as follows:—

"The Aro, when growing on open dry ground, is a small shrub, but near watercourses it becomes a tall tree; of this the inner bark is the part used. The second plant, the Nai Yalu, is a creeper or epiphyte, growing freely in sheltered places, especially damp bush, climbing over the stones, &c., till it finds a tree, when it changes its nature, from a small bine-like stem, no thicker than a quill, with small simple leaves, to one from 1 inch to 2 inches in diameter, the leaves at same time becoming compound, from 1 foot to 2 feet in length—a handsome plant. The dried scraped stem of this constitutes the second ingredient in Tonga."

Along with these particulars my brother sent me the original specimens collected in Tavinni by the Tongese. All this was highly satisfactory, but, for want of the necessary books, we could not supply the finishing touch to his discovery by ascertaining the botanical as well as the native names of the plants. This, however, I was happily enabled to obtain from the eminent botanist, Baron von Mueller, to whom the specimens were submitted for identification. He recognised them at a glance, though unaware of their medicinal qualities, and stated their proper names to be as follows:—"The Aro is Premna taitensis, one of the Verbenaceæ; while the Nai Yalu, or Walu, is an Arad, named Rhaphidophora vitiensis." *M. J. Clendinning, Melbourne, Victoria.*

Madras Agri-Horticultural Society.—The report of the annual flower show is before us. It shows the customary tendency to grow the same plants that form the decorations of European gardens. This is not altogether unnatural, seeing how powerful old associations are, but surely it would be better to endeavour to develope the resources of the country itself. At the exhibition in question the first Camellia known to have flowered in Madras was exhibited, and it is stated to have been of the most "wretched description." No one need be surprised at that, for the climate of Madras is about as unsuitable as could well be for Camellia culture. When we think of the grand Poincianas, Bougainvilleas, Hibiscus, and other native plants, it seems perverse to try and grow Camellias. Similarly, instead of wasting energy in the culture of European vegetables—except, perhaps, as curiosities, or luxuries, how much better to follow the example set by the late Governor, Mr. Adam, who contributed a splendid show of Yams. Of course we are speaking of the immediate neighbourhood of Madras. At Bangalore or at the hill stations things are different.

Campanula lactiflora.—There are two forms of this plant at Kew, one with blue flowers and the other with nearly white ones. Both attain the same height, viz., 3 feet, and are equally floriferous. They are handsome border plants, of the easiest cultivation.

Notices of Books.

The *Compendio della Flora Italiana* drags its slow length along. It has now reached its twenty-seventh number and the eighty-first plate. The chief feature of this publication, edited by Professor Gibelli, with the co-operation of various Italian botanists, consists in the illustration of the structural details of each genus, so that the work is necessarily one of an extensive character.

—— *Illustrations of British Fungi.*—The third part of this useful series of illustrations intended to serve as an atlas to the *Handbook of British Fungi*, has been issued. Fifty-two small octavo coloured plates of Agarics have now been issued, laying students of these plants under additional obligations to Dr. Cooke.

PLANT PORTRAITS.

Abronia latifolia, *Bot. Mag.*, t. 6546.—A trailing hardy perennial, with opposite, long-stalked, viscid, ovate-obtuse leaves, and stalked heads of small yellow flowers. Native of Western North America. Hort. Kew.

Abutilon Vesuvius, *Floral Mag.*, t. 438.—Flowers fine salmon-red. Mr. Cannell, Swanley.

Anthurium Veitchii, Mast., *Illust. Horticole*, t. 406.—A noble species, with cordate oblong acuminate leaves. Native of New Granada. See *Gard. Chron.* 1876, ii., p. 772.

Asplenium obliquatum var. Germinyi, *Illust. Horticole*, t. 402.—A remarkably elegant Fern, with recurved lanceolate bipinnate fronds crested and tasselled at the tips. South Sea Islands.

Aster gymnocephalus, A. Gray, *Bot. Mag.*, t. 6549.—A singular species with oblong-lanceolate or spatulate, hirsute, densely saw-toothed leaves, the upper ones sessile; the flower-heads are about an inch across, reddish-lilac with a yellow disc. Mexico. Hort. Kew.

Brassia caudata var. hieroglyphica, *Illust. Horticole*, t. 410.—A species with narrow lanceolate perianth-segments, yellow, barred with brown.

Cattleya Mardelli ×, *Floral Mag.*, t. 437.—A hybrid between C. speciosissima as the seed parent and C. Devoniensis ×, itself a hybrid. Flowers rosy-lilac, lip of same colour, with a broad cream coloured blotch shaded with yellow and striped with rose. See *Gard. Chron.*, June 19, 1880.

Chrysanthemum Mrs. Bateman, *Floral Mag.*, t. 442.—An orange-red Pompon variety, raised as a sport by Mr. Greenaway, of Oxford.

Chrysanthemums, *Revue de l'Hortic. Belge*, March 1.—Varieties raised by MM. Delaux, of Toulouse, and sent out by M. Pynaert. Their principal peculiarity is their striped flowers.

Cineraria Master Harold, *Floral Mag.*, t. 440.—Fine flower, magenta with white eye. Raised by Mr. James.

Crinum Forbesianum, Herbert, *Bot. Mag.*, t. 6545.—A native of Delagoa Bay, originally introduced by Mr. Forbes to Chiswick, and reintroduced to Kew by M. Monteiro. The flowers are like those of C. ornatum; it has very large bulbs, short stout scapes, and very large decumbent leaves. Hort. Kew.

Delphinium cardinale, *Garden*, February 26, 1881.—A scarlet Larkspur, with yellow blotches at the base of the upper sepal. California.

Kentiopsis divaricata, Brong., *Illust. Horticole*, t. 409.—A New Caledonian Palm, 40 feet in height, with very hard durable wood; the leaves are glabrous, pinnate; the pinnæ oblong-lanceolate, pinkish when young. Hort. Linden.

Licuala grandis, *Illust. Horticole*, t. 412.—A noble Palm, exhibited as Pritchardia grandis, of which for a time one plant only existed in Europe, but of which M. Linden has now a stock. New Britain.

Lilium polyphyllum, *Garden*, t. 271.—A beautiful Lily, with funnel-shaped tube, and recurved segments as long as the tube. Externally the flowers are green, internally the segments are white, spotted, and barred with lilac.

Lysimachia brachystachys, *Revue Horticole*, March 1, 1881.—A hardy perennial, with lanceolate leaves and dense erect spikes of white star-like flowers. The native country is not mentioned. It is so pretty that our growers should inquire for it of M. Godefroy Lebeuf, at Argenteuil.

Masdevallia trochilus, *Floral Mag.*, t. 443.—The base of the perianth-segments is broad, of a brownish-red or purple colour, and each is prolonged into a very long narrow yellow tail. Native of New Granada. Mr. B. S. Williams.

Nepenthes bicalcarata, *Illust. Horticole*, t. 408.—See *Gard. Chron.*, vol. xiii., p. 201.

Nerine filifolia, Baker, *Bot. Mag.*, t. 6547.—A species with very narrow tufted leaves, from among which the umbellate flower-spike is upraised. The perianth consists of linear, obovate, undulate pink segments. Orange Free State. Kew.

Odontoglossum Pescatorei, Lind., *Illust. Horticole*, t. 407.

Oncidium concolor, *Revue Horticole*, January 16, 1881.

Pelargonium Gloire d'Orleans, *Revue Horticole*, February 16.—One of the Ivy-leaved section (P. lateripes), raised by M. Foucard, of Orleans. The flowers are double and of a reddish rose colour.

Polygonum sachalinense, Schmidt, *Bot. Mag.*, t. 6540.—A noble hardy Polygonum, described in *Gard. Chron.* 1870, p. 1599. The flowers are relatively inconspicuous, so that the plate does not do justice to a plant whose beauty consists in the bold outlines of its branches.

Primrose (Chinese) Rosy Queen, *Floral Mag.*, t. 444.—A Fern-leaved variety, with a close tuft of large, fringed, rosy flowers. Messrs. Sutton.

Ravenea Hildebrandtii, Bouché, *Illust. Horticole*, t. 403.—An East African tropical Palm, of 10—15 feet in height, with broad pinnate glabrous leaves, the pinnæ narrow linear, bright green. Hort. Linden.

Rosa microphylla. *Bot. Mag.*, t. 6548.—The single form of a Rose, the double variety of which is cultivated in Japan, China, and Burmah. It seems to be truly wild in Central Japan and in North China. It is a hardy shrub with few prickles, narrow, elliptic, saw-toothed, glabrous leaflets, and large pink flowers; the flower-tube, which afterwards ripens into the fruit, which is as large as a Crab Apple, is subglobose, depressed at the base, covered with bristles, and surmounted by broad leafy calyx segments. The fruit is eaten by the Japanese.

Garden Operations.

KITCHEN GARDEN.

Winter Onions.—This is an important crop in most gardens of any extent, and there can be no doubt in the minds of practical gardeners as to the sowing the seeds in the piece of ground in which the bulbs are to remain until fit for use being the best to follow. For this purpose a piece of ground, say from which Peas or Cauliflowers have been removed, should be got ready for the reception of the seed without further delay. This should be done by heavily manuring and deeply trenching ground which is well exposed on every side to the influence of the weather. After the trenching has been completed, the ground should be trodden all over and then roughly raked, and after receiving a surface dusting of soot, should be again raked (this time evenly and with a finer rake), and the drills drawn 1 foot apart and 1 inch deep. The seed should be sown somewhat thickly, and be covered and finished off in the usual way, the after treament being indentical with that given to spring-sown Onions. The young plants can be thinned out when necessary as required for salading in the autumn. They should, however, be left sufficiently thick in the rows to make allowance for mishaps to the plants during the winter months. The varieties most suitable for this sowing are the Early White Naples and The Queen (the former one of the earliest and cleanest skinned Onions in cultivation), and red, white, and Giant Rocca Tripoli; the latter three making a good succession to the two first-named varieties. The result of this sowing will fill the blank that would otherwise most probably occur between the bulbs of the preceding and current year's growth, through that of the former becoming flabby, and consequently of little value for culinary purposes, from the bulbs starting into growth in May and June. Should the weather be dry at the time of getting in the seeds, the beds should be watered frequently until the seedlings appear through the soil, when they should be kept free from weeds, and the soil between the rows stirred with the Dutch hoe—a procedure that will not

only eradicate weeds and keep the ground from cracking, but also stimulate growth in the young plants.

Ordinary Work.—The beginning of next week will be a good time to make sowings of the following seeds:—Cabbage, for early spring use; black-seeded Bath Cos and Hammersmith Hardy Green Cabbage Lettuces; and Batavian and Curled Endive to supply the autumn and early winter salading. Another sowing of Early Horn Carrot for drawing young should be made in a warm aspect; also of Parsley, of which Lee's Matchless Curled is an excellent variety, which stands the winter well. French Beans should also be sown on speculation—that is to say, trusting to the chances of a fine autumn to complete their growth. I may remark respecting seed-sowing in July and August, that the seed should be sown as soon as the ground is dug, and before the soil becomes dry. The ground should be trodden and raked, and the seed sown, covered, and watered in the ordinary way, and a mat or two placed over each bed, which will prevent the surface of the soil and the seed immediately under from being parched up by the sun's rays. Moreover, the more equable temperature and condition of the soil thus insured will be the means of hastening the vegetating of the seeds. The planting of Broccoli, Savoys, Coleworts (where not already done), Borecole, Veitch's Autumn Giant Cauliflowers (good breadths for late use), also good plantings of Lettuce and Endive, should now be made and well attended to in the way of watering. Peas, Celery, Cardoons, Radishes, and advancing crops of Cauliflowers, &c., will also need copious supplies of water at the roots to sustain them in a satisfactory condition during the present scorching weather. If late Peas are not already mulched with rotten dung or spent leaves, see that no time is lost in getting it done. Should the present state of the weather continue, ridge Cucumbers and Vegetable Marrows will require to be watered twice a week, the shoots kept stopped and thinned out, and the fruits of the former cut when ready for pickling and other purposes. The early plantings of Broccoli, Savoys, Borecoles, and Coleworts will now require to be earthed up. Advancing crops of French and Broad Beans, as also Cauliflowers, will require attention in like manner.

Mushrooms.—Beds made up out-of-doors under a north wall the first week in May last are, as they have been for some time past, yielding a beautiful supply of Mushrooms. These we cut before they have attained too large a size, as we find the medium sized ones travel and keep better during this warm weather than full grown Mushrooms. The beds, which are sloping and protected by wooden shutters, are watered as soon as the surface becomes moderately dry, and the shutters replaced. In addition to the beds out-of-doors we have one in a shed, which is open on one side, which will come into bearing between those out-of-doors and those in the Mushroom-house proper. Any spent beds which are still in the latter structure should be removed forthwith, the house be lime-washed, and woodlice, which are sure to be present in the old beds, destroyed by pouring boiling-water over them, which is the most effectual remedial measure of dealing with these troublesome pests. Horse droppings should now be got in readiness for the formation of fresh beds for the winter supply. In preparing the droppings care should be taken to see that the substance and ammonia of the same are not wasted in the process of drying. The droppings should be spread out thinly in a dry shed but not exposed to the sun, and be turned over for a few days until sufficiently dry to prevent rapid fermentation ensuing, and when the droppings have become moderately dry, not parched up, they will be in a fit state for taking into the Mushroom-house. There they should be allowed to remain, and be turned over for a few days (the droppings will undergo another fermentative process in the house), before being beaten down, which should be done as firmly as possible, and a test-stick or two put in the bed. One good sized bed will be enough at a time, and when the heat, which should be ascertained by means of a ground thermometer, has declined to 70° the spawn, which should be broken into pieces about the size of Walnuts, may be inserted under the surface of the bed 6 or 7 inches apart and a little fresh horse-droppings spread over it, and when it has been ascertained that the heat in the bed is not likely to rise above 70° or 75° it can be covered over in the usual way with maiden-soil, which should be beaten firmly together with the back of the spade, and in order to do this the soil should be sufficiently moist at the time of putting it on the bed to yield to the pressure of the spade. Maintain rather a moist atmosphere in the house, and collect droppings for successional beds. *H. W. Ward, Longford Castle Gardens, Salisbury.*

FLOWER GARDEN.

Watering and Trimming Shrubs.—The tropical heat, unaccompanied by rain, experienced in this part of the country during the last fortnight has had a woeful effect on late planted shrubs and trees, and were it not that mulching and watering have been frequently done they must have succumbed ere this. Such plants should still be kept thickly mulched and as liberally supplied with water as circumstances allow. Any plants of special moment, such as fine Hollies, or rare Conifers that must at all hazards be saved, should be syringed overhead every evening at sunset, in addition to being supplied with plenty of root moisture. Even established shrubs, such as specimen Rhododendrons, Portugal Laurels, and Kalmias, are flagging for want of moisture, but artificial watering on so large a scale is quite impossible, it will however relieve them somewhat if the seed vessels be removed and also the flowers from Portugal Laurels, at the same time cutting off irregular growths that may be likely to interfere with the symmetery of the plant.

Rockwork, Ferns, and Sub-tropical Plants.—It is the same here as with shrubs; some few—those recently planted—must have water, but the bulk of rockwork plants will bear drought with impunity, and therefore unless watering can be done regularly it will be better not to do it at all. The lessened growth of the plants consequent on the drought presents a favourable opportunity for getting rid of weeds, which are now the more easily discernible. Ferns would of course be benefited by all the water that could be given them, but in our case, and doubtless in the majority of others, they will have to take their chance; for weeding, the removing of rusty fronds and the common bracken—which is apt to overrun all else if once it gets a footing—will be all the attention that can be afforded. The depth of soil and high manuring that sub-tropical plants always receive has kept them in full growth, and tying to supports is all the assistance they require. We usually keep the flowers picked off Cannas and Castor-oil plants till they have attained a good size, and the undergrowth plants are pegged down—not too trim—and the turf edgings of beds cut once a week.

The Parterre.—At the present moment the succulent beds are the most effective, and the only labour in connection with them is the pinching of the undergrowth, which in most cases consists of Mesembryanthemums, but in some of Herniaria glabra, the beautiful green of this plant setting off to great advantage the glaucous coloured succulents, and being so near akin to them in substance of foliage is all the more appropriate. Of "carpet beds," as generally understood by that term, we have none, as al are broken by the introduction of tall plants at regular intervals, but the keep required is just as great, as all the outlines to be effective must be kept well defined, by either pegging or pinching; hence it follows that those plants that need least attention in that way—those that grow closely naturally—are the best for the purpose. Saxifragas and Sedums are among our best; would that we could get a substitute for Alternantheras, which are wonderfully bright just now, but the first cold night will start them backwards. The new golden coloured variety, which originated at Battersea Park last year, is a decided acquisition. Pelargoniums, Petunias, Verbenas, Lobelias, and Calceolarias could not possibly be more brilliant, and with respect to the two last there will be danger of their flowering to death, and to prevent this we advise that Calceolarias should only be allowed to retain half the flower stems they throw up, and the flowering points of Lobelias be slightly cut over whenever there is a redundancy of flower—this causes the plants to throw up fresh shoots from the base and prolongs the flowering season.

General Work.—Keep well supplied with water Stocks, Asters, Zinnias, Sweet Peas, and other annuals. Roses also will take all that can be given them, and the decayed flowers and Brier shoots should be kept picked of. Mowing would not be needed were it not that "bents" grow as fast in scorching weather as in wet, and must be cut with the scythe—the machine will not take them. Trim grass verges, and, as soon as rain falls, well roll the walks. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Peaches and Nectarines.—Early houses cleared of fruit should be ventilated very freely, and if the lights on the roof are movable they may be taken off altogether about the end of July or beginning of August, to give the trees the benefit of the autumn sun, rain, and dews. Keep all gross shoots stopped in close, and should we have a long spell of dry weather give the trees continual soakings of water at the roots with the hose or other means at command. Succession-houses will have come on very fast during the tropical weather we have had during the past ten days, so that they are close on the heels of each other; in fact, early varieties in the succession-house are ripe before the later sorts in the preceding house are over. Give an abundance of air, and follow up the directions already given as to exposing the fruit to the influence of sun and air to get them highly coloured, as in my estimation a colourless Peach is about the same as badly coloured Grapes as regards flavour, and as to appearance in the dessert or on the exhibition table there is no comparison. Tie down shoots in late houses, stopping any that require it. Ventilate freely, and give thorough soakings of manure-water at the roots when required. *J. Wallis, Keele Gardens.*

Melons.

The prolonged continuation of tropical weather renders a proper adjustment of rotation or succession crops to come in for use at the end of the season a matter of far greater importance at the present juncture than any of the ordinary routine duties connected with Melon culture. I have previously referred to the influence that such intense heat as we have experienced lately has upon advancing crops, so that it is only necessary for me now to repeat that there is yet time to plant for a late autumn crop, and if former instructions have been attended to a batch of plants will be in readiness for immediate planting. When I have planted a full house for a late crop I have usually aimed at securing a good succession of fruits from the same compartment, by proceeding thus:—I have made three sowings extending over a period of three weeks, the plants raised from the early sowing being used to plant a whole side of the house, while the two later were planted at short intervals upon the opposite side. Of course, I am now writing of span-roofed houses, efficiently heated. If I were dealing with a lean-to structure facing the south, which is still better for very early or very late crops, I would make two plantings, and I would also have two varieties of proved constitution, such as succeed each other in the natural order of things, which would give a still further chance of having a useful succession of fruits. These are practical hints thrown out prospectively, which may be turned to account within the next three weeks, and which may, if acted upon, produce advantageous results during the late autumn and early winter. At the present time plants are growing and fruits are swelling at an incredibly fast rate, and if sufficient moisture be given to the roots, and a growing atmosphere be maintained by damping the borders and paths several times daily both the vigour of the plants and a superior crop will be insured. Melons that are grown in pits and frames and trained over the surface of the bed should have a piece of slate placed under each fruit instead of raising them upon pots while the sun is so scorching and powerful—a leaf overhanging a fruit is sometimes a preventive against scalding, and shading must be resorted to where crops are advancing too rapidly. *W. Hinds, Canford, Dorset.*

Cucumbers.

No vegetable cultivated in British gardens is more universally esteemed than the Cucumber, which is in season every month in the year, and which is in great request by many families for cooking purposes as well as for salading during the winter months. With the thermometer varying from 80° to 90° in the shade it may seem premature to offer any suggestions upon winter culture, and especially at a time when supplies of Cucumbers are abundant enough from cold pits and frames as well as from the open air. It is, however, well known that success in the production of winter crops depends greatly upon forethought and the degree of skill that is exercised in making preparation for winter forcing. It would be well, therefore, to have any deficiencies of heating or ventilating rectified in the house or houses where winter crops are to be grown while supplies of fruits are obtainable from other sources. For example, it is a stupid arrangement to have ventilators opening from the north side of a house in winter, which prohibits the cultivator from admitting a healthy circulation of fresh air among his plants unless where the condition of the atmosphere is particularly mild and genial—a condition, by the way, which in our winter climate is rather the exception than the rule; whereas under a modern system of ventilation, properly adjusted and in good working order, a gentle current of air might be admitted from the south side sufficient to dispel lurking damp whenever a passing blink of sunshine or a mild hour or two furnished the opportunity. A stagnant atmosphere arising from want of proper means of ventilating and insufficient heating surface are the two common enemies to the successful cultivation of the Cucumber in winter. But apart altogether from this, every house where forcing operations are carried on should have an annual cleansing before a start is made for the winter, in order to sweeten and purify the atmosphere and render it healthy for the long season during which it has to remain partially closed. Where disease or insect pests have gained a footing, and the same house has to be used for winter work, it is of the very first importance to thoroughly disinfect the house by washing the walls with hot lime and painting all woodwork with two coats of paint. The house should then lie fallow for two or three weeks, or if used at all it should be occupied with plants that are not liable to disease or insect pests, and that do not require closed ventilators by night or by day. *W. Hinds, Canford, Dorset.*

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	July 26	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. British Beekeepers' Exhibition commences, at South Kensington.
Saturday,	July 30	Royal Southampton Horticultural Society's Show opens.

IT is pleasant to find the CARNATION, and its near allies, the PINK and the PICOTEE, keeping their hold on the sometimes fickle taste of the public. For variety, purity and delicacy of colour, symmetry of form, freedom of bloom, and in many cases rich fragrance, there are not many garden flowers that surpass them; and then they are in a sense everybody's flowers. We are not now speaking of the florists—the specialists—who take as much pains with the dressing of the flower as a lady's-maid does with the toilette of her mistress; but we have in view those border flowers which, without any disbudding, or use of the tweezers, or application of paper collars, are yet sufficient to yield delight to a much larger constituency than that which the florists, pure and simple, cater for. They have always been favourites from CHAUCER'S time, and we know not how long before, till now. They are the Gilloflowers of the older writers, and Mr. BRITTEN points out that SHAKESPEARE knew the difference between the Cloves and the Carnations:—

"The fairest flowers of the season
Are our Carnations and streaked Gilloflowers"

—the latter representing the flakes of the more modern florist, and which were so solidly painted by JEAN BAPTISTE and VAN HUYSUM. And these old friends of ours do not desert us when perforce we come to live in towns. Mr. DODWELL'S success, narrated in another column, is a proof that smoke is not wholly inimical to their well-being, and those who want to see for themselves what can be done with such flowers less than 2 miles from Hyde Park Corner, will do well, while they have the chance, to visit Messrs. VEITCH'S nursery at Chelsea. There, in a series of narrow oblong beds, carefully mulched at the roots, and shaded overhead by canvas awning, is a selection of these plants, vigorous in growth, with plenty of "grass," and a profusion of flower. The plants were grown in cold pits all the winter, and turned out in spring into the beds where they are now growing. We saw them after a large number had been cut for the show, but there were plenty left and more to come. Those who like to see plants growing pretty much at their own sweet will rather than when decapitated, throttled, and made to assume a mechanically symmetrical appearance on the exhibition stage, will enjoy the sight provided for them by Messrs. VEITCH, even though the individual flowers may not come up, by a long way, to the prescribed standard. We may just mention a few in each section which appeared to us to be among the best for the purposes for which they are grown. Amongst the Clove Carnations, or selfs, we are disposed to give the precedence to the old Clove; its rich colouring and sweet fragrance will ever secure it a foremost place. Crimson Pet is of the same character, brighter in colour, almost sparkling in its ruddy beauty, but deficient comparatively in fragrance. What is gained in colour is lost in fragrance. Ethiopian is deeper in colour than Crimson Pet, but otherwise similar. The White Clove is one no one would be without. Like it are the Bride and Princess Alice. Dan Godfrey is a bright orange-scarlet. Coroner is a very beautiful variety, of an orange-pink tint; Magnum Bonum is similar, but is of dwarfer habit. Auctioneer combines the attractions of a good constitution and very beautiful rosy-lilac flowers. Elysian Beauty has flowers of a lovely flesh tint.

Amongst the Picotees Lothair, a variety with a white ground and deep red edge, may be mentioned; and Obadiah is one of the best of the light edged section. Isabelle belongs here; the light violet edge to the petal is very beautiful. Amongst the yellow ground unspotted Picotees Chromatella may be cited, but it is not of so robust constitution as Miss Wheeler. Among the fancies we may specially mention Lady Armstrong, a variety with flowers of a primrose ground, marked to a very varying extent in different flowers with very narrow pink stripes.

The flakes and bizarres are perhaps not so pure or delicate in colour as their allies, but withal they are very interesting, the protean harlequin-like arrangement of their stripes creating a feeling of surprise and of wonder as to what they will do next, which adds much to the interest with which we look at them.

We have mentioned only a few of the more prominent of these garden varieties of Dianthus Caryophyllus—a plant found on the walls of our Norman fortresses and cathedrals, as it is also in Normandy: a fact which led Mr. ELLACOMBE to the inference that it was brought to this country by the Norman conquerors. They are not only very attractive to the eye, but they are specially interesting to the botanist concerned with the problems of the variation of species, sporting, reversion, and the like, while it will afford him some consolation to find that the classification adopted by the florists breaks down in all directions, as paper classifications have an awkward tendency to do.

—— MASDEVALLIA CHIMÆRA.—The plant from which our figure was taken (fig. 26) flowered in Mr. BULL'S collection. Apart from the remarkable character of the flower, this species differs from those nearest to it in its erect, not declinate, flower-stalks. The spotting of the flowers is dark brown, while the shell-like lip is rosy-pink.

—— A NEW YUCCA.—Under the name macrocarpa Dr. ENGELMANN describes a new Yucca in COULTER'S *Botanical Gazette*, vi., p. 224. It is closely allied to Y. baccata, from which it is distinguished by the absence of fibre on the leaf edges, by the smaller narrower bracts, and by the obtuse, not beaked, fruit. The trunk attains as much as 4 feet in height. Fruit cylindrical, not marked by any ridges, obtuse, pale yellow, pulpy, 4—6 inches long by 6—7 in circumference, of a pleasant, sweetish, acidulous taste. This species inhabits ravines of the Santa Rita Mountains, south of Tucson, Arizona.

—— THE GREATEST DAILY RAINFALLS.—This is the title of an article by Dr. HERMANN ZIEMER. He particularly describes an unusually heavy rainfall that occurred in 1880 at Colberg, on the south shore of the Baltic, when about 4 inches fell in six to seven hours. This is followed by a number of tables showing the greatest rainfall in twenty-four hours at various stations in Europe and other countries. There is also a table of the heaviest falls recorded for one hour, but they are very incomplete.

—— POPULAR NAMES OF CENTRANTHUS RUBER.—We are informed that Pretty Betsy is the common name for this plant in East Sussex.

—— PLANTS DESCRIBED IN EXCHANGE CATALOGUES. — Botanists and horticulturists alike will thank Dr. J. URBAN, of Berlin, for a very useful compilation which he has issued in the form of an *Additamentum ad indicem seminum horti botanici reg. Berolinensis*, 1880. The full title is, *Enumeratio specierum varietatum et formarum quæ in Catalogis seminum omnium hortorum botanicorum per annos* 1850—1879, *descriptæ aut amplius tractatæ sunt.* Only those who have practical experience of the time lost in ascertaining whether and where a given name of a cultivated plant has been published, can fully realise the value of these seventy pages of references. We wish, however, that Dr. URBAN had gone a step further, and reproduced the descriptions, because of all classes of botanical literature the *Indices Seminum* are the least satisfactorily represented in our botanical libraries. Formerly the *Linnæa* took up these descriptions, but now it is only by chance that one learns of the publication of the descriptions of many new garden plants. Dr. URBAN has arranged the references alphabetically under the natural order of the plants. We believe this little work can be purchased.

—— OLEARIA HAASTII.—At the Wolverhampton Horticultural Exhibition, July 11, Mr. LOWE, nurseryman, Wolverhampton, had in his collection of plants an example of Olearia Haastii, an exceedingly pretty shrub in full flower, which has stood out in his nursery four years unprotected, and which has proved to be perfectly hardy. This is worth knowing, as it is a very desirable plant in our shrubberies. In the same collection were young plants of Cupressus nana alba maculata, a very pretty form of C. Lawsoniana and Retinospora tetragona aurea, three very pretty Conifers. At the same exhibition a group of six tuberous Begonias, exhibited by Mr. SAMUEL DEANS, gr. to Sir RUPERT KETTLE, Wolverhampton, deserves more than a passing word of praise. They were fine well-grown specimens, such as are rarely seen in the provinces—Vesuvius and Charles Rees being especially fine.

—— THE SUMMER.—We some few months since gave expression to a wide belief that a hot dry summer was imminent. Even if thus early the season were to undergo a radical change, we have had enough of both heat and drought to justify the anticipation; for it must be remembered that even though the great heat did not manifest itself unduly early, the drought did so, for rarely has a summer began with such a long period of drought anticipating its customary features. 'Tis true that the drought has now and then been broken through, but only partially, and not with general and continuous rains. The excessive heat has brought about its own storms, whereas, but for these, we might have gone on even till now without seasonable showers or essential rains. When a dry season begins at the end of March and continues till the middle of July, it has existed long enough to make its mark in meteorological annals. If the drought, varied only by temporary thunderstorms, should continue till the autumnal equinox, we shall have then to record one of the longest dry summers on record. When, still farther, there is to add to these achievements the greatest heat known for at least twenty-five years, we have said enough to show that 1881 bids fair to make itself in one direction famous. When very wise people lecture us as to the error of our modes of living in the few days of excessive warmth that will now and then obtrude, we fain would recal that terrible time last January when the thermometer went nearly down to zero, and the blood almost froze in our veins. What a vast difference in the temperature of our eccentric clime! At one time the thermometer shows zero, and a few months later 140° in the sun. It is not merely humanity, but all kinds of vegetable life, which must exhibit in such varying ranges great powers of endurance. But whilst intense cold kills vegetation right and left, heat seldom does harm. For the time, perhaps, minor forms of vegetation suffer, but under more genial aspects its recovery is magical. Trees and shrubs of all kinds, where established, whilst they may feel the pinch of thirst, will none the less mature their wood, and for them the heat will do more to promote fruitfulness in the year that is to come than all that human ingenuity can devise.

—— GALTONIA CANDICANS. — The habit and appearance of this are so different from those of the Hyacinth that we cannot wonder that M. DECAISNE should have placed it in a new genus. The broad leaves are markedly convolute, and wrapped one round the other; the flowers are borne in a cluster at the top of a stalk destitute of leaves at the base, but above provided with several leafy bracts, which completely cover over the young flowers, and render the inflorescence at this stage a club-shaped mass or knob.

—— SEATS AND TREES FOR THE STREETS. — Lord BRABAZON has (we learn from the *Builder*) given the sum of £50 to the National Health Society for the purpose of placing seats and planting trees in suitable positions in London for the benefit of footsore pedestrians. May others follow his Lordship's example! Raised benches on which the bearers might rest their burdens would also be a boon to many.

FIG. 26.—MASDEVALLIA CHIMÆRA, NAT. SIZE; OUTLINE SKETCH OF HABIT, HALF NAT. SIZE. (SEE P. 112.)

—— Dean Stanley.—The death of this noble-minded man, whose every effort was for the good of his fellows, will be felt as a great sorrow and a greater loss, even by those who dissented from his views. It is sad to think of the probability that he met with his death when engaged—characteristically engaged—in promoting the happiness of the poor of Westminster at a meeting of the Society for the Promotion of Window Gardening in Westminster.

—— Figures and Fancies.—There is a peculiarity (says the *Builder*) about the date of the present year of grace which may afford materials for those who are seeking for omens and portents in these terrible times, and which, so far as we know, has not before been pointed out. The date 1881 reads the same either from left to right or from right to left, as it does also if read upside down. Some thousands of years must elapse before it will be possible to say the same thing again—not, indeed, before the year of our Lord 8008. Eighty years hence, namely in 1961, it will read the same upside down, but not, as in the present case, from left to right and right to left. The figures of the current year, 1881, are divisible by 9, giving 209 as result, and added together the four figures make 18, also divisible by 9, or making 9 when added together.

—— Flowers in Season.—Mr. Ware sends us specimens of the old double White Lily, in which there is no flower properly speaking, but merely a branching panicle, each branch of which is covered with a collection of white leafy bracts. This is a very old inhabitant of our gardens, and when well developed is not without beauty. From the same source comes a fine specimen of Plantago major, in which the inflorescence is represented by a branched panicle, the ultimate branchlets of which are covered with minute green bracts. This, like the foregoing, is a very old inhabitant of our gardens.—From Mr. Tyerman comes a portion of the spike of Puya Whytei, a remarkable and handsome Bromeliad, with long, narrow, grey, channelled, recurved leaves, sharply and strongly saw-toothed, and with a tall branching panicle (4 feet high) of greenish blue flowers, each about 2 inches long; the anthers are bright orange, forming an extraordinary contrast to the dark sea-green petals. The plant is very scarce, but as it stood out unprotected against a south wall in Cornwall last year, we may hope that it will become more common.—Cladrastis amurensis: This is probably better known under the name of Maackia amurensis. It is native of the Amoor River, and, like so many plant from that region, is perfectly hardy in this coun ry. In its native country it attains a height of 30 or 40 feet, and has bark which peels off in flakes like that of our common Birch. The flowers are yellowish-green, and are much more densely packed, besides being smaller in size, and with shorter pedicels than those of its North American congener, C. tinctoria; the foliage, too, is smaller, and a darker green. Specimens are now in bloom in the Kew Arboretum. The species was figured recently in the *Botanical Magazine*, and Sir Joseph Hooker, finding that Maackia was not distinct from Cladrastis, sunk it under that genus. By the way, Cladrastis tinctoria (Virgilia lutea) has flowered more freely at Kew this season that it has for many years past, and the same may be said of Robinia viscosa, the Honey Locust, Gleditschia triacanthos, and many other North American trees. —Lilium pardalinum: Mr. Ware sends us flowers of this species, singularly malformed. In some cases a check to growth has taken place, so that the flower segments are green instead of being coloured, while some of the stamens are only about half their proper length. In other cases the flower-segments were provided at their base with a series of crests, ridges, keels, fringes, and warts, separately or mixed, all being outgrowths (enations) from the inner surface of the segments, and calling to mind the fringes on the flower-segments of some Irises, and still more the outgrowths from the lip of some Oncids or Odontoglots.

—— Petunias.—No florist can be unaware of the great improvement that has been effected in the Petunia within comparatively few years. This fact was strongly impressed upon us during a recent visit to the Perry Hill Nurseries of Messrs. J. Carter & Co. Very many thousands of seedlings are there cultivated in pots and fertilised by hand. A goodly number of plants, from which no seed will be saved, have been weeded out from among the intended seed bearers, and there is scarcely one of these that would not have been looked upon as a first-rate flower a few years ago. Size of flower, colouring, substance, &c., are now looked upon as essential and a distinct strain seems to have been derived in which the good points just mentioned have been attained, accompanied by a beautiful fringing to the corolla quite as distinct as in the finest fringed strains of the Chinese Primrose.

—— Storing Electrical Power. — Writing on the subject of the storage of electrical power as effected by the Faure battery, which can be charged with electricity and carried from place to place, and utilised when and where required, Sir William Thomson says:—"The largest useful application waiting just now for the Faure battery—and it is to be hoped that the very minimum of time will be allowed to pass till the battery is supplied for this application—is to do for the electric light what a water-cistern in a house does for an inconstant water supply. A little battery of seven of the boxes suffices to give incandescence in Swan or Edison lights to the extent of 100 candles for six hours, without any perceptible diminution of brilliancy. Thus, instead of needing a gas-engine or steam-engine to be kept at work as long as the light is wanted, with the liability of the light failing at any moment through the slipping of a belt—an accident of too frequent occurrence—or any other breakdown or stoppage of the machinery, and instead of the wasteful inactivity during the hours of day or night when the light is not required, the engine may be kept going all day and stopped at night, or it may be kept going day and night, which will undoubtedly be the most economical plan when the electric light comes into general enough use. The Faure accumulator, always kept charged from the engine by the house-supply wire, with a proper automatic stop to check the supply when the accumulator is full, will be always ready at any hour of the day or night to give whatever light is required. Precisely the same advantages in respect of force will be gained by the accumulator when the electric town supply is, as it surely will be before many years pass, regularly used for turning lathes and other machinery in workshops and sewing-machines in private houses." It will be seen from this that one great obstacle to the general use of the electric light for forcing purposes is in a fair way of being removed. Now that we have at the Crystal Palace both a school of engineering and a school of horticulture, it is to be hoped that in the coming winter so excellent an opportunity of testing comparatively the effects of the electric light will not be lost. Hitherto the experiments that have been made have not been sufficiently comparative to command universal assent.

—— Thladiantha dubia. — This is a hardy perennial Chinese Cucurbit, which is easily grown and highly ornamental. It has heart-shaped leaves and bell-shaped golden-yellow blossoms, which are freely produced. At Kew, on one of the walls, it has withstood the past winter, although the ground above its thick, fleshy, underground tubers was not covered in any way. For covering arbours or walls it is well worth growing.

—— West Indian Fruits in the United States.—Recent advices from Jamaica state that information received there from America proves how seriously fruit shipped from Jamaica deteriorates on its voyage to New York. Of Oranges shipped fully one-third perished, and on Bananas the loss amounted to about 21 per cent. Pine-apples were destroyed to the extent of 19 per cent., and Cocoa-nuts 8 per cent. The only remedy for this excessive loss is said to be to export only the finest fruit, and to select a proper stage of maturity for picking.

—— Products of Mogador.—It is stated in a recent report that the supplies of Esparto-grass continue to be good, and the exportation was constant during the whole of the past year, 23,777 quintals being exported against 8702 in the previous year. Prices ruled about as usual, and the market in England was fairly remunerative. England and France take by far the greater proportion of the yield of this useful material for paper-making, whilst in Portugal, to which country 1267 bales were shipped, it is used for making ropes, baskets, and other articles. Of gums a fair total quantity was exported, but prices in Mogador were high compared with those of other years. Of the varieties known as gum-arabic, white and brown, Euphorbium (Euphorbia resinifera), and Amrad (?), the quantities were small; but of Sandarac (Callitris quadrivalvis) the supply was good, at a high price, there being a large number of buyers, and prices in England and France ruling high. The principal fruits sold in the Mogador markets are Oranges, Limes, Lemons, Citrons, Dates, Figs, Apricots, Peaches, Pears, Plums, Apples, Melons of several varieties, Grapes, Prickly Pears, Almonds, Pomegranates, and Walnuts. The majority of these fruits come from some little distance, but transport, and consequently market prices, are cheap. The only fruits which are articles of export are Almonds, Dates, and Walnuts. Vegetables are largely grown in the irrigated market gardens just outside the town walls, and they comprise the majority of English varieties, including green Peas (in season in February), Lettuce, Cauliflower, and other plants of which the seed has originally been imported from Europe; also sweet Potatos, Pumpkins, Kohl Rabi, Gourds, &c.

—— Aberdeenshire Agricultural Association.—We have before us the fifth annual report of this Association, in which the results of the experiments made under its sanction in Aberdeenshire, as well as in two English counties, on Turnips, on grasses, and on Oats, are detailed, with the result, as before, that phosphates of lime decidedly increase the Turnip crop, but that farmers need not trouble themselves to know whether the phosphates are of animal or of mineral origin; that soluble phosphate is not so much superior to insoluble phosphate as supposed; and that the prudence of using nitrogen is rendered doubtful, unless it is followed yearly by judicious application of the mineral constituents of plants. This latter inference, at any rate, is consistent with what we know in other cases, as also are the statements relating to the relative uselessness of the monster roots with which our seedsmen still astonish the gazers at our shows. The weight in these cases is mainly due to increased relative quantities of water, which might be desirable in a Melon or a Cucumber, but which is not required when the product is intended for more substantial use. With reference to the clubbing of Turnips, or that form of it associated with the presence of a peculiar fungus, Mr. Jamieson, who conducts the experiments, confirms those of Mr. A. S. Wilson, and tells us that farmers have discovered two natural remedies—(1), Removal of conditions favourable to fungoid growth; (2), Extermination of the fungus by withdrawal of its natural food, *i.e.*, by discontinuing the cultivation of Turnips except after long intervals. The fungus was in all cases worst where sulphur, in the form of sulphides or sulphates, was used in the manure. The manures stimulate the plant to precocious growth, and induce consequent weakness, in consequence of which the plants become a ready prey to the fungus. As regards the storing of Turnips, the best results were obtained by pitting them after removing the leaves and roots.

—— Œnothera Lamarckiana.—What a glorious plant this is. It forms a pyramid 3 to 4 feet in height, regularly branched from the base with spreading branches, and an abundance of very large primrose-yellow flowers. It is a perfectly hardy biennial or perennial. Ours is growing in a Rose bed on strong stiff soil, where it came up accidentally from seed; and even among the Roses it holds its own as a magnificent plant.

—— Rare Plants in Flower.—The following new and extremely rare plants are now in flower at Mr. William Bull's establishment at Chelsea:—Cienkowskya Kirkii, Disa grandiflora Barrellii, Anthurium Andreanum, Blandfordia flava, Lilium cruentum, Odontoglossum vexillarium Chelsoni, double-flowered Bouvardia "Alfred Neuner," Monolophus secundus.

—— Campanula Vidali.—This is a beautiful species, with thick white waxy drooping blossoms, which remain longer in good condition than do those of most bell flowers; on looking inside the flower a bright orange ring is seen surrounding the disc at the base. It has not only its beauty to recommend it, but a considerable amount of interest. In his interesting lecture on "Insular Floras," delivered before

the British Association at Nottingham some sixteen years ago, Sir Joseph Hooker, in treating of the Azores Islands, thus speaks of the plant now under notice :—"As in the other groups there is a considerable difference between the floras of the separate islets; and one of the most conspicuous and beautiful plants in the Azores, the Campanula Vidali, is (so far as is known) absolutely confined to a single sea-girt rock off the east coast of Flores. This plant was gathered but once, by Captain Vidal, whose name it bears, during his survey of the island some twenty years ago. Captain Vidal's survey was most fortunately accompanied by a scientific botanist, Mr. H. C. Watson, who both named this remarkable plant, and sent seeds of it to Kew. From these seeds the plant has been propagated, and there are now probably a thousand-fold more plants of it in the greenhouses of England than exist in its native locality!" Good specimens are now blooming in the conservatory and elsewhere at Kew.

—— Euphorbia spinosa. — This interesting species is unique among the hardy cultivated ones by its suffruticose habit and hard woody character. It is extremely rare, and after much inquiry the only specimen heard of is one in the Cambridge Botanic Garden. The principal stems are procumbent, and produce dense branches of stiff and slender twigs, which bear small lanceolate leaves, and terminate in a single head of flowers. The involucre, when young, is pale yellow, turning with age to a reddish colour. It is because of its dense twiggy habit and tiny leaves that this plant is striking among its congeners. Few plants are more suitable for growing over masses of rock. It is a native of the South of Europe.

—— Old London Inside Out.—One after another the old landmarks of London disappear, to make room for some new street or building more in keeping with the ideas and requirements of the present day. At one time it is a Northumberland House that is in the way, but after awhile down it comes; at another it is one of the old historical blocks that in its day has been tenanted by one or other of the number whose names are associated with the records of bygone times. Nor is it possible to arrest this work of demolition, however much we may cling to the memory of the past and revere the old walls that have kept sentry for generations whilst the huge town has gone on extending until its innermost arteries are gorged with traffic to the bursting point. With a view to escape this, or to acquire a site better suited to the altered conditions of the times, down some of these old buildings must keep coming. Next on the list for removal are St. Paul's Schools, which, as those at all acquainted with the City cannot fail to know, stand near the Cathedral, occupying a considerable extent of ground eastward from it. These schools, founded in 1510, are now about to be removed; the trustees have bought a piece of land some 16 acres in extent at West Kensington, where already the excavations are being got out for the very large buildings necessary to accommodate some 1400 boys with the masters and tutors. Messrs. Osborn & Sons, of Fulham, have the contract for the execution of the groundwork and planting, which are to be carried out under the direction of Mr. Baines.

—— Ligustrum sinense.—This is probably the best of all the Privets for general shrubbery work, and it is, moreover, quite as hardy as L. vulgare. In the collection and the mixed shrubberies at Kew it has lately been one sheet of bloom.

—— Merv.—What tantalising people Special Correspondents are! In the *Daily News* of Friday and Saturday last are contained some very remarkable letters from their intrepid Special Correspondent—letters so remarkable, that we do but echo the general hope that in a short time he may be set at liberty by his Turcoman captors, and be able to give us fuller details of this all but unknown region. We extract a few paragraphs as specially interesting to our readers: —"The plain is not sandy. It is an argillaceous expanse, the dust from which imitates the sandhills of western shores. Silicious it is not. Wherever the wind gives rest all kinds of grasses and leguminous plants grow luxuriantly. The sandhills of this so-called desert are but the dustheaps of a much-frequented high road in Europe. An hour's ride from the river's marge we halted to make tea. We were among some low hills of drifted marl dust on whose slopes was an abundant spring vegetation. There was one Lily with very open corolla and flame-coloured petals that grew in abundance. Away eastward in the plain we could see whole broods of wild boars feeding. The plain was a monotonous level of ground, perfectly capable of cultivation, and overgrown, despite the absence of regular water supply, with a shrub whose gnarled stems were often 4 inches across, and whose withered remains strewed the plain for many a mile with fuel for a whole *corps d'armée*. The plain over which I rode was certainly a desert, as far as the absence of water or cultivation went; but the soil was similar to that which bears plentiful crops west of the Tejend River, and to the eastward, wherever irrigation is possible. The further we advanced the more luxuriant grew the growth of the shrub which I have mentioned, and whose name I have since learned is *odjar*. . . . League after league of plain was crossed without any new feature becoming apparent. It was towards sunset that we reached a portion of the ground where great heaps of drifted marl dust gave it quite an accidented appearance. The *odjar* bushes, too, increased in size, and on the slope of the undulations was the freshest-looking vegetation I had seen since leaving the Tejend. Why the marl dust should have accumulated in heaps at this particular point it is hard to say. The Turcomans style this part of the ground the 'sandy desert,' though it is the most fruitful of the entire expanse up to the point where the influence of the Murgab begins to make itself felt. As evening wore on we entered what was quite a forest growth of *odjar*, which here attained the height of from 10 to 15 feet, the trunks often of very considerable proportions. At times the tract followed a hollow way which at some former period may have been a branch of the Margab, and the *odjar*, growing along the summit of the bank on either side, quite shut out the faint evening light, and left us in utter darkness." Nearing Merv the correspondent describes: "On every side an immense plain, here and there broken by extensive plantations of trees, and hundreds of groups of beehive-shaped huts, or *aladjaks*, each group consisting of from fifty to a couple of hundred habitations. They were generally from 1 mile to 2 miles apart. The ground was everywhere well tilled, corn-fields and immense Melon-beds alternating. Proceeding in a north-east direction we were incessantly floundering in deep irrigation trenches and flooded grounds."

—— Mulgedium macrophyllum. — A noble herbaceous plant with large cordate root-leaves, and stout flower-stems, about 4 feet in height, bearing numbers of large Chicory-like pink-purple flower-heads. Now in flower at Kew, together with our native Chicory, Cichorium intybus, than which there are few more handsome perennials. Those who have only seen the latter plant on the chalky downs and along the river banks, &c., beautiful as it is there, can form but a poor idea of the same plant where its existence is rendered easier; it grows to double the size, the flower-heads become larger, and are more freely produced.

—— The Mistleto and the Frost.—M. Nouel, as cited in the *Bulletin* of the Botanical Society of France, says that the Mistleto was not killed (except by the death of the plant on which it was growing) by a temperature of —30° C. (54° of frost). M. Nouel enquires whether this immunity may not have been one reason for the sacred character with which it was invested in olden times.

—— New Abutilon.—Mr. George, of Putney Heath, has secured a new break amongst the Abutilons by crossing one of his free-flowering seedlings of the ordinary type with the Abutilon Sellowianum marmoratum. The result is a dwarfish stout-habited plant, with the large three-lobed acuminate leaves of the male parent, and its peculiar flowering bunches —quite distinct from the inflorescence of the ordinary Abutilons. Instead of this it bears short axillary branches, terminated by a cluster of about a dozen flowers, which in this case are of the dull orange-red familiar in some of the older varieties. These flowering shoots, after developing the bunch of flowers at their apex, die back to the main stem. The seedling, now about a foot high, has produced four of these flowering branches, and as the flowers are of good size and thus freely produced, it may be anticipated that a useful breed of conservatory plants will be the result. Mr. George is now trying to improve the colour by crossing with some of his high-coloured varieties.

—— Antwerp Horticultural Congress.—On August 14 and 15 a Congress will be held at Antwerp to consider the following points :—

1. Transmission of Plants and the Phylloxera Question : Berne Convention.
2. Carriage of Plants by Rail; Classification of Plants; Measurement (*cubage*) of Packages; Heating of Vans.
3. Horticultural Exhibitions.
4. Labelling of Plants; Labels.
5. Heating of Stoves.

The Secretary is M. H. De Bosschere, 327, Longue Rue d'Argile, Antwerp.

—— Asclepias Cornuti.—A hardy North American perennial with stout stems 5 feet high, bearing roundish dark green leaves and large axillary umbels of greenish-purple flowers. The showiest of the hardy Asclepiads now in bloom in the Kew collection.

—— The Frost in Central France.—The destruction of last winter seems to have been beyond anything we can imagine. Apples, Pears, Roses, Walnuts, Hollies, Ivies, Boxes, Brooms, Ruscus aculeatus, the common Bramble, Clematis vitalba, the common Elder, are all reckoned among the slain. M. Nouel, who records these facts, shows that the Daphne laureola was killed at —7° F., the Holly at —13° F., the Box at —18° F., the Walnut at —18° F.

—— Publications Received.—*Ready Remedies in Medical and Surgical Emergencies.* By an Edinburgh Practitioner (Edmonston & Co.). — *The Forcing Garden.* By Samuel Wood (Crosby Lockwood & Co.) — *Transactions of the Epping Forest and County of Essex Naturalists' Field Club.*

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 18, issued by the Meteorological Office, London :—The weather has been very fine and hot over England, but cloudy and unsettled in Ireland and Scotland, especially in the extreme western and northern parts of those countries. A slight thunderstorm occurred in the south-west of England on the evening of the 18th. The temperature has been above the mean in all the Wheat producing districts, but a little below it in "Scotland, W.," and "England, N.W.," while in the other grazing districts it has been about the average. In many parts of England the temperature for the week has been as much as 7° higher than the mean. The maxima increased generally on the 15th, when the thermometer rose above 90° at several English stations, and reached 95° in London. The nights have, however, been comparatively cool, and on those of the 16th and 17th the minima over England were below 50°. Rainfall has been less than the mean in all districts, and in many parts of England the week has been absolutely dry. Bright sunshine has been very prevalent over England, except in the north-western district, but much less general in Ireland and Scotland. In "England, E." the amount has exceeded 70 per cent. of the possible duration. Depressions observed :—During the greater part of the week pressure has been relatively high over France and the South of England, while a series of depressions has passed in a north-easterly direction outside our western and northern coasts. The winds have, therefore, been generally from the south-westward, light in the east and south, but occasionally strong at the more exposed western and northern stations. On the 16th, in the rear of one of these disturbances, pressure for a time became highest to the westward of Ireland, and northerly breezes prevailed temporarily.

—— Gardening Appointments. — We learn that Mr. Knight, who for about twelve years has had charge of the gardens at Floors, under the late and present Dukes of Roxburgh, and whose anticipated removal from thence we noticed some weeks since, has received the appointment of Head Gardener and Bailiff to the Right Hon. W. H. Smith, M.P. for Westminster, at that gentleman's fine seat at Henley-on-Thames.—Mr. Hardeman, for five years Foreman to Mr. Rabone, at Alton Towers, has been appointed Gardener to W. J. Leigh, Esq., M.P., Lyme Park, Disley, Stockport, Cheshire.

ARTIFICIAL MANURES.

[In continuation of the series of analyses of manures that we have from time to time published, we now give that of "Florein," which is a well compounded useful manure. We must refer to our article at p. 144, vol. xv., to show the characteristics of a good manure. Eds.]

"Composition of a Sample of 'Florein' (Morris & Griffin).

Moisture	5.61
Ammonia	10.76
Potash	7.77
Chloride of sodium	11.46
Soluble phosphoric acid	5 70
Insoluble phosphoric acid	5.92
Lime	8.12
Nitric acid	8 01
Sulphuric acid, &c.	36 04
Silica	.61
	100 00

BERNARD DYER, F.C.S., F.I.C."

"Composition of a Sample of Weed Destroyer (Morris & Griffin.)

Moisture	.88
*Chloride of ammonia	37.17
Phosphate of lime	30 89
Carbonate of lime	4 06
Oxide of iron, alumina	9 39
Alkaline salts	.75
Siliceous matter	16 86
	100.00
*Containing ammonia	11 81

BERNARD DYER, F.C.S., F.I.C."

[This must act rather as a good manure, favouring the growth of grass and other desirable plants, and proportionately unfavourable to weeds.]

NOTES ON ROSES.

Tea-scented Roses.—Every one who is at all conversant with the character of our exhibitions for some years past, must have noticed the increased and increasing numbers of Roses of this beautiful class. Do not be afraid, good reader—I am not about to ride off in an ecstatic frenzy upon their value and beauty; no Amadis of Gaul, descanting of the beauty of his fair Elisena—no, not even Don Quixote himself, when describing his Dulcinea, has used more extravagant language, or written more sentimental nonsense, than have some exceptional lovers of the Tea Rose. But there is without doubt an elegance and refinement, and a delicacy of colouring about them which is possessed by no other class of Roses; they are essentially the ladies of the court of the queen of flowers, their delicate fragrance being a fitting pendant to the colour. Then again, their permanence of bloom is a great feature in their favour: a bloom of the most exquisite hybrid perpetual a few hours after it has been cut has lost its beauty, the colour has flown, and it is only a shadow of its former self; not so the Tea Rose; at least, with many, indeed, most of them, there is such thickness of petal, such fineness of texture, that they retain their beauty for days: then the colours, being of a character less affected by light, are more enduring, and I have known instances where individual blooms have done duty at two shows some days apart.

These characters are not shared in even by their closely allied neighbours, the Noisettes. Maréchal Niel, that grand yellow Rose and universal favourite, cannot be said to be a refined Rose; while Gloire de Dijon, grand old flower as it is, or Solfaterre, or Madame Berard, cannot claim the same distinction. Several causes have, I think, contributed to the great increase of the growth, and consequently of the exhibition, of the Tea Rose, but the general reason is, without contradiction, the introduction of the seedling Brier, by Mr. George Prince of Oxford. I say, the introduction, because although it may have been used by others, and especially by the French growers, for the same purpose, yet he was the first who boldly, and as some thought rashly, entered upon it. The Brier had ever been considered the most appropriate stock on which to work them. The Manetti did not answer with a good many varieties, its vigour was too great; and many a novice who had watched the vigorous growth of his plants and wondered why they did not bloom has been disagreeably disenchanted in finding that his poor Tea Rose had been smothered by its foster mother.

Now the Brier seems to possess just the vigour that is required, and the seedling Brier possesses this advantage over the old form of growing on the standard or half-standard—that it can be budded low down, and consequently protected, whereas in such winters as the two last those on the wild Dog succumbed to the frost. The tens of thousands of this class sold by Mr. Prince and the demand made on other growers for sale to supply them show how much the Rose-growing public has appreciated this step. Another evidence of this increase of growth is seen in the fact that it is not now uncommon to see stands of twenty-four, eighteen, and twelve Teas, whereas formerly twelves and sixes used to be the utmost that was attempted.

At the same time some of the old ideas on the subject of their culture (owing, indeed, in a good measure to the new method of growing on the seedling Brier) have been abandoned. We are told that they would not bear the knife well, and therefore in pruning all were so pruned simply to shorten the tips. Now this is all altered; it is generally admitted now that they will bear the knife as well as the hybrid perpetuals, and may be cut quite as hard. The last two winters have indeed taught us many a lesson, and this has been one of them. Tea Roses have been killed down to the snow line or the mulching line, and all the frozen or half-frozen wood had to be cut away, but they almost immediately started into fresh growth, and although a little later this was no evil, as they often came in so early as to have their blooms ripened. With this, then, all necessity for putting Fern amongst the branches for protection has ceased, and I would, even if the winter were mild, be inclined to cut them as hard back as I would a Rose of any other class. Probably in the northern parts of our island, and in the Midland Counties, exception might be taken to these statements, for I believe growers have been discouraged from making the attempt, owing to their failure under the old conditions; but I am none the less inclined to think they too, if they were to grow on the seedling Brier, and mulch heavily, say to the depth of 6 or 8 inches, would find that they could manage their cultivation without their having recourse to glass or taking up the plants and laying them in by the heels.

Into the very vexed question of hybrid Teas I must not at present enter; the present year's exhibitions will be conclusive as to their value in this respect, and also as to garden Roses; the French have sent us some over, and Mr. Bennett has added largely to the list. They are now both on their trial, and the result a few weeks will determine. But I think that few persons will view with regret the rule of the National Rose Society, which excludes them from being shown amongst the pure bred Teas and Noisettes; the introduction of foreign blood has not improved them in those two points, for which I contend the Tea Rose is pre-eminent—delicacy of colouring and refinement of flower. *Wild Rose.*

ANTHURIUM KALBREYERI.

With this we give a figure of a leaf of this very handsome climbing Aroid lately exhibited by Messrs. Veitch at the Royal Horticultural Society (fig. 27). The leaf-stalk is cylindric, thickened at the top, where it bears in palmate fashion nine obovate oblong acuminate sinuate leaflets, thick in substance, glabrous and rich deep green. The distal leaflets—those furthest from the stem—are twice the length of those next the axis. It is, we believe, from New Granada, and is a remarkably handsome stove foliage plants."

BEMERTON RECTORY.

Bemerton is a little hamlet near Salisbury—a town made memorable by the possession of one of the largest and most beautiful cathedrals in England, or the world. The subject of this notice is a very interesting spot from the fact that it was once not only the ministerial but also the poetical "temple" of George Herbert, the priest and poet, of the ancient race of Pembroke, who was presented to the living of Bemerton by King Charles I., and inducted to the living April 26, 1630. He was, if I may be allowed to digress a little, only rector of Bemerton two years, but his memory has ever been cherished, and that and his works, combined with the piety and life of Christian virtues, remain as one of the possessions of our Church. He restored the little Saxon church in which he is buried, which is 45 feet long by 18 feet wide, and only divided from the rectory-house by a narrow road, and rebuilt a great portion of the parsonage, which had fallen into ruins. In the hall he placed the following inscription, but which the Rev. Wellesley Pole Pigott, present Rector, in enlarging the rectory in 1845, caused to be put over the entrance door, so that all who pass can read it:—

"If thou chance for to find
A new house to thy mind,
And built without cost;
Be good to the poor,
As God gives thee store,
And then my labour's not lost."

The register of George Herbert's burial is thus noted in the register-book of the parish:—"Mr. George Herbert, Esq., Parson of Fugglestone and Bemerton, was buried 3 day of May, 1632." Isaak Walton, who used often to fish in the Nadder, which runs through the grounds of Bemberton Rectory, has written the best history of George Herbert's life. He was buried beneath the chancel of his church, and requested that the choristers from Salisbury Cathedral might attend to chant the service for the burial of the dead. No monument was erected to him, no tablet to mark the spot of his burial; and in the year 1860 a new and handsome church (much wanted owing to the increase of the population) was erected by subscription, the chief subscribers and movers being the late Lord Herbert of Lea, Lady Herbert, and the Rev. W. P. Pigott, when the present church, dedicated to St. John the Evangelist, was consecrated, December 13, 1860. Many beautiful special gifts were given from admirers of the saintly George Herbert, and a brass plate, stating that the church was built to his memory, was placed at the west end of the nave, with this inscription, which was written by the late Lord Lyttleton:—

"To God most high, in memory of His servant, George Herbert, A.M., of the ancient Earls of Pembroke, a renowned Poet, a chaste Priest, a good Citizen, formerly Public Orator in the University of Cambridge, and Rector of this Parish, this Church, as a monument of so excellent a man, was erected by subscription, A.D. 1861"

—and stands a noble monument to George Herbert. Some time later George Herbert's own chapel (referred to above), which had fallen into decay, was restored to what it is supposed to have been in his time. The rectory-house stands on a grass plot, which slopes gently to the River Nadder, and from whence good views of Salisbury Cathedral and surrounding neighbourhood are obtained. The rectory, which is a commodious house, is built of red brick, stone, and flints, and the roof is covered with red tiles—materials quite in keeping with those used for building purposes in the fifteenth and sixteenth centuries. On the lawn in front of the rectory, which is flanked on either side by banks of shrubs and trees, is a nice, well-grown specimen of Wellingtonia gigantea, furnished to the ground with branches having foliage of a rich dark green. This tree, which at 3 feet from the ground measures 6½ feet in circumference and 40 feet high, was, I was informed by Mr. Edward Lamphard, Mr. Pigott's persevering gardener, turned out of a 6-inch pot twenty-four years ago. There is also a nice specimen of the evergreen Oak (Quercus Ilex), together with Abies nobilis (which has a nice crop of cones)—Thuyopsis dolabrata, &c., growing on the lawn to the left descending to the river. The latter in approaching it seems to complete the extent of the grounds; but, happily, this is not so, for turning immediately to the right there is a well-kept gravel walk, with a herbaceous border gay with Liliums, Delphiniums, &c., with a narrow strip of greensward and the river on the left, whilst immediately in front the view that meets the eye is a charming one—the flower-garden of which only a glimpse is then obtained. This border, at a point where a particularly good specimen of Portugal Laurel overshadows the river terminates, and thence the flower-garden, which takes a somewhat sudden though graceful sweep to the right, is entered. It is up-hill and sloping to the river, and protected from north and east winds by a bank of the Thuyas, Juniperus, Portugal Laurels, &c., with a variety of ornamental shrubs in front; the whole being irregularly planted, and therefore devoid of that formality which too often characterises the manner in which planting in such a position, and for such a purpose is executed. Under this bank and the shade of spreading trees, and at the upper end of

the garden, is situate a rustic summer-house—a real poet's retreat—which commands a good view of the Nadder which,

"So calm, so tranquil, so serene,
Gives to the eye a fairer scene."

The beds in the flower garden, including the carpet-beds, are tastefully laid out; the designs, though simple, are well executed, and defined by the judicious arrangements of the colours, and were at the time of my visit (July 12), ablaze with flower and foliage. Especially attractive were two star-shaped beds—one having the centre filled with Clematis Jackmanni, and edged with variegated leaved (Flower of Spring) Pelargonium, and the points made out with Pelargonium Ferdinand de Lesseps, and the other had the centre filled with tuberous-rooted Begonias, and edged with Polemonium cœruleum variegatum, which showed up and at the same time toned down the somewhat glaring colours of the Begonias into a softness pleasing to the eye. A circular bed filled with white (Madame Vaucher) Pelargoniums and edged with Tropæolum Vesuvius, together with the numerous other beds which surrounded it, had a very telling effect. I must not omit to mention a kind of serpentine-shaped border (6 feet wide), to the right, on entering the flower garden, and which will have a good effect later on, and is planted at the back with such plants as Zea japonica variegata, Ricinus, of sorts, Abutilons, &c., and edged in front and ends with Echeveria, with dot plants of Farfugium grande, Echeveria pulverulenta, Euonymus radicans variegata, &c., with a carpet of Mignonette, and a few specimen Yuccas in front, which, together with a couple of beds of Amaranthus melancholicus rubra, of the most luxuriant growth and finely coloured, and a couple of large cross-handled baskets filled with suitable flowers, and placed near the water's edge, which—

"All with a row of rich standard Roses crowned,"

completes as pretty a floral picture as any artist need wish to paint.

It is worthy of note, that a tuberous-rooted Begonia (Emperor), which was planted in a border in front of one of the houses last summer and not removed during the winter is now one mass of flowers.

The glass departments are limited to two vineries, one stove, and the usual pits and frames. In the stove are a miscellaneous collection of plants, with some of which, "when the local shows were in existence," Mr. Lamphard was to be found well to the front. These include Alocasia metallica, Cyperus alternifolius variegatus (two good plants), Anthurium Scherzerianum, a good variety; Crotons, Dracæna regina, a well-coloured plant; Platycerium alcicorne (Elk's-horn Fern), 4 feet through; Rondeletia speciosa, Davallia Mooreana, and other Ferns, and a good plant of Pancratium, just going out of flower; also a few nice pieces of Orchids. In the vineries are some useful bunches of Grapes, with Peaches and Tomatos on the back wall; and in the one adjoining the Rectory is a good show of Pelargoniums. In the Rectory, where a lot of pot and cut flowers are used for furnishing, I noticed a few well-flowered pots of Cypripedium barbatum. In pits in front of the stove are Melons and Cucumbers, and in front of them four pots of Lilium auratum, studded with flower-buds. The kitchen garden is in proportion to the other departments, and, like them, in good condition, and the keep of the place in general reflects not a little credit on Mr. Lamphard.

In conclusion, I may add that Bemerton has had but few Rectors since George Herbert. Two of its later incumbents continued to maintain its literary reputation. John Norris is generally quoted as "Norris of Bemerton," and William Coxe, the historian, had the living immediately preceding the present Rector, who has made many alterations and improvements in the garden, but guards with great care the Medlar tree planted by George Herbert, which still produces good crops of fruit (the present year not excepted), and is encased by zinc, to prevent the trunks (three, which shoot from the base of the old trunk, which has vanished) from decay. There is also a Fig tree said to have been planted by him also, but which has suffered much from last winter's severity. *Tourist.*

Fig. 27.—Anthurium Kalbreyeri: leaf 2 feet 6 inches across. (see p. 116.)

STRAW PLAITING IN TUSCANY.

It is interesting to know that the straw plaiting trade, which has so long been at a low ebb owing to the general use amongst ladies of woven fabrics for head-gear instead of plaited straw bonnets and hats, has of late very much increased.

In a recent number of the *Journal of the Society of Arts* is a very interesting article on the cultivation of Wheat straw and the manufacture of straw goods in Tuscany. For centuries we are reminded that the manufacture of straw hats has been a special branch of trade in Tuscany, and that Signa, one of the most industrious of Tuscan towns, was for a long time the centre of the trade, which, however, for a time was very small, and did not develope itself until the seventeenth century, when considerable attention was given to it, and large quantities of straw plait were made both for use in Tuscany and also for exportation. Three varieties of Wheat are cultivated for plaiting purposes—the first, called "Pontederas semone," produces the best straw for hats; the second, "Marzuola," is of a common quality; and the third, "Santa Fiori," is used only for pedals and braids. The first-named form is grown in an arid soil, while the other two require a more fertile soil. The seed is sown in November and December, according to the season, the object being to have the grain well up before the heavy frosts commence. The sowing is in the proportion of about 12½ bushels to the acre. It is sown as thickly as possible, in order that

the growth of the plant may be so impoverished as to produce a thin stalk at the same time having towards the end from the last joint the lightest and longest straw. Side hills, with a gravelly soil, and high meadow lands that have had a surface ploughing and rough harrowing, are specially adapted to the straw culture, low swampy grounds being generally avoided, as dampness when the stalk is well grown renders the straw discoloured and coarse.

The ground is ploughed and dug up in June, and left in this condition till November, when the soil is again turned up, and then it is ready for sowing. If the soil is poor and thin a very light surface of manuring is occasionally used, but this is not frequently resorted to, as it is apt to render the stalk thin and brittle. The Wheat blooms at the end of May or beginning of June. It is generally pulled out by hand by the roots when the grain is half developed. For uprooting the straw fine continued sunny weather is selected, as the rain has a very injurious effect upon it, often turning it black. When uprooted the branches are tied together in sheaves, each sheaf is spread out in the shape of a fan to dry in the sun from three to five days, after which it is stowed away in barns. The harvest being over and the fields being only in stubble, the straw is again spread out to catch the heavy summer dews and to bleach in the sun for four or five days, but not the whole of the crop at one time for fear of a sudden rain. During this process it is carefully turned until all sides are equally white. Formerly the yellow colour of the straw was preferred, but now this extra white is more sought after. Before being ready to be made up into braids, hats, and ornaments, the straw has to be again bleached, fastened in small bundles and classified. It is then cut close above the first joint from the top, and again tied up in small bundles, containing about sixty stalks in each. These small sheaves are then submerged in clean water for four or five minutes, and as soon as they become partially dried are submitted to the action of burnt sulphur (in the proportions of 1 lb. to 100 bundles of straw) for three or four nights in rooms adapted for the purpose; during the day the doors of these rooms are left open. The classification of the straw is made according to length and colour, the ear or end of the stalk having been previously cut off. All the straw below the first knot is used simply for forage or bedding, as it is worthless for the purpose of making braids or hats.

It is stated that there are no factories in Florence for working up straw, but in almost every private dwelling of the lower classes will be found one or more of the female inmates attending to her domestic duties, and at the same time making braids and sewing on hats. A ready sale is found for their work at the nearest market, though in many instances special contracts are made by the straw brokers with the workwomen, they supplying the straws into which the braids are made up. Many women make from 28 to 34 yards of braid a-day, and some can finish even 60 yards of common braids; but fine braids require very great care and cleanliness. Owing to the great strain upon the eyes the finer kinds of braids can only be worked upon two or three hours each day; it takes, therefore, a woman from four to five days to make braid sufficient for the hats usually worn by men, while for the superior Leghorn hats for ladies it requires from five to nine months for each hat.

It is a noticeable fact that in several districts where the finer hats are made the workwomen suffer greatly from affection of the eyes caused by too close application to this kind of labour. Between 1822 and 1826 women employed in making braids realised from 6*s.* to 7*s.* a day, but at the present time the best braid-makers and hat-sewers only make about 1*s.* The most important centres of the straw industry are Brozzi, Signa, Prato, Fiesole, the Casentino, the Bolognese, and the Modenese. The province of Casentino is one of the most industrious in Tuscany, producing from 300,000 to 400,000 hats yearly, all for exportation. These hats, though hitherto comparatively unknown, are now very much sought after, on account of their strength and cheapness, prices varying from 4*d.* to 1*s.* each. In the Bolognese the straw manufacture is confined chiefly to the mountain districts along the base of the Apennines, where the inhabitants of seventeen parishes are engaged in making the cheaper and coarser kinds. Laino and Searicalasino are the centre of this trade. Bolognese hats are brought to Florence to be fashioned, and the price paid is from 1*s.* 6*d.* to 2*s.* 6*d.* per dozen, and the quantity brought amounts to about 120,000 dozen yearly. For the last thirty years the annual exportation of straw goods from Tuscany averaged 12,000,000 lire (francs), 5,000,000 lire alone being exported to the United States in 1878.

Home Correspondence.

Todea superba.—Among the objects of horticultural interest to be seen in the Pine-apple Nursery, Maida Vale, by no means the least interesting is the Todea-house, a half-span erection of considerable dimensions, with its principal aspect facing the west, and entirely filled with fine specimens of this remarkable Fern, whose rich and beautiful greenery is so distinct and unlike anything else that it is indeed a sight once seen not likely to be soon forgotten. The plants are of various sizes, but most of them are large specimens in pots some 8 or more inches in diameter. Amongst them are some very distinct varieties, but all are exceedingly healthy and in fine condition. The Todea, or Leptopteris superba, belongs to a small family of exceedingly ornamental Ferns, and is possibly the most beautiful of the genus, with vividly rich bright green fronds, finely divided and gracefully pendulous and undulating. The plant, however, must be seen to be sufficiently appreciated. It is a native of New Zealand, and is as nearly as possible hardy. Although it has for some years been introduced to this country it is still (possibly on account of its somewhat high price) a somewhat scarce plant, although specimens of it are generally to be found in extensive private collections of Ferns and mostly growing under a bell-glass, where it seldom fails to command the admiration of all who see it, under even that condition which may tend to convey an idea of what a large structure filled with such plants will be likely to produce, where everything in the form of bell-glass or Fern case of any kind is dispensed with. In this house, if I rightly recollect, the pathway is in the centre, and the plants are arranged on a wide shelf on each side of the same. It is quite unheated, and the plants sustained no injury whatever from the great depression of temperature which on many occasions occurred during last winter, so that the internal temperature must have very frequently been many degrees under the freezing point. The structure is now, of course, heavily shaded, the atmosphere close, and kept as moist as possible by frequent syringing—the plants, in fact, requiring the same treatment as is usually given to the Trichomanes and other filmy Ferns. In potting the plants thorough drainage is essential, and the most suitable soil for them is good fibrous peat with a considerable portion of silver-sand. *P. Grieve.*

Exochorda grandiflora.—I fully agree with your remarks on Exochorda grandiflora (p. 73). It is one of the finest and most useful shrubs for small gardens. It is very remarkable for its hardiness, and proved hardy not only at Kew, but even here, in the centre of Germany, where during the last two winters many a morning the thermometer marked 15° to 25° below zero. Not a single branch of Exochorda grandiflora is cut. *C. Wissenbach, Wilhelmshöhe, near Cassel.*

Columbines.—The sight of these in flower brings to mind reminiscences of halcyon days, when these good old border plants were much more common than they now are, as time and fashion, with their many changes, have nearly swept them out of cultivation; but, happily, the discovery and introduction of several new and beautiful species has called attention to them again, and they appear likely to become as popular as ever. The fear is that such lovely kinds as Aquilegia cœrulea and A. chrysantha may not be kept true, which I, for one, shall regret, as they are unapproachable in their rich hues and the general form of their blossoms. I have seen several hybrids from the two mentioned, as well as others crossed with them, none of which, though desirable by way of variety, could at all compare with either of their Colorado parents. Unfortunately A. cœrulea is rather of a delicate nature, and besides becoming injured from spring frosts, has a provoking habit of dying out, especially in places where the soil is not light and naturally warm and dry; but by sowing frequently, and regarding it as a biennial, plants may be kept in a vigorous and flourishing state. A good time to sow is directly the seeds are ripe, when they should be sown in prepared mould, made fine by sifting, and protected by a handlight, which forms a suitable shelter for them during the winter, and in spring the plants may be planted out in a warm sheltered situation where they are to remain. The best way is to place them triangularly in patches of three, at about 6 inches apart, as then they form fine masses, and produce a more striking effect. A. chrysantha, being a stronger grower, is seen to the most advantage in single tufts, when, if the soil suits it, the flower-stems branch out freely, and reach a height of from 2 to 3 feet. Besides A. chrysantha and A. cœrulea, with various hybrids, there are several other named sorts that ought to be in every border, chief among which are A. truncata and A. glandulosa, and for the wild garden the several kinds of vulgaris are exactly the thing. These will seed and establish themselves in such a manner as to hold their own, and form little colonies that look natural in their association with the various surroundings. *J. S.*

Hardy Ferns.—I annex a list of Ferns, mostly exotic, that have survived the winter of 1880-81 in the open air in my garden at Colwyn Bay. The only protection was branches of Spruce Fir stuck into the ground so as to overhang the plants. The fernery slopes gently down to a running stream and faces the south-east. It is surrounded, but not overhung, by bushes, is composed of blocks of sandstone partially buried, and the soil in which the Ferns are planted is mostly leaf-mould, mixed with fragments of sandstone. The lowest temperature last January in a Stevenson case in a higher and therefore warmer position in the garden was 14° to 18° of frost. I have not included the commoner English Ferns or their varieties. I also annex a list of those that have died, and some that are doubtful, as they show signs of growth even now.

Survived.

Struthiopteris germanica
Woodsia ilvensis
Dennstædtia davallioides
,, punctiloba
Microlepia strigosa
Cystopteris bulbifera
Adiantum cuneatum
,, pedatum
Platyloma rotundifolium
Pteris scaberula
Lomaria procera var. chilensis
,, nuda
,, alpina
Woodwardia radicans
,, areolata
Asplenium lanceolatum
,, angustifolium
,, thelypteroides
Polystichum falcinellum
Polystichum concavum
,, proliferum (Br.), (non angulare var. proliferum)
,, aculeatum var. setosum *
,, varium var, opacum
Cyrtomium Fortunei
Nephrodium cristatum var. Clintonianum
,, Goldianum
,, decursivo pinnatum
,, decompositum
,, spinulosum var. intermedium
Phegopteris tetragonoptera
Osmunda Claytoniana
,, cinnamomea
,, regalis var. gracilis

Doubtful.

Adiantum venustum
Pteris cretica
Onychium japonicum

Killed.

Davallia novæ zelandiæ
Pteris tremula
Woodwardia virginica
Polystichum acrostichoides
,, varium
Polystichum capense
Cyrtomium falcatum
,, caryotideum
Phymatodes pustulata

Alfred O. Walker, Chester.

Strawberry Loxford Hall. — Every gardener worth his salt is desirous not only of producing the best of everything he can for his employer, but also for as long a season as he can, and for that reason we plant early things on south borders, main crops in the centre of the garden, and late kinds on north borders. Perhaps this is more applicable to the South than the North, and more especially this season, when day after day we have the thermometer in the shade above 90°. With this object in view, I planted the Strawberry Loxford Hall in a north border, and it has more than answered my expectations, for they are just now coming into bearing, when other kinds are over or nearly so—a magnificent crop, fine fat fellows, almost vermilion in colour, with a delightful flavour. A man who raises a new beautiful flower is a benefactor to his fellow creatures; but he who raises a really new and good fruit is, to my mind, doubly so, for it is pleasant to the eye and good to the taste, and really oftentimes as an article of food is desirable; therefore, all honour to the raiser of this truly grand fruit, and it gives one great pleasure to "speak well of a fruit as you find it." *J. Rust, Eridge Castle, July* 18.

Shading: a Trial Solicited.—Mix milk, whiting, and washing blue in proportions as you will find necessary; keep well stirred, and apply to the glass with a brush. Please report result after a fair trial. *J. G. Mitchinson, Penzance.*

The Beurré (?) Robin Pear.—Many thanks to "R. D. B." for his happy suggestion. In all probability Doyenné Robin is the real name, though the trees are most distinctly labelled Beurré. I notice that Mr. Scott copies Leroy in stating the season of ripening to be September—October, instead of October—November, as it is with me; also the fruit is obovate, rather than pyriform. It was careless on my part not to have looked for Doyenné Robin, as a little thought would have suggested that as Beurré Auguste Benoist was once sent me as Doyenné Benoist, why should not Doyenné be changed to Beurré? I append my

* I am doubtful about this Fern, which seems to be known as Polystichum setosum, but is not Blume's species. It appears to me to be a variety of P. aculeatum, with the lowest pair of pinnæ deflexed.

address, and shall be happy to send "R. D. B." grafts, if he will notify to me his location, next spring, or he can have buds now. *W. Carmichael, Newton Court, Bury St. Edmund's.*

Phlox ovata and canadensis.—In my note on Phlox ovata I wrote canadensis by mistake for Carolina, which has always seemed to me the same as ovata, whilst canadensis, as Mr. Jenkins remarks is, a synonym of divaricata. *C. W. Dod, July 19.*

Fusion of the Branches of a Beech Tree.—While walking lately by the beautiful little lake near the dairy in Arundel Park my attention was attracted by what seemed to me to be a rare phenomenon in tree growth. One might call it for want of a better term a "bifurcation of the stems of a Beech tree." The ground on the left of the lake, chalk with a thin layer of loam, rises at an angle of 75° and growing from this with its branches drooping gracefully over the water was the tree in question, its gnarled and moss grown roots exposed by the crumbling away of the earth. The tree had two stems of about equal thickness—one stem nearly upright, the other leaning at an angle of say 50° over the lake. At 8 feet from the base an arm 3 feet long and from 7 to 9 inches in diameter stretched from the upright to the procumbent stem. The arm was considerably larger at its junction with the stems. The tree was probably forty-five years old. Perhaps the following rough sketch (fig. 28) will assist you to understand the case. I assume that the stems as high as the arm were once only roots or underground stems, and that the growth of the tree resulted in lifting the stems and with them the arm to their present position. The suspended trunk evidently owes its security and existence to the friendly arm outstretched to hold it. The sketch from which the enclosed was copied was taken on the spot. *T. W., Harrow.*

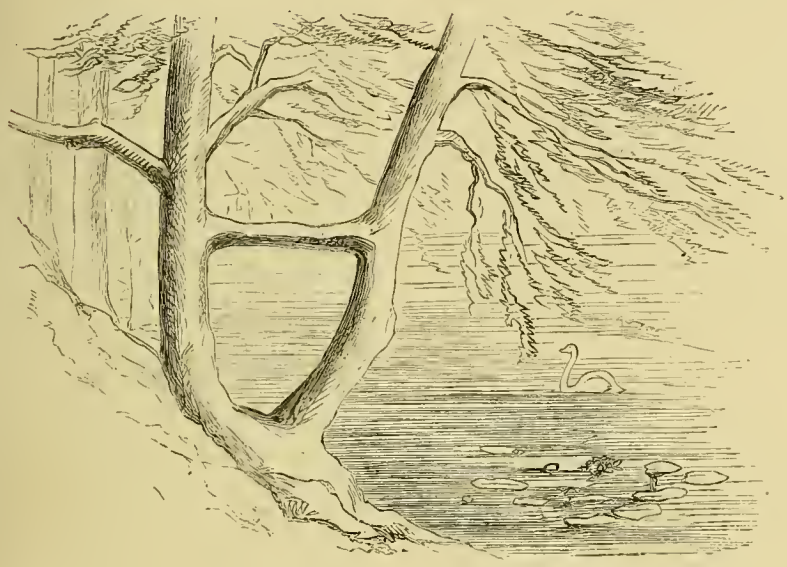

Fig. 28.—A HOLDFAST.

Daturas.—In addition to those mentioned at p. 82, D. Knightii is well worthy of cultivation. Although probably a semi-double form of D. suaveolens, it is preferred to that variety by some people, as the flowers stand better. These all require abundance of water and liquid manure if grown in pots, but if planted out they should be confined to a moderate space at the root, or they grow very strongly; if placed in a genial temperature they will flower the greater part of the year. *W. H. Divers, Burghley.*

Campanula Raineri.—About this time last year I saw this plant recommended in the *Gardeners' Chronicle* for rockeries. I accordingly made a note of it, and as it appeared in several catalogues I ordered it from three leading nurserymen with whom I deal, one near London, one in Scotland, and one in Belgium. As the plants came into flower I compared them carefully with C. turbinata, and being convinced that there was no difference, I ventured to assert that the two names were synonymous. To make more sure I set out on my travels last Tuesday in search of a real C. Raineri. I first went to the Horticultural Society's garden at Chiswick, where I found many long-named varieties of C. turbinata—in fact, a whole bedful, but no C. Raineri. I then went to Kew, where I found the name assigned to a large bunch of coarse leaves resembling those of C. nobilis or C. Trachelium, not at all my ideal of C. Raineri, and with no sign of a flower. Later in the day I went to a garden on Wimbledon Common, the owner of which kindly showed me a living C. Raineri, a flower as well as a dried specimen, and a painting of it. It is more dwarf, and has leaves and flowers of more substance than C. turbinata, and entirely distinct both from that plant and from the plant which bears the name in the Campanula bed at Kew. *C. Wolley Dod, Edge Hall, Malpas, July 17.*

The Frog-bit.—This beautiful aquatic plant (Hydrocharis morsus ranæ) grows about here (north and north-east London) in quiet pieces of water bordering the Lea; it is, however, not common, and it seldom flowers in this district. Amongst other localities for this beautiful wild plant near London is a large pond close to and west of the River Brent and Grand Junction Canal, a mile and a-half north-west from Brentford. Here one evening a week ago I saw many hundreds, or perhaps thousands, of plants of the Frog-bit all in flower at the same time. The evening had just began to fall, and the pond was covered with an innumerable company of small white moths, each moth a little less in size than one petal of the Frog-bit flower. These myriads of moths kept up a ceaseless flickering from flower to flower, so that in the semi-dusk it was almost impossible to say whether the restless white objects were fluttering moths or white flower petals carried hither and thither by currents of air. If cross-fertilisation is necessary by means of insects for the production of good seeds in this plant, as it probably is—for the sexes are separated, some plants being wholly male, others wholly female—I think this white moth is possibly the active agent. *W. G. S.*

Oxalis arborea.—On p. 84 of last week's issue Mr. Ellacombe mentions this plant among others as having become naturalised in his garden. Will Mr. Ellacombe kindly send me a specimen of it, since I cannot find the name anywhere, and should be glad to know what shrubby Oxalis it is that is able to withstand such winters as the two last have been. Anomotheca cruenta is also mentioned: will Mr. Ellacombe say if the old bulbs survived these two severe winters, or only the seeds? *N. E. Brown, Herbarium, Kew.*

Garden Inulæ.—The number of these might be increased with advantage to horticulture. Though the genus includes several very ornamental kinds, it is rare to see an Inula in cultivation except in a Botanic Garden. I spoke lately of the very beautiful I. glandulosa, and have since discovered that there is another claimant for that name. In the Botanic Gardens at Kew and Chiswick it is given to a small plant with shabby flowers resembling those of the native I. dysenterica, and I thought I had described the plant under the wrong name. On visiting Mr. Joad's garden, however, I told him my perplexity, and asked to see I. glandulosa. He at once showed me the species I described in my former note, both growing and dried, and in a picture; and told me that it is a native of Hungary. Our native I. Helenium is a fine handsome plant, growing 5 or 6 feet high, and looks well in half wild spots near ponds. Besides these I have two other neat border Inulæ, about a foot high and now in flower, the flowers being about 2 inches across and bright yellow. One has long, narrow, smooth leaves, and has been sent to me as I. viscosa, being apparently the same as is grown at Kew as I. ensifolia. It is figured and described in Sowerby's *British Plants* as I. salicina, and is said to grow wild on Lough Derg. The other sort I have received as I. squarrosa, and also as a Buphthalmum; it has broad and very rough leaves, and I believe its right name is I. hirta. The finest Inula grown at Kew is named macrocephala. It is about 4 feet high, with large downy leaves, and handsome large yellow flowers now only just opening. I do not know where it can be obtained. Of native sorts the pictures of I. crithmoides represent it as a neat and pretty plant, but I have never come across it, so have not been able to try it in cultivation. *C. Wolley Dod, Edge Hall, Malpas, July 17.*

CÆSAR'S SPRING.

In that pleasant work of reference and gossip, Mr. Hone's *Table Book*, published in 1827, there is an interesting account of a noted well of water, known in Kent as Cæsar's Spring. The perennial fountain which bears this name rises in a dell at the edge of Keston Common, and near the entrance gates to William Pitt's former residence of Holwood. Some very extensive Roman entrenchments cover the high ground near the site of Pitt's house, and an ancient road passes from what was once the only entrance to the camp through the park, and thence to the spring by the very pretty entrance lodge, which forms the frontispiece to Mr. Hone's description. It is a model little building of the kind, in the rustic style, and the cheery old lady who dwells in it with her grandchildren was young when it was new in 1827.

"Your house is still prettier than when I saw it last," I said.

"Then you have seen it before?"

"Yes, in a book." She was much interested, and looked as happy, fresh and bright-eyed as many a woman far less than sixty, instead of several years more. We had a long talk. "Some people," said I, "keep their good looks and don't grow old. How do you explain it?" She thought that cheerfulness, good grandchildren, like little Tommy, who opened the gate for me, and a nice place to live in, had something to do with the matter. "Ah!" said I; "but you needn't be so perky and so boastful, for my old people—my father and mother—are eighty-six and eighty-three, and as goodlooking as you are, and you are but a girl to them." The old lady of the lodge—or middle-aged, suppose we call her—first looked merry and then looked grave. "I daresay they have led good lives," she said; "or they would not look so fresh and well at that age."

Before descending the higher ground of Keston Common to the lower level of the dell by the entrance-gates, you should look back towards London and the Surrey hills, for the sake of the landscape. It is a thorough English view, including the dome of St. Paul's and the Crystal Palace in the distance. The following lines are descriptive of the Ravensbourne, whose source is in Cæsar's Fountain, and of the country through which that stream passes to the Thames:—

"On Keston Heath wells up the Ravensbourne,
A crystal rillet, scarce a palm in breadth;
Till creeping in a bed, outspread by art,
It sheets itself across, reposing there:
Thence through a thicket, sinuous it flows,
And crossing meads, and footpaths, gath'ring tribute,
Due to its elder birth, from younger branches,
Wanders in Hayes and Bromley, Beckenham vale,
And straggling Lewisham, to where Deptford bridge
Uprises in obeisance to its flood,
Whence, with large increase, it rolls on to swell
The monster current of the 'mighty heart'
Of England."

In this sceptical age there is too much doubting, but there is no reason whatever for doubting what cannot be disproved, that Cæsar himself discovered the well now called Cæsar's Spring or Fountain. The camp was certainly supplied from it by the road I

have just noticed. The story of the discovery is that when Cæsar's legions encamped here and wanted water the General, being a great observer of Nature and thirsty at the time, saw a raven drop into the dell as if to drink, and thus he discovered the Raven's Bourne.

Amid the gossip of the past we read of a Roman bath here. It is a most unlikely spot, as there was no adjoining villa, and the permanent camp which enclosed many acres of ground and contained probably the General's residence, was at some little distance. The "old bath," or "cold bath," as the spring was called in later times, was in the last century surrounded with trees, and boasted a dressing-house on its brink. Not that the rustics of the sixteenth century came here for cold "tub," but the water of this spring being clear and cold, and the site widely known, it enjoyed a reputation for the cure of sprains and of weak limbs, which were dipped in it, with a certain amount of benefit perhaps. One of the excitements of the olden time was the carriage of sick persons hither and thither for the purpose of trying medicinal waters, and a sprained ankle, brought to this spot, could hardly be injured by cold water.

In Hasted's *History of Kent*, 1778, a view is given of the Roman entrenchments on the adjoining hill, and of the ancient road which came down thence to the spring. There were then twelve trees round the well. They vanished with the dressing-house long since. Fifty years ago the remains of a wood fence might be traced, and the well of water was at that time bricked round—"steined" with an old wall, the bath being 9 feet in diameter, with steps for descent. At the present time there are no traces of the fence, nor of the steps, and the well—bricked and coped with wood—has been choked with gravel during the floods, and is only a foot deep. The run of water is strong.

Mr. Hone seems to have feared the enclosure of this spring. "Had I a right of common at Keston Heath," he says, rather than assist in the enclosure of Cæsar's Spring "I would surrender my own right and renounce community and neighbourhood with the heartless hirelings who would defraud themselves and the public of the chief attraction of Keston Common." Mr. Hone was a radical of note. "There are rights of Nature," he exclaims, "as well as of property." And he then remarks, truthfully enough, that the claims of the latter should not be urged too pertinaciously against the former. As the high ground of Keston Common is but a pleasant walk of three or four miles from Bromley, which is only ten miles from Victoria or Ludgate Hill, and as many persons in London would delight in the excursion, I am glad to say that Keston Common, like Hayes Common adjoining it, remain what they have both been since the Romans—spaces open to the public, and Cæsar's Spring has not been enclosed, and is not now in danger. *H. E.*

THE DUNKELD AND BLAIR ATHOLE LARCHES.

The story of the Dunkeld Larches has been often told. I am not sure that the measurements have been always quite correctly given. In visiting Dunkeld I carefully measured the big trees on the lawn. There are two companion trees standing near enough together for their branches to interlace, and both of them are big trees, but the big tree is the one on your right hand looking up the stream of the Tay, which runs through the grounds, and immediately in front of the windows of the house. A label placed near the Larches records the date of 1738, when they were planted. The dimensions of the larger of these two magnificent trees are as follows:—The circumference at 3 feet from the ground is 17 feet 2 inches, but that measurement would not convey a correct idea of the size of the trunk if the measurement higher up and above the swellings near the base were not also given. At 5 feet from the ground the girth is 14 feet 6 inches; and from that point the grand trunk rises, after the manner of the Larch, with the least possible diminution of size in ascending. The height of the tree is 98 feet 10 inches, and it contains 423 cubic feet of timber. The trunk is an undivided bole to within 30 feet of the top, where the branches of the head begin to break. It is a most noble pillar, which any lover of trees could gaze upon for hours with admiration. There is a lateral limb at 14 feet from the ground.

The lower part of the bole of the companion Larch is almost as large, since it measures at 5 feet from the ground 13 feet 7 inches; but the trunk breaks at 45 feet, which robs it of the grand proportions of the brother tree. It has a rougher trunk, too. Elsewhere, and in comparison with any other Larch, it would carry off the palm, but not here, in the presence of a Larch which is the biggest and most beautiful in the United Kingdom. The Larches stand 11 yards apart, and there is an Oak measuring 12 feet 2 inches at 5 feet from the ground, standing 7 yards from the lesser Larch. Persons planting for posterity will like to know that specimen trees, to attain their full development in rich deep soil, should be planted about 11 yards apart in the case of Larches, and further in the case of Oaks. The branches of the Larches have interlaced, without any apparent injury to either tree, but the Larch and the Oak have had a contest in which both have suffered. The Larch has lost some of its branches, and each tree has been driven from its perpendicular. The Oak has evidently grown rapidly for a tree of its kind, and the manner of its leaning indicates that it must have been planted more recently than its neighbour. It leans about 5 feet out of the perpendicular, and it commences leaning from its base, having had an obnoxious neighbour, and having repelled that neighbour from its birth. The trunk of the Larch commences to lean away from the Oak at a point about 20 feet from the ground, having apparently attained that height before it began to suffer from the encroachment of the bushy-headed Oak. The height of the Oak is not quite equal to that of the Larches.

The habit of producing side-branches is entirely different in the Larch and Spruce. In the latter they are numerous and large, and form a graceful ornament to the tree; but in the Larch the side-branches are generally insignificant, so that even when the tree stands alone the timber is unblemished and without knots. Larches, therefore, owe their beauty, not to the feathering of graceful side-branches, but to the noble aspect of their clear columnar trunks. The Larch, in congenial soil, produces a larger quantity of timber in a given time than any other tree in Britain. The specimen Larches at Blair Athole were planted, I believe, in 1740. They are more lofty than the above, rising like shafts of columns, and tapering to a height of 80 feet of measurable timber. *Cor.*

Reports of Societies.

The Chiswick, Turnham Green, and District Horticultural.—As mentioned last week, the first summer show of this Society was held, by permission of the Council of the Royal Horticultural Society, in the Chiswick Gardens, on July 14, and under the auspices of good local patronage, with weather that was only too glorious and which would have been more enjoyable if less brilliant.

For the time the big vinery or old conservatory had been converted into a show tent, and though fears were expressed that the heat would prove too fierce, it was pleasant to find that, thanks to the shade given by the Vines and the thin awning stretched across the roof, less discomfort was felt than would have been the case in a long, low tent. A goodly marquee erected near the old Council-chamber held table decorations and other various exhibits, making up a display that was highly creditable to the locality and full of interest for the visitors. The decorative groups formed the most attractive feature in the show, some half-dozen or so being formed down one side of the middle of the vinery, and all remarkably good. There is ever an element of uncertainty hanging over group awards. In other classes a competitor can guess at his own strength, but here he is dependent entirely upon a judge's notions of what constitutes taste and elegance, and these notions vary exceedingly. Thus, here Mr. Hudson, whose group was marked with his customary charming arrangement, and Messrs. Hooper & Co., of Twickenham, whose group was exceedingly gay and effective, had to give place to Mr. Brown, of St. Mary's Nursery, Richmond, who has not before beaten either of the previous competitors, and whose group, if perhaps, less elegantly arranged, doubtless included the best plants. Still it marks the general improvement manifested on these things, that it should have to be admitted that a better lot of groups of the size has rarely been shown. The competition for groups of a lesser size did not evoke much interest, as these were arranged upon a stage, and in a fashion with which we were once too familiar. Such a position, however, admits of little skill in arrangement. H. Pearks, Esq., of Heathfield Lodge, Chiswick, was placed 1st, and J. Donaldson, Esq., Tower House, Chiswick, 2d. There were some good collections of plants sent, not for competition. A fine one from the General Horticultural Company, and which included some beautiful Crotons, rich in colour and varied in foliage, fine Dracænas, brilliant Gloxinias, and other effective plants. Messrs. Osborn & Sons sent a good group of small decorative plants. Mr. Herbst, of Kew Road, Richmond, had a nice collection of Palms and Ferns, grouped amongst which were good plants in bloom of Lilium eximium. Mr. Pestridge, of Boston Road Nursery, Brentford, had eighteen kinds of rich coloured golden and silver tricolor Pelargoniums in boxes. Messrs. Charles Lee & Sons, Hammersmith, had in the vinery some fine cut Roses and new kinds of Coleus, and outside a group of charming pot Roses backed with hardy ornamental shrubs in pots, and faced with an edging of the bright coloured Euonymus latifolius elegans variegatus, and still farther a striking collection of foliage examples of choice ornamental and variegated trees and shrubs, all named and full of interest. Mr. Boller, of Kensal New Town, had an interesting collection of his miniature Cacti, just outside the vinery doors. A prominent and striking group of choice plants was sent by Mr. Roberts, gr. to Baroness Rothschild, Gunnersbury Park, and from him also came some superb fruit, also not for competition. This included fine Black Hamburgh and Foster's Seedling white Grapes, Queen Pine, Best of All Melon, smooth and deep yellow in colour; rich coloured Violet Hâtive Peaches, and some Nectarines, Figs, and large Stamfordian Tomatos. Mr. Croucher, gr. to J. T. Peacock, Esq., Hammersmith, arranged in the cut flower tent one of his singular and eccentric groups, in which Orchids and Cacti were allegorical creatures depicting the virtues and follies of the world of humanity. A fine plant of Odontoglossum vexillarium represented elegance and civilisation, and the wild savage or Furioso was indicated by a weird-looking spiny Echinocactus; whilst the golden barrier once more divided the unkempt members of the Senilis family from those whose heads were smooth and downy. In a horticultural sense the most attractive feature was a spike of Odontoglossum vexillarium, which Mr. Croucher has properly named giganteum, as the flowers are without doubt the largest yet seen. Mr. Wiggins, gr. to H. Little, Esq., Hillingdon, had, still looking fresh and beautiful, a superb group of show and fancy Pelargoniums, with respect to which we have often had to write in high praise. Lastly, in this particular direction, Mr. H. Cannell, of Swanley, kindly sent boxes of gorgeous Pelargoniums and Verbenas, all rich and beautiful. To most of these groups honorary awards were made by the judges. In the plant classes, Mr. Hudson was without a fitting competitor, having no difficulty in taking the first prizes for fine-foliaged plants and Ferns, with huge specimens. In the former class, his Alocasias metallica and Lowii were marvels of cultivation, whilst his grand Ferns have been too often referred to, to need further description here. Messrs. Hooper & Co., Twickenham, took 2d place with foliage plants; and Messrs. Fromow, Turnham Green, were 2d with Ferns. Some very good Lycopods, in pans, came from Mr. Harris, gr. to E. H. Watts, Esq., Chiswick, and from Mr. Harding, gr. to J. R. Starling, Esq., Gunnersbury. Caladiums were small, but well coloured. Some very good Gloxinias came from Mr. Harding, who was placed 1st, and Mr. Hudson 2d. Mr. Harding was also 1st for six Coleus, having good plants of Fame, Royal Purple, Sensation, Glow, and others. Mr. Pearks was 2d. Only one lot of Fuchsias were staged, these coming from Mr. Wells, gr. to C. Selwyn, Esq., Richmond, and were fairly well flowered pyramids. Several classes of plants did not fill, but no doubt greater preparations will be made by local growers another year. For a single stand or vase of flowers Mr. Hudson was put 1st, Mr. Brown, of Richmond, coming 2d, and Mr. Trewett, Diver's Nursery, Hammersmith, 3d. All were prettily arranged, in the style with which visitors to flower shows are so familiar. Something decidedly novel and striking in this direction has yet to be found. For six buttonholes, Mr. Wells was 1st, his bouquets consisting chiefly of Stephanotis, Tuberoses, Rose-buds, and white and carmine Bouvardias, set in Maidenhair. Mr. Hudson came 2d, and Mr. Harding was 3d. Mr. Brown was a good 1st for three bouquets, Mr. Trewett coming 2d, and the Messrs. Fromow 3d. With these were placed, not for competition, three smaller but charming bouquets, arranged by Mr. Hemsley, of the Chiswick Gardens. Mr. Aldous, of Kensington, offered some good plated objects as prizes for three stands of cut flowers for lady subscribers, but the only lot in competition was neither remarkable for taste or elegance.

Some good fruit came from Mr. Hudson, who had in a collection good Madresfield Court and Muscat of Alexandria Grapes, Queen Pine, Lord Napier Nectarine, Marcellus Melon, and Bigarreau Napoléon Cherries. This exhibitor was also 1st in both classes for white and black Grapes, having good Foster's Seedling and Hamburghs. Mr. Hudson was also 1st with a collection of nine kinds of vegetables, all good and neatly arranged; Mr. F. Hailey, Fairlawn, Acton, coming 2d with excellent samples. For six vegetables, Mr. B. Hardy, Gordon House, Chiswick, was 1st, the samples excellent. Mr. Harris had the best three dishes of Potatos—Vicar of Laleham, Beauty of Hebron, and Snowflake, put up as Lapstone. Mr. Darvill, gr. to C. Brown, Esq., Gunnersbury, had the best brace of Cucumbers—Duke of Connaught, Tender and True, and Daniel's Defiance, coming 2d and 3d.

For valuable prizes offered by Messrs. Jas. Carter & Co., High Holborn, for dishes of their four Peas—Stratagem, Telephone, Telegraph, and Pride of the Market, Mr. H. Marriott, Shirbeck, Boston, took the 1st, with very fine samples; the 2d prize lot, also from Boston, was shown by Mr. J. Richards; and the 3d collection came from Mr. W. Phillips, gr. to Captain Jackson, Meopham. It was evident that the show was in all respects a success, and the committee should be encouraged to do their best another year.

National Carnation and Picotee: *July* 19.—The sixth annual exhibition of the Southern section of this Society was held in the Council-room of the Royal Horticultural Society on Tuesday last, and brought a very fair number of visitors together in the afternoon. The tropical weather of the last ten days brought the first flowers on very rapidly, so that the side blooms had to be depended on, and only with much skill were many of these kept up to time. Under these circumstances a large show was not anticipated, and many were surprised that it was so good a one as it really was. There were no competitors from the North or West, the flowers not being ready, but the leading florists of the North and the Midlands were present, and by their hearty enthusiasm added much to the "go" and popularity of the show. New varieties of Carnations were exhibited in really good condition, considering the exceptional character of the weather previous to the day of the show. Mr. Dodwell was the principal exhibitor of new Carnations, but his little garden is placed in such unfavourable conditions atmospherically that he has not an opportunity of doing the best that might be done for them. He has made a grand hit in raising a great number of really good scarlet bizarres—a class in which there was much room for improvement; as besides Admiral Curzon and Dreadnought (two varieties that could scarcely be distinguished from each other) and perhaps Mars, there were no really good and distinct flowers in the class. Nearly a dozen good flowers were exhibited by Mr. Dodwell, two of them being selected for 1st and 2d prizes, viz., Harry Turner, a seedling from James Cheetham, scarlet flake; it has the broad rounded petal of that variety, and the rich deep scarlet in broad flakes—the white is also good. This is a promising flower. James McIntosh was placed next to it. This will probably be one of the most popular scarlet bizarres; it is so robust in growth that a plant will produce six good flowers. It is a sport from Thomas Moore, crimson bizarre. It would probably stand at the head of its class, as the petals are so broad and well marked with bright scarlet, and the flowers are so full, but the edges of the petals are slightly serrated. Mr. Douglas exhibited a very good flower in this class raised by Mr. Simonite of Sheffield. It is named Joseph Crossland, and might have had a good place but that the colour had faded through age. In crimson bizarres there were no very striking novelties exhibited, although Mr. Dodwell had also a few good things in this class. A variety named Squire Penson gained the 1st prize in the class. It is a seedling from Albion's Pride, very much like it in colour, but has the beautifully rounded shell-like petals of Rifleman. Harrison Weir was placed 2d to it. This is also a well-formed flower—a seedling from Rifleman, but it has probably been crossed with Albion's Pride, as the crimson is pale like that variety, but the petals are much better formed. These two are well marked, good flowers, and a welcome addition to this strong class. Mr. Douglas received a 1st prize for pink and purple bizarre Miss Henderson, a seedling of Mr. Dodwell's, from Lord Milton. Seedlings raised from Lord Milton are very sportive. This is quite an addition to this class, which contains few really good flowers; the petals are large, flowers full without confusion, the colours bright and well arranged. There were no purple flakes, but Mr. Dodwell gained the 1st prize in scarlet flakes with Harry Matthews, a seedling from Admiral Curzon; the petals are large, well-formed, and broadly marked with rich bright scarlet, and the white is good. Mr. Turner was 2d with Matador, a bright clear scarlet flower, with a good white; the petals are well shaped, forming a full good flower. In rose flakes one prize only was awarded, to Mrs. Matthews (Dodwell), a good addition to an already strong class; the colour is clear cherry-rose, white very good, the stripes regular and broad, and the form of the flower like a good Sybil. A few years ago we were overwhelmed with really good Picotees; now it is the Carnation that takes the lead. On this occasion there were but three varieties of Picotees received prizes, although prizes were offered in six classes. In light red Mr. Dodwell gained the 1st prize with a very good seedling raised from Mary, purple edge. It has not so good a petal as Mary, but the edge is a good well defined red, petals without spots or bar, and the flower is well formed. Mr. Douglas was 2d in this class with Mrs. Gorton, a seedling of Mr. Simonite's: this is a good flower, but was rather past its best. The petals are well formed, white good, edge well defined, the flowers full. There were no seedlings exhibited in the purple-edged class, and but one in the rose-edge—Evelyn, by Mr. Turner. A number of good flowers of it were shown in the class for single blooms, where it ought to have been placed 1st, but the judges placed a bad Mrs. Allcroft before it, which was a blunder, as the bloom of Mrs. Allcroft was not nearly so good as three or four of Evelyn. The petals are broad, well formed, clear, without the least bar or spot, the edge very well marked. It gained 1st prize as the best seedling rose or scarlet edge. No First-class Certificates were awarded this year, although Evelyn (Turner) and some of Mr. Dodwell's flowers will yet gain this distinction when better grown.

The prizes were awarded as follows:—

CARNATIONS.—Twenty-four blooms, not less than twelve distinct varieties: 1st, Mr. E. S. Dodwell, Chatham Terrace, Larkhall Lane, Clapham, with the following varieties:—John Bull, scarlet flake; James McIntosh, scarlet bizarre; John Keet, rose flake; Fred; Master Fred, pink and purple bizarre; James Cheetham, scarlet flake; Thomas Moore, crimson bizarre; George, scarlet bizarre; Mrs. Matthews, Admiral Curzon, scarlet bizarre; Mrs. Tomes, rose flake; Squire Llewlyn, Harry Matthews, scarlet flake; Mrs. Gorton, Arthur Medhurst, scarlet bizarre; E. S. Dodwell, Wm. Skirving, Shirley Hibberd, crimson bizarre; and a crimson bizarre seedling. 2d, Mr. James Douglas, gr. to F. Whitbourn, Esq., with James Douglas, purple flake; Joseph Crossland, scarlet bizarre; John Keet, rose flake; Falconbridge, pink and purple bizarre; Rifleman, crimson bizarre; Sportsman, scarlet flake; Lord Milton, crimson bizarre; Florence Nightingale, purple flake; Sarah Payne, pink and purple bizarre; Sybil, rose flake; Robert Lord, scarlet bizarre; Clipper, scarlet flake; J. D. Hextall, crimson bizarre; Earl Stamford, purple flake; William Spoor; John Bailey, scarlet flake; Admiral Curzon, scarlet bizarre; James Merryweather, rose flake; Dreadnought, scarlet bizarre; and three of Mr. Dodwell's seedlings, a crimson bizarre, pink bizarre, and scarlet flake. 3d, Mr. Charles Turner, with John Ball, scarlet flake; Juno, purple flake; Idalia; Gem, crimson bizarre; Jupiter; James Taylor, pink and purple bizarre; Benjamin Simonite, scarlet bizarre; Jessica, rose flake; John Hines, scarlet bizarre; Matador, scarlet flake; Mars, scarlet bizarre; Sporting Lass, purple flake; Flirt; Lady Peel, purple flake; Mercury, scarlet bizarre; Tietjens; John Burnett. 4th, Mr. Hooper, Vine Nursery, Bath; and 5th, Mr. I. Hines, 81, Bramford Road, Ipswich.

Twelve blooms, dissimilar: 1st, Mr. E. S. Dodwell, with Master Fred, pink and purple bizarre; James McIntosh, Harrison Weir, crimson bizarre; John Ball, scarlet flake; Fred; Thomas Moore, crimson bizarre; Mrs. Tomes, rose flake; George, scarlet bizarre; Squire Penson, crimson bizarre; Arthur Medhurst, scarlet bizarre; Squire Llewelyn; and a crimson bizarre seedling. 2d, Mr. Douglas with Fred; James Douglas, purple flake; John Keet, rose flake; Clipper, scarlet flake; Sybil, rose flake; Dreadnought, scarlet bizarre; John Bailey, scarlet flake; J. D. Hextall, crimson bizarre, Florence Nightingale, purple flake; and three seedlings. 3d, Mr. J. Matthews; Wandsworth Road, S.W., with Shirley Hibberd, crimson bizarre; Mercury; Arthur Medhurst, scarlet bizarre; Mrs. Gorton, R. Lord, scarlet bizarre; Mrs. Tomes, rose flake; Unexpected, pink and purple bizarre; Annihilator, scarlet flake; Sarah Payne, pink and purple bizarre; George, scarlet bizarre; John Keet, rose flake; and Admiral Curzon, scarlet bizarre. 4th, Mr. J. Hines; 5th, Mr. John Buxton, Manor Street, Clapham; 6th, H. K. Mayor, Esq., Winchmore Hill, N. (Mr. Duffield, gr.).

Six blooms, dissimilar: 1st, Mr. Arthur Medhurst, Clapham, with Dr. Cronin, John Bailey, scarlet flake; Arthur Medhurst, scarlet bizarre; Fred; Mrs. Gorton; and George, scarlet bizarre. 2d, Mr. V. P. Healy, with Othello; G. F. Wilson; Stanley Hudson, crimson bizarre; Titian; John Buxton, scarlet bizarre; and John Bayley, jun., scarlet flake. 3d, James P. Sharp, Esq., Perry Bar, Birmingham, with James Taylor, Sir J. Paxton, scarlet bizarre; Clipper, scarlet flake; J. Douglas, purple flake; Dr. Foster, purple flake; and J. Merryweather, rose flake. 4th, E. H. Allen, Esq., St. John's, Putney Hill; 5th, Master Harry Matthews, Wandsworth Road.

Single specimens.—Scarlet Bizarres: 1st, Mr. Turner, with George; 2d, Mr. Douglas, with Robert Lord; 3d and 4th, Mr. E. S. Dodwell, with Arthur Medhurst and George; and 5th, Mr. Douglas, with Dreadnought. Crimson Bizarres: 1st, 2d, 3d, and 5th, Mr. Douglas, with John Simonite, Crimson Banner, Lord Milton (two); and 4th, Mr. Dodwell, with Rifleman. Pink Bizarres: 1st, Mr. Douglas, with Sarah Payne; 2d, Mr. Dodwell, with Sarah Payne; 3d, 4th, and 5th, Mr. Douglas, with a seedling, and two blooms of Albion's Pride. Purple Flakes: 1st and 2d, Mr. Douglas, with Florence Nightingale; 3d and 4th, Mr. Turner, with Lady Peel and Sporting Lass; 5th, Mr. Douglas, with Florence Nightingale. Scarlet Flakes: 1st and 2d, Mr. Turner, with Matador; 3d, Mr. Dodwell, with a seedling; 4th and 5th, Mr. Douglas, with Sportsman and John Bayley. Rose Flakes: 1st, Mr. Douglas, with Sybil; 2d, Mr. Turner, with John Keats; 3d, Mr. Douglas, with John Keats; 4th, Mr. Dodwell, with James Merryweather; and 5th, Mr. Turner, with Jessica.

Premier Carnation selected from the whole exhibition: A splendid bloom of Fred, staged in Mr. James Douglas' stand of twelve.

PICOTEES.—Twenty-four blooms, not less than twelve dissimilar: 1st, Mr. James Douglas, with Mrs. Chancellor, heavy purple; Clara Penson, light purple; Brunette, heavy red; Clara, light red; Thomas William, light red; Mrs. Niven, heavy purple; Her Majesty, light purple; a sport from Ethel, heavy rose; Ann Lord, light purple; Royal Visit, heavy rose; Ethel, medium bright rose; Mrs. Bowers, light red; Mrs. Payne, heavy rose; Jessie, light purple; Princess of Wales, heavy red; Mrs. Gorton, light red; J. J. Bryant, heavy red; Norfolk Beauty, heavy purple; and Nymph, light purple. 2d, Mr. Turner, with Mrs. Chancellor, heavy purple; Thomas Jivens, light red; Constance Heron, heavy rose and scarlet; Dr. Abercrombie, heavy red; Her Majesty, light purple; Royal Visit, heavy rose; Beauty of Cheltenham, light purple; Louisa, heavy rose and scarlet; Mrs. Payne, heavy rose; Picturata, heavy edged red; Clara Penson, light purple; Tinnie, light edged purple; Dr. Epps, heavy red; Baroness Burdett Coutts, medium puple; John Bolton, light rose and scarlet; and Edith D'Ombrain, heavy rose. 3d, Mr. E. S. Dodwell, with Jessie, light purple; Royal Visit, heavy rose; Alliance, heavy purple; Edith D'Ombrain, heavy rose; Emily, medium red; Mrs. Summers, heavy purple; Ann Lord, light purple; Master Norman, heavy red; Morna, heavy red; Zerlina, heavy purple; Lady Louisa, heavy rose; Cynthia, light purple; Mrs. Dodwell, heavy red; William Summers, heavy red; Miss Lee, heavy rose and scarlet; and Muriel. 4th, Mr. H. Hooper, Bath. 5th,

Twelve blooms, dissimilar: 1st, Mr. Douglas, with Clara Penson, light purple; Brunette, heavy red; Jessie, light purple; Princess of Wales, heavy red; Mrs. Chancellor, heavy purple; Mrs. Payne, heavy rose; Royal Visit, heavy rose; Mrs. Gorton, light red; Mary, light purple; Mrs. Niven, heavy purple; Violet Douglas, light purple; and Rosy Morn, heavy red. 2d, Mr. E. S. Dodwell, with Zerlina, heavy purple; Morna, heavy red; Alliance, heavy purple; Dr. Epps, heavy red; Muriel; Red Mary, light red; Miss Lee, heavy rose and scarlet; Lizzie Tomes, heavy plum-purple; Royal Visit, heavy rose; Medina, heavy purple; Minnie, light purple; and Edith D'Ombrain, heavy rose. 3d, Mr. J. Matthews, with Edith D'Ombrain, heavy rose; Mrs. Dodwell, heavy red; Alliance, heavy purple; Royal Visit, heavy rose; Mrs. Nicholls, rose and scarlet; Thos. William, light red; J. B. Bryant, heavy red; Minnie, light purple; Tinnie, light purple; John Smith, heavy red; William Summers, heavy red; Countess of Wilton, heavy red. 4th, Mr. J. Hines; 5th, Mr. John Buxton; 6th, H. Mayor, Esq.

Six blooms, dissimilar: 1st, Mr. A. Medhurst, with Zerlina, heavy purple; Edith D'Ombrain, heavy rose; Mrs. Dodwell, heavy red; Royal Visit, heavy rose; Lizzie Tomes, medium purple, and Ann Lord, light purple. 2d, J. P. Sharp, Esq., with Edith D'Ombrain, heavy rose; Her Majesty, light purple; Emily, medium red; Lucy, light rose and scarlet; Mrs. Allcroft, light rose, and a seedling. 3d, E. H. Allen, Esq., with Violet Douglas, light purple; Mrs. Nichols, rose and scarlet; Fanny, light purple; Brunette, heavy red; Tinnie, heavy purple; and J. B. Bryant, heavy red. 4th, Mr. V. P. Healy; 5th, Master H. Matthews.

Single specimens.—Red, heavy edged: 1st, Mr. Brown, Handsworth, Birmingham, with Emmelina; 2d, Mr. Douglas, with J. B. Bryant; 3d, Mr. Turner, with Picturata; 4th, Mr. Hines, with Mrs. Summers; 6th, Mr. Dodwell, with Brunette. Red, light-edged: 1st, 2d, 3d, and 4th, Mr. Douglas, with Thomas Williams; 5th, Mr. Turner, with Rev. J. D. Horner. Purple, heavy edged: Mr. Turner took all the five prizes, with Mrs. Chancellor. Purple, light edged: 1st and 2d, Mr. Douglas, with Clara Penson and Her Majesty; 3d, Mr. Dodwell, with Ann Lord; 4th, Mr. Dodwell, with Minnie; 5th, Mr. Turner, with Baroness Burdett Coutts. Rose or scarlet, heavy edged: 1st and 2d, Mr. Turner, with Fanny Helen; and 3d, with Constance Heron; 4th, Mr. Hines, with Mrs. Allcroft; 5th, Mr. J. P. Sharp, with a seedling. Rose or scarlet, light edged: 1st, Mr. Sharp, with Mrs. Allcroft; 2d, 3d, and 4th, Mr. Turner, with Evelyn, Lucy, and Evelyn; 5th, Mr. Hooper, with Lucy. Yellow grounds: 1st and 2d, Mr. Douglas, with Prince of Orange and Princess Beatrice; 3d and 4th, Mr. Hooper, with Countess of Pembroke; 5th, Mr. Douglas, with Princess Beatrice.

Premier Picotee: A magnificent flower of Mrs. Chancellor, heavy purple, shown by Mr. Douglas in his twenty-four.

Selfs, fancies or yellow grounds.—Twenty-four blooms, not less than twelve dissimilar: 1st, Mr. Turner, with Eurydice, Constance, Cremorne, Capt. Dalgety, George, Arthur Medhurst, Duchess of Edinburgh, Mrs. Willis, Géant des Batailles, Titian, Javia, John Burnett, Mrs. G. P. Hawtrey, yellow, Elegant, Rembrandt, and the rest seedlings. 2d, Mr. James Douglas; 3d, Mr. J. Matthews; 4th, Mr. H. Hooper. Twelve blooms, dissimilar: 1st, Mr. E. S. Dodwell; 2d, Mr. A. Medhurst; 3d, Mr. Duffield; 4th, Mr. Cattley; 5th, Dr. Abercombie, Cheltenham. Twelve blooms, yellow ground Picotees: 1st, Mr. Douglas, with Prince of Orange, Beatrice, Eleanor, Mrs. Coleman, James Tait, Alice, and Lightning, &c.; 2d, Mr. H. Hooper; 3d, Mr. Cattley, Bath.

Plants in pots.—Twelve specimens, dissimilar, in 8-inch pots: 1st, Mr. Turner, with well-bloomed plants of John Burnett, Rifleman, Lady Carrington, Rembrandt, Louisa, Dr. Abercrombie, Tinnie, George, Clara Penson, Royal Visit, Constance Heron, Dr. Epps, Jupiter, Mrs. A. Chancellor, and Mrs. Payne. 2d, Mr. Douglas.

In the annexe adjoining the Council-room Messrs. James Veitch & Sons exhibited a very attractive series of self and other Carnations, grown in their nursery at Chelsea, and which are commented upon in another column. The Cranston Nursery Company, Hereford, sent a dozen boxes of splendid Roses; and Messrs. Cannell & Son, of Swanley, about 200 cut blooms of Verbenas, all of the best quality and put up with good taste.

Edinburgh Botanical: *July* 14.—The Society met in the class-room, Royal Botanic Garden, Professor Isaac Bayley Balfour in the chair. The death of Professor Schleiden, as well as that of Professor George S. Blackie, M.D., of Nashville, Tennessee, were noted.

The following communications were made:—

I. Mr. Geddes read a paper on Chlamydomyxa labyrinthuloides, Archer, a remarkable organism, discovered by Archer in the cells of sphagnum, and described by him in the *Quarterly Journal of Microscopical Science* for 1875. The lamination of the cell coatings, and the formation of peculiar wart-like thickenings inclosing red pigment, were considered as tending to support the old view of growth by accretion of successive laminæ. The occasional collection of the chlorophyll into definite patches—incipient chlorophyll grains—was also described. A distinct resting Protococcus stage occurs early in development.

On these grounds it was pointed out that this organism could not be satisfactorily referred to any existing animal or vegetable group, since it presented close affinities with the Rhizopods on the one hand, and with the Palmellaceous Algæ on the other. A more perfectly intermediate type, indeed, cannot be imagined.

An interesting and animated discussion followed, in which the President, Professor Dickson, and Ramsay MacNab, of Dublin, took part.

II. Mr. J. M. Macfarlane read "Notes on the Action of Aniline Dyes on Vegetable Forms," describing a new

method of preparing and staining laticiferous vessels by coagulating the latex with alcohol, and afterwards staining with saffranine; the specimens being best preserved in glycerine jelly. Certain improvements both in double staining and the use of various aniline dyes for demonstrating the minute structure of cells were also indicated.

III. "Notes on Plants Grown at Hay Lodge, Trinity." By Mr. Isaac Anderson-Henry, F.R.S.E., F.L.S.

The attention of the Society was first directed to two plants of Androsace incisa, raised by Mr. Henry from seed sent by his niece from the hills above Rawul Pindee. Sir Joseph Hooker has confirmed the naming of the plants, one of which he proposes to figure in the *Botanical Magazine*. The furthest advanced of the two plants on the table showed the tendency in the flowers to fade off into scarlet before they die. As this species blooms well in the open border it appears well suited for the rockery. Another plant, apparently a species of Dracocephalum, collected by the same relative in Ladak or Kashmir, had stood all winter in the open border, thus appearing quite hardy. A beautiful Sanguisorba raised from Sikkim seeds was also exhibited.

Amongst the hybrids sent was a Primula (P. rosea × P. kashmirensis) in flower, as well as another plant flowering at this late season for Primulas. The leaves are slightly fragrant, though a disagreeable odour is emitted by the foliage of both parents—that of the P. kashmirensis being quite offensive. A hybrid Rhododendron (R. Jenkensii × R. Edgworthii), made in 1864, but only blooming now, showed in the only bloom open five petals, apparently all pedicelled, though they all may be joined at the bottom; yet the flowers of both parents are monopetalous. The plant exhibited bloomed in June, and the style and seed vessels are yet upon it, springing, as it were, out of a kind of involucre. This cross has been recognised by hybridists as a most difficult feat to accomplish.

A plant of which the foliage was very fragrant with a perfume like that of lavender or lemon, and with umbels something like that of Bouvardia, but which the thread-like filaments of one of its flowers showed it not to be, was submitted for determination.

A plant of Rheum Moorcroftianum had been raised rom seeds collected by Dr. Aitchison in Affghanistan at elevations between 12,000 and 14,000 feet, and kindly sent from Kew, had shown itself a very rapid grower, outstripping R. nobile in this particular. Royle, in his *Illustrations of Indian Botany*, vol. ii., p. 315, speaks of this Rheum as being superior for its purgative properties, and says, "Mr. Moorcroft sent me some Rhubarb which for compactness of texture, colour, and properties, was as fine as any I have ever seen, from near Ladak in N. lat. 34° and E. long. 77½°." As this is a very cold region, the plant should be hardy in our climate.

A plant of Veronica chathamica, a native of the Chatham Islands, near New Zealand, had been raised from seeds sent from the latter country. Though not yet recorded in any of our botanical works, it has been cultivated by Mr. Travers in his garden at Wellington, where the profusion of its dark flowers and prostrate habit have proved it a most showy addition in ornamenting rockwork or earth-banks. It is a small prostrate shrub, with wiry branches. The racemes are few or many. The flowers are numerous, closely set, peduncles half an inch long, corolla large, dark purple. Veronica anomala, a tiny alpine shrub, gathered at an elevation of 3000 feet, had been also raised from seed got from New Zealand, and has not yet been recorded in botanical works. Sir Joseph Hooker, *New Zealand Flora*, p. 213, has described Veronica Haastii as a tortuous decumbent shrub, with flowers sessile and in pairs, but the corolla not seen. This and V. epacridea are most remarkable plants, of a different habit from any hitherto described. Only young plants of this species were on the table. A specimen of V. Kirkii (Armstrong), another alpine, with an elevation of from 3000 to 4000 feet, was also exhibited. V. lycopodioides, a young plant, was so small that Mr. Henry hesitated to lay it before the meeting. It looks more like a moss than a Phænogam, yet Sir Joseph Hooker describes it (*New Zealand Flora*, p. 211) as an erect (?), much branched, stout shrub, having leaves most densely and closely 4-fariously imbricate, having flowers sessile, in small dense oblong heads at the ends of the branches. But altogether Sir Joseph's description is in all its particulars so disconform to the plant Mr. Henry had raised from seed received with this name, that he hesitated as to its correctness. Yet these New Zealand things undergo such singular transformations that the plant exhibited, still in babyhood, may yet realise the description Sir Joseph gives of it. Wahlenbergia saxicola, the Bluebell of New Zealand, also exhibited, is fully described in the *Handbook of the New Zealand Flora*. It is an alpine and subalpine species, going up to an elevation of 6000 feet; it must therefore be quite hardy with us, though it had not yet been tried out all winter at Hay Lodge.

IV. Mr. Symington Grieve read some notes on the flora of the islands of Colonsay and Oronsay, two connected islets of the Hebrides, with a list of plants collected during May and August, 1880, and June, 1881, supplementary to a list of the flora of the same locality, already published in the *Transactions*. The vegetation rather lacked variety. The author was inclined to account for this on the geological hypotheses of the islands having passed through an intense glacial cold period, as they exhibited marks of striation throughout their entire area. This also might account for the absence of vipers, toads, and frogs. Though against this reasoning was the finding of the stumps of immense trees on the shores of Loch Fada and cut down by the early inhabitants for fuel, as peat is so scarce on the plains. Pines which have been introduced, with few exceptions, do not thrive, but other trees flourish, including a number of rare Himalayan shrubs and trees on the grounds of Colonsay House.

The author gratefully acknowledged assistance in the work of identification from Mr. H. C. Watson, and the late Mr. F. M. Webb, and from Mr. Chas. G. Hobkirk, of Huddersfield, in respect to mosses. Though none of the plants enumerated are specially rare, still some are not very common in Scotland, and seem to reach here nearly their northern limit. Thus, Hypericum elodes, Scutellaria galericulata and minor, are quite abundant. A new station for Orchis pyramidalis, besides the one previously noted on Colonsay as unique for the West of Scotland, was discovered. This plant does not appear to come up every year, as last season not a single specimen could be gathered at the Colonsay station, though this year it may be, abundantly. A clump of Verbascum thapsus grows in a wild state in Ardskinish Glen, Colonsay; and this, though now a mile inland, once formed the sea-beach. This plant has also been introduced into several cottage gardens. Ulex europæus, though this year much hurt apparently by last winter's frost, luxuriates, growing near Scalasaig, to 10 or 12 feet high. Narcissus biflorus, though probably an escape from cultivation, is now quite established in a wood near Kiloran. Mimulus luteus, also manifestly an escape, is found along the course of the stream flowing from Loch Fada, especially near Colonsay House, and at its junction with the sea. Only one Hieracium is mentioned in the list. Mr. H. C. Watson holds that one of the grasses mentioned in the list, published in the *Transactions* as having been found by Dr. Lightfoot, should be deleted. The author of *Flora Scotica* himself seems to have been dubious of this plant when he named it Bromus arvensis, when it was probably a dwarf specimen of Bromus mollis.

Amongst Colonsay mosses Bryum alpinum is found in fructification; so beautiful are its dull velvety pads on wet rocks near Scalasaig during spring that they attract even popular attention; the islanders extract a most beautiful dark brown colour, with which they dye their native cloths. Ullota phyllantha, Bud., is very plentiful on Ash trees near Colonsay House, and on old walls, as well as rocks: this species propagates by gemmæ covering the apex of the stem. Zygodon viridissimus, Dick, as well as its sub-variety, rupestris, Lindb., both grow on this island; the first, along with Eurycleum pumilum, Wils., in semi-darkness on the walls of the crystal spring cavern; and the second on moist rocks beside a small stream running into Loch Fada. Near this station may be found, in crevices of rocks, Pottia Heimii, Hedw., and Bryum pendulum, Hornsel., and on moist ground Dichodontium pellucidum.

The southern part of Oronsay is sandy, and contains numerous small lochans, whose basins fill during winter rain and snow, but which almost dry up during the summer heat. Along their margins may be collected Hypnum aduncum, Hedw., and its variety Kneffi, Bayear, also Hypnum polygonum, B. and S., and stellatum, Schw., Syntrichia intermedia, Brid., grows on the sandy shores in soil made up of comminuted shell *débris*—its usual habitats are limestone walls. Ditrichium flexicaule, var. densum, was found growing in similar material in rock crevices near the sea. This sub-variety only appeared in the second edition of the *British Moss Catalogue of the Exchange Club*, published this spring, as extending through several of the Watsonian districts of Great Britain, but its appearance in the West Highland district does not seem to have, previous to the present communication, been specifically noted.

The author regretted that since his previous paper on these islands, visitors, during the season of 1880, had committed such havoc amongst the clumps of Osmunda regalis as to have induced the proprietor to exhibit a notice at the hotel requesting visitors not to take away plants without permission. Such vandalism on the part of strangers in a hitherto safe, because unknown locality, was to be deprecated. Still, might there not be another solution of the difficulty, not involving an absolute prohibition to remove botanical desiderata? Suppose seeds and spores were collected at stations, and sown on ground suitably prepared by the labour of the most poverty-stricken of the islanders, sold to parties desiring them, and the proceeds allocated to the poor—might not the claims of botanical collectors and those of the proprietor be thus amicably adjusted?

In a population of 400 in these islands no necessity is found for a resident physician. Indeed the balmy air and refreshing Atlantic breezes suggest their suitability as a sanitorium for invalids, within the limits of Scotland, akin to Bournemouth or Torquay.

V. Continuation of report on the effects of the winter of 1880-81, on vegetation in different parts of Scotland, and temperatures in, and progress of open-air vegetation at the Royal Botanic Garden, from the beginning of June, by Mr. John Sadler, Curator.

The thermometer had not fallen to the freezing-point during June at the Royal Botanic Garden, though in different areas in Scotland, as in Berwick, Roxburgh, Aberdeen, and Inverness-shires, it had gone down several degrees below it. Thus, Mr. Loney, Marchmont, Dunse, reports that on June 10 he registered 9° of frost on the ground with the black bulb thermometer, and 3° at 4 feet above the surface. Young Potato plants and young foliage were blackened. The lowest readings at the Royal Botanic Garden were as follows:—On the 6th, 38°; 7th, 35°; 8th, 37°; 9th, 34°; 10th, 38°; 16, 38°; 24th, 36°; 28th, 38°. These low temperatures greatly checked the growth of vegetation and the fertilising of the flower.

Since July commenced the night temperatures on an average have been higher, the four lowest being, on the 1st, 40°; 2d, 44°; 7th, 45°; 9th, 45°.

During the past six weeks the effects of last winter on vegetation have become very marked. Many plants that produced young shoots in spring, and gave promise of continued growth, have succumbed, while many more threaten to follow them next season. Since the last meeting 162 species of plants have come into flower on the rock garden, making for the season over 500 species and varieties. Mr. Sadler read, amongst others, the report he had received from Mr. Davidson of the Palace Garden, Hamilton.

Mr. Alexander Buchan called attention to the striking parallels of temperature betwixt this Hamilton disttrict and that around Edinburgh. He accounted for it by a similarity in features of physical geography.

VI. Miscellaneous communications:—

1. Professor Balfour exhibited specimens of Maw's encaustic tiles, containing beautiful imprints of Davallia, Selaginella, and the marks of Lepidodendron.

2. Professor Balfour also showed a specimen of the bark of the so-called "Panama wood," or Quillaria saponaria, from South America, belonging to the Rosaceæ, and yielding a saponaceous secretion in practical use. Sent by Messrs. Duncan, Flockhart & Co.

3. Mr. Robert Hutchison, of Carlowrie, sent Elm leaves from Islay destroyed by insects.

4. Mr. Sadler exhibited two large photographs by Mr. Magnus Jackson, showing the Tay at the south entrance to Perth during the flood, caused by the breaking up of the snow of March, 1881, displaying the Elm trees of the Inch, reflecting double in the water.

5. Mr. Sadler exhibited barren stems of the fungus Lentinus lepidens (Cooke, *Handbook*, p. 242, No. 684), obtained from a damp cellar in Morningside, sent him by Dr. Craig.

6. Mr. Taylor showed specimens of foreign plants collected by Charles W. Cowan, Esq., from among the Esparto-grass used at Valleyfield Mills, Penicuick, including the Lavender, a Sedum, several species of Compositæ, and amongst the grasses Bromus madritensis, B. erectus, B. asper, Dactylis hispanica, &c.

7. Professor Dickson called attention to plants on the table from the stove-houses. They included specimens of Cyananthus inflatus, Dianthus alpinus, D. eximius, Linum viscosum, Ranunculus acris, straw-coloured variety, found by Professor Dickson; Parnassia himalayensis, as well as a species of Saxifrage from Kidarkaota, India; Meconopsis aculeata, Allium oreophyllum, Umbilicus sempervivum, Saxifraga aizoides aurantiaca, Aodrosace lanuginosa, &c.

Obituary.

The death, in his eighty-eighth year, of Mr. Charles Lawrence, of the Querns, Cirencester, was recorded last week. "For more than half a century (says the *Times*) Mr. Lawrence has been a prominent figure among scientific agriculturists, and his numerous writings have made his name familiar to those who interest themselves in the progress of the science of agriculture. Mr. Lawrence owned during a long series of years a farm adjoining that of the Royal Agricultural College at Cirencester. On this farm he conducted a large number of valuable experiments, which led to the introduction into general use of many new improvements in agricultural machinery. Numerous visitors have at different times paid a visit to Mr. Lawrence's farm, among others, Baron Liebig himself, who came there more than thirty years ago, during his tour in England. So long ago as 1812 Mr. Lawrence, in conjunction with his brother, the late eminent surgeon, Sir William Lawrence, attended the lectures of Dr. Hugh on chemistry. The knowledge so obtained Mr. Lawrence applied to his favourite pursuit of agriculture, endeavouring to ascertain in what manner the maximum of fertility could be attained with a due regard to economy. Mr. Lawrence took a leading part in founding and organising the Royal Agricultural College at Cirencester, and his own farm was at all times open to the students. In the town of Cirencester Mr. Lawrence was much beloved for his benevolence, and his loss will long be sincerely felt." Mr. Lawrence was a not infrequent contributor to the columns of this journal..

—— We regret to announce the death, on Monday last, after a long and distressing illness, of Mr. George Reid, senior partner of the firm of Benjamin Reid & Co., seedsmen, nurserymen, and agricultural implement makers, of Aberdeen. Mr. Reid was born in 1826, and his uncle, the late Mr. Benjamin Reid, having commenced business in 1840, in partnership with Mr. William Gordon, as seedsmen, under the firm of Benjamin Reid & Co., he entered the service of that firm in 1845 as a journeyman shopman. In 1851 he became a partner. The firm of that date had nurseries, comparatively limited in extent, at Albyn Place and Union Vale. The seed business was then carried on at 94, Union Street, and it continued to be so for some years after he became a partner. Larger premises were then taken in the house fronting Union Street, and corner of Belmont Street. An agricultural implement department having been added, largely extended outside accommodation became necessary, which was at first found at Summer Street, and thereafter the extensive works at Justice

Mill Lane, including forges and engineering and other workshops, for the production of improved agricultural implements, were constructed. In 1865 the partnership was dissolved, Mr. Benjamin Reid retiring, and Mr. George Reid assumed the responsibility of the business, with the exception of the implement department, in which Mr. J. H. Sams, who was then joint manager, was a partner. In 1866 and the succeeding years Mr. Reid laid out extensive nursery grounds. In addition to 6 or 7 acres at Granite Hill, Rubislaw, on which large conservatories were quite recently erected, he had leased 126 acres on Burnieboozle and Hazelhead, a large part of which was laid out as nursery ground and stocked with valuable seedlings, including not a few rare Coniferæ and other of ornamental and timber trees, in the acclimatisation of which Mr. Reid, up to almost the last, took a keen and intelligent interest. Concurrently almost with the extensive outdoor operations, the necessity of largely extended accommodation for his general seed business pressed itself upon him, and led to his erecting a handsome and commodious block of buildings facing Guild Street and Exchange Street. In developing the large and varied business of which he was the guiding spirit, Mr. Reid had assumed partners, several of them old and trusted *employés*, in the different departments, and upon them the management has devolved since the progress of the illness under which he so long suffered incapacitated him for business.

—— We have also to record the death, on May 26 last, at Smythesdale (Victoria), where he had gone for the benefit of his health, Mr. THOMAS PIERCE, late gardener to Lord Annally, Woodland Castle, Dublin, aged 33 years.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JULY 20, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
July	In	In.	°	°	°	°	°	°	°		In.
14	30.09	+0.27	86.2	58.6	27.6	70.1	+ 7.5	62.4	76	W.: S.W.	0.00
15	29.82	+	94.0	58.0	36.0	75.4	+12.7	57.8	55	N.W.	0.00
16	29.89	+0.08	85.3	64.5	20.8	71.5	+ 8.8	63.5	75	N.W.	0.02
17	29.89	+0.09	83.0	62.5	20.5	70.8	+ 8.1	57.0	61	N.W.	0.00
18	29.83	+0.03	88.4	61.0	27.4	73.0	+10.4	58.6	62	S.W.	0.00
19	29.68	—0.12	85.1	61.3	24.8	73.3	+10.8	60.9	66	W.S.W.: N.W.	0.00
20	29.73	—0.06	74.0	57.0	17.0	63.0	+ 0.6	53.6	73	N.W.	0.02
Mean	29.85	+0.04	85.3	62.4	24.9	71.0	+ 8.4	59.1	67	S.W.: N.W.	0.04

July 14.—A fine warm day; fine clear night.
— 15.—A very hot day; very little wind.
— 16.—A slight rain early in the morning; fine hot sultry day. Fine still night.
— 17.—A very fine day; fine clear night.
— 18.—A fine hot day; fine warm night.
— 19.—A fine hot day; cloudy, dark sky at night.
— 20.—A little rain at 5 A.M.; morning dull to 11 A.M., afterwards fine.

LONDON: *Atmospheric Pressure.*—During the week ending Saturday, July 16, the readings of the barometer at the level of the sea increased from 30.02 inches at the beginning of the week to 30.25 inches by 9 A.M. on the 11th; decreased to 30.05 inches by 3 P.M. on the 12th; was 30.35 inches at 9 A.M. on the 14th; decreased to 29.99 inches by midnight of the 15th, and was 30.10 inches at the end of the week. The mean reading for the week at the level of the sea was 30.15 inches, being 0.10 inch higher than that of last week, and 0.15 inch above the average for the week.

Temperature.—The highest temperature in the week was 94° on the 15th; on this day the temperature at 9 A.M. was 77°.5, and at midnight was 72°; it was as high as 86° on the 14th, and 85° on the 16th. The highest temperature on the 10th was 73°; the mean of the seven highest day temperatures was 83°. The lowest temperature in the week was 54°.2, on the 13th; on the 15th the lowest temperature was 58°, and on the 16th was 64°.5. The mean of the lowest seven night air temperatures was 57°.8.

The greatest range of temperature in one day (between midnight and midnight) was 36°, on the 15th; and the smallest was 18°, on the 10th; the mean of the seven daily ranges was 25°.3.

The mean daily temperatures were—July 10, 62°.5; July 11, 65°.8; July 12, 68°.5; July 13, 66°.1; July 14, 70°; July 15 was 75°.4; and July 16 was 71°.5; and all these are above their averages by 0°.3, 3°.5, 6°.1, 3°.6, 7°.5, 12°.7, and 8°.8 respectively.

The mean temperature for the week was 68°.6, being 4°.3 of higher temperature than that of the preceding week, and 7°.3 higher than that of the week ending July 2. It was 6° above the average of the same week for sixty years.

The highest reading of the thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 157° on the 11th, and 155° on the 15th; the mean of the seven readings was 152°.

The lowest reading of a minimum thermometer with its bulb resting on grass exposed to the sky was 49°.5, and the mean of the seven readings was 52°.

A week of very fine, hot weather.

ENGLAND: *Temperature.*—During the week ending Saturday, July 16, the highest temperatures were 94° at Blackheath, 93° at Cambridge, and 92°.2 at Norwich, and these took place on the 15th; on the 15th at Plymouth the highest temperature reached was 69°, at Truro 79°, at Nottingham 88°.9, at Sheffield 82°, at Liverpool 71°, at Hull 83°, and at Sunderland 90°; and these readings were not the highest in the week—for instance, at Plymouth on the 16th the temperature was 82°, at Truro on the 14th was 80°, at Nottingham on the 16th was 89°.7, at Sheffield on the 14th was 83°, at Liverpool on the 11th was 75°.3, at Hull on the 11th was 84°, and at Sunderland on the 14th was 91°. The general mean from all stations was 85°.

The lowest temperatures in the week were 49° at Truro, 51° at Cambridge, and 51°.9 at Nottingham; at Norwich the lowest temperature in the week was 56°, and at Leeds 55°. The mean from all stations was 53°.

The greatest ranges of temperature in the week were 41°.8 at Cambridge, and 39°.8 at Blackheath; the least ranges were 21°.9 at Liverpool, and 26°.7 at Bristol. The mean from all stations was 32°.

The mean of the seven high day temperatures exceeded 81° at Blackheath Cambridge, and Norwich, and were less than 73° at Plymouth and Bristol. The mean from all stations was 76°.7.

The mean of the seven low night temperatures exceeded 58° at Norwich and Brighton, and were 55°.1 at Truro, and 55°.3 at Hull. The general mean was 56°.6.

The mean daily range exceeded 25° at Blackheath, Cambridge, and Nottingham; at Liverpool it was 12°.8. The general mean was 20°.

The mean temperature of the week was 68°.6 at Blackheath, and Norwich, and less than 62° at Plymouth, Bristol, and Liverpool. The general mean was 64°.7.

The weather was fine and hot; the largest fall of *rain* in the week was 0.1 inch at Leeds: at the greater number of places no rain fell.

SCOTLAND: *Temperature.*—During the week ending Saturday, July 16, the highest temperatures were 77° at Aberdeen, and 75°.8 at Edinburgh. At Greenock the highest temperature was 66°., and the general mean was 72°.7, being more than 12° lower than in England.

The lowest temperature was 40° at Paisley, at Aberdeen the lowest in the week was 51°.5. The general mean was 47°.4.

The mean temperature was highest, 62°.9, at Dundee; and lowest, 56°.8, at Paisley. The general mean was 60°.9, being 3°.8 below that of England.

Rain.—The largest fall was 0.73 inch at Greenock, and the smallest, 0.03 inch, at Edinburgh. The general mean was 0.28 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

PRÆNANTHES ELEGANTISSIMA.—Can you, or any one of your readers, inform me how to propagate Prænanthes elegantissima—a beautiful Sonchus, much finer and more graceful than the well-known Sonchus laciniatus? I tried cuttings at every season, inside and outdoors, in sand, peat, sandy loam, and coal, but was never successful. *C. W.*

Answers to Correspondents.

A "MOLLY" OF PEAS: *J. G. M.* Peas are now nearly always sent to market in bushels or bags, and scarcely ever in "mollies" = nearly 3 pecks.

CAMPANULA MEDIUM: *J. H.* Good samples, nothing more.

CLAY'S FERTILISER: *T. C.* About ten days. Your other question next week.

GLYPTOSTROBUS HETEROPHYLLA: *T. S. P.* See Veitch's *Manual of Coniferæ*, p. 217; and Decaisne, Naudin, and Hemsley's *Handbook of Hardy Tree Shrubs, and Herbaceous Plants*, p. 451.

HOLLIES: *Bury.* Spring or autumn. Leave both now till the end of September or beginning of October.

INSECTS: *H. H., Cranleigh.* The very small beetles which, in myriads, have attacked your Potatos, Parsley, Tomatos, Lettuces, Parsnips, Cabbages, and even Peach trees, are a species of weevils, of Pear shape (hence named generically Apion). This species is named Apion flavifemoratum, from its yellow thighs. It sometimes commits considerable ravages in Clover fields, and is sufficiently common, but this extraordinary development of myriads of individuals is quite unusual—we have, in fact, never heard of such a visitation, nor of their attacking various kinds of plants in this manner. *I. O. W.—Enquirer.* The caterpillar which is said to be destructive to Winter Spinach (Spinachia oleracea), may possibly be the Geometra (Electra) spinachiata, but we have no direct proof of this. Brez gives Phalæna nigrum, Linn. (Graphiphora sp.), as an enemy of the Spinach. *I. O. W.—J. Butler.* The insect found amongst your Potatos is one of the Bishop's Mitre bugs, and bears not the slightest resemblance to the Colorado beetle.—*Camjee.* The larvæ and the perfect insect sent are those of the common domestic bacon beetle (Dermestes lardarius. *I. O. W.*

MEALY BUG: *G. Sturge.* All you can do now, until the leaves fall off, is to get some soft-soapy water, or a solution of Gishurst Compound, and wash off as much of the bug as you can with a stiff painters' brush. If it has got into the bunches you can only keep it down by hard syringing.

NAMES OF PLANTS: *H. Roberts.* The common Succory (Cichorium intybus).—*W. P., Epping.* Ipomœa Quamoclit, a common plant throughout the tropics.—*Enquirer.* The Caper Spurge (Euphorbia lathyris), not the true Caper, which is Capparis spinosa.—*J. K.* Hemerocallis flava.—*W. F. Gunn.* Glyceria distans. Your first specimen was not good enough for us to describe.—*T. S.* Rhus toxicodendron.—*B. P.* 1, Campanula glomerata; 2, Eucalyptus piperita; 3, Acorus Calamus.—*W. L. R.* The Chinese Day Lily (Funkia ovata).

NECTARINE: *R. L.* Your packet was smashed to pulp, and the letter rendered thoroughly unintelligible. You could hardly have expected anything else from the manner in which it was sent—we cannot say packed.

PANSY: *R. M.* We have not the varieties for comparison, and cannot help you to its name.

PEAR: *B. N.* Appears to be Doyenné d'Eté.

PEAS: *N. C. B.* Accidental. Many thanks for calling our attention to the matter.

"SHAKE" IN TIMBER: *H. K.* The appearance you describe is due to the separation of the softer and more cellular portions of the layers of wood from the harder fibrous portions.

THE LATE SOUTHGATE SHOW.—In the report of the Southgate Horticultural Society's show, at p. 89, instead of Messrs. Cutbush, of Southgate, read Messrs. R. & G. Cuthbert.

COMMUNICATIONS RECEIVED:—J. C. & Co.—W. C.—D. W.—G. N.—W. H.—W. E.—H. H. C.—F. Baron de T.—W. H. R.—B. F.—B. S.—D. T. F.—W. B. S.—A. O.—W. B. H.—J. V. V. (next week).—H. K.—R. M. C.—C. E. F.—W. R.—G. D.—F. W. B.—A. M.—J. B.—A. J. Maule.—F. Q. L.—Subscriber.—St. Helier.—J. L. T.

CATALOGUES RECEIVED.

DOWNIE & LAIRD, 17, Frederick Street, Edinburgh—Dutch Flowering Bulbs.

EWING & CO., Eaton, near Norwich—List of Clematises.

Markets.

COVENT GARDEN, July 21.

We are still receiving large supplies of soft fruit, and prices have been well maintained. In some cases somewhat higher rates have been made, owing to the continued dry weather affecting future supplies, and making buyers anxious to purchase. Good demand for Peaches and Nectarines. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Herbs, per bunch	0 2– 0 4
Asparagus, English, per bundle	0 9– ..	Horse Radish, p. bun.	4 0– ..
Aubergines, per lb.	0 6– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
Beans, French, p. lb.	0 6– ..	— Engl. Cos, score	1 6– ..
— Broad, per bush.	6 0– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
— New Fr., bund.	0 9– 1 0	Parsley, per bunch	0 4– ..
Cauliflowers, English, each	0 6– 0 9	Peas, per bushel	9 0–10 0
Celery, per bundle	1 6– 2 0	Radishes, per bun.	0 2– 0 6
Cucumbers, each	0 6– 1 6	Rhubarb, per bund.	0 4– 0 6
Endive, per doz.	2 0– 3 0	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	4 0– ..
		Tomatos, per lb.	0 9– 1 0
		Vegt. Marrows, doz.	3 0– ..

Potatos very plentiful, and prices much lower.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apricots, per box ..	1 6– 2 6	Lemons, per 100	– 4 0– 6 0
Cherries, per ½-sieve	3 6–10 0	Melons, each ..	2 6– 4 0
Currants, red, ½-sieve	3 0– 5 0	Peaches, per dozen..	4 0–15 0
— black, ½-sieve..	6 0– 7 0	Pine-apples, Eng., lb.	2 0– 4 0
Figs, per dozen ..	4 0– ..	Raspberries, per lb.	0 4– 0 6
Gooseberries, ½-bush.	2 6– 3 6	Strawberries, per lb.	0 6– 1 3
Grapes, per lb. ..	1 0– 4 0		

An advance of 20 per cent. on the above prices may be taken as a fair average of the retail value of the articles quoted.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Foliage Plants, various, each	2 0–10 6
Arbor vitæ (golden), per dozen	6 0–18 0	Fuchsias, per dozen	3 0– 9 0
— (common), dozen	6 0–12 0	Ivy Geranium, doz.	4 0– 0 0
Begonias, per doz. ..	4 0–12 0	Lilium longifl., doz.	18 0–42 0
Calceolaria, per doz.	6 0–12 0	— lancifolium, doz.	12 0–36 0
Creeping Jenny, doz.	3 0– 4 0	— auratum, p. doz	24 0–60 0
Cyperus, per dozen	6 0–12 0	Lobelia, per dozen..	4 0– 6 0
Dracæna terminalis	30 0–60 0	Marguerite, white, per dozen.. ..	18 0–24 0
— viridis, per doz...	12 0–24 0	— Yellow, per doz.	12 0–30 0
Euonymus, various, per dozen	6 0–18 0	Mignonette, per doz.	4 0– 6 0
Evergreens, in var., per dozen	6 0–24 0	Myrtles, per doz. ..	6 0–12 0
Ferns, in variety, per dozen	4 0–18 0	Palms in var., each	2 6–21 0
Ficus elastica, each	1 6– 7 6	Pelargoniums, doz.	9 0–30 0
		— tricolor, per doz.	3 0–12 0
		— scarlet, per doz.	3 0– 6 0
		Rhodanthe, per doz.	0 0–10 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 2– 0 4	Marguerites, 12 bun.	0 4– 0 9
Antirrhinum, 12 bun.	6 0– 9 0	Mignonette, 12 bun.	2 0– 4 0
Arum Lilies, 12 blms.	4 0– 6 0	Pelargoniums, 12 sprays	0 9– 1 0
Bouvardias, per bun.	0 9– 1 6	— zonal, 12 sprays	3 0– 6 0
Calceolaria, 12 bun..	6 0–12 0	Pinks, various, 12 bunches	3 0– 6 0
Carnations, 12 bun.	4 0– 6 0	Primula, double, per bunch	0 6– 1 0
Cornflower, 12 bun..	1 6– 3 0	Rhodanthe, 12 bun.	8 0–12 0
Eucharis, per doz. ..	4 0– 6 0	Roses (indoor), doz.	1 0– 6 0
Feverfew, 12 bun. ..	3 0– 6 0	— (outdoor), 12 bun.	4 0– 9 0
Forget-me-not, 12 bunches	3 0– 6 0	— (Moss), 12 bun.	8 0–12 0
Gardenias, 12 blms..	3 0– 8 0	Stephanotis, 12 spr...	3 0– 4 0
Heliotropes, 12 sp...	0 6– 1 0	Sweet Pea, 12 bun..	3 0– 6 0
Iris, 12 bunches ..	6 0–18 0	Sweet Sultan, 12 bun.	4 0– 8 0
Lapageria, white, 12 blooms	4 0– 6 0	Tropæolum, 12 bun.	1 0– 3 0
— red, 12 blooms..	1 0– 3 0	Tuberoses, per dozen	2 0– 3 0
Lilium longiflorum, 12 blooms	3 0– 4 0		

SEEDS.

LONDON: *July* 20.—The seed market to-day was thinly attended, and not much business was passing. With regard to Trifolium incarnatum holders in France continue to ask prices greatly in excess of the views entertained by English buyers: German quotations, moreover, are now coming to hand at a more moderate level. In addition to Trifolium samples of new home-grown Turnip, Trefoil, Mustard and Rape seeds are now offering. The transactions doing in bird and other kinds of seeds are too meagre to admit of remark. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday there was scarcely any English Wheat offering, and full rates were required. Of foreign, however, the arrivals into London were heavy, but there was not a large supply pressing on the market, and for retail quantities late rates had to be paid, but instances occurred in which easier terms were conceded, though not to establish any current decline. Flour was in only moderate supply, and steady in value. Barley was without change. Beans were very firm, and Peas tended upwards. Oats were fully 6*d.* lower on the week, but Maize was without quotable change.—On Wednesday the rates of Monday had to be paid for retail quantities of Wheat, to which transactions were mainly confined. Flour was firm, with a moderate enquiry. Barley, Beans, and Peas supported late value. Oats moved off slowly at about late value, and Maize was unchanged.—Average prices of corn for the week ending July 16:—Wheat, 46*s.* 2*d.*; Barley, 26*s.* 1*d.*; Oats, 24*s.* 6*d.* For the corresponding period last year:—Wheat, 43*s.* 1*d.*; Barley, 27*s.* 9*d.*; Oats, 26*s.* 4*d.*

POTATOS.

The Borough and Spitalfields Markets reports state that fair supplies of new were on offer, with a quiet trade. Quotations:—English shaws, 6*s.* 6*d.* to 7*s.* 6*d.*; kidneys, 7*s.* 6*d.* to 8*s.*; French round, 5*s.* 9*d.* to 6*s.* 6*d.*; kidneys, 7*s.* 6*d.* to 8*s.*; Jersey round, 6*s.* 6*d.* to 7*s.* 6*d.*; kidneys, 7*s.* 6*d.* to 8*s.* 6*d.* per cwt.

COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14*s.* 3*d.*; Walls End—Haswell, 15*s.*; Hetton, 15*s.*; Hetton Lyons, 13*s.*; Hawthorns, 13*s.* 3*d.*; Lambton, 14*s.* 6*d.*; Wear, 13*s.*; South Hetton, 15*s.*; Tunstall, 13*s.*; Tees, 14*s.* 9*d.*; Bradford Navigation, 17*s.*; Westminster-Brymbo and Wrexham Navigation, 13*s.* 9*d.*

Government Stock.—On Monday the closing prices of Consols were, for delivery, 101¼ to 101⅜, and 101⅜ to 101½ for the account. Tuesday's final figures were 101⅛ to 101¼ for delivery, and 101¼ to 101⅜ for the account. The closing quotations on Wednesday were, 101 to 101⅛ for delivery, and 101 1/16 to 101 3/16 for the account; on Thursday they were, for delivery, 101 to 101⅛, and 101⅛ to 101¼ for the account.

Under the Patronage of the Queen.

J. SMITH'S IMPERISHABLE STRATFORD LABELS.

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.

J. SMITH, The Royal Label Factory, Stratford-on-Avon.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

F. ROSHER AND CO., Brick and Tile Merchants.

See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.

A liberal Discount to the Trade.

Geometrical Mosaic and Encaustic TILE PAVEMENTS, for Conservatories, Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.

MAW AND CO., Benthall Works, Broseley, Shropshire.

DOULTON & CO.,
LAMBETH POTTERY, LONDON, S.E.

VASES, PEDESTALS, FOUNTAINS, GARDEN EDGINGS, &c.,
IN
IMPERISHABLE TERRA COTTA.
PLAIN AND ORNAMENTAL PAVINGS;
TILES FOR LINING WALLS OF Conservatories.

ART POTTERY, including JARDINIERES AND OTHER Table Decorations and Vases, Fountains, &c., for the Conservatory, in DOULTON WARE, LAMBETH FAIENCE AND THE NEW SILICON WARE.

Show Rooms, Albert Embankment, S.E.

BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities of
BETHAM & SON,
9 LOWER THAMES STREET, LONDON, E.C.

B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting up purposes, in 200 ft. and 300-ft. cases.

T. MILLINGTON AND CO.,
43, Commercial Street, E.
PLATE, SHEET, CROWN GLASS.
SHEET GLASS, IN CASES, FOR CUTTING UP.

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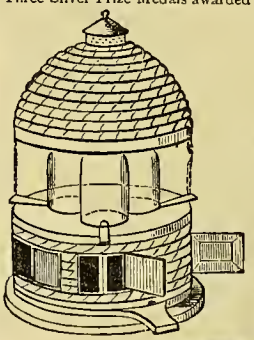

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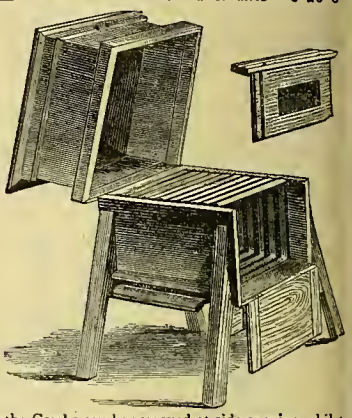

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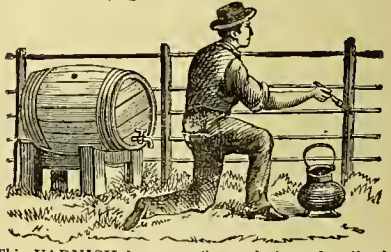

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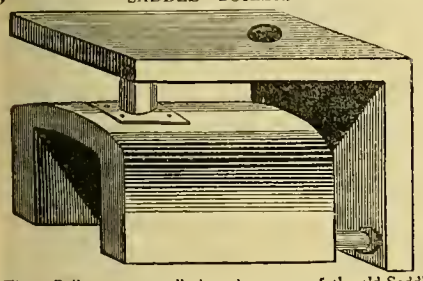

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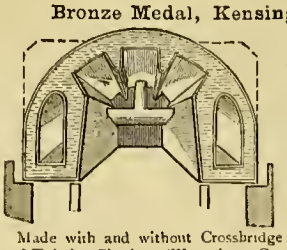

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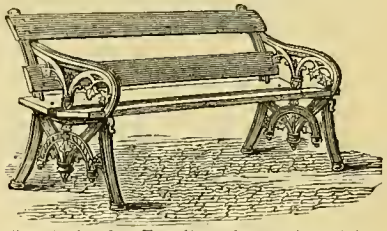

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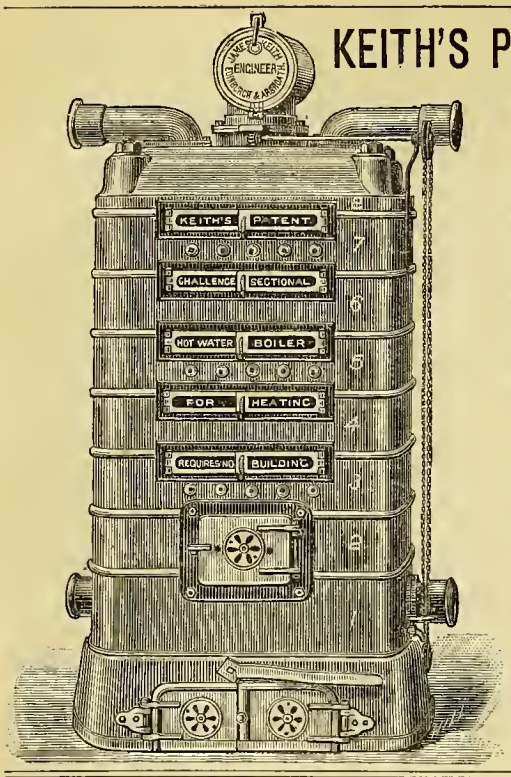

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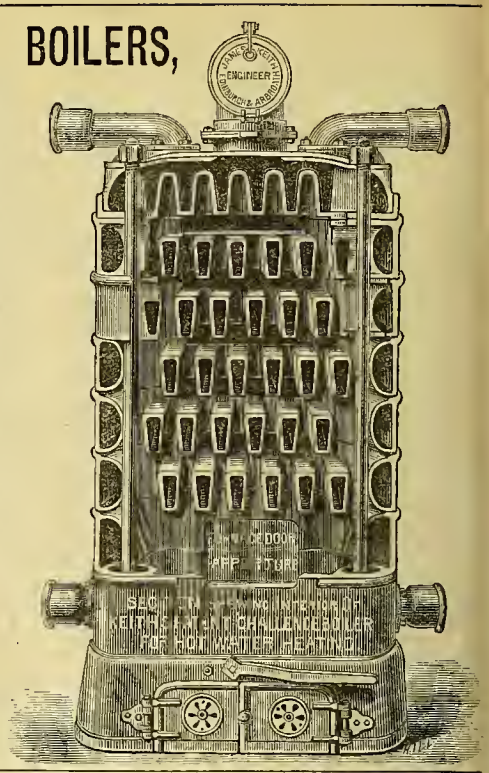

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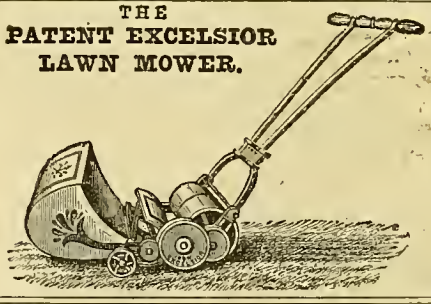

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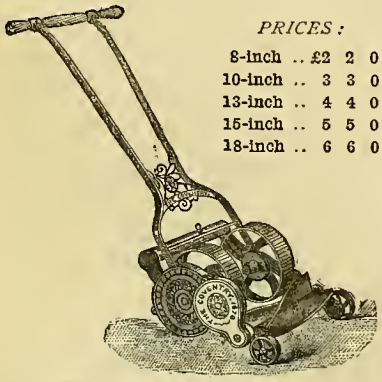

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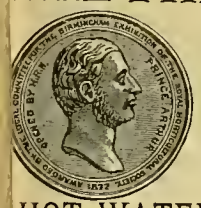

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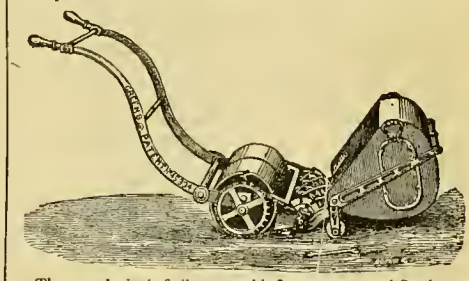
Patent "Silens Messor" Lawn Mowers,
AT THE ABOVE EXHIBITION.

The *Journal of Horticulture* of June 9 says: "MOWING MACHINES.—The judges' work in this class of eight exhibitors, each having a number of machines, was no sinecure, for special advantages in some form or other were claimed for each kind of mower; and it may be safely said that all were good and did their work well. After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. Green & Sons, of Leeds and London. As the machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

The Garden of June 11 says: "Messrs. Green took the Silver Medal for their mowing machines, which were represented by their 'Sileos Messor' and the horse-power machines with new patent side delivery grass boxes."



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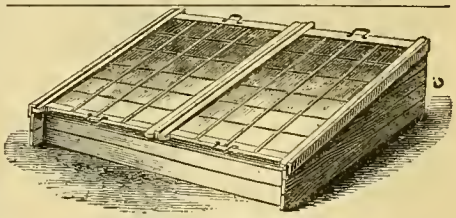

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THE
Gardeners' Chronicle.

SATURDAY, JULY 30, 1881.

TREE LORE.

GENERALLY speaking, the variety of soils and circumstances connected with the settlement of our once unsteady hills and restless surface have prevented uniformity in the distribution of timber trees; the Oak, at any rate, is found everywhere. There are in round numbers seventy-five Oak counties. They grow almost everywhere, to an altitude of 300 or 400 yards, which is as high as Q. sessiliflora ascends in England.

The oldest of our Oak woods is Wistman's Wood, in Dartmoor, situated on a slope of the West Dart towards its source. The trunks of this very singular patch of Oak trees have been dwarfed by stress of climate and a poor soil to a height which rarely exceeds 3 feet, measuring from the ground to the spreading of the branches. You can readily sit down on the crown of any tree you may please to select, having a limb to lean upon and a boulder for a footstool. The trunk of a specimen which I measured was 6 feet in girth, and the branches of the head were 15 feet long. The wood was described in a "Perambulation" of 800 years since as presenting much the same appearance as it does at present, and the lapse of another 800 years, probably, will not alter it much, owing to the toughness of the dwarfs and the protection of the large slabs of stones which cover the surface of the ground and protect them from wind. A wood which has pushed its way among big stones in the most unlikely site in Devonshire, must be a native-planted wood. Many of the trunks are completely buried in the slabs, others lean heavily against them—the heads alone rise entirely clear, and the wind blowing keen across Dartmoor they all lean in one direction, spreading wide and flat over the stones and looking in the distance like a sheet of green. The site is damp and suits the Oak; the soil is a terrible sample of Dartmoor.

Wistman's Wood is on the estate of the Duchy of Cornwall, and a specimen trunk sawn in two, and polished, showing numerous minute concentric rings, more than can be counted, has been placed by command of His Royal Highness the Prince of Wales in the Museum at Exeter.

According to a legend of Dartmoor, the Black Huntsman, sometimes called Wistman, and a descendant of Woden, used formerly to hunt his spectral pack of Wish-hounds on wild nights through Wistman's Wood. And on the same authority the ubiquitous Druids gathered Mistleto in this wood. In this more prosaic age the Mistleto, which rarely grows on the Oak, has not fixed itself on trees standing more than 500 or 600 feet above the level of the sea. Wistman's Wood is situated, I believe, at least 1000 feet above the sea, the highest tors of Dartmoor being at an altitude of 2000 feet.

The Oak mentioned by Gilbert White, standing in the Holt at Selborne, measured 34 feet in circumference at 7 feet from the ground, and contained 1000 cubic feet of timber in the lower 14 feet of the trunk.

The largest Oak in England is, or was, the

Cowthorpe Oak, near Wetherby, Yorkshire, whose ruins only now remain. The circumference at 3 feet from the ground in 1776 was 48 feet. The height of the tree, as a ruin, was 85 feet. Its age has been estimated at 1800 years. In 1829 the patriarch still bore stalked acorns and sessile leaves, like the Oaks of Dartmoor. I saw the ruin standing in the distance when driving past last year, and still detected a few green leaves.

The late Mr. Grigor, of Forres, described the Cowthorpe Oak in his *Arboriculture* as he himself found it in 1853. The size of the tree in the distance appeared to him but moderate, till on getting near it he said that its girth very much surpassed that of any species of living tree he had seen. There were two entrances to the interior, one of which was large enough to admit cattle, which found shade and shelter within the ruin. The interior was literally a byre !—and in this apartment a number of school children, their teachers and friends, had lately found standing room to the number of eighty-four, and there was plenty of room for more ! Nothing is known of the age of this tree.

The Panshanger Oak, in Hertfordshire, in its prime contained more than 1000 cubic feet of timber, worth £100, besides the value of the bark and branches. Among memorable trees still standing is Shelton's Oak, which Owen Glendower climbed during the battle of Shrewsbury.

Mr. Jesse has noticed the antiquity of the Oaks in Sherwood Forest in his *Scenes and Occupations of Country Life*. In cutting some of them the crown and initials of King John, in iron, were found embedded in trunks into which they must have been driven when marked as timber trees 600 years previously. The Parliament Oak, of the same reign, stood near these trees. One of the largest Oaks in England, according to the Rev. Gilbert White, grew in Monmouthshire, where it overspread 452 square yards, yielding to the navy 2426 cubic feet of timber. There is a well-known "Shire Oak," extending into the three counties of York, Nottingham, and Derby, and covering 707 square yards of surface. There are Oaks at Waltham Abbey, which stood there at the funeral of "Harold infelix."

Dick Turpin's Oak still stands opposite the "Green Man" inn, on the road to Barnet, and not long since some pistol balls formerly fired at Turpin were extracted from it. The Crux Oak, beneath which Wickliffe preached and Queen Elizabeth dined, still stands near Chertsey, marking the former boundary of old Windsor Forest in that direction. It takes its name from the cross engraved on its trunk.

Beneath the Fairlop Oak of Hainault Forest a fair was held, having been originated in 1720 by Daniel Day and his friends, who were in the habit of dining once a year on beans and bacon beneath the tree. Afterwards, Daniel distributed beans and bacon to the public from the hollow Oak, whose largest limb, torn off by a storm, furnished the boards for a coffin in which he was buried at Barking. Fate overtook the Fairlop Oak in a storm in 1820, after its hollow trunk had been weakened by a fire, which all the neigbourhood attended with pails of water.

Among other noted Oaks the Plestor Oak, Colborne, and the Bull Oak, Wedgenock Park, were standing at the Conquest ; William the Conqueror's Oak, in Windsor Great Park, is quite 1200 years old ; Damary's Oak, Gloucestershire, is 2000 years old. Queen Elizabeth's Oaks are numerous. I remember one at Cowdray, Lord Egmont's Park, and another at Huntingfield, Suffolk, and from each the Queen shot a buck, according to report. The Oak at Cowdray is an enormous pollard. The Maids of Honour Oak is a sister tree. Sir Philip Sidney's Oak, at Penshurst, was planted in 1554 at his birth, and Edmund Waller and Ben Jonson have made it immortal, though it is not in itself remarkable. Upon the Abbot's Oak, near Woburn Abbey, the last Abbot of Woburn was hanged for concealing the plate of his establishment at the time of the Reformation.

The Royal Oak at Boscobel, in Staffordshire, has also a personal reputation, derived from its having sheltered Charles II. after the fatal battle of Worcester in 1651. The Oaks in Llewelyn's Dingle, near Builth, sheltered, in some respects, a better man, though one less fortunate, for the grove, through treachery, was surrounded, and Llewelyn was killed. *A Traveller.*

New Garden Plants.

PHALÆNOPSIS MACULATA, *n. sp.**

This is a little gem—one of the smallest Phalænopsids, of the same group as P. violacea, with pallid sepals and petals, with a few dark purple-brown blotches on the inner side, but apparent also on the outside. The chief ornament on the lip is the central lobe, a deep purple, fleshy, semiterete body. The lateral lobes are obtusangular, the point of the triangle being obliterated by its sessile position on the disc, with a yellow callus, a purple anterior border, and numerous small spots. A little two-toothed plate lies on the base of the middle lacinia. For some time I have had in my herbarium a wild flower gathered by Mr. Curtis in Borneo, given me by Messrs. Veitch ; I did not, however, expect that it would prove such a lovely gem as it now does in the fresh flower. *H. G. Rchb. f.*

ODONTOGLOSSUM WILLIAMSIANUM, *n. sp.* (?), (*hyb. nat.* ?)

This would be like Odontoglossum grande, whose colours it has, if the petals were not shorter, broader, blunter, and if the column had not uncinate wings, such as are found in Odontoglossum Insleayi and Schlieperianum. The keels would be like those of O. grande, were they not sharper and had they not an adventitious angle at each side. It may be a hybrid between the species just named and O. Schlieperianum. Mr. B. S. Williams must have recognised its difference at once, else he would not have sent the flower. I feel much pleasure in dedicating this Odontoglossum to Mr. Benjamin S. Williams. *H. G. Rchb. f.*

PROMENÆA MICROPTERA, *n. sp.*†

This is much in the way of Promenæa xanthina, but the lateral lobes of the lip are very small, and the keels of the base are distinctly emarginate in front, and with a peculiar small callus on the disc. The whole flower is light ochre-coloured. There are some narrow purple zones over the disc of the lip, similar spots over the callus, and small purple spots at the base of the lip. The column has red margins at the base. The first flowers, which came from M. d'Hene, of Ghent, were sent by Mr. Harry Veitch, and the next day it came also from Mr. B. S. Williams, author of the *Orchid Growers' Manual. H. G. Rchb. f.*

NEW FERNS FROM ANTIOQUIA.

MR. KALBREYER'S collecting expedition, undertaken in 1880 on behalf of Messrs. Veitch, to the province of Antioquia, in New Granada, has proved unexpectedly fruitful in new and interesting Ferns. The new species which he has discovered are as follows, viz. :—

Alsophila podophylla.—A species with a slender caudex, 10—15 feet long, and bipinnate fronds of firm texture, with a long stalk to the pinnules, as in Cyathea divergens.

Alsophila hispida. — A species with very hairy, finely-cut, decompound fronds, allied to A. decomposita of Karsten.

Alsophila (?) *late-vagans.*—A very curious plant, of uncertain affinities, with trailing fronds 10—15 feet long, with a glossy brown rachis and distant pinnæ, resembling fronds of Polypodium vulgare in size and cutting.

Trichomanes Kalbreyeri.—A delicate species with bipinnatifid fronds, 4—6 inches long, allied to T. Kaulfussii and macilentum.

Dicksonia pubescens. — A scandent species with a wide-creeping rhizome and tripinnatifid drooping fronds 5—6 feet long.

Asplenium filicaule.—A delicate species, with a thread-like rhizome and oblong-lanceolate simply pinnate fronds not more than 1 inch long, with only a single central vein and a single sorus to each of the pinnæ.

Asplenium longisorum.—A large simply pinnate diplazioid species, with crowded sori and few oblong-lanceolate pinnæ, 3—4 inches broad.

Nephrodium longicaule and valdepilosum.—Two Lastreas, with bipinnate cutting and simple veinlets.

Nephrodium antioquoianum.—A simply pinnate glabrous Sagenia, allied to the Polynesian N. latifolium.

Polypodium sylvicolum.—A large membranous species of the subgenus Phegopteris, allied to P. flavo-punctatum.

Polypodium antioquoianum. — A small Eupolypodium, allied to P. trichomanoides.

Gymnogramme vellea, with lanceolate bipinnate hairy fronds, 2—3 inches long.

Gymnogramme xerophila.—A very curious plant, allied to G. ferruginea, with decompound fronds, 4—5 feet long, of firm texture, matted on the rachises and under-surface with persistent pale brown tomentum.

Acrostichum botryoides.—A Polybotrya allied to A. canaliculatum, Hook., but the barren frond much larger and more compound.

Acrostichum suberectum, polybotryoides, and *juglandifolium.*—Three nearly allied species, with wide-scandent rhizomes, with the general habit of the Polybotryas, but with the veins of the barren fronds slightly anastomosing.

Danæa serrulata, a simply pinnate species of firm texture, with 30 — 40 narrow, distinctly-toothed pinnæ.

Selaginella longissima, a wide-trailing species, with unjointed stems and slender tetragonous spikes, allied to the Mauritian concinna and common Himalayan radicata.

Besides these Mr. Kalbreyer has gathered several species not known in that part of the world before, as for instance Blechnum brasiliense and Trichomanes fœniculaceum, the latter entirely new to America. A full catalogue, with complete descriptions of the novelties, by Mr. J. G. Baker, is given in the July part of Trimen's *Journal of Botany.*

CANFORD MANOR.

ONE mile south-east of Wimbourne, five from Poole, and nine from Bournemouth, with the river Stour on the east, and the picturesquely-built Norman church with its Ivy-shrouded tower on the west, is situate Canford Manor, the commodious and picturesque Dorsetshere residence of Lord Wimborne. This beautiful baronial country residence is approached by four entrances, the principal being from Wimborne—a town whose minster, a fine cruciform building of great antiquity, has almost the majestic solemnity of a Gothic cathedral—under an ornamental Tudor arch under the Salisbury and Dorset Railway. A short distance from this arch is a pretty lodge, through the gates of which we enter the precincts of Canford Park, and thence along a winding and well-kept avenue of promising Limes (which, doubtless, will be thinned out ere long), and through a Gothic lodge to the Manor-house, passing on the way thither huge Elms, and other fine trees which reminded me of the lines of Mrs. Hemans, who observes :—

> "The stately homes of England,
> How beautiful they stand !
> Amidst their tall, ancestral trees,
> O'er all the pleasant land !"

Proceeding eastward by the Stour is the "new drive" to Humpreston, with a fine bridge over the river, and a fine Lime avenue from the gate near the new asphalted tennis-ground, which is fringed with grass. The Manor-house, in the Tudor style—and of which I forward you two views, one of the south front and the other of the west, the former showing the conservatory (referred to below) with its roof shaded, and the roof and chimneys of the kitchen ; also a Tudor erection, with two enormous fireplaces in the background—was built by Blore in 1826, and enlarged and beautified by the late Sir Charles Barry in 1848. The kitchen, however, is a portion of the Ursuline Convent which once occupied the site. On the east side of the house, running east and west, is the conservatory, a fine structure, 40 yards long and 22 feet wide, and of good height ; connected with, and east of this, is Nineveh Court, in which is a fine collection

* *Phalænopsis maculata*, n sp.—Parviflora ; sepalis triangulo-lanceis apiculatis ; tepalis lineari-lanceis, labello tripartito, partitionibus lateralibus obtriangulis, extus oblique retusis minute lobulatis, medium versus intus umbonatis lamina bidentata in basi partitionis medianæ semiteretis carnosæ. Borneo. Curtis. Col. cl. Veitch. *H. G. Rchb. f.*

† *Promenæa microptera*, n. sp.—Aff. P. xanthinæ, Lindl. ; labelli laciniis lateralibus minutis obtusangulis, lacinia mediana lancea longe producta, carina inter lacinias laterales, erecta emarginata.—Zygopetalum microptera, Rchb. f. *H. G. Rchb. f.*

of Assyrian sculptures, made at Nineveh, and sent to Canford by Sir Henry Layard, and which is a great attraction to visitors. In the conservatory are some large standard Orange trees, Camellias, Australian Dracænas, and Tree Ferns, which include Dicksonia antarctica, Cyathea dealbata, and C. medullaris, Alsophila excelsa; also Palms and a choice collection of Camellias and other plants of more or less note, the walls being draped with Rose of Castile Fuchsia, a large plant growing in a tub and grandly flowered; Trachelospermum and Passifloras, all in good condition.

I must not omit to mention a group of that gracefully-growing Fern, Woodwardia radicans, which is luxuriating in an arched recess in the back wall of the conservatory and immediately over a water-tank, which extends from the wall line about 5 feet towards the interior of the house. It is planted thus:—Pieces of plank are placed over the tank, just leaving sufficient space uncovered to draw water from; over which, commencing at the outside, a layer of peat is put, and then the Ferns are planted (first row) and some more peat added, then another row of Ferns, and so on (the centre and back being filled with peat and the Ferns planted on the outside), until it is finished off in the top of the arch, where it forms a kind of semi-pyramid; and with a few fronds of Pteris argyrea showing between those of the Woodwardia, the fronds of which are 6 feet long, the effect produced is a very pleasing one.

A similar arch (minus the water tank) in a corridor at the west end, and communicating with the Manor House, is planted with Selaginella Kraussiana in a net and framework made of strong wire to fit the arch, the intervening space being filled with pieces of peat and sphagnum moss, into which numerous pieces of Selaginella are inserted, and, being kept well damped until they have caught hold, the result is everything that could be desired—highly effective. A few yards north of this mossy arch, in a transverse or recessed corridor, are two marble slabs or tables, on which to arrange cut flowers, &c., for house decoration, of which not a little is done at Canford. On a plot opposite the south front of the conservatory is a single "carpet-bed," which is tastefully designed, the colours judiciously arranged, and the effect telling.

On the south front of the Manor is the flower-garden, which is sunk, terraced, and geometrically laid out, and covers a large area of ground; it was at the time of my visit (July 12) quite gay with a variety of colours which blended in pleasing harmony, and collectively produced a floral picture seldom seen on so large a scale so early in the season—and such a season, too! This year Mr. Hinds, Lord Wimborne's gardener, has, with very good effect, introduced sub-tropical plants into some of the large beds (and they are numerous), which, together with the specimen standard Portugal Laurels and statuary, break the monotony and flatness of the dwarfer growing plants. A broad gravel walk, from which proceed a labyrinth of smaller ones, runs through the centre of the flower garden. Occupying a central position in this walk, which corresponds with that of the mansion, is situate an artistic fountain, which cuts a goodly circle out of the adjoining turf, and which, when in full play, adds not a little to the beauty of the place.

West of the mansion, leading to the church, which stands in the Manor grounds, there are on either side the walk the carpet beds and Magnolia wall; the latter on the right and in fine condition; the former on the left, and which, like the bed above referred to, are designed and planted with good taste, each colour being allowed sufficient room to fully illustrate the character of the designs. Eastward from the flower garden to the large ornamental blue gates is the Long Walk, with a strip of pleasure-ground between that and the drive by the river side. To the right of this walk is the mound garden, which has been designed, laid out, and planted with a variety of American shrubs, with precision and good taste, the surface between the beds, which are a goodly distance apart, being undulated so as to represent the waves. Oblong beds of Rhododendrons and Portugal Laurels, with single specimens in circles between, lie on the right of the walk leading to the blue gates. Thence southward to the large "Mountjoy" Oak, which is situate in the south-east angle of the pleasure ground, and the trunk of which, at 2 feet from the ground, measures 22 feet in circumference—by a well and gracefully defined boundary of flowering Chestnuts, Lilacs, Laburnums, &c., with oblong beds on either side filled with Kalmias, &c., and specimen Conifers in circles between. Groups and single specimens of Limes (Tilia europæa), Elms (Ulmus campestris), and choice Conifers break up the pleasure grounds, which I may remark cover an area of 50 acres, with here and there, and everywhere, something fresh to attract the eye, with rustic seats on

"The smooth shaven grass by the side of a wood,
Beneath broad Oaks and Chestnuts, which for ages have stood,"

upon which to rest and contemplate the natural and artistic surroundings of this fine place. Not the least attractive in the grounds are several beds of flowering and other shrubs with centres of tall-growing plants, such as Cupressus Lawsoniana and macrocarpa, Hollies, Taxodiums, Cedars, &c., which embellish the grounds in the neighbourhood of the Mountjoy Oak, from whence we proceed to the new rosery along a straight walk, 792 yards long, and 20 feet wide. On the park side of this walk are some fine specimens of Elms, Cedars, and spreading Chestnut trees, whilst the opposite (grounds) side is flanked by a row of Conifers—Cryptomeria elegans, Abies Albertiana and orientalis, and Picea lasiocarpa.

Shrubbery Beds around Holly Circle.—These, which are in a variety of forms, are planted with Catalpa syringæfolia and other choice trees, and mixed with Acer Negundo variegatum, which make a pretty contrast. On either side of the walks leading to this Circle are planted choice Conifers in pairs to match. There is a belt of the common Laurels kept neatly trimmed surrounding the Holly Circle—so named, as the name implies, because of the form and material with which this interesting portion of the grounds is rendered so picturesque and attractive. This (Holly Circle) garden is divided into four quarters and planted with the finest varieties of Hollies, two and two opposite each other to match: Ilex myrtifolia, grand samples of Perry's Weeping Holly, standards of Ilex altaclarense, Milkmaid Holly, Waterer's Holly var. Mrs. Waterer, Silver Queen Holly, Hodgins' Holly, Cupressus Lawsoniana erecta viridis, and Taxus baccata aurea elegantissima—dense bushes kept trimmed into shape. The beds here are planted up with smaller shrubs and intermixed with sub-tropical plants, edged with bedding plants, and carpeted with Phlox verna.

Outside the Holly Circle are specimens and groups of Abies Morinda, Elms, and Beech, with statuary and oblong beds of Pampas-grass (Gynerium argenteum) by walks, the latter having a fine effect in autumn. The Conifers include Picea nobilis, P. Pinsapo, P. Nordmanniana, Pinus Cembra, Abies orientalis, Cryptomeria elegans, Picea lasiocarpa, Abies Albertiana, Wellingtonia gigantea, Picea grandis, &c.

Between the Holly Circle and the cricket-ground is a plot of pleasure ground, which covers an area of several acres, and is dotted with shrubbery beds, specimen Conifers, and groups of Limes, Beech, &c.; large Chestnuts, which are historical, and said by a gentleman who has just visited Etna to be of equal size with some of the trees there: one, now *hors de combat*, measured 37 feet round. The cricket ground—and such a ground, too!—has two or three good-sized marquees in which to take shelter from the sun's rays, &c., and a grand background of Elms, Pines, and Cedars of Lebanon.

The new rosery is enclosed by a Portugal Laurel hedge and surrounded by an irregular belt of choice trees and shrubs, and covers nearly an acre of ground. It is circular in shape, and cut into four quarters, with a mound in the centre for a statue, and with a gravel circular walk connecting the four by which the garden is divided. At the end of one (park side) is a nice specimen evergreen Oak (Quercus Ilex) with a seat under it. The beds are geometrically laid out, with a chain of flowers around Roses, which were planted last November, and of which there were a fine display of blooms. The trees, which, like the herbaceous plants referred to under that heading, were planted in Phylloxera-affected soil, are in fine condition. The same may be said of the Tea Roses, which were turned out of pots in April. The garden was made in the autumn. The centre beds are planted with standard Teas, Abutilons planted between, and edged with a large dark variety of Heliotrope, in pairs to match; Pyrus Malus floribunda, variegated Acer, &c., showing well among the green.

In groups and specimens at the back of Mr. Hind's cottage are good examples of Cedar of Lebanon (Cedrus Libani), Picea Pinsapo, Taxodiums, Judas-tree (Cercis siliquastrum), the Snowdrop-tree (Halesia tetraptera), the Maidenhair-tree (Salisburia adiantifolia), large Purple Beech (Fagus purpurea), Quercus Ilex, Auracaria Cunninghamii, said to be the finest in England; standard Magnolias, Dutch Rhododendrons in tubs, and fairly good specimens of Pinus insignis. Here, too, in the elastic green sward are isolated sub-tropical beds which are carpeted, some with Tradescantia discolor and others with Abutilon vexillarium variegatum, and Amaranthus melancholicus ruhra with large and richly coloured leaves in small circles carpeted between with Mesembryanthemum cordifolium variegatum. This arrangement of material and colour combined produced a very pleasing and striking contrast to the immediate surroundings of the beds. Before leaving the pleasure grounds I would just remark that they are south, east, and west of, and contiguous to, the flower garden, which is divided from the former by a substantially-built sunk fence, which partakes of an ornamental character, and over which a bridge in character with its surroundings leads to the grounds. *Tourist.*

(*To be continued.*)

A BATCH OF QUERIES.

Smoking the Flowers.—The fearful heat (40° C. in the shade) in which we have been sweltering, has set me thinking of my old days in the Tropics, and a number of questions I could never solve have come back to me. Will you give them the hospitality of your paper, and will any of your readers be able and kind enough to enlighten me? When in the island of Luçon (Manila) I noticed, very often, Mango trees laden with fruit nearly to the breaking point, and others, a few yards off, devoid of fruit altogether, although they had looked quite as healthy and had flowered as abundantly, as was evident from the dried up remains of the floral panicles. To my enquiries the invariable answer was, "The last have not been smoked during the blossoming, and the first have." I found in the interior some very small orchards of Cocoa-beans (Theobroma Cacao) in fine condition, and as the crop is there a very valuable one, I wondered those plantations were not more extensive: the invariable answer again was, "It is too much trouble to smoke them, as the blossom lasts for a long while, and if you don't smoke you won't have fruit." Further explanation of the effect of smoking I could never obtain. On the other hand I often saw the process going on. In the early dawn they make on the windward side of the trees a very small smouldering fire of twigs, dry grass and leaves, and the smoke ascends through the foliage in bluish transparent thin curls for two or three hours. I do not remember to have seen it done for other trees; for Coffee I am sure it is not. These are the facts. Now my surmise is, that the object of the process is to repel some flower or pollen-eating insect astir at that time of the day. I could never verify the correctness of my supposition, and still less who is the guilty party. But I am inclined to lay it at the door of a black and red bug (hémiptère) very abundant on the high grass under the trees, and which awakens in the morning from its nocturnal sluggishness. During my long stay in Cuba, on the Spanish Main, and in Ecuador, where Mangos are abundant, and Cocoa-beans (in the two last at least) are an important crop, I never saw or heard of any similar necessity or practice. Can any of your readers tell me if he has seen it elsewhere, or give me a further or better explanation of what I saw? Now, a very curious fact to me is that both the Mango (an East Indian fruit I believe), and the Cocoa-bean, certainly a native of Tropical America, are imported trees in the Philippines, and have both found an enemy in their new home by the inverse process that our European Vine has been invaded by the American Phylloxera.

The Guava and the Beetles.—I noticed another curious fact, in the same strain, in that same island of Luçon. The common Guava, undoubtedly imported from America by the Spaniards, has run wild there like the Lantana Camara in Ceylon, and is very fast invading the grassy savannas of the interior, probably through the agency of the pigs scattering broadly the undigested seeds. Well, if there is a true Malayan type of beetles it is the Pachyrhynchi, a tribe of Curculionidæ, whose gorgeous

metallic colouring cannot fail to attract the eye of the least attentive observer. I was at the time doing a little bit of beetle collecting just for the sake of the sport and for pleasing friends, and from several hundred specimens of Pachyrhynchi, in about fifteen species I caught, all but half-a-dozen were found on the Guava bushes, where they looked settled and at home; the few others were stray individuals, distributed by some cause and trying to regain their favourite haunts. What did they feed upon before the introduction of the Guava? By-the-by these weevils mimic wonderfully some spiders, so much so that it struck even my Tagal servant who, after a while, took readily to beetle hunting, and used to call them "spider-beetles," but then you must see them alive and not pinned down in a drawer.

Stag-Beetles.—Speaking of insects, I think I have read or heard somewhere that the males of the stag-beetle use their powerful mandibles to ring young twigs, by embracing them between their pincers, and then flying round and round until they have cut a ring in the bark, whence the sap of the tree trickles out and attracts the females by a plentiful supply of their favourite food. I do not know if this is an ascertained fact, and never saw the insect in the act of doing so; but in the north of Nippon I caught large numbers of a species of stag-beetle congregating on some Willow bushes, while on the other bushes none were to be found, and on those particular bushes I saw twigs of the thickness of a finger with a circular incision round them. It was not deep enough to cause the withering of the upper part of these branches, and I cannot say I saw the insects feeding upon the sap, but it was during daytime, and stag-beetles generally do not stir before twilight. Has anything of the kind been noticed in Europe? I cannot make researches about it, as the species is scarce or unknown in my neighbourhood.

Palm Wine.—In most books it is said that the Palm wine is obtained by excising the central bud of the tree, as the Mexicans do the Magney (Agave mexicana), to gather the pulque, and that after a short time the tree is exhausted and dies off, which I believe readily enough. Now I have seen Palm wine extracted from the Borassus flabelliformis, the Cocoa-nut Palm, the Arenga saccharifera, and Caryota urens (the best of all), always by cutting the extremity of the spadices, and receiving the juice in large Bamboo joints or earthern pots; the leaves or central bud were never interfered with. The process goes on from year to year for the entire life of the Palm, which does not seem a bit the worse for the bleeding. Some years ago Sir J. D. Hooker published a paper describing very minutely the extraction of toddy from the Borassus, and his experience is entirely like mine. What I want to know is this: Have any of your readers seen with their own eyes the Palm wine extracted by cutting the cabbage of the Palm? Are they ready to make solemn affirmation that they saw this? I believe this notion owes its origin to careless observers, and its propagation to the numerous and hateful family of books made from cuttings pasted together. The only other Palms from which wine is obtained are, I believe, the Palma de Vino (Attalea magdalenæ?), on the lower Magdalena, and the Date Palm. Although I have met millions of both, I never came across a spot where their sap was collected. Are the male and female Date Palms equally productive of wine? I ask the question, as it is the only one from the above species in which the sexes appear on separate individuals.

Paper Materials.—From time to time appear in the periodicals notices of some new material, like Banana fibre, Bamboo shoots, Blue-grass, and the like, which have all in common the same grave defect—the necessity of special cultivation, and therefore I have never seen anything to come out of them except hobbies for benevolent and sanguine persons to trot out. But from the trade returns of India it appears that Flax must be grown extensively in the north-west, and that the Linseed alone is saved. What becomes of the stalks? By steaming and treating them with alkaline washes, or by some other of the many patented processes for disengaging the fibre from the gum and the bark, will it not be possible to convert that mass of refuse material into paper pulp, if not into fibre fit to be spun?—has it ever been proposed or tried? I could say the same of the twigs of the silk Mulberry, the bark of which is one of the various materials used in making the tough paper of Japan, though less generally than that of the paper Mulberry (Broussonetia) or the Edgeworthia papyrifera. Any quantity of Mulberry twigs could be had in the south of France and Lombardy, where those cuttings are used only as household fuel. Suitable spots with an abundance of good water could be found in those countries for establishing the works. *J. Van Volxem.*

LIST OF GARDEN ORCHIDS.

(*Continued from p. 42.*)

2. Stelis. — Sepals spreading. Petals small, usually embracing the base of the column. Labellum continuous with the base of the column. Pollinia 2. Leaf petiolate. Racemes usually solitary. An exclusively tropical American genus, whereof about 150 species have been described, inhabiting the country from Brazil and Bolivia to the West Indies and Mexico. They are minute or small-flowered, often very diminutive plants, very few of which are, or have been, in cultivation. Lindley (*Folia Orchidacea*) described 132 species, only six of which he had seen alive.

1. S. argentata, Lindl., *Bot. Reg.* 1842, Misc., 78; *Fol. Orch.*, n. 103.—A native of Guiana. Cultivated by Loddiges.

Fig. 29.—Stelis bruchmülleri.

2. S. Bruchmülleri, Rchb. f., *Bot. Mag.*, t. 6521 (by error Brückmülleri).—Mexico (?). Imported by Messrs. Veitch, and flowered at Kew in 1879. The purple flowers are elegantly ciliated. See fig. 29.
3. S. canaliculata, Rchb. f., *Gard. Chron.* 1872, p. 1718.—Bogota. Cultivated by W. W. Saunders. Flowers minute, "of the dullest yellowish-green."
4. S. ciliaris, Lindl., *Comp. Bot. Mag.* ii., p. 353; *Fol. Orch.*, n. 102; *S. atropurpurea*, Hook., *Bot. Mag.*, t. 3975.—Mexico. Sent by Mr. Parkinson to the Duke of Bedford, in whose garden it flowered in 1839. Flowers bright purple.
5. S. crassifolia, Lindl., *Bot. Reg.* 1842, Misc., 12; *Fol. Orch.*, n. 81.—New Grenada. Flowered by Sir C. Lemon in 1841.
6. S. Endresii, Rchb. f., *Gard. Chron.* 1870, p. 1373.—Discovered in Costa Rica by Endres, and flowered in the Hamburg Botanic Garden in 1869 and 1870.
7. S. fraterna, Lindl., *Fol. Orch.*, n. 105.—Brazil. Cultivated by Loddiges and Rollisson.
8. S. glossula, Rchb. f., *Gard. Chron.* 1870, p. 1373.—Imported from Costa Rica by Messrs. Veitch.
9. S. major, Rchb. f., *Bonplandia*, 1854, p. 23.—Sierra Nevada, Venezuela, Wagener. Cultivated at Berlin and Zurich.
10. S. micrantha, Swartz, *Fl. Ind. Occ.*, p. 1553; Hook., *Exot. Fl.*, t. 158; Smith, *Exot. Fl.*, t. 75; Lindl., *Fol. Orch.*, n. 88.—A native of Jamaica. Cultivated in England at the beginning of the present century.
11. S. ophioglossoides, Swartz, *Fl. Ind. Occ.*, p. 1551; Lodd., *Bot. Cab.*, t. 442; *Bot. Reg.*, t. 935; Lindl., *Fol. Orch.*, n. 42.—One of the commonest species in the West Indies and tropical America, and the first cultivated in this country, having been introduced in 1791 by Edward Elcock. The flowers are very small, and of a dingy purple, but interesting on account of their irritable properties. Hort. Kew.
12. S. philargyrus, Rchb. f., *Linnæa*, xli., p. 118.—Sierra Nevada, Venezuela. "Living cultivated plant seen."
13. S. tristyla, Lindl., *Bot. Reg.* 1838, Misc., 69; *Fol. Orch.*, n. 51.—Brazil. Cultivated by Loddiges.

3. Physosiphon.—Sepals connate at the base in a tube. Petals small. Labellum articulated with the base of the column. Pollinia 2. Racemes solitary. A tropical American genus of about four species, ranging from Brazil to Mexico. They are small-flowered, yet P. Loddigesii is very pretty. The genus does not differ from Stelis except in the cohesion of the outer segments of the perianth above the ovary.

1. P. carinatus, Lindl., *Bot. Reg.* 1838, Misc. 132.—Mexico, Schiede. Cultivated by George Barker. Very near P. Loddigesii, differing in its serrate lip.
2. P. Loddigesii, Lindl., *Bot. Reg.*, sub tab. 1797 *Bot. Mag.* t. 4869; Hook. *Ic. Pl.*, t. 508; *Stelis tubata*, Lodd., *Bot. Cab.*, t. 1601; *P. ochraceus*, A. Rich. et Gal.?—Mexico, Jalapa, Deppe, who sent it to Messrs. Loddiges in 1828. Hort. Kew. An interesting small Orchid, with numerous small orange-red flowers in erect racemes.
3. P. nicaraguensis, Liebm., *Ind. Sem. Hort. Havn.*, 1853, p. 20.—Nicaragua.
4. P. punctulatus, Rchb. f., *Bot. Zeit.* 1866, p. 385; *Ref. Bot.* ii., t. 96.—Bogota, introduced by Linden, and flowered by Rucker in 1865. Of botanical interest only.

4. Lepanthes.—Sepals spreading. Petals small, with their claws adnate to the column and the limbs ransversely oblong. Labellum often adnate to the base of the column, limb divaricately 2-lobed. Pollinia 2. Leaf sessile, with several minute sheathes below it. Peduncles often clustered. A tropical American genus, of which about forty species are known. Though often very curious and beautiful, the flowers are always small or minute.

1. L. calodictyon, Hook., *Bot. Mag.*, t. 5259.—Peru. Originally discovered by Spruce, and subsequently introduced into this country alive by Mr. Cross, and flowered by Mr. Osborne, of the Clapham Nursery, in 1861. Leaves elegantly veined. Flowers very small, yellow and red.
2. L. crassifolia, Rchb. f., *Linnæa*, xli., p. 47.—Jamaica. Flowered at Kew in 1873. Inconspicuous yellow flowers.
3. L. Loddigesiana, Rchb. f., *Xenia*, i., p. 145; *Lepanthes tridentata*, Lindl., *Bot. Reg.*, t. 1762, *nec* Swartz.—Jamaica, on the highest parts of the mountains. Cultivated by Loddiges in 1835. An elegant little plant, about 1 inch high, with purple and yellow flowers; said to be the first of the genus cultivated in Europe.
4. L. sanguinea, Hook., *Bot. Mag.*, t. 4112; Rchb. f., *Xenia*, i., p. 147.—A native of the high mountains of Jamaica, whence it was introduced by Purdie. A diminutive Orchid, with red flowers. *W. B. H.*

(*To be continued.*)

THE KEW ARBORETUM.

The Maples.—XV.

Acer palmatum, Thunb., *Flora Japonica*, p. 162; Loudon, *Encyclop. of Trees and Shrubs*, p. 90, fig. 158; Koch, *Deutsche Dendrologie*, theil i., p. 524; Maximowicz, *Mélanges Biologiques*, tome x., p. 607. *A. polymorphum*, Sieb. and Zucc., *Flora Japonica*, p. 83, tab. 145.

The altogether erroneous idea that this pretty Japanese shrub and its crowd of forms will not stand in the open air of Britain probably accounts for the fact that although often met with as conservatory plants they are rarely seen in gardens. This is the more to be regretted as the species and a host of its varieties are undoubtedly hardy, as far as I have been able to ascertain, at any rate if their behaviour during two such winters as those of 1879-80 and 1880-81 is taken as a test. Loudon states that A. palmatum (type) requires the protection of a wall,

and it is perhaps to this that the prejudice against them has partially arisen. It is true that many of them are not fast growers, and that in a mixed shrubbery, where they were not looked after, coarser things would soon choke them. In the whole range of hardy ornamental foliage shrubs, however, there probably exists no species with such a wonderful variety in form and coloration of leaves, combined with elegance of habit, as in Acer palmatum. At Messrs. Veitch's Coombe Wood Nursery a large number of specimens and varieties are flourishing in clayey gravel on cold and somewhat exposed banks; these have passed uninjured through the last two winters. A smaller number of forms, too, have passed through the ordeal just as successfully on the dry sandy soil of Kew. That, however, these beautiful shrubs are not always so accommodating seems clear. During the spring of the present year Sir Joseph Hooker paid a visit to the famous arboretum of Mons. Alph. Lavallée at Segrez. There many of the Japanese Maples refused to flourish in the ordinary stiff soil, but in a peat bed, side by side, under precisely similar conditions, both as regards exposition and shelter, they were doing well. It may be mentioned that M. Lavallée's tree collections has suffered from the cold much more severely than have those at Kew, and yet the Maples mentioned in the present paper have stood.

For a large series of specimens of Japanese Maples I have especially to thank Messrs. J. Veitch & Sons, Richard Smith & Co., of Worcester, the New Plant and Bulb Company of Colchester, and Louis van Houtte and Louis de Smet of Ghent. None of the following synonyms have been taken from books unless a figure accompanied the description, so as to render a mistake in identification improbable. Nearly all the names co-related below are taken from specimens (received under such names) which have been carefully compared with each other and with properly authenticated figures and specimens. The forms of Acer palmatum may be roughly classed in three groups:—

a. palmatum proper, generally with deep 5-lobed leaves.

b. septemlobum, with seven or nine overlapping lobes, generally larger than last-named.

c. dissectum, with seven or nine deeply pinnatifid overlapping lobes.

These groups run into each other, and, thanks to the skill and industry of Japanese gardeners, there are many forms here mentioned which might with equal justice be placed in one of the other divisions.

Palmatum Group.

Var. 1. PALMATUM MINOR.

A smaller-leaved and neater-habited plant than the one figured by Loudon; leaves green, but becoming bronzed when older, as in type.

Var. 2. PALMATUM ROSEO-MARGINATUM: A. polymorphum roseo-marginatum, A. japonicum roseo-marginatum.

Leaves green, margined with rose. A. palmatum excisum marginatum = A. dissectum fol. roseo-marginatis of some Continental gardens, is a form with irregularly toothed, somewhat narrow lobes—a sort of intermediate condition between this and the var. dissectum mentioned below.

Var. 3. PALMATUM ALBO-MARGINATUM.

Like Var. 2, but with white-bordered foliage.

Var. 4. PALMATUM AUREUM: Acer japonicum polymorphum aureum.

A vigorous form, with long-stalked, rather large leaves, light green and yellowish when young, gold and orange-scarlet in autumn.

Var. 5. PALMATUM SHIKARA JAMA.

Finely serrated leaves, pale green suffused with red, and blotched with dark olive-green.

Var. 6. PALMATUM CRISPUM, *Illustration Horticole*, série iii., 1870, tab. 43, p. 241: A. crispatum, A. polymorphum crispatum, A. palmatum foliis crispis.

A very distinct form with red-stalked green leaves, with convoluted edges; of different habit from that of most of the other forms of this extremely variable species—like a Lombardy Poplar in miniature.

Var. 7. PALMATUM LINEARILOBUM, Sieb. and Zucc., *Flora Japon.*, tab. 146, p. 84; A. integrum.

A form with long narrow slightly toothed or quite entire lobes, cut to very near the base of the leaves, which when young are, as well as the shoots themselves, red, but become green as they grow older.

Var. 8. PALMATUM LINEARILOBUM ATROPURPUREUM.

Like No. 7, but leaves purplish. A. Schimeno Uchi has leaves of exactly similar form, but they are of a rich red colour.

Septemlobum Group.

a. Leaves green, or with a groundwork of green.

Var. 9. SEPTEMLOBUM, Koch, *Deutsche Dendrologie*, theil i., p. 525: A. septemlobum, Thunb., *Flora Japonica*, p. 162.

A desirable free-growing shrub with pretty green leaves, generally used as a stock on which to graft the rarer varieties.

Var. 10. SEPTEMLOBUM ELEGANS.

Narrower lobes deeply cut, showing a distinct step towards the third division, "dissectum." Leaves a charming light green, suffused with red when young. A. septemlobum pinnatum and A. septemlobum ampelopsifolium are practically the same as this, the only appreciable difference being that the foliage of the latter is somewhat bronzy.

Var. 11. SEPTEMLOBUM LOBATUM: A. palmatum lobatum.

Has broader, more overlapping, irregularly cut lobes.

Var. 12. SEPTEMLOBUM VARIEGATUM: A. ampelopsifolium variegatum, A. polymorphum variegatum, A. polymorphum versicolor, *Flore des Serres*, série 2, vol. iv., tab. 1498, p. 273.

A form with young leaves and stalks red, older ones splashed with rose and white.

Var. 13. SEPTEMLOBUM FLAVESCENS.

Young shoots and leaves more or less tinged with yellow.

Var. 14. SEPTEMLOBUM RETICULATUM: A. palmatum reticulatum, A. japonicum polymorphum reticulatum, A. reticulatum, *Illustration Horticole*, 1870, tab. 18, 98.

A fairly strong-growing plant; leaves with a varicgated network of yellow or white and light green.

b. Leaves purplish or red.

Var. 15. SEPTEMLOBUM SANGUINEUM: A. polymorphum rubrum, A. rubescens, A. sanguineum, A. palmatum sanguineum, A. japonicum polymorphum septemlobum sanguineum, A. palmatum foliis sanguineis.

Var. 16. SEPTEMLOBUM ATROPURPUREUM: A. atropurpureum, A. polymorphum atropurpureum, A. japonicum polymorphum atropurpureum, A palmatum atropurpureum, *Flore des Serres*, xii., p. 173, tab. 1273. A. palmatum foliis rubris.

Var. 17. SEPTEMLOBUM ELEGANS PURPUREUM: A. digitatum atropurpureum.

Exactly the same as Var. 10 in form and size of leaf but differing in colour. A. atropurpureum laciniatum is practically the same form.

Var. 18. SEPTEMLOBUM LATIFOLIUM ATROPURPUREUM: A. grandiflorum sanguineum, A. polymorphum grandiflorum sanguineum.

A vigorous handsome plant with bold finely coloured foliage.

Var. 19. SEPTEMLOBUM BICOLOR.

A striking variety with leaves bearing large blotches of carmine or with one half of leaf or lobe the red of the ordinary "sanguineum" form of this group and the other a clear carmine.

Var. 20. SEPTEMLOBUM TRICOLOR: A. sanguineum tricolor.

Foliage with the ordinary red ground splashed with white and rose.

Dissectum Group.

Var. 21. DISSECTUM: A. dissectum, Thunb., *Flora Japonica*, p. 162; A. polymorphum var. decompositum, Sieb. and Zucc., *Flora Japon.*, p. 84, tab. 146, II., III., IV. A. japonicum var. dissectum, A. japonicum polymorphum dissectum, A. palmatum pinnatifidum, A. polymorphum foliis incisis, A. palmatifidum.

A beautiful shrub with finely-cut green leaves and spreading branches; A. dissectum tinctum has the light green elegantly cut leaves of the type but with edges tinged with red.

Var. 22. DISSECTUM ROSEO-MARGINATUM: A. amœnum, A. Friderici-Guilielmi, *Revue Horticole*, 1867, p. 391; A. japonicum Munnigi, A. palmatifidum rubrum fol. roseo var.; A. polymorphum palmatifidum roseo-pictum; A. palmatum dissectum pinnatifidum roseo-pictum, *Illustration Horticole*, xiv., tab. 523.

This variety has deep green leaves, rosy-tinted at edges, and splashed with rose and white.

Var. 23. DISSECTUM ORNATUM, *Illustration Horticole*, 1870, tab. 46, p. 244; A. palmatifidum ornatum, A. palmatifidum rubrum, A. palmatifidum ornatum purpureum, A. japonicum polymorphum ornatum.

Foliage in outline, &c., exactly that of the two preceding varieties, but of a uniform deep red.

Var. 24. DISSECTUM SESSILIFOLIUM: A. palmatum forma, Maximowicz, *Mélanges Biologiques*, tome x., p. 608; Negundo sessilifolium, S. and Z., *Flora Jap.*, *Familiæ Naturales*, n. 181; Franchet et Savatier, *Enumer. Plant. Japon.*, vol. i., p. 90.

By all others except Maximowicz this very distinct form of A. palmatum has been considered a thoroughly distinct species. Maximowicz has, however, seen it produced as a sport from A. palmatum. The figure here given (fig. 30) is prepared from a specimen from Messrs. Veitch. *G. Nicholson, Kew.*

Fig. 30.—Acer palmatum: dissectum sessilifolium.

STANWELL PLACE, STAINES.

Stanwell is a parish in Middlesex, the misfortune of which it is to lie somewhat off the main highway, and consequently it is not largely known to the world. Yet, without doubt, many persons who have passed along the highway which leads from Hounslow, through Staines, have remarked, standing up prominent amongst the trees, away to the left, before Staines is reached, a church spire that has somewhat puzzled them. It is not that this spire is actually out of the perpendicular, and is therefore in danger of falling, but it seems to lean none the less, and the impression is left, either that the eyes of the beholder are out of sorts or that the spire is not quite upright. Well, it so happens that the builder of this ecclesiastical cone was not quite perfect in the taking out of his quantities and his measurements, and when the spire was erected it was found that the ribs on the north side were a little longer than those on the south, and hence the somewhat bewildering result. This spire, with its sides out of joint, not a little typifies the nature of the parish, for it is not quite in keeping with the more advanced part of the world which surrounds it, and both about the village and at the place where the local magnate resides, there is an old-fashioned air which charms even while it amuses.

Sir John Gibbons, Bart., Chairman of the local Bench of Justices, though somewhat of the stature of Zaccheus, physically, is yet in the locality a gentleman of importance, as all large landed proprietors are, and his ways are very much those of the ancient patriarch who liked to live amongst his people, plodding on in olden state, respecting and respected. The Baronet is of an ancient family which has owned this property for many generations, and is much older than the mansion, now a large, square, bald building, roomy and comfortable without doubt, but with no more of art about it than there is about an ordinary brick. It is plain, roomy, substantial, and if not elegant, certainly, in the whiteness of its external hue, not forbidding. Probably its exceeding plainness is in good keeping with the exceeding flatness of the surrounding country and ground, for West Middlesex is painfully flat, and the park is equally so. Yet there are in it some noble trees, especially Elms and Planes; the broad light green foliage of the latter presenting a charming contrast to the sombre hues of the Elm leafage; though of somewhat diverse form, both are grand trees, and may here be seen to great advantage. When the heat is intense, and elsewhere the drought has been productive of much misery to vegetable life, it is, indeed, refreshing to find here so much water, not merely in one spot, but almost everywhere. There is no gigantic lake, although some 14 acres of ground are occupied with water, but it is found in broad lagunes or drowsy, scarcely moving streams, running sleepily about the park and pleasure-grounds, nay, even through and about the kitchen-garden, in the most delicious fashion. It is now a good servant; probably it is sometimes, when water is abundant elsewhere, a bad master.

No doubt to its immediate proximity is largely owing the presence of a noble deciduous Cedar, certainly one of the finest in the kingdom. It is not less than 90 feet in height, has a stem at the base some 16 feet in circumference, and exhibits a handsome pyramidal form, beautifully feathered through out. Like some other of its fellows, it has attempted to thrust up its root-corns from amidst the grass, but the scythe has been a remorseless chiropodist, and has cut them clean off. There are some fine pyramid Yews and Hollies; one of these latter, kept clipped perforce because of space, but not so hard on the south side, is there literally one mass of berries, and when these are bright red will be indeed a glorious object. The flower garden and its surroundings are strictly of the old-fashioned order—beds of Stella Pelargonium and other old kinds, of white and pink Ivy-leaf, of Lady Plymouth, of Heliotrope, striped Petunias, and Portulacas, with here and there such old Verbenas as the pretty striped Impératrice Elizabeth, such Pelargoniums as Purple Unique, and lots of old acquaintances. Why the very Roses take us back thirty years at least, for verily upon standards are Queen of the Bourbons, Aimée Vibert, Coup de Hébé, and other beauties of former days, by the present generation of rosarians almost forgotten.

As becomes the place, there are no modern glass-houses. A few vineries and plant-houses with some Melon and other frames comprise the chief of the glass structures. About the kitchen gardens there is an air of plenty and almost of fatness. The wall trees are in good condition and fairly well fruited, though the walls look as if they had supported trees for the past half dozen centuries; and perhaps they may, for Stanwell Place was a favourite hunting-box of that sweet and most placable of the Tudor kings, Henry VIII., and formed an appanage to the royal demesne of Windsor. Bush fruits are wonderful in their productiveness. The Red Warrington Gooseberries hang down with fine fruits; red and white Currants have splendid crops of large fruits, and the black Currants are almost as big as Cherries, whilst the bushes are of giant size and cropped most heavily. The two kinds of Strawberries most in favour are Sir Charles Napier and the true Sir Harry, which does well and colours well, whilst Sir Joseph Paxton refuses to carry out its usual fine tints.

The garden is said to be the original home of the Rosemary Russet; in any case, there are some trees of it well fruited and somewhat lanky. Lord Suffield trees are literally borne down with the weight of fine fruit. Amongst tall Peas is the Shandley Marrow, sent out by the Messrs. Fraser twenty-five years ago, and not now to be found in commerce under that name. Potatos consist chiefly of Early Rose, Snowflake, Magnum Bonum, and Champions. All vegetables do well, and luxuriate in the deep sandy loam, whilst the near abundance of water renders irrigation easy.

Altogether Stanwell Place is a quiet cosy spot, where most things thrive naturally and simply, and where under its present possessor the modern Vandal will find little chance for entrance. As a foil to some of the go-ahead places it is rather refreshing to drop into the midst of such stagnant horticultural life, where things are wanted to proceed only at a quiet jog-trot, and not in that hasty express speed which may suit the gay and giddy *parvenu* but is a horror to those whose tastes are patriarchal. In Mr. Gapes, the head gardener, Sir John Gibbons has a faithful and attached servant, and one whose tastes flow in the same gentle stream which so forcibly marks the place and all its surroundings. *D.*

THE VEGETATION, Etc., OF NEW ZEALAND.

The thirteenth volume of the *Transactions and Proceedings of the New Zealand Institute*, just to hand, contains several valuable contributions relating to the indigenous and cultivated plants of New Zealand. Mr. W. Colenso, who has resided nearly half a century in the country, has a most interesting article on the vegetable food of the ancient New Zealanders before Cook's visit. The author claims to show, contrary to the generally received notion, "that the natives, at least of the North Island, had attained to a very high system of agriculture, which was purely national and loved, and passionately, judiciously, and universally followed everywhere among them." He further adds that their crops were only obtained by almost unremitting labour. Their principal cultivated plants were the Sweet Potato (Ipomœa Batatas), the Taro (Colocasia antiquorum) and a kind of Gourd (Cucurbita sp.). Of the first, a list of nearly fifty named varieties is given; the varieties being classified according to the colour of the skin and the flesh, and in part described as to shape.

The Sweet Potato crop was by far the most important crop, and in suitable seasons and soils the yield was plentiful; but it had one potent insect enemy in the larvæ of a large moth, which sometimes appeared in incredible numbers and speedily destroyed the crop. Of the Taro, too, there were many varieties, some esteemed for one quality, some for another. Only one kind of Gourd was known, yet this not only afforded a prodigious quantity of food in summer, but also all vessels employed in holding water, oils, cooked animal food, &c. Another plant cultivated by the old Maoris as an article of food was the Tūpara, a species of Cordyline. Its thick succulent stem, as big as, or bigger than that of a very large Cabbage or Broccoli, was cooked and eaten. Like the Taro and Sweet Potato, this plant never flowered under cultivation. Two other food-yielding plants were, Mr. Colenso believes, cultivated by the ancient Maoris, namely, Corynocarpus lævigata and Solanum aviculare, both for their fruit. It is incidentally mentioned that Broussonetia papyrifera and Phormium tenax, and P. Colensoi, were commonly cultivated for textile purposes, though of the first not a vestige of the plant remains in New Zealand.

Of the wild plants producing food the common bracken (Pteris aquilina) was one, the root of which was collected and consumed in large quantities. "All Fern-root diggings and places of good Fern-root were rigidly preserved; no trespassing was ever allowed." It should be stated that Mr. Colenso regards the New Zealand bracken as distinct from the European, and retains for it the name of P. esculenta. The fruit of Corynocarpus was also collected in large quantities from wild trees; it required cooking, for in a raw state it is a deadly poison. Elæocarpus dentatus produces a small stone fruit, which was formerly pounded up together in large masses and baked, being in this form a very palatable food. One or more varieties of Sow Thistle furnished a commonly eaten and very wholesome vegetable.

We can only enumerate some of the other wild plants that yielded food for the ancient Maoris, referring the reader to Mr. Colenso's article for details. Cordyline australis (blanched heart-shoots); Areca sapida (the blanched heart—a rare delicacy); Typha angustifolia (the pollen); Nesodaphne Tawa (seeds of the Plum-like fruit); Marattia salicina (roots); Arthropodium cirrhatum (roots); Gastrodia Cunninghami (roots), Solanum nigrum, Barbarea australis, and Taraxacum dens-leonis (leaves), and various seaweeds and fungi. Though none of the wild summer fruits are of excellent quality, yet the earlier settlers were glad to follow the Maoris in eating them. Amongst them the berries of Fuchsia excorticata, Gaultheria antipoda, Solanum aviculare, are by no means to be despised in the absence of better.

The purely botanical contributions include descriptions of a considerable number of new species, by various authors, and a synopsis of the New Zealand species of Veronica, which the author now brings up to sixty, many of which, as he observes, deserve a place in gardens for their ornamental character. There is also a description of the flora of Stewart Island, and some illustrations of new Desmidieæ. Under the name of Corallospartium, Carmichælia crassicaulis is raised to the rank of a distinct genus, whereof the principal characteristics are a compressed one-seeded pod, splitting into two valves, and the fasciated woolly flowers.

A NEW CONIFER.

In Coulter's *Botanical Gazette* for June, 1881, Dr. Engelmann describes a new North American Tsuga, and gives diagnoses of the two other North American species previously known. They are defined as follows:—

Tsuga caroliniana (new species).—A small tree of the Southern Alleghany Mountains, with larger (6—8 lines long, ¾—1 line wide), darker leaves than the common Hemlock Spruce, retuse or often notched at the tip, without stomata above, beneath with two pale bands, each with seven or eight series of stomata; strengthening cells under the epidermis on keel, midrib, and edges; cones 12—14 lines long, scales oblong, much longer than wide, in $\frac{5}{13}$ order, spreading at right angles after maturity; broad bracts slightly and obtusely cuspidate; seeds (2 lines long) with numerous (15—20) small oil vesicles on the under-side, twice shorter than the wing.

Smaller, stouter-branched than T. canadensis, from which it is always readily distinguished by its larger, darker, glossier, more retuse leaves, and by its larger cones, with wide-spreading scales.

Mountains of North and South Carolina, on dry slopes and ridges. It was first noticed in the mountains of South Carolina by Professor L. R. Gibbes, of Charleston, in 1850, who sent specimens to Professor A. Gray in 1856, and in an accompanying letter suggested for it the name of Pinus laxa.

T. canadensis.—Leaves of the mature tree smaller (4—7 lines long), obtuse, with five or six series of stomata on each side of the keel below, destitute of any strengthening cells; scales of cone in $\frac{5}{8}$ order, orbicular-oblong, with broad truncate bracts; wing very broad at the base, tapering, scarcely longer than the seed, which shows two or three large oil vesicles.

T. Mertensiana.—Larger leaves, with two bands, each of 7—9 series of stomata; strengthening cells few on the edges, and very sparse on upper and lower side of leaf; cones 6—12 lines long (not 1½ inch as sometimes stated); scales oblong, mostly a little narrowed in the middle; bracts slightly cuspidate; seeds smaller, with few oil vesicles, wings twice as long as the body of the seed.

GAS-HEATED HOTHOUSES AND GREENHOUSES.

When after numerous trials, failure after failure has followed attempts to apply a principle which seemed to afford great promise, it is not to be wondered at that a popular verdict of "impossible" is recorded, further attempts are abandoned, and the idea is shelved. The heating of hot and greenhouses by gas affords a case in point. Everybody who knows anything about horticulture, cannot fail to be struck with the advantages that gas-heating would present over stove or hot-water heating, if certain defects in the application of gas to this purpose could be surmounted. Firstly, as regards stove-heating, the labour, and, more important, the responsibility and risk of stoking, especially of night stoking, would be avoided. A suitable arrangement of gas-burning having been devised and resolved upon, the entire labour of managing the calorific apparatus would resolve itself into turning on the gas at a proper height, shutting the green or hothouse door at night, and letting things rest till morning. Secondly, a properly-devised system of gas-burning within the structure to be heated, involving, as it must, to be properly devised, a thorough and perfect ventilation, presents an enormous advantage over any other system which only secures the necessary amount of heat, ventilation being provided for by some extraneous means. It is not a matter of surprise that gas-heating has so generally failed when we take into consideration the principles violated in this horticultural application. Universally, so far as the writer of this has seen, the mode of utilising gas for the purpose in question has consisted in the adoption of some variety of gas stove, yielding a smokeless flame, with no provision whatever for conveying away certain invisible and inevitable products of gas combustion. Not merely the public, but engineers, have yet to learn the potential agency of many invisible things. Beyond steam and air in motion (steam, let it be remembered, is invisible when dry), their notions of the potential agency of things invisible does not commonly go. Thus the gas engineer, when he has provided a smokeless gas flame, and lighted it under a bath, guarantees his customer against all atmospheric foulness. If his conception of the potency of invisible things had been more profound—if he had been brought to reflect on the restricted area of bath rooms and the noxious emanations evolved from a gas-flame, however smokeless, he would have been more chary of his guarantee, not needing the evidence afforded by many recorded cases of asphyxia arising from this cause. About four years ago the writer of this applied himself to solve the problem of heating a greenhouse by gas, and succeeded, as anybody else may succeed, by attending to what follows, and putting it into execution. He subsequently, with equal success, applied the same principle to a hothouse. The theoretical proposition was simple enough, viz., to get rid of all combustion products: the permanently gaseous ones by a ventilative current, the condensible ones by downcast tubes perforating the heating and ventilating main at suitable distances. Simple in theory, the solution of this problem was more hard in practice. Not until after many trials, and numerous failures, was success achieved. These shall be specified. The educational value of recorded failures pioneering success, is so much more valuable than a bare record of success, that it becomes a matter of regret they are not more frequently recorded.

The first resolve was to do away with any form of gas-stove. Why not burn the gas at one end of a horizontal main connected at its further end with an upright chimney? The gas-burner adopted was that commonly known as Liebig's, consisting of a drum-head of wire gauze stretched over a cylinder, left open at the bottom, so as to permit a free admixture of atmospheric air. The horizontal heat-distributing and ventilative main first tried, was made up of joined lengths of ordinary 4-inch wrought-iron stove-pipes. Though horizontal in its general aspect, downward bends or droops, almost imperceptible, were established, and at the lowest part of each a small leaden tube was fixed vertically, so as to give exit to all liquid condensed impurity. The contrivance failed ignominiously. Not only did the sulphurous acid product of gas combustion eat through the sheet-iron with a rapidity altogether incompatible with every practical need, but for some reason not obvious at first, but plain enough on reflection, the system would not ventilate. On the first day of erection the draught was bad, and it became worse from day to day.

Abandoning the wrought-iron stove-pipe one of cast iron was substituted. It answered better than the first, but from some cause, not at once evident, the ventilation grew worse and worse. Being taken to pieces it was found choked with an accumulation of crystals, the mass containing a certain proportion of ammonia-sulphate and ammonia-sulphite, but still more sulphate of iron, it being well known that sulphurous acid, a first product of gas combustion, rapidly changes into sulphuric acid, and it was this which, by attacking the iron, had yielded the crystals of iron-sulphate.

Yielding to this evidence, iron, both wrought and cast, had to be abandoned: equally would it have had to be abandoned for another reason, viz., the too easy heat conductibility of these materials. By accurate thermometric investigation it was discovered that all the heat for distribution had been evolved at a point very short of the upcast pipe or chimney; under which condition there was no draught, as theory indicates there could have been none. Here it may be well to direct attention to the fact that in all cases of heat distribution by tubular radiation provision must be made for conservation of sufficient heat to effect an ascending ventilative column in the upcast shaft or chimney, otherwise ventilation cannot go on.

Having abandoned iron, the third venture consisted in substituting earthenware. Common drain-pipe was tried and succeeded; but sufficient evidence has accumulated favourable to abandoning the use of any sort of tube, substituting in its place a rectangular trunk of brick or terra-cotta tiles. Many advantages suggest themselves from the adoption of this device. First, the distribution of heat would be more equal, being radiated from a larger area; secondly, the larger capacity of the rectangular tile-built chamber would nullify any back current which might be momentarily caused by a sudden gust of wind blowing down the chimney.

As already detailed, the result of substituting earthenware drain-pipe for iron was wholly successful; but some little points had to be studied, and the teaching of study applied before entire success was achieved. It was found, for instance, that full reliance could not be placed on a continuity of equable gas-pressure throughout the night, which difficulty was easily solved by using a gas-regulator. Again, many trials, and much thermometric observation were brought to bear on the determination of best effective area of chimney gape at the out-of-door extremity of the chimney. This was accomplished by contracting the extremity of the chimney-tube with Roman cement moulded on from day to day, until a satisfactory result had been achieved. A round gape of 1½ inch was found best adapted to insure maximum ventilation with minimum loss of heat, in the case under consideration. Another detail consisted in finding a suitable material for the gas flare to exhaust the severity of its first shock upon. An earthenware bend at first essayed for this application was found inapplicable, on account of its repeatedly breaking. A cast-iron bell was ultimately adopted, and with success. The chemical objections to cast-iron, when employed throughout the entire system, reduce themselves to a minimum of practical zero in the case described.

The fact should here be stated that the system of gas-heating now described remained under the writer's personal ken for two years, giving full satisfaction. He learns that it does so still, but the locality is many miles away, and for a long time has not been personally visited.

Finally, it will be here well to impress some pertinent facts on the memory of any one who, having perused this statement, may desire to adopt the expedient. To be successful, the underlying principles which dominate the process must not for a moment be lost sight of. It is no case for application of rough measurements or rough-and-ready workmanship. The shape as well as the dimensions of the green or hothouse must be regarded; also its site, whether sheltered or exposed, whether there are or are not neighbouring erections, the effect of which would be to determine extraneous air currents. The whole case must be treated as one of arrangement of a piece of chemical apparatus. But once settled, always settled. The practical working conditions of gas-heating for any particular structure having been once determined remain constant to the end.

It was not a little instructive on a sharp frosty day to watch the exit chimney and note the torrents of impure watery vapour continuously discharged. Anybody seeing them would never wonder again, if he had wondered before, at the destruction caused by gas stoves in greenhouses. Equally instructive it was to note the foul acid fluid liberated by the downcast exit tubes, and to remember that all this would have been dispersed amongst the growing plants by an ordinary gas engineer having no knowledge of invisible combustion results. *The Builder.*

NOTES ON ROSES.

A Day among Mr. Cant's Roses at Colchester.—These days are welcome and pleasant as the first days of spring, or breath of summer, after a long dreary winter. What nightmares of despair they chase away from the true rosarian's heart. Fighting the frosts of winter, the yet more killing severities of spring, and seeing the Roses that got through both succumb one after the other to the burning heats and parching droughts of this trying summer, one is apt to think that all Roses are getting in a bad way, or are on their last legs. But enter Mr. Cant's farm or old garden of Roses, and acres on acres of Roses and Briers appear as healthy and strong as if the past winter had been one of special mildness, and the spring and summer a real fostering mother to the queen of flowers. It is hardly too much to affirm, that on Mr. Cant's new Rose farm no trace of weather disaster appears. The Brier and Manetti Stocks by acres on acres, and in an infinity of closely packed rows of 400 each, are without blank or flaw. The standard Briers are veritable copses, of sufficient size to form capital covers. This is the more marvellous, as with us and in many other places I have seen the past winter and spring hit the Briers and Stocks quite as hard as the Roses. It killed the Dog Roses by wholesale, whether as standard or dwarf, seedling or rooted cutting. But here at Colchester are the finest and largest pieces of dwarfs, standard and dwarf Briers from cuttings, and Manettis, that I have ever seen in any place this season.

It may be interesting to note that budding was hardly begun on July 18, the day of my visit. A few dwarf Briers and Manettis had been budded with Teas, but the great work of budding was still waiting for firm bark and plump buds. Mr. Benjamin Cant evidently cares less for time than condition, and waiting for the latter he never fails to score a success. Assuredly nothing could exceed the health, vigour, and uniformity of excellence of his enormous stocks of last year's budded Roses. Row after row, acre on acre of dwarf Roses especially, were all alike strong and good. They had grown into such bushes as to convert the rows of Roses into veritable hedges. As usual the dwarfs on the Manetti had made the most wood, while those on Briers from cuttings had shown the finest blooms. It was easy to tell on looking over the large breaks of Roses where the Brier stocks ended and the Manetti began. The latter were at least one-third taller than the former, but on the whole the Brier is probably the longer lived and the more useful stock. It is singular to observe in the family of the Rose such marked and distinct effects produced by different stock. In view of such facts it is not a little surprising that pomologists went on for years practically ignoring the influence of the stocks on the scions, while attributing undue potency to the power of the latter over the former.

Several other most interesting facts were met with on this Rose farm, illustrating various important phases of vegetable life. For example, the original plant of Maréchal Niel, introduced in 1864, still clothes with verdure and adorns with golden cups of beauty the front of Mr. B. Cant's house. This plant was budded on the Brier almost 1 yard from the ground, and the latter has so far kept pace with its rampant head that there is little or no swelling, and no sign of weakness or disease at the point of union between the Rose and the Brier. With this irresistible logic of fact before his eyes, it need hardly be stated that Mr. Cant works the Maréchal largely on the Brier, and has a magnificent stock of it on this and other stocks. The shy-flowering Boule d'Or, again, is flowering in profusion as a standard on the Brier. It makes moderate growth, and each terminal shoot is laden with flowers. The Cloth of Gold, which used to flower with tolerable freedom, has been very generally cut down by the weather, and refused to bloom much since. In not a few gardens it has

recovered its powers of growth, and covered large areas of wall with its branches without flowering. Mr. Cant, observing this tantalising tendency to sterility in a Rose that used to flower freely on his Rose farm, proceeded to bud from moderate-sized flowering shoots, and the plants raised from such buds are again returning to flowering ways.

In these and hundreds of other minute details, this great Rose grower is, as it were, daily sitting at the feet of his Roses and learning more of their secrets where alone they can be learned—from the plants themselves. And it is a most singular fact that almost every Rose has its secrets as well as its seasons, the latter being almost as mysterious as the former. For example, the Sultan of Zanzibar has been nowhere with us this season, the Star of Waltham better than ever before; the same truth was illustrated at Colchester through acres of Roses in full bloom. The remarks were common—"Very nice this season," "Not so good as usual," or "Not in show form this year:" and yet all were growing side by side, and culture, treatment, weather, had been alike for all. Each Rose, however, in common with its general constitution as a member of one great family, seems to have a special character, more subtle, sensitive, and difficult to understand; and it is this special knowledge, that can only be acquired by years of patient toil and plodding experience, that is so valuable to the Rose grower and exhibitor, and it is in the generous diffusing of such knowledge to all comers that such accomplished rosarians as Mr. Cant and his son earn the gratitude of all lovers of the Rose. The whole of their Rose secrets are opened to patient listeners, and an hour at Cant's teaches us more about the Rose than the reading all that has been written on the subject.

Time and space would alike fail to give the merest epitome of good Roses seen on this occasion. What surprised me most was the enormous number of Roses in full bloom in the middle of July. Ours were almost over. Mostly on the Brier, never a full crop, this year the flush of beauty proved shorter than it was brilliant; but on arriving at Mr. Cant's most of his dwarfs and many of his standards were only in full flower—not a few of them not so far advanced. August promises a richer harvest of Roses on this farm than June or July, and before the beginning of September the early standards will be again clothed with Roses, and the Roses in plenty may be gathered till the frost cuts deeper than the knife, and so makes an end of their beauty.

Among the finer Roses in high perfection were Auguste Neumann, Baroness Rothschild, Beauty of Waltham, Charles Lefebvre, Comtesse de Serenye, Duke of Edinburgh, Edouard Morren, Etienne Levet, Jean Liabaud, John Bright, Exposition de Brie, François Levet, Jules Finger, La France, Louis van Houtte, Madame Clémence Joigneaux, Madame Eugéne Verdier, M. Victor Verdier, Marie Baumann, Monsieur E. Y. Teas, Reynolds Hole, Sénateur Vaisse, Star of Waltham, and Xavier Olibo.

Among Teas the palm of beauty and victory has to be awarded to Souvenir d'Elise, which for the first time in my life I had to admit beat Devoniensis. Among other Teas the more striking were Anna Oliver, Comtesse de Nadaillac, Innocente Pirola, Jean Ducher, Jules Finger, La Boule d'Or, Madame Angéle Jacquier, Madame Hippolyte Jamain, Madame Lambard, Madame van Houtte, Perle des Jardins, Souvenir de Madame Pernet, Souvenir d'Un Ami, Rubens, &c.

Among Bourbons I was pleased to meet with the old Baron Gonella; while Cloth of Gold, Maréchal Niel, Madlle. Caroline Kuster, Rêve d'Or, Solfaterre, Triomphe de Rennes, Bouquet d'Or, and the lovely Aimée Vibert gave a brilliant and sweet representation of the Noisette family.

Of the hybrid Tea-scented and hybrid Noisette Roses, of which so much was expected, the Cheshunt Hybrid still seems the best and most useful; whether the others will yet grow into size and substance remains to be seen. At present the pedigree Roses, as seen here, have little else but that to commend them.

Mr. Cant's stock of Tea Roses is enormous. Most of these do exceedingly well with him as standards worked on the Brier. Many Teas were worked on this stock by the late Mr. Ingle, of Birch Hall, near Colchester; and his successor, Mr. Smith, also a keen and successful rosarian, informs me that many of those so worked on the Brier formed enormous trees several yards high and through, which were annually laden with hundreds of Tea Roses, most or all of them succumbing to the terrible severities of recent winters; but a fresh start has been made, and now some fine standard Teas will speedily refill the vacant spaces.

Mr. Cant proposes to fight and vanquish the frost by the aid of thick walls, Fern fronds, and litter. By aid of the two latter only—a handful of bracken on the top, and a spread of litter or manure over the roots—he carried his Teas and Noisettes safely through last winter. Doubtless, too, the thick wall that he has built as a boundary to the northern side of his farm will also prove a powerful protection to his tender Roses. Already its southern front is planted with two sets of Tea Roses, standards and dwarfs, which will clothe it in half the time usually needful for this purpose. It is also proposed to furnish the north side with Tea Roses for cutting in summer, and a few yards on either side of the south and north base with dwarf Teas. When this is done and other sheltered portions of the farm are filled with Teas, as proposed, the supply will not only be enormous but well-nigh continuous. As there is, however, little difficulty in disposing of from 5000 to 10,000 Rose blooms a-day there is little risk of excessive supplies. The cry is still for more, and the extension and multiplication of such Rose farms will ultimately bring the finest Roses within reach of the hands, homes, and hearts of our entire industrial population. This is an object that may well stir and satisfy the ambition of every true lover of the Rose. For the Rose not only carries beauty and sweetness wherever it goes, but also healing health, rest, and peace in the exact ratio in which its mission and message are understood and received. But a truce must be called to such reflections, however pleasing and profitable, and a few hurried notes on the newer Roses will fittingly close my day at Cant's.

Alfred K. Williams is now four years old, but it takes many Roses more than double that time to be thoroughly known. It may be truly said of the above that the more we see of it the better we like it. This, of itself, is no bad test of quality. It is good in substance, perfect in form, of full average size, and, like all the best Roses, of a good colour—a bright carmine.

Being one of those who have often called for a good white hybrid perpetual, I must confess my disappointment with Mabel Morrison. In habit of growth and foliage it is so like the Baroness Rothschild that it is represented as a sport from it. This can, however, hardly be the case, as the flowers are but the ghosts of those of the Baroness at their best, and this not because they are white, but through lack of substance, or rather material. Mabel Morrison, as generally seen this year, is little more or better than semi-double, but in a fine lot of it at Mr. B. Cant's I, however, noticed one bloom with more petals. Would that it might settle down into that better state in the future, of which, however, I fear there is but little hope, though there be some, as even the Baroness is rather thin at times.

The Countess of Rosebery (W. Paul), promises to be a fine useful Rose, of the all too rare shell pattern type, and a bright reddish-salmon colour.

Dr. Sewell is one of Mr. Turner's new Roses, of full size, fair substance, and fine form. The season has, not however, been favourable to dark crimson or maroon Roses, and the flowers of this have burned, with the Sultan of Zanzibar, Prince Camille de Rohan, Emperor of Morocco, and other dark notabilities.

Duchess of Bedford (W. Paul), is not very large but grand in form, back petals slightly reflexed, colour deep velvety-crimson, suffused with scarlet.

Duke of Teck (G. Paul).—This is another brilliant scarlet Rose that this season has proved almost too hot for hitherto. It is a remarkably vigorous grower, free bloomer, and the blooms are of full size and good form. This is likely to prove a most valuable Rose.

Gloire de Bourg La Reine.—Brilliant almost to a fault; colour brilliant scarlet, large size and free form, but as seen here lacks material, which may, however, be forthcoming in cooler weather.

Harrison Weir (Turner).—Rich velvety-crimson and scarlet, of full size and perfect form, probably the very best new Rose of recent years.

Jules Chrétien.—Very distinct in habit and colour, crimson shaded with purple, fine form, full of substance, and of good size.

Madame Eugéne Verdier.—There are two Roses of this name, and this one was raised in 1878. This is a fine free-growing variety in the way of Louise Peyronny, which is likely to prove most useful.

Madame Gabriel Luizet.—This is another very free growing, distinct Rose, that is likely to be popular in the future.

Penelope Mayo.—Bright carmine-red, form perfect, and of good substance, a first-rate promising new Rose.

Père Carot.—A promising novelty, of good size and form, colour red-carmine, changing into a darker shade.

Prince Arthur (Cant).—This is a brilliant Rose for showing, and also likely to become a popular garden Rose from its brilliant deep rich crimson colour and good form.

Among the newer Teas the more notable were the following:—

Innocente Pirola.—Pure white, at times tinged with delicate pink; large, full, and of good form, and a free bloomer.

Madame Welch.—Light yellow, with dark orange centre; always most useful and attractive for cutting, and at times a good show flower. The flowers are of full size, full of petals, and of good form.

Madame Angéle Jacquier.—The colour is striking—a deep coppery silver, bright pink centre and of fair size and form. It may, perhaps, prove useful for exhibition when established, but in any case it will be good for cutting.

It is well to bear in mind that many new Roses have been so severely handled, under stress of express modes of propagation, that it takes some of them a year or two to recover their true character. It is also quite possible that, though Roses do not break into beauty like Tulips—a stripe, flake, or flame at a time, but rather reveal their full beauty at once, like the sun arising on a cloudless morn, yet it seems probable that some of them may have learned the theory and caught the practice of gradual development from our modern science and profound philosophy. And be all that as it may, it is at least wise to judge all new Roses through hopeful spectacles for the first year or two. Apart from any theories of their starting with an imperfect life or a crude constitution that may need time to mature or consolidate, we know that almost all new Roses come to us out of great tribulation and fiery trials at the hands of the propagators, which results in a state of extreme attenuation of vital force and flower, and they are therefore fully entitled to a season of tender nursing, skilful culture, and full feeding before being dismissed as commonplace, or destroyed as worthless. *D. T. Fish.*

PLANT LABELS.

The following is the report of the committee of the Society of Arts, consisting of George F. Wilson, F.R.S. (Chairman), F. J. Bramwell, F.R.S. (Chairman of the Council), Lord Alfred S. Churchill, Rev. H. Harpur Crewe, W. T. Thiselton Dyer, F.R.S., Rev. H. N. Ellacombe, H. J. Elwes, Sir Joseph D. Hooker, K.C.S.I., C.B., F.R.S., Whitehead Jeffrey, George C. Joad, Rev. J. G. Nelson, William Sowerby, Rev. Charles Wolley Dod, and Colonel Trevor Clarke, which has been adopted by the Council:—

The conditions under which the Society's Silver Medal and the £5 prize, provided by Mr. G. F. Wilson, were offered, were as follows:—

"The Council of the Society of Arts are prepared to award a Society's Silver Medal, together with a prize of £5, which has been placed at their disposal for the purpose by Mr. G. F. Wilson, F.R.S., for the best label for plants. The object of the offer is to obtain a label which may be cheap and durable, and may show legibly whatever is written or printed thereon; the label must be suitable for plants in open border. These considerations will principally govern the award. The award will be made on the recommendation of the committee, which will be appointed for the purpose by the Council. Specimen labels, bearing a number or motto, and accompanied by a sealed envelope containing the name of the sender, must be sent in to the Secretary of the Society not later than May 1, 1881. The Council reserve to themselves the right of withholding the medal and prize offered, if, in the opinion of the judges, none of the specimens sent in are deserving."

In answer to this notice, which was first issued in January last, 120 sets of specimen labels were sent in. Some of these are ingenious, but many show

ignorance of the conditions to which labels are exposed in open borders, rockwork, &c. There are a great number of applications of glass to labels; some of these specimens were broken even in the transit, showing how unsuitable they are to stand rough usage. Some very useful labels have been sent in, which, though perhaps not absolutely new, are unknown to the generality of cultivators.

The committee are of opinion that none of the labels sent in for competition are deserving of the Society's medal, but they have pleasure in expressing their opinion that the following possess many points of merit, and they therefore beg leave to draw the attention of persons interested in the subject to them:—

E. J. Alment, 194, Romford Road, Stratford.—Zinc labels, with galvanised iron wire stems.

J. Pinches, 27, Oxenden Street, S.W.—Zinc labels, with stems of zinc, iron, and oxidised iron.

Thomas Johnston, Saw Mills, Renfrew, Scotland.—Labels of Teak-wood.

J. Wolstenholme & Son, Grimes Street, Mill Street, Ancoats, Manchester. — Holly-wood and Box-wood labels.

Rev. H. Ewbank, St. John's, Ryde, Isle of Wight.—Wood labels, with iron wire supports. These are painted white, and a coat of black paint added, which, when wet, is removed where the letters are required, in order to show the white ground beneath.

J. Wood, Woodville, the Spring, Kirkstall, Yorks.—Zinc labels, with galvanised iron wire supports.

Walter J. Todd, 32, Angel Road, Brixton, S.W.—Wood labels, with wire supports.

C. Yates, Mortlake.—Zinc labels of various patterns; ink for writing on same.

S. Mount, Harbledown, Canterbury.—Painted iron abels.

J. C. Turner, Salisbury Road, Blandford.—Zinc labels.

J. Dowdney, 1, Montpellier Villas, West Street, Croydon.—Wood labels, with wire supports.

Rev. C. Wolley Dod.—Iron and wood labels.

There is also an iron label sent in by the Rev. H. N. Ellacombe, for the inspection of the committee, though not in competition, which is well deserving of notice, since it has been in use for more than sixty years in Mr. Ellacombe's garden, and is still in perfectly sound and good condition.

The committee would suggest that the proprietors of the labels sent in should present their specimens to the Council of the Royal Horticultural Society, if that Society is willing to accept them, in order that they may form a permanent exhibition of labels. They also recommend that the offer of the prizes should be renewed for the following year, and for the guidance of future competitors they offer a few suggestions.

Wood is probably the cheapest and best material for cheap labels. It is at present liable to the objections that the part in the ground rots, and the writing on the label becomes illegible. If by some process, such as perfect kyanizing or treatment with paraffin, these objections could be removed, an excellent cheap label would be the result. Such labels, however, would have to be tested in actual use against unprepared labels, before any award upon them could be made. Slate labels, made thick enough not to break, might be useful. Cheap thick glass labels might be useful for the same purpose, if proper means of writing upon them were provided. *H. Trueman Wood, Secretary. From the "Journal of the Society of Arts."*

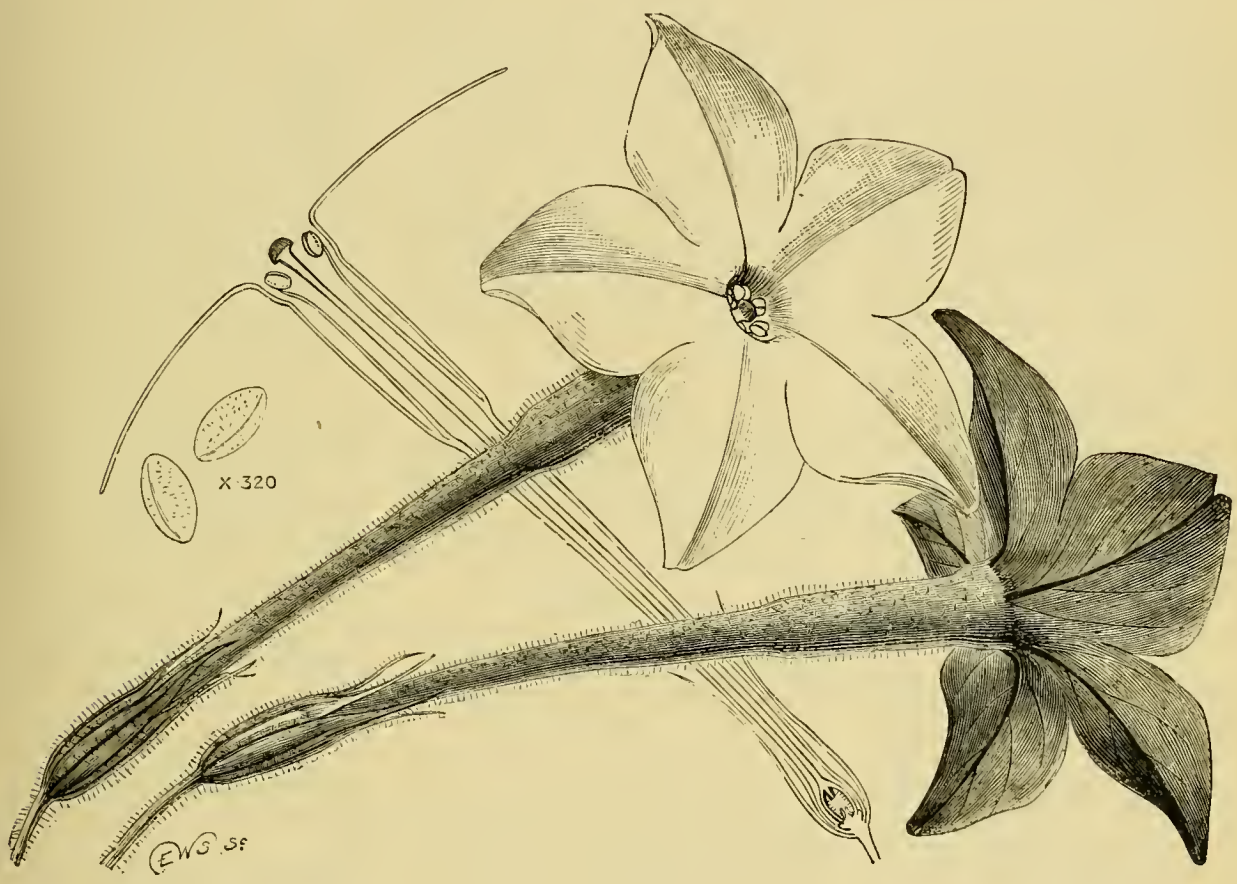


Fig. 31.—NICOTIANA AFFINIS.

NICOTIANA AFFINIS (Fig. 31).

This is a very handsome species of Nicotiana, with highly fragrant flowers, the perfume of which is most strongly developed during the evening. The pot-plant now before us, for which we are indebted to Mr. Cullingford, of Kensington, is about 2 feet high, erect, with a stem as thick as a small tobacco-pipe, and rather freely branched. The lower leaves are numerous, about 6 inches long, ovate, obtuse, the blade narrowed below into a winged petiole, the wing being continued so as to clasp the stem; the upper ones are smaller, more decidedly amplexicaul, broad, and equal-sided at the base, and tapered on the upper third to a more acute point. The upper part of the stem, which is as thick as a stout straw, bears several flowers in succession, the lower ones distant, the upper more crowded, each with a small bract, level with or just below the insertion of the petiole on the opposite side of the stem. The flowers have a stout petiole ¾ of an inch in length, a many-ribbed calyx about 1 inch long, divided half-way down into five narrow subulate lobes, and a conspicuous corolla, which has a slender tube 3 to 3½ inches in length, slightly thickened in the upper third, and suddenly enlarged at the mouth, especially on the upper side, and a spreading limb nearly 3 inches across consisting of five ovate blunt segments, which are white on the inner, greenish, like the tube, on the outer side, and taking on more or less of a purple tint as they fade. The surface of the corolla appears reticulate, and also shows a depressed midrib, which forms a ridge on the outer surface. In the evening the flowers exhale a delicious perfume, which pervades the atmosphere in the vicinity of the plants. The whole plant, except the inner surface of the corolla, is covered with hairs, more or less glandular, which causes the parts to feel clammy to the touch.

The plant is evidently closely allied to N. longiflora, figured in Sweet's *British Flower Garden*, 2 ser., t. 196, but the flowers are considerable larger than that figure represents, and have broader, blunter limb-segments; the stamens, too, there described to be inserted at the mouth of the corolla, are here inserted fully an inch down the tube, though the two plants agree in having one shorter than the other four. There is moreover, a sort of obliquity in the flowers, two of the segments, forming a kind of upper lip, being shorter (1 inch) than the other three, which are half an inch longer, while the mouth of the tube projects on the upper side and slopes away on the lower side, thus destroying the regularity of the flower. Of its history we can give but little information. Mr. Cullingford tells us that the seed came to him from Hyères, but that he does not know where the name originated.

It is a very pretty and welcome plant for the summer garden, requiring, of course, to be raised in heat, and treated otherwise as a half-hardy annual. On account of its night-scented properties it will be a very welcome plant for conservatory pot culture, and we learn that kept through the winter and well pinched back it becomes most floriferous. *T. Moore.*

Orchid Notes.

Work in the Houses.—Already some of the earlier of the Dendrobiums have finished their growths, and now the bulbs require to be well matured. There is no doubt that much of the unsatisfactory and sickly condition in which some plants are apt to get, is because while the individual plants should be hardening and plumping up the growths they have made, they are kept in a state as regards heat and moisture much more advantageous to a growing condition than to one of ripening and rest; and so, instead of the stout bulbs we so much desire, we have those that are of just the opposite description, and which, when any check comes upon them, speedily become diseased, and too often decay. Where such subjects, therefore, as these Dendrobiums have made up their growth, let them be removed from their growing quarters, and placed in a cooler and more airy situation. D. Cambridgeanum should always be treated thus, and will be one of the first that will require moving out. I consider that the success of this plant depends very much upon the condition in which it is kept from April, its usual time of blooming, to November or December, the period generally of its commencing growth—that is to say, that during the summer, when it is apparently doing nothing so far as growth is concerned, it is nevertheless actively rooting, and ripening and plumping up the growth on which the flowers have appeared; and if these are well matured it will be found that when the new shoots start away, somewhat slowly at first, yet as the spring months of March and April come round the bulbs speedily increase in size, and flowers are produced in twos and threes along the short fleshy bulb. Some of the earliest D. nobile will also be ready to be stood out, and with these such things as Thunia Bensoniæ, Marshallianum and albus, may be placed, provided the growths are well advanced: of course on these latter a head of bloom should be the finishing of the growth, but the truss of flower will not always come on every shoot; if some have flowered it will be necessary now to withhold water, and then in a short time place them with the Dendrobes. These, however, must not be kept out in the cool so long as the Dendrobes, as the cold is apt to strike the base of the bulbs and rot them entirely off. The question as to which is the best material on or in which Cattleyas, &c., should be grown, I do not purpose at present to discuss. I wonder, by-the-bye, why only these two closely allied genera are to receive an exceptional method of treatment? What I may suggest or recommend under this heading will be such as I have seen adopted by others and practised by myself, and I think I may say, after a period of nearly twenty-six years, that such treatment has invariably been followed by a fair measure of success. I recommend, therefore, that where small or medium sized pieces of Cattleyas, &c., are received in an imported state that they be fastened on wooden blocks and suspended from the roof in such a position that they may have a good light, but not be subjected to very strong sunshine. The bulbs, being somewhat shrivelled at starting, are apt to become even more wrinkled and yellow if they are exposed to a strong light and the drier state of the air in the upper part of our houses, and thus the bulbs become exhausted, and the eyes at their base cannot burst away with the vigour they would if the bulbs remained plump and stout. On the blocks they will require dipping or syringing every day—some of them will need it twice a day—and so the heat and moisture of the atmosphere and damp state of the block will soon cause new roots to push away and new shoots to appear in due time. Then will the needful rest be encouraged and given. For the first season or two it is better that they should remain on these blocks, but generally after that length of time the blocks become rotten, fungus appears and spreads rapidly, and in many cases woodlice and cockroaches have found it out, and though we cannot say whence they came, we find too late where they have rested, and can easily reckon how long they have remained. Presuming the plant on the block has done well, and the block is thus rotting, take it off, and pot it, not necessarily into a large-sized pot, but one just big enough to hold it; crock it well high up about the plant, using good sized crocks so that the soil may be open and air may easily get about the roots; then work in some peat and a little moss, as has so often been recommended; make it secure with a few sticks, and it is ready to be stood with the others. Water at first sparingly, increasing the amount as the plant grows. If then the watering, shading, &c., are reasonably attended to, health, vigour and growth will follow that should satisfy the most exacting. *W. Swan, Fallowfield.*

Do Cattleyas Require Soil?

I read Mr. Findlay's notes on the above subject with interest. I am afraid, however, that most gardeners who have had charge of large collections of epiphytal orchidaceous plants will hardly agree with him in thinking that Cattleyas, &c., will thrive better on potsherds and charcoal than in fibrous peat and sphagnum moss. The former are good enough for drainage, but that the plants require a little peat and moss at the base of the bulbs is certainly obvious to most gardeners who are expected to grow them properly. It was my lot some years ago to be in charge of a large collection of Cattleya Mossiæ in the neighbourhood of Manchester. They were imported direct from South America, and in potting them we followed exactly the directions which Mr. Williams gives in his *Orchid Growers' Manual* as to peat and sphagnum, and the result was most satisfactory. They did remarkably well, and took a lot of special prizes at the Manchester National shows; and I may also state that Mr. Leo Grindon paid a visit to the collection when we had over 500 blooms of these noble flowers out at once, and he declared it was the finest lot he ever saw. Mr. B. S. Williams also expressed himself in high terms about them. My employer, however, started the same theory as Mr. Findlay is anxious to inculcate, viz., that peat and moss are superfluous, that they were air-feeders, and consequently he had them torn out of the pots and placed on blocks, &c. The result was disastrous. The fine vigorous roots which flourished so well in peat and moss soon shrivelled up when exposed on blocks to the sun, though the houses were shaded; and it all ended in disappointment and failure. *A. Macdonald, Royal Asylum, near Cheadle, Manchester.*

Disa megaceras.

The *Irish Farmers' Gazette* reports that this new Disa, which was received at Glasnevin under the name of D. macrantha, and flowered there for the first time after its introduction, is this year throwing up a spike of extraordinary succulence and vigour; so much so that in two or three weeks a proportionately great development in the number and size of its flowers as compared with those produced when the plant first flowered, may be expected.

Mormodes pardina.

In the Kew Orchid collection a richly-coloured form of the old spotted type is now in flower, as well as a good plant of the remarkable variety unicolor, with its long dense spike of golden-yellow aromatic blossoms.

Florists' Flowers.

Azaleas.—The earliest flowering plants will by this time have made their growth, and the flower-buds will be well set; that is if the plants, as they ought to have been, were placed in heat to make their growth. They must be placed in a greenhouse temperature previous to placing them out in the open air. It may be just as well to say that a sudden change from a forcing temperature to the open air would be injurious, but the change from the greenhouse to the open air does no injury whatever. The later flowering plants will be in heat still, and should have a close, warm, growing temperature. Syringe the plants freely with tepid water, and see that they are well supplied with water to the roots. If there are any vigorous growths likely to rob the smaller growths of their due nourishment they must be stopped; gross shoots seldom produce flower-buds.

Calceolarias.

Propagating plants from cuttings of choice varieties is seldom thought of now-a-days; everybody raises their stock from seeds, and as seeds can be obtained such as will produce first-rate flowers from any respectable seedsman, that is the plan most to be recommended. It is now a good time to sow seeds. They are very small, and the soil should be made very fine and level before the seeds are sown on it; after this is done just cover the seeds with fine soil or white sand, place a square of glass over the pot, and keep it in a cool situation in a handlight or frame until the young plants appear. These are very small, but as soon as they can be handled they should be pricked out in small pots or pans.

Cineràrias.

It is still time enough to sow seeds of these for a late bloom. Our own were sown in April, and they have produced strong plants, which are now in 60's and 48's; they will be repotted into 7-inch pots very soon, and will make good flowering plants before Christmas. We pot in rich sandy loam, to which a liberal proportion of rotten manure and leaf-mould has been added. Both thrips and greenfly attack the plants, but they can easily be destroyed by fumigating the frames on a still evening. Our plants are growing in a cold frame facing the north.

Chrysanthemums.

Specimen plants of both the large flowering varieties and pompons should now be in their flowering-pots, and growing vigorously. They ought also to be in an open part of the garden, and if they have the shelter of a hedge, wall, or clump of trees, from the south-west, all the better; but the shelter ought to be some little distance from them, as the plants ought not to be shaded from the sun. Instructions as to repotting have frequently been given. As this plant is a very gross feeder it requires richer compost to grow in than almost any other plant. Water should be rather sparingly applied to the roots until the pots are well filled with them, afterwards apply it more freely; indeed, towards the end of the season, when the pots are well filled with roots, it is not easy to over-water them. For exhibition purposes the specimen pompons are potted in 8½-inch pots, the large-flowered varieties in 11-inch; and the plants to produce large single blooms are potted into pots of different sizes; but we have obtained the best blooms by potting three plants in a 12-inch or 13-inch pot, or two plants in a 10-inch one. Greenfly and thrips also attack the plants. These pests can be destroyed by dipping the leaves in soft-soapy water to which some tobacco-liquor has been added.

Fuchsias.

At this time of the year, when Pelargoniums, Calceolarias, Azaleas, Ericas, and the usual summer occupants of the greenhouse, are out of bloom, this plant makes a grand display, and when the plants are well cultivated, and arranged to the best advantage with Liliums and other plants that are in flower at this season, there is no lack of bloom for the next two months. The natural habit of the Fuchsia is a spreading bush, and under greenhouse cultivation it should be grown as a bush, using only a sufficient number of sticks to keep the growths now loading with bloom from breaking down under their weight. They continue long in bloom if aided with weak manure-water twice a week, and the seed-pods are picked off as they are formed.

Pelargoniums.

The large-flowered section will now be quite out of bloom. The plants should be placed out-of-doors, and remain for a week or ten days without any water at the roots, when they should be cut over. When the roots are quite dry there is very little bleeding from the cut part, and the wounds soon heal; when this occurs give a good watering. The plants should then be placed in an airy greenhouse, or pit, near the glass. It would now be getting late to cut down the early-flowered plants; indeed, they ought to be well started by this time, with the plants ready to be shaken out of their pots to be repotted. If the plants are of the large size, and have been flowered in 8½-inch pots, the roots should be reduced so that they may be potted in a 6-inch or 7-inch pot. The house, or cold-frames, where the plants are placed after they have been shaken out and repotted, should be kept rather close, and perhaps shaded for a few days, until the roots have taken hold of the potting material. It is as well not to give any water for a few days, until the wounds of the broken roots have healed a little. The above applies to all classes of the large-flowered section. The fancy, or small-flowered varieties, should not be cut down quite so close as the others, and the potting soil should be lighter, as this is the most delicate of all. The zonal Pelargoniums that were propagated from cuttings either last autumn or in the spring of the present year, should also be potted on as they require it; 6-inch pots is a good size to flower the plants in, and they should be potted into that size any time during the month of August. They do best in an open position out-of-doors.

Petunias.

These plants are very easily grown, and a few of the best single and double varieties form a good feature in the greenhouse at this season. If the plants are grown from cuttings early in the season, and are potted as they require it, each plant forms a bush ready to burst into bloom when it is most required. The points of the growing shoots must be pinched out frequently during the time of growth.

Verbenas.

These are equally well adapted to furnish the greenhouse stages with their very distinct, varied, and richly-coloured flowers. The plants require pinching, and growing freely until the time they are wanted in bloom. They should be quite in the open air, or in frames where the lights can be removed or replaced when necessary. Greenfly and thrips can be destroyed by fumigating—red-spider, to which the Verbena is also subject, by dipping the plants in the same mixture recommended for Chrysanthemums. *J. Douglas.*

Garden Operations.

HARDY FRUIT GARDEN.

Gathering small fruits is now one of the most important operations in this department, requiring much time, and needing to be done with judgment in order that the whole of the crop may be gathered in the best possible condition without loss from over-ripeness or waste from being gathered too soon. Most small fruits should be gathered when quite ripe for preserving, with the exception of perhaps Gooseberries, which are, I venture to affirm, much better for jam-making if gathered when only just turning colour. By being gathered thus early the skins will be found devoid of the toughness which is present in those of ripe fruits. As soon as the crop of early Cherries is removed attend to any cleaning of the trees that may have become necessary from the increase of aphides during the time that ripe and ripening fruits have prevented the continued washings that seem to be indispensable for Cherry trees on walls. Any second growths that they have made may be removed, and the rest of the foliage thoroughly cleaned by the forcible applications of water, using an insecticide if necessary. The nets removed from the early Cherries will now come in for the Morellos, which are rapidly approaching the state when they will be injured by birds. Continue to supply water to trees of Peaches, Nectarines, and Apricots that are bearing heavy crops, and are now commencing to swell-off the fruits, and are consequently taxing the energies of the trees to the utmost. The newer Peaches will have this season a better chance of proviog the advance made in extending the Peach supply from the open wall than the last few years have afforded them. Early Rivers promises to be a great acquisition where the open wall is depended upon for the principal supply of Peaches, for it is now ripe. Early Louise is also colouring, and promises to be only about ten days later in coming in: while Royal George, in common with others on the same wall, and with the same protection in spring, a herring net, does not yet show any sign of starting to swell after stoning. The earliest Apricots will soon be ripening, and will necessitate looking over the walls several times a week. If wasps are plentiful, it will be well to secure the crop by using hexagon netting for covering the trees as soon as any fruits commence colouring—previously applying a good force of water, driven from varying directions behind the limbs and foliage as much as possible, to dislodge the earwigs, woodlice, &c. Apricots are frequently browned on the exposed side when suddenly exposed in very hot weather, but are of a more delicate tint and equal flavour when left with the slight shading they receive from uncrowded foliage. Peaches, Nectarines and Pears, in common with other fruits, will be much improved in appearance by having any overhanging foliage pushed aside, to allow them to acquire a high colour; but Apricots may be treated differently with advantage, the Hemskirk especially exhibiting by its blistered cheek the ill effects of over-exposure. Nets may now be cleared from all but the latest Strawberries, taking care to remove and store them when perfectly dry. Any further runners that are required for planting should be secured at once, so that the plantations that are to be retained another year may have all runners cleared off and the hoes run through between the rows. Where the growth of pyramidal Pear and Apple trees has not yet been removed it ought to be attended to at once. Young trees will require little further than the removal of any ill-placed or too numerous growths, leaviog the pruning generally until winter, to encourage vigour to arrive at a sufficient size speedily. Established trees will require the young shoots to be cut-in to three or four leaves, according to the vigour of the variety, and any extensions pruned to the desired length, leaving, if the trees have not reached the intended height, the leader uncut until the winter pruning. *R. Crossling, St. Fagan's.*

PLANT HOUSES.

Stoves.—Where bottom-heat can be given in the propagating pit, or in lieu of this by means of fermenting materials in a frame, several stove plants may be easily propagated and made into nice little stuff before the advent of the coming winter. Gardenias may be struck now in this way, selecting nice compact growth, with two or three shoots about three-parts ripened. Shoots of Allamandas that have just set for flower may be taken off with two or three joints, and if struck quickly will go on and flower in small pots, and come in useful where small plants are wanted for indoor decoration. Ixoras, Dipladenias, Bougainvilleas, and Clerodendrons may also be now easily struck where bottom-heat is at command. Poinsettias, if required in large plants, should have a shift if they have filled their pots with roots; pinch any growths that are gaining in strength to the detriment of others. In favourable localities these subjects will succeed well in the open air during the summer, the growth thus made being more sturdy and robust. Cuttings may yet be struck for making dwarf plants, which come in useful for the dinner-table and drawing-room. Where Eucharis amazonica is required for winter flowering the stock for this purpose should be encouraged to make good growth. Small pots made up now of Selaginella denticulata (Kraussiana) will be handy for winter work. Keep a vigilant watch against the insect pests. Mealy-bug increases rapidly in hot weather—thrips also are very abundant; neglect no opportunity to keep all these in check. Mealy-bug, I am glad to say, is extinct here, and I hope to keep it so. When once any grower has had the trouble of this pest and succeeds in conquering it, the benefit derived will soon be evident in the healthier state of the plants, not to mention the great saving of labour. Red-spider will soon disfigure the handsome foliage of the Alocasias; occasional sponging will keep it in check. Rearrange the plants in this structure every few weeks during the summer; this will add to the pleasure derived therefrom, and also greatly benefit the plants.

Greenhouse.—Remove the faded flowers from plants of Aphelexis; in doing this it is better to break them out close down to where they branch off from the main growth; if taken off shorter the portion remaining will be sure to die back and make the plants look unsightly. The spikes should be removed from Dracophyllum gracile back to where there is young growth shooting forth. Pimeleas may with safety be cut rather hard back if the plant under treatment has reached sufficient size, otherwise only pinch off the flower-truss. Red-spider will attack them; this can be checked by a good syringing with sulphur and water. Azaleas that have been retarded for late blooming should have the benefit of a moist growing atmosphere a while longer, then gradually inure them to a hardier course of treatment, and eventually expose to the full sun and air to plump up their flower-buds for another season. Plants of Camellias that are growing in pots may be safely potted now where any require it. I find this a better time than immediately the plants go out of flower. In potting I use a good mixture of sound turfy loam and good fibrous peat in about equal proportions, adding thereto a sprinkling of bone-meal and plenty of sharp sand. Keep the whole stock of Camellias syringed as the sun declines. This remark ought also to apply to Azaleas, especially in hot weather. Do not expose the stock of Primulas and Cinerarias too much to the direct rays of the sun; shading the glass with whitening on the under-side will be beneficial, leaving the lights off in the latter part of the day. Where thinning of the buds of Chrysanthemums is practised this operation should now be looked to as each kind requires it. Some kinds being earlier in this respect than others, attention to this point should extend over several weeks. Liquid manure may now be given occasionally, this will aid in preserving the foliage healthy now the pots are becoming fast filled with roots. Where Solanums, Bouvardias, Tree Carnations, Spiræas, and Deutzias are growing in the open border, keep them liberally supplied with water during this hot, dry weather. Take advantage of the first favourable opportunity to look over the stock of pot Roses, and shift any that require it. This operation had far better be done thus early than left to later on in the season; for if done now active root-action will soon commence. *James Hudson, Gunnersbury House Gardens, Acton, W., July 26.*

FRUIT HOUSES.

Vines.—The earliest vineries must have abundant supplies of air night and day, and the borders be thoroughly watered when necessary with clear water. If the foliage is clean and approaching maturity the afternoon syringing can be discontinued, and if the laterals have been allowed to run wild after cutting the Grapes and have become crowded, shorten them back, so that the wood will be fully exposed to sun and air. Houses in which Grapes are ripe will this hot weather require more water than usual to keep them plump, for if the borders get too dry they will shrivel and not keep nearly so well. Succession-houses in which Grapes are colouring will be better for a little fire-heat, except on the brightest days, when it can be turned off, keeping enough air on the back and front ventilators to maintain a healthy circulation, and on bright days damp the house down early and again about noon, so that it will dry up before evening; but on dull days it will not require it; water the borders when dry with clear water. Muscats that are ripe keep as advised in my last Calendar. Muscats that are ripening should have a little drier atmosphere, damping down the house early in the day and again at noon, for even when ripening in hot weather they will not do with too dry an atmosphere, but if the weather is dull the atmospheric moisture can be reduced with advantage; water the borders when dry with clear water. The latest house of Muscats must have a brisk moist heat, giving plenty of air towards mid-day, and closing early in the afternoon, thoroughly damping down the paths and borders with tepid water; examine the borders, and if dry, water with tepid manure-water for the last time—after this time clear water will be best. Late varieties of Grapes for keeping through the winter will not now require any fire except on dull cold days, when a little can be put on early in the morning for a few hours, to raise the temperature early; close the house early in the afternoon, and damp the paths and borders thoroughly until the Grapes show signs of colouring, when the moisture can be reduced gradually, and a little back air be left on the ventilators all night, with fire-heat to keep the temperature from falling below 67°. Late houses of Hamburghs will now take liberal supplies of tepid manure-water, and must have the laterals pulled out where too thick, so that the fruiting-wood can be exposed to all the sun and light possible. While this hot weather lasts fire-heat will not be required if the house is closed early in the afternoon, when the temperature can run up to 90°. Newly planted vineries will now take liberal supplies of water, for if allowed to get dry they will not grow freely and keep clean. Give plenty of air in the early part of the day, and close early in the afternoon, damping paths, borders, and foliage. Let the laterals run freely over the trellis without stopping, which will cause them to make plenty of roots. The earliest pot Vines will require plenty of room, so that they may be fully exposed to sun and light to induce them to ripen early, giving them liberal supplies of manure-water for a short time longer. Those for planting should have liberal supplies of water, and all the light and room possible. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

Take off suckers from the plants that have fruited, and lay the old stems or stools in boxes, as previously recommended. Give them plenty of heat; the fruiting houses suit them very well. The soil should only be kept moist, for if allowed to get too wet or sour the stools will rot. This is the best way of keeping up a stock of succession plants, and if the plants have brown-scale on them this treatment will eradicate it. Examine all successional plants, and if any are growing one-sided turn the plants round. Where the fruiting plants are cleared off the houses should be kept cool and dry for a few days, then well painted both inside and out, and for this purpose white lead cannot be superseded with advantage. It is very important that this work should not be neglected, or the houses will soon sustain injury, and the putty lose its virtue, in consequence of the material being subjected to a high temperature all the year round. I have seen a quantity of fish oil used for putty, but it is not so durable, and requires more painting, as the putty cracks more if made with these oils than with linseed oil and good white lead. After this is done the divisions should stand empty for a few days until the paint is thoroughly dry, and all the smell has gone. The glass should also be well washed inside and out before painting, and no obstruction to the light allowed at any time. When the houses are refilled with plants, make up the beds and plunge the plants as before advised at their permanent distances. Utilise all back or empty shelves by growing Calanthes, as these plants are here quite at home and make grand growths. Any shelves 7 or 10 inches wide against the back wall, if they have a board placed in front of the same depth, will, with a little plunging material, be found very useful for growing crowns or small suckers of scarce Pines. Capsicums grown for Cayenne pepper do remarkably well in the same positions; and with a little discretion every item of space may be turned to account without the slightest disadvantage or inconvenience to the Pines. *D. Wilson, Castle Hill, Devon.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday, Aug. 1 { Artisans' Horticultural Show, at South Kensington. Conclusion of Bee Show, at South Kensington.

If there is nothing in a name then it matters not that the good old English word "Nosegay" has given place to the French word "Bouquet," yet many there are who still cherish the former for the sake of its home associations. A nosegay or a bouquet that does not smell sweet is wanting in its first essential, still it is by no means an uncommon occurrence to see an arrangement of flowers, excellent as to form and colour, with so little fragrance as to be all but scentless. If the number of plants in cultivation that bear sweet flowers were few, there might be some excuse for this, but as it is, neither in summer nor in winter need there be any want of perfume. At Sudbourne Hall, Sir Richard Wallace's Suffolk establishment, where very large quantities of flowers are continually required for cutting, fragrance is held to be a first essential with almost every flower that is grown for this purpose all the year round. It may, therefore, be of interest to many readers to know how the gardener, Mr. Bethell, fulfils the requirements of the case.

Beginning with Violets: These are prepared in the kitchen garden, occupying long rows near the walks round the quarters. Some growers of these general favourites recommend a shady or partially shady position for them, but Mr. Bethell grows them in the full sun. Some idea of the quantity required through the winter and spring may be gathered from the fact that four six-light pits are kept filled with them from autumn to spring, the first being started on a mild bottom-heat. The kinds grown are The Czar, Marie Louise, Queen of Violets, the old Neapolitan, Victoria Regina, and King of Violets—the latter is as deep-coloured as The Czar and has double flowers. Particular attention is also paid to the cultivation of Heliotropes, which are grown in No. 1 pots, with large pyramidal wire trellises attached, on which the plants are trained; they are plunged out-of-doors during the summer, and so treated as to store up as much strength as possible for forcing through the winter. Several varieties are grown, but the old light coloured kind is liked the best. A temperature of 60° is given them in the winter, as with a lower temperature than this the full quantity and condition of the flowers are not obtainable. Perpetual-flowered Carnations are in bloom all the year round. The sorts grown are A. Alegatière, scarlet; Jacques Alegatière, vivid bright red; Garibaldi, Miss Jolliffe, La France, and Howard's new set of Continental varieties, amongst which there are some beautiful flowers, alike fine in form and colour, with short compact growth, and a profuse disposition to bloom. Five or six hundred are struck annually to supplant the old stock, which is kept on for the second year. Mignonette, as might be supposed, holds an important place, and is grown in quantity in pots; it is sown at different times so as to flower in succession. Lily of the Valley is grown by the thousand, to keep in from the last months of the year up to the spring. Bouvardias are treated in different ways, the pots plunged in the open ground and also in pits during the summer. These most manageable and useful of all sweet flowers for cutting yield a continuous supply of bloom when subjected to somewhat varied treatment so as to induce them to flower at different periods. Old plants well cut back after flowering are used as well as young stock struck from cuttings each season; the kinds grown are Vreelandii, jasminiflora, Humboldtii, corymbiflora, and Hogarth. Nicotiana suaveolens is a plant neither known nor grown so much as it deserves to be; it is of bushy habit, attaining a height of 2 or 3 feet, according to the more or less liberal treatment it receives; the flowers are white, individually about the size of those of a small Phlox, and it comes into bloom in ten or twelve weeks after the seeds are sown; it is a nice plant for conservatory decoration. The fine climber, Stephanotis floribunda, flowers here freely, and gives a quantity of its beautiful white blossoms, so acceptable for using in any way that choice flowers are required. Of Eucharis amazonica quantities are here grown; this bulb when well managed, as it is at Sudbourne, is not surpassed by any of the decorative plants in cultivation, and keeps on flowering almost continuously.

A succession of Roses is so managed as to have them in all the year round. The house which Mr. Lascelles had at the last Paris Exhibition is here, and filled with Roses; in addition to this they are planted out, so as to occupy a space in other houses where there is room for them, and a large stock is kept in pots, comprising most of the best Tea hybrids, many of which have attained a large size, and are plunged out-of-doors in summer, where, with attention to liberal root-feeding, and to keeping them quite clear from insects, they go on gaining strength. The outside walls at the ends of the various fruit and plant houses, and each available spot where room can be found, Mr. Bethell has filled with Roses, that already give a good supply of flowers, which come in several weeks before the plants in the open ground are in bloom. A good deal has been said of late as to the desirability of having Roses on their own roots, and about the different ways and seasons of striking them. Many there are who assert that to grow them from cuttings is a slow processs; but if those who are of this opinion were to see a quantity that Mr. Bethell now has, raised in this way during the past spring, their ideas would be likely to be somewhat altered. When the plants in the unheated Rose-house were pruned at the beginning of March a number of cuttings, from 10 to 12 inches long, were selected, and at once placed in a cutting-box in an early Melon-house, and as soon as they were callused at the base they were each put singly into small pots, where they at once rooted; they were encouraged to make growth much in the same way that grafted plants are treated. By the end of June they were in 7-inch pots with the balls well filled with roots and stood out-of-doors, the shoots running from 3 to 5 feet long, and almost as thick at the base as one's little finger, many of them having produced flowers, in fact quite equal in size to well managed stock that had been raised by grafting at the commencement of the year. They comprise many of the best Tea hybrids and other popular kinds.

—— Phalænopsis violacea (fig. 32).—This interesting Eastern epiphyte was shown in fine condition and considerable quantity last Tuesday at South Kensington by Messrs. Veitch & Sons, of Chelsea, by whom it was also exhibited in nice condition at the last Regent's Park show on the 6th inst. If not exactly a showy plant it is really a pretty object when in blossom, the contrast of colour in its flowers being unusual and pleasing. The plant is of dwarf habit, with bold, ligulate, glossy green foliage, and the flowers grow in short spreading spikes from the crown, each bloom measuring nearly 2 inches across. The colouring is unique, the central portion of the flowers—that is to say, the base of all the perianth-segments and the lip—being of a rich rosy-purple, and the upper portion of the sepals and petals of a light green. It appears to have been introduced from Singapore. Mr. Douglas very justly says, at p. 108, that it is a very remarkable and beautiful species, quite distinct, and one which will be sought after by every Orchid fancier.

—— Manchester International Horticultural Exhibition.—The time for the Great International Horticultural Exhibition, which is to be held under the auspices of the Royal Botanical and Horticultural Society of Manchester, is drawing near, and we may remind those of our readers who may intend to exhibit that the date for entries closes on August 14, and that in the section for implements, &c., applications for space must be made on or before August 10. We are informed on good authority that there is every prospect of the show being a very comprehensive one, and there is no doubt it will be the horticultural event of the year. A third edition of the schedule has been issued, in which will be found some alterations and some additions to the classes. The show, as will be seen from our advertising columns, opens on August 24. Additional land has been secured to accommodate the exhibition of implements.

—— The Pelargonium Society.—The meeting at Chiswick on Wednesday next of the Pelargonium Society is not necessarily restricted to the members. Friends who are interested in the Pelargonium, and would like to inspect the Society's collection of plants, will be cordially welcomed on presenting their cards. Those who wish to obtain places at luncheon may be advised to communicate with Mr. Shirley Hibberd, 15, Brownswood Park, London, N.

—— An Orchard on the Fifth Storey.—In a recent number of the *Revue Horticole* we find a description of a fruit garden on the fifth storey of a house in the Rue Washington. The owner, Mr. Lockroy (a very English name, by-the-bye), formerly had a garden on *terra-firma*, but that was Hausmannised away from him, and he had to betake himself to one of those gigantic houses which make handsome streets though scarcely agreeable dwellings. However, Mr. Lockroy was not to be deprived of the pleasure he found in growing fruit, so he took his trees aloft with him, and installed them in a terrace overlooking the street. This terrace is upwards of 20 yards long, and about 6 feet 6 inches wide, and is skirted towards the street by an iron fence. There, in his aërial garden, Mr. Lockroy successfully grows Pears, Currants, Gooseberries, and Roses; and, on the testimony of M. Carrière, the plants are as vigorous and healthy as could be wished, and produce fruit and flowers of quality and beauty equal to terrestrial subjects. Of course they require a great deal of care, and much labour; but the labour is a labour of love, and Mr. Lockroy appears to understand what treatment suits his pets, and permits nobody else to touch them. He cultivates no fewer than eighteen varieties of Pear, and successfully fruits them all, including such varieties as Winter Doyenné and others which commonly get spoiled, but not in the aërial garden of the Rue Washington.

—— Mr. J. Croucher, formerly of the Royal Gardens, Kew, and of late years gardener to J. T. Peacock, Esq., Sudbury House, Hammersmith, has, we hear, established himself in business as a nurseryman, general horticultural agent and adviser, at the Excelsior Nurseries, Brook Green, W. Mr. Croucher, we believe, still retains his position as manager of Mr. Peacock's collections of plants at Sudbury House and other places, and intends in his business to make succulent plants his great specialty.

—— An Act of Heroism.—We are informed that a few days ago a young girl fell into the Tay at Perth, and her rescue was attempted by a man near at hand. The loud cries of the girl attracted the attention of Mr. Archibald Anderson, son of Mr. John Anderson, of the Perth Nurseries, who, seeing both sinking, plunged into the river and succeeded in bringing both to the shore. Restoratives were speedily applied, but the poor girl never recovered. Four persons Mr. Anderson has thus rescued from the Tay, and saved the lives of three of them. We should be pleased to hear that such courage has been suitably rewarded.

—— Ferns in Basement Areas.—Few plants succeed so well in confined shady places as Ferns—a fact of which we were reminded on a recent visit to Eastbourne. In two or three streets we observed area after area bright and cheerful with flourishing Ferns of various kinds. One of the best, if not the best, for the purpose is Lastrea Filix-mas, which under good cultivation developes into a dwarf tree Fern. Some of the plants we saw were of quite extraordinary dimensions.

— Podophyllum Emodi. — At the present time the scarlet fruits of this Himalayan herbaceous plant are very ornamental; they are said to be much better than the sweet, slightly acid ones of the only other species of the genus, the United States May Apple, P. peltatum. Though the fruits are edible, the leaves and roots of both are probably poisonous; indeed, leaves and roots, drastic and poisonous, is distinctly stated of P. peltatum by Dr. Asa Gray. The resin—podophyllin—which has obtained a footing in this country, and is used in medicine as a substitute for mercurials, is derived from the last-named plant.

— Adenocalymna nitidum.—This is a Brazilian climber, belonging to the natural order Bignoniaceæ. It has large Allamanda-like golden-yellow blossoms, which are freely produced by the plant on the roof of the Victoria-house at Kew. A. comosum, a species with rather smaller flowers, is in bloom in the Palm-house.

— The Physiological Effects of Maté. — Maté, or Paraguayan Tea, is known to be extensively used in South America, and almost universally in Brazil, the common practice being to pour boiling water on some of the powder (consisting of ground leaves and twigs of certain species), then to suck the infusion through tubes provided with strainers. MM. d'Arsonval and Conty (says the *Times*) have recently inquired into the action of this substance, administering it to dogs, either by injecting into the veins or by introduction into the stomach, and they have observed a remarkable effect of it on the gases of the blood. It diminishes the carbonic acid and oxygen both of the arterial and of the venous blood to a large extent, sometimes a third or even half of the normal quantity. This action, which is less

Fig. 32.—Phalænopsis violacea. (see p. 144.)

intense during digestion, and has no necessary relation to phenomena of excitation of the sympathetic nerve-system, is somewhat obscure as to its "mechanism," but its existence proves directly the importance and nutritive value of the aliment in question, which, consumed in such large quantities in South America, is almost unknown in Europe.

—— The Fringed Hibiscus (Hibiscus schizopetalus).—A figure of this remarkable plant, which is now blooming at Kew, was given in our columns for 1879, vol. xii., p. 273. It differs from H. rosa-sinensis, a variable species, which furnishes many handsome decorative plants, by its long-stalked, pendulous flowers, and their peculiarly slashed fringed petals. It is a native of east tropical Africa, from whence it has been introduced within the past few years.

—— The Extraordinary Tithe.—The Select Committee on Extraordinary Tithe, over which Mr. Inderwick presided, after entering into a history of the extraordinary tithe rent-charge on Hops, fruit, and market-garden produce, make the following recommendations in their report, issued on the 22d inst. :—

"The committee are of opinion that these extraordinary charges are an impediment to agriculture, hampering new cultivation, and that it is expedient that they should be abolished, and they submit the following scheme :—

"The committee recommend that the provisions of the Tithe Commutation Acts Amendment Act, 1873, should be extended to Hop grounds, and that no new districts should be assigned.

"That the Tithe Commissioners should be empowered, upon the joint application of the owner of any land now charged or chargeable with an extraordinary rent-charge under the Tithe Commutation Acts and the person entitled to the receipt of the said charge, to direct that the same should be commuted into an additiona ordinary rent-charge, or should be redeemed by payment by the landowner of a sum to be agreed upon, subject to the approval of the Tithe Commissioners, where the rent-charge is payable to any spiritual person in respect of his benefice or cure, and the redemption money, if any, to be paid to the Governors of Queen Anne's Bounty, and to be applied by them (under the 8th section of 9 and 10 Vic., cap. 73) in the augmentation of such benefice or cure.

"That any owner of land in a parish paying an extraordinary rent-charge may apply to the Tithe Commissioners to commute or redeem the same, and the Tithe Commissioners shall, in the event of the parties not agreeing, make an inquiry into the nett value of the extraordinary charge upon the land so sought to be redeemed, and for that purpose hear evidence on behalf of the extraordinary tithe payer and receiver, and declare the nett value of the extraordinary charge taken on an average of the nett receipts for the previous seven years, and the terms upon which the extraordinary charge on the various lands belonging to the said landowner in such parish may be commuted or redeemed. And in case of redemption, all the land of such landowner situate in such parish shall for the future be free of all rent-charge except the ordinary rent-charge.

"The committee further recommend that power should be given to the Governors of Queen Anne's Bounty to invest the redemption money of the extraordinary rent-charge in any security in which the Court of Chancery now permits trustees to invest their trust funds, and also that tenants for life, trustees, and other persons having a limited interest in any estate of which the whole or any portion is liable to the extraordinary charge should be enabled by law to raise the funds necessary for such redemption and to charge them upon such estate."

—— Philesia buxifolia.—What a number of grand plants have been introduced to British gardens through the enterprise of Messrs. Veitch! The present one was first sent to this country by their collector, Mr. W. Lobb. It is an erect evergreen shrub, with Box-like leaves and rosy-red waxy Lapageria-like blossoms. Planted out on a rockery in the Temperate-house at Kew, where it obtains partial shade from Tree Ferns, &c., it luxuriates, and sends up branches from its creeping rhizomes between the stones, amongst which it is planted. By the way, this species proved hardy for some years at Exeter —a fact not to be wondered at considering the inhospitable shores from which it hails. It would be interesting if any reader of the *Gardeners' Chronicle* would report if it is now growing anywhere in the open air of Britain, and under what conditions. Another plant with which the name of Mr. W. Lobb must also be connected is also flowering well at Kew, viz., Desfontainea spinosa; the glossy evergreen Holly-like foliage contrasts strikingly with the large handsome rich scarlet, yellow-tipped, bell-shaped drooping flowers.

—— Sugar Cultivation in Spain.—It is estimated that the crop of sugar obtained in Malaga last year amounted to about 5,750,000 kilos. The cultivation of the Sugar-cane in this province is a comparatively new industry. It is said to yield very large profits, and will no doubt continue to be highly remunerative so long as the import duties on Cuban and foreign sugars are maintained.

—— Howardia caraccensis.—As in the Mussændas of our stoves, one of the minute teeth of the calyx is in this plant enlarged into a stalked, heart-shaped, deep rose-coloured foliaceous bract, which adds materially to the beauty of the gracefully drooping panicles of purplish-rose tubular flowers. At one time this was detected as one of the medicinal barks of commerce, and it is stated that the Bolivians use it in intermittent fevers. It is a member of the same natural order, and is a native of the country from whence come some of the Cinchonas which have of late years occupied so much attention. It is now in flower at Kew.

—— Asparagus æthiopicus ternifolius.—This handsome cool-house climber is figured and described by Mr. Baker in our columns for 1872, p. 1588. It is one of the numerous interesting as well as horticulturally desirable plants collected in South Africa for the late Mr. W. Wilson Saunders by Mr. Thomas Cooper. In the Winter Garden at Kew, where it has both plenty of root-room and space to develope and exhibit its beauty, it forms a fine object. There are few finer cool-house climbers; under favourable conditions—plenty of root and top room—it produces its racemes of white blossoms in the greatest abundance.

—— The Royal Horticultural Society of Aberdeen.—An unfortunate occurrence took place in connection with the arrangements for the flower and fruit exhibition announced to be held recently, under the auspices of this Society. As usual the Society had secured the large tent of the Aberdeen Marquee Company. Owing somehow to the defective stability of the tent and the breeze which sprang up, it came to the ground while the placing of exhibits for the show was being actively carried out. Efforts were made to secure suitable accommodation for holding the exhibition, but after consulting with the principal exhibitors the directors came to the unanimous opinion that it was advisable not to hold the show.

—— Rubus phœnicolasius.—The most striking object by far in the winter garden at Kew at the present time is a plant of the Japanese Bramble whose name appears at the commencement of this note. It is a hardy species, but on the gravelly sand of Kew, both against a wall and in the open, there is nothing particularly striking about it; in the cool-house, however, planted out, and its shoots taken up a stake 12 feet or more in height, the last year's ones forming a column of fruiting branchlets, it is so conspicuously beautiful as to attract the attention of the most unobservant. The leaves are almost snowy-white beneath, the young shoots, &c., are clothed with long scarlet gland-tipped bristles, and the pleasant fruits are a bright, shining kind of orange-red colour.

—— A Walnut Wood Famine. — Canadian and American papers are full of complaints of the scarcity of Walnut wood, and fears are expressed that the stock of this valuable tree is being rapidly exhausted. At one time, says *The Colonies and India*, the province of Ontario, then known as "Canada West," produced an abundance of Walnut of fine quality, but it now yields little or none. In the United States, Indiana has been looked upon as the "Walnut State," but the supply is not now equal to the demand, and "lumberers" are at their wits' end to meet the requirements of the furniture manufacturers in the States. Considerable quantities of Walnut exist further south, but there are swamps and various other physical difficulties in the way of the full development of the trade there. The threatened Walnut famine is only another proof of the recklessness with which timber is destroyed, not only in America, but in all new countries. The needs of the present moment are gratified, but no care is taken for the requirements of the future. The planting of young trees as old trees are cut down is seldom systematically carried out, and the consequence is that the supply is gradually exhausted. Nor does the evil end here. As we have frequently pointed out, the whole climate of a country may be altered by the clearing of its forests, and its very fertility seriously affected if the due proportion of forest land to open country is not maintained. There is not a colony, however large and however abundant its natural supplies of timber, which can afford to go on felling and burning without planting. The recent experience of Mauritius, and the example which that colony is setting, should be taken to heart by every other colony.

—— Yucca gloriosa.—Mr. Alexander Maule of the Bristol Nurseries calls attention to this plant as suitable for cultivation in this country for the production of fibre and of sugar. Mr. Maule grows the plant on small ridges a yard apart, and each plant a yard from its fellow. Mr. Maule estimates that a plant three years old will yield 1 lb. of sugar and 1 lb. of fibre. The previous summer's leaves are stripped off about February.

—— Abronia latifolia.—In the herbaceous department at Kew this charming perennial is now flowering freely. It is a vigorous trailer, perhaps better known under the name of A. arenaria. It has a stout fusiform root, which is often several feet in length, and is said to be sometimes eaten by the Indians; rather thick leaves, and umbels of very fragrant, orange-scented blossoms. In a wild state it is common on the sea-shore from Vancouver's Island to Monterey.

—— Wood Pulp for Paper.—As an indication of the extended use of wood pulp for paper-making we learn that during the past year in Norway two new wood-pulping factories were brought into action, six more are about to be built, and eight of the nineteen old establishments for the mechanical production of pulp are to be considerably enlarged. Besides these, there are now in work, with one exception, one chemical wood pulp factory, two pasteboard factories, and seven paper factories. This branch of industry seems specially adapted to Norway, inasmuch as it renders the waterfalls profitable, and so aggrandises the country by means of one of its natural forces, becoming thus, in fact, an entirely new industrial development.

—— Sericographis Mohintli.—An Acanthad of rambling habit, which, however, does beautifully when allowed a fair amount of root-room, and treated as a climber against glass. Its long scarlet flowers are then produced in profusion, and form a striking contrast with the grassy green leaves. It is now in flower in the Palm-house at Kew.

—— The Potato Disease.—It was observed in a former article that a few only of the Early Rose Potatos died this year after they were half grown—a condition which was once notorious with American varieties. Every plant, however, was carefully examined, and the resting-spores of G. W. Smith were found both in the substance of the tubers when decayed or at the base of the young haulm. In the latter case the produce of germination soon anastomosed, but the destruction of the haulm gave no chance of tracing the full development of the mycelium. In the former case the whole of the substance of the tuber, which afterwards rapidly passed into decay, swarmed with mycelium; it was therefore hoped that the result would be easily traced, but on looking at the specimens, which were placed in a position favourable for development, the tubers with the exception of the skin had passed into a liquid mass, without perfecting any fructification, though at first there was a large growth of hyphæ. *M. J. B.*

—— Nymphæa odorata rosea.—This is a charming form of the sweet-scented North American Water-Lily, which has recently flowered at Kew, and has been drawn for the *Botanical Magazine*. It differs, at present, from the commoner type in the smaller size of its flowers (which will probably become larger as the plants get stronger), and their beautiful colour, a lovely rose tint: this is in all probability a permanent character. The variety is mentioned by Dr. As-

GRAY in his *Manual*, and so is N. odorata minor—a miniature form of the type—which has also lately bloomed at Kew. The flowers of N. odorata sometimes measure as much as 5½ inches across when fully expanded; they open during the morning, and close up in the afternoon. The foliage is generally almost crimson beneath. The two varieties mentioned are probably just as hardy as the type.

—— THE POTATO DISEASES COMMITTEE.—Our neighbours in Ireland belong to that section of the community which will lose nothing for lack of asking. When their Potato crops were pretty well demoralised they begged from the Government and from private individuals a quantity of regenerating seed and got it, and now they luxuriate in the promise of one of the finest Potato crops known for many years. But they also asked for a Parliamentary Committee to elucidate for them, if possible, the nature and character of the Potato disease, and, if possible, find for them a remedy, and they got the committee. This body started with certain foregone conclusions, and called and examined witnesses whose evidence would lead up to the report they wished to furnish, and eventually they reported in favour of more Government help in the shape of subsidised scientific supervision, and of seed farms at which new kinds were to be raised; and if the resolution proposed in the House of Commons the other night by Mr. FORSTER is to be of practical service they will get these things also. The English people have suffered, too, from the effects of the Potato disease, but have asked for none of these things. Possibly they lack the persistent persuasive perseverance of their neighbours, or perhaps they prefer to rely upon their own exertions. If the Champion, the Magnum Bonum, and other famous hardy kinds are helping to stem the action of the disease we owe nothing to Government help for having them. Nay, more; it is just possible that a thousand Government farms would never have been so fortunate to have raised kinds which dropped into their raiser's hands by mere chance. Beyond saddling the country with considerable expenses what is it expected that Government Potato farms can accomplish? We venture to think that private enterprise will beat them in the end, and that if the disease is to be fought by the introduction of new disease-proof kinds it will be brains and practical knowledge of the character of the Potato plant that will eventually win.

—— MUSCHIA AUREA.—In the Temperate-house at Kew this handsome plant, one of the most interesting members of the Bell-flower family, is now in bloom. Rather more than a century ago the species was first sent to Kew by MASSON the collector, who was sent from the Royal Gardens to South Africa, and called at Madeira *en route*. It is the most beautiful of the indigenous plants of that island, where it is common on the sea cliffs. Mr. LOWE, in his *Flora of Madeira*, says—"Nothing can exceed the singularity and splendour of a fine panicle as it occurs on its native rocks, almost wholly of a rich golden-yellow, and shining as if varnished, in contrast with the equally bright, shining, dark green foliage. Had this plant grown in Italy it might well be supposed to have suggested the idea of the famous golden branch of the Cumæan sybil to the Roman poet.

—— FUNGUS UNDER ELM BARK.—We have received through Mr. R. HURST, of Thorpe, Tamworth, a fungoid growth taken from beneath the bark of a dead Elm, the top of which was broken off by the wind some two or three years ago. The fungus growth is one of the most magnificent specimens we have ever seen of the production known as Rhizomorpha subcorticalis: this is not a perfect fungus, but the condensed black and branching spawn from which some perfect fungus is destined to arise. It may possibly belong to Polyporus ulmarius or Agaricus ulmarius, or some Xylaria; probably, however, the Polyporus. The Elm is extremely liable to fungoid attacks (to say nothing of insects), and no facts are better known to good gardeners than the deceptive appearance often put on by apparently healthy Elms, really dead and rotten at the heart. In some parks and avenues the garden attendants are frequently afraid to walk under the Elms during a windy autumn, for nothing is more common than the sudden fall of a large and apparently healthy limb, really rotten at its point of junction with the stem. Many fatal accidents have been recorded from this sudden snapping of limbs and even blowing over of Elms. The attacks of the larval state of the insect known as Scolytus destructor devastate the Elms in countless numbers, and Rhizomorphæ are extremely common. The Elm is not a native of this country; there are no Elm woods in Britain, and it seldom or never perfects its fruits here. Although many fine trees exist in different parts of the country they can never be depended upon, and a fine avenue of one year is too often an avenue of broken wrecks a year or two after. The fungus growth known as Rhizomorpha is frequently luminous in the dark. For an account of luminous fungus spawn from decaying trees see *Gardeners' Chronicle* for December 4, 1875, p. 719. *W. G. S.*

—— FLOWER SHOW AT LIÈGE.—The Société Royale d'Horticulture de Liège held a special show on the 24th inst., in honour of the fiftieth anniversary of the Belgian Independency. The show was a striking one, owing to the quantity of Orchids in flower that were staged by the three great amateurs of the place—Mr. OSCAR LAMARCHE, Mr. DIEUDONNÉ MASSANGE, and Mr. FERDINAND MASSANGE. The collection staged by the last-named gentleman was composed of the following species, all in good health and well flowered:—Cypripedium Parishii, superciliare, Roezlii, Dayanum, barbatum, superbiens; Cattleya labiata, Mossiæ; Lælia crispa, purpurata; Cœlogyne speciosa, Disa grandiflora, Saccolabium Blumei, Brasavola Digbyana, Mormodes pardinum, Odontoglossum Roezlii, Pescatorei, Schlieperianum, citrosmum; Oncidium Lanceanum, Anguloa uniflora, Epidendrum vitellinum, Aerides odoratum, Dendrobium formosum, &c. Mr. DIEUDONNÉ MASSANGE showed in perfection, especially the following:—Lælia purpurata, a very big plant, well flowered, and of a very rich colour; Brassia verrucosa, Oncidium Weltoni, Colax viridis, Cattleya Mendelii, Mossiæ, superba, Warneri, Aclandiæ; Cypripedium lævigatum, Lowii; Masdevallia Veitchii, Zygopetalum maxillare, Vanda cœrulea, and last, but not least, a well-flowered plant of the yet scarce Phalænopsis violacea, &c. Mr. OSCAR LAMARCHE's collection contained Eriopsis biloba, Oncidium prætextum, Zygopetalum Gautieri, Anguloa Clowesii, Cypripedium Stonei, Pearcei, Sedeni, Parishii, Hartwegii, lævigatum, Veitchii, Dominianum; Odontoglossum Alexandræ, Pescatorei; Vanda tricolor, &c. The well-known firm of JACOB MAKOY & Co. were the only nurserymen showing Orchids. They had a few, amongst which were Oncidium crispum, Masdevallia Lindeni, Odontoglossum Roezlii, Pescatorei, Alexandræ, Phalænopsis grandiflora, and also the new P. violacea. The same firm also showed a good collection of Anæctochilus Dawsonianus, Veitchii, Lowii, metalliferus, setaceus, querceticola, amabilis, Schusteri, Petola, xanthophyllus, Meinerti, Legrelli, hieroglyphicus, Rollissoni, japonicus, &c., also a collection of Sonerila, Nepenthes, Sarracenia, Palms, &c. Mr. LINDEN, of Ghent, showed a very fine group of stove plants, amongst which were Alocasia Thibautiana, Anthurium crystallinum, Veitchii, Warocqueanum; Alocasia Sedeni, Ataccia cristata, Croton Bergmanni, Carrierii, picturatus, and Dracæna Goldieana. Mr. LOUIS VAN HOUTTE, of Ghent, staged a collection of good plants of different sorts, and MM. SOUPPERT & NOTTING, and MM. KETTEN FRÈRES, both from Luxembourg, brought a quantity of cut Roses, which were very fair, but too many of them. The weather was rather cool, and this was better for the plants after the very warm days we have had. The show was well arranged on the Place St. Paul, and we cannot help congratulating the Society upon its success.

—— CENTIPEDES AND WIREWORMS.—"A. S. Z.," whose note on this subject we published at p. 84, informs us that cut Potatos have proved the greatest attraction to the centipedes, but that the wireworms are not tempted to indulge either in Potatos or rape-cake.

—— ARGEMONE MEXICANA.—In the mixed border few annuals will take better care of themselves than this rather handsome Poppywort. It has foliage somewhat like that of the Milk Thistle, and showy yellow blossoms. Its capability for adapting itself to circumstances, like several other New World plants introduced into various countries of the eastern hemisphere, is shown by the following extract from Sir JOSEPH HOOKER's *Journal of a Naturalist in the Himalayas*. In that delightful book of travels, in the portion allotted to the hills of Behar, its author, speaking of the wayside vegetation, notes Calotropis, the purple Mudar, "a very handsome roadside plant, which I had not seen before, but which, with the Argemone mexicana, was to be a companion for hundreds of miles further." The species has long been known in British gardens, and was figured in one of the earliest volumes of the *Botanical Magazine*. In the letterpress accompanying the figure, GERARD's ludicrous explanation of its English name—Devil's Fig—is quoted:—"The Golden Thistle of Peru, called in the West Indies Figue del Inferno: a friend of mine brought it unto me from an iland there, called St. John's Iland, among other seeds. What reason the inhabitants there have to call it so is to me unknown, unless it be because of its fruite, which doth much resemble a Figge in size and bignesse, but so full of sharpe and venomous prickles, that whosoever had one of them in his throte, doubtless it would send him packing either to heaven or to hell." Argemone platyceras, a species with large snow-white flowers, is now flowering in the Kew herbaceous collection, together with the old A. mexicana.

—— THE GOOSEBERRY CATERPILLAR.—We have received complaints from "A. S. Z." and Mr. J. BORLASE TIBBETS with respect to the mixture of quassia chips and Gishurst Compound recommended for the destruction of the Gooseberry caterpillar by "W. B. B." at p. 764 of our last volume. Both gentlemen state that they applied the liquid strictly according to the directions given, but instead of the fruit being fit to eat again in a day or two they are still uneatable; and in the case of Mr. TIBBETS' trees it has killed the leaves.

—— CRYPTOGAMIC SOCIETY OF SCOTLAND.—The seventh annual conference of this Society will commence at Salen, Island of Mull, on Tuesday, August 30, 1881.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 25, issued by the Meteorological Office, London:—The weather has been much more unsettled and cloudy than of late; showers have fallen in all places, and rather heavy rain in the north of Ireland and east of Scotland. A thunderstorm was experienced at several of our north-eastern and north-western stations on the 24th. The temperature was above the mean at the commencement of the period, but changed rather suddenly on the 20th, and, as a consequence, the readings for the week were below the mean in all districts, the deficit ranging from 6° in "Scotland, W.," to 1° in the south and east of England. The maxima were registered on the 19th, when the thermometer rose to 88° or 89° at some of the stations in the eastern, southern, and midland districts. The minima occurred on the 21st, and were as low as 40° at Brookeborough, and 41° at Parsonstown and Churchstoke; in most other districts the lowest readings varied between 42° and 45°. Rainfall was rather more than the mean in "Scotland, E." and "Ireland, N.," less elsewhere. Bright sunshine was much less prevalent than it was during last week, the percentages ranging from 43° in "England, E.," to 23 in "Scotland, E." Depressions observed:—The barometer has been highest over the southern parts of our area, and lowest to the northern. Three distinct depressions have travelled in a north-easterly or easterly direction across Scotland, causing the wind to vary between south-west, west, and north-west on all our coasts, and at times to blow freshly at some of our more northern stations, or even with the force of a strong squally gale. On the night of the 20th the north-westerly gale in the Shetlands was unusually severe.

—— GARDENING APPOINTMENTS.—Mr. ROBERT GAIRNS has been appointed Gardener to the Right Hon. Lord LINDSAY, at Kilconquhar House, Fife; Mr. JOHN ROSS, as Gardener to Major GREEN THOMPSON, Bridekirk, Cockermouth; and Mr. JOHN CLARKE, as Gardener to J. F. G. Bannatyne, Esq., Summerville, Limerick, from the firm of DOWNIE & LAIRD, Edinburgh.—Mr. MCKELLAR, for the last six years General Foreman to Mr. SPEED, at Penrhyn Castle, has been appointed Head Gardener to the Duke of ROXBURGH, at Floors Castle.

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

(*Continued from p.* 103.)

Geographical Distribution.—The present known limits of the genus, which is confined to the Old World in the northern hemisphere, may be approximately stated to be between 9° W. and 87° E. longitude, and 55° N. and 31° N. latitude; the main eastern limit being 50° E. longitude, and main northern limit 48° N. latitude—the occurrence of C. alatavicus in the Ala Tau mountains of Central Asia carrying the genus far north-east of the general area of occurrence. C. Clusii, in Portugal, is the most western species, C. hyemalis, in South Palestine, the most southern species at present known, and C. Salzmanni the most south-western species.

The area of distribution of the genus would roughly centre round the Mediterranean and Black Sea coasts, though it does not form an essential feature of what is known as the Mediterranean flora, many of the species ascending to high ranges of altitude.

Looking at the prevalence of species and to general wide distribution, the district, including Greece, the Greek Archipelago, and Asia Minor, must be looked upon as the metropolis of the genus; for in these regions it forms a more important feature in the flora than the outlying countries to which it extends.

As a means of indicating in a concise form the general range of the species, I propose to divide the region occupied by the genus into nine sub-districts; giving lists of the species occurring in each, and expressing by figures the extension of the species of each district into neighbouring districts.

The division into sub-districts may be to some extent arbitrary, but it has been as far as possible ruled by natural geographical boundaries, or the ascertained range of the more prominent species. Where a species is named in the sub-district lists without a following number, its occurrence is limited to that district; and where the name of a species is followed by a number, the number indicates another district to which it extends.

1st. West European district, including Portugal and Spain, the Balearic Islands, and France, excepting the Alps.

C. nudiflorus	C. Clusii	C. carpetanus
C. asturicus	C. Cambessedesii	C. nevadensis, 2
C. serotinus	C. vernus, 3, 4, 5 (7?)	

2d. North African district, including Morocco and Algeria.

C. Salzmanni	C. nevadensis, 1

3d. Swiss and French Alps, Maritime Alps, and Tyrol.

*C. versicolor, 4	C. vernus, 1, 4, 5 (7?)	*C. medius, 4

4th. Italy, as far east as Venice; Sicily, Malta, Sardinia, and Corsica.

C. biflorus, 5, 6, 7	C. minimus	*C. medius, 3
C Imperati	C. corsicus	C. longiflorus, 5
C. suaveolens	C etruscus	C. sativus, 5, 6, 7 (8?)
*C. versicolor, 3	C. vernus, 1, 3, 5 (7?)	

5th. East European district east of the longitude of Venice, and as far east as the longitude of Odessa, including Dalmatia, the Danubian Principalities, the Carpathians, Greece, the Ionian Islands, the Greek Archipelago and Crete, and Turkey in Europe.

C. iridiflorus	C. hadriaticus	C. Boryi
C. Malyi	C. cancellatus, 6, 8	C. Olivieri (6?)
C. montenegrinus	C. veluchensis	C. aureus, 6
C. banaticus	C. Sieberi (6?)	C. biflorus, 4, 6, 7
C. Tommasinianus	C dalmaticus, 6, 7	C. Crewei
C. vernus, 1, 3 4 (7?)	C. reticulatus, 6, 7	C. chrysanthus, 6
C. (longiflorus?) 4	C. Tournefortii	C. speciosus (6?), 7
C. sativus, 4, 6, 7 (8?)	C. veneris, 6	C. pulchellus, 6

6th. Asia Minor, Cyprus, Kurdistan.

C. vallicola, 7	(C. Sieberi?), 5	C. aureus, 5
C. Scharojani, 7	C. reticulatus, 5, 7	C. cyprius
C. zonatus (8?)	C. ancyrensis	C. aërius
C. karduchorum	C. garganicus	C. biflorus, 4, 5, 7
C. lazicus	C. veneris, 5	C. tauri
C. Biliottii	(C. vitellinus?), 8	C. chrysanthus, 5
C. Boissieri	C. Balansæ	C. Danfordiæ
C. sativus, 4, 5, 7 (8?)	C. suterianus	(C. speciosus?), 5, 7
	(C. Olivieri?), 5	C. Fleischeri
C. cancellatus, 5, 8	C. candidus	C. parviflorus

7th. The Circassian and Caspian district, including Southern Russia, east of the longitude of Odessa, the Crimea, Georgia, the district bordering the west coast of the Caspian Sea, and north Persia.

C. vallicola, 6	C. sativus, 4, 5, 6 (8?)	C. caspius
C. Scharojani, 6		C. biflorus, 4, 5, 6
(C. vernus?) 1, 3, 4, 5	C. susianus	C. speciosus, 5 (6?)

8th. Syria and Palestine.

(C. zonatus?) 6	C. cancellatus, 5, 6	C. hermoneus
C. ochroleucus	C. Gaillardotii	C. vitellinus (6?)
(C. sativus?), 4, 5, 6, 7	C. hyemalis	

9th. Central Asia, and west of the Caspian, Ala Tau Mountains, and Samarkand.

C. alatavicus	C. Korolkowi

In the centre of the area of distribution of a genus, it is only to be expected that there will occur a greater intermingling of species than on its confines; but in the case of the Croci the isolation of the species at the extreme eastern and western end of the Crocus area is remarkable, the species being notably less transgressive into the centre of the area of distribution than the intermingling of species over wider areas within the centre of distribution. I can offer no sufficient explanation of this fact; the West European species (district 1) are essentially endemic, and so are the Syrian species (district 8). The two species of Central Asia are naturally isolated, and do not occur in any of the other districts. Of the eight West European species all are endemic, except C. vernus, which occurs very sparingly in the Pyrenees, and is not at home there as in the Alps, and C. nevadensis, which is also found in Algeria. The affinity of the North African species is obviously with the Spanish, and they might perhaps be better associated with the West European district. Of the seven or eight Syrian and Palestine species, with the exception of C. cancellatus, they are all endemic. It is doubtful whether C. zonatus really crosses the Cilician boundary and occurs in Syria; C. vitellinus was, I believe, found by Mrs. Danford in the anti-Taurus; but both these are merely borderers, just passing the geographical boundary. And it is also doubtful whether C. sativus really occurs in Syria; the only record I know of is that of a single bulb from the neighbourhood of Damascus, mentioned by Herbert as "a smooth-leaved variety of C. sativus," which he named C. intromissus, and concerning which, in the absence of the flower, much doubt must be felt, as the leaves of all the forms of sativus are invariably glandular. It is probable that the plant he refers to was C. Gaillardotii, a species peculiar to Syria then undescribed. Nearly the whole of the species occupy continuous areas, and, with the exception of C. vernus, there is no case of repeated occurrence in isolated districts separated by wide breaks. C. vernus has a range of about 27° of longitude, from the Carpathians to the Pyrenees, and the continuity of its range is broken by the entire width of central France. As C. vernus is a lowland as well as an alpine plant its absence in central France is remarkable.

C. biflorus has a wider range of longitude than any other species, extending for 38° from Italy into Georgia; and the next in order of wide distribution is C. sativus in its various forms, extending through 30° of longitude from Italy to Kurdistan, and its distribution is essentially oriental. The same may be said of the annulate species, which have only one representative, C. biflorus, as far west as Italy.

Of the division Involucrati there are about thirteen vernal and seventeen autumnal species; and of the Nudiflori thirty are vernal and eight autumnal. The orange species all occur east of the Adriatic; of the thirty species of Involucrati, about half occur to the east and half to the west of the Adriatic; and the Nudiflori, with two or three exceptions, are all limited to the region east of the Adriatic.

The genus is remarkable for the wide ranging in altitude of the majority of species, those that are essentially alpine or lowland being comparatively few in number; and I believe there is no single species of the genus that is not perfectly hardy, and capable of enduring any of the extremes of frost and heat of our climate.

Division I.—Involucrati.

With a basal spathe springing at the base of the scape within the leaves from the summit of the corm.

Section 1.—*Fibro-membranacei.*

Autumnal.

* Flowers appearing before the leaves, or with the persistent leaves of the previous year.

1. **C. iridiflorus*, Heuffel; C. byzantinus, Parkinson; Crociris iridiflora, Schur.—Corm small, oblate. Tunic fibro-membranous, tending to a reticulated structure. Sheathing leaves falling short of proper spathe. Proper leaves glabrous, ⅜ of an inch wide, wider than in any other strains. Proper spathe monophyllous, foliaceous. Perianth: throat unbearded; outer segments clear rich purple, much larger than inner segments, which are pale lilac. Anther orange, shorter than stigmata; filament lilac. Stigmata multifid, purple. Seed dull red, papillous.

A native of the Banat and Transylvania; flowering in September and October. As Parkinson's name of byzantinus, under which the species is generally known in this country, implies an error as to its geographical distribution, I do not hesitate to adopt in preference Heuffel's later name of iridiflorus, by which it is known in most Continental herbaria, and which is accurately descriptive of the aspect of the flower.

ϕ The leaves of the three following species are of similar type of structure; they are glabrous, with a broad keel nearly equalling the width of the blade, and are unlike the leaves of any other species.

2. *ϕ*C. vallicola*, Herbert.—Corm oblate, from ½ inch to ¾ inch broad, covered with very delicate fibro-membrane. Sheathing leaves falling short of proper spathe. Proper spathe monophyllous foliaceous. Perianth: throat bearded, segments pale cream colour, produced into fine thread-like terminations, internally veined with purple, and marked with two small orange blossoms near the throat. Anthers and pollen grains pale cream colour; style dividing at the level of the summit of the anthers, and shortly produced into sub-entire cream-coloured stigmata. Seed of a dull buff colour.

Alps of Trebizond and Lazistan; flowering in August and September, and according to Balansa as early as July; at altitudes of from 6000 to 7000 feet.

Var. 1. *Lilacinus*, Maw.—Segments much shorter than those of the type, and uniformly suffused with purple feathered veins. Stauros, near Trebizond.

Var. 2. *C. Suwarrowianus*, K. Koch; C. Zorhabii, G. Maw.—Proper spathe double, very short, exceeded by sheathing leaves. Throat glabrous. Limb acute but not produced into the thread-like prolongation, as in the Trebizond plant, from which Herbert described the type species. Mountains of Erzeroum and Caucasus flowering about a month later than C. vallicola from Trebizond. C. Suwarrowianus has been considered as identical with Herbert's C. vallicola, but M. Boissier has pointed out to me that the type specimen of K. Koch's C. Suwarrowianus are evidently identical with the Erzeroum form I have described as a variety of C. vallicola of Herbert under the name of Zorhabii, and agrees with me in the necessity of separating the two forms in some way. I have hesitated about this specific distinction, but notwithstanding the several points, *e.g.* the beardless throat, the short double proper spathe, the orange stigmata, the less acute limb, and the later flowering time of the Erzeroum plant, which distinguish it from Herbert's type from Trebizond, I feel better satisfied to place it as a well marked variety of Herbert's C. vallicola than as a distinct species.

3. *ϕ*C. Scharojani*, Ruprecht, in Regel's *Garten flora*.—Corm very small, barely ½ inch wide, globose covered with a thin fibro-membranous tunic. Sheathing leaves falling short of the proper spathe. Proper leaves produced in the spring, glabrous, ⅛ inch broad, persistent till the following flowering time in August. Proper spathe monophyllous, twice the height of sheathing leaves. Perianth deep unstriped orange, the throat unbearded, the corm producing a single flower. Anther pale yellow, exceeding stigmata; pollen grains cream coloured. The style dividing at the base of the anther into entire, slightly fringed orange-scarlet stigmata. Seed globose, of a dull buff colour.

North-west Caucasus, and mountains south of Trebizond, at an altitude of 7000 feet. Associated with C. vallicola, to which it is nearly allied. Flowering from the end of July to the middle of August; it is one of the only two species in which the previous year's leaves live on to the autumal flowering time, and is the earliest to flower of the autumnal species.

(*To be continued.*)

* C. versicolor and C. medius occupy a small district of the Maritime Alps, bordering on France and Italy, and within each boundary, and are therefore included in both lists, 3 and 4.

Phlomis cashmirianus.—This was sent many years ago by its author, Dr. Royle, to the Horticultural Society. It is a perennial, herbaceous plant about a foot or a foot and a half in height, with long-stalked leaves, which are white on their under surface, and dense whorls of large, showy, pale purple flowers which last a considerable time. It is perfectly hardy, and is now blooming in the Kew herbaceous ground.

LIGUSTRUM MASSALONGIANUM.*

This very elegant Privet is known in some gardens s L. spicatum, in others as L. japonicum, L. rosmainifolium, L. myrtifolium, and L. angustifolium. Neither of these names is correct, as there is no doubt hat the plant is the same as described by Visiani nder the name at the head of this article. In this iew I am supported by the opinion of Mr. B. C. Clarke, who has worked up the Olive family, to hich this plant belongs, for the *Flora of India*. Mr. Clarke further tells me that the only known native ocality for the plant is in the Khasia hills. Wild pecimens are to be seen in the Kew Herbarium, but r the most part the Herbarium specimens are of arden origin. L. Massalongianum forms a much ranched shrub with ascending warted branches, the ounger ones pilose. The leaves are glabrous, linear anceolate, mucronate, very shortly stalked; the umerous white flowers are in dense terminal much-ranched panicles, as shown in the illustration (fig. 3). The bracts and the calyx lobes are, like the orolla, white. For a full description reference may e made to the works cited. It is sufficient here to ecommend it as a handsome evergreen shrub, well vorthy of cultivation. To some persons the odour of he flowers is very objectionable. Mr. Smith, of Newry, who sent us the plant from Messrs. Rodger McClelland & Co.'s nursery, informs us that in the pen air last winter it was much injured by frost, but ot killed, though injured to a greater extent than L. sinensis, which had all its tops killed. In a cold rame protected by shutters, where such things as Veronicas, Euonymus, Othera, &c., were quite killed, Ligustrum Massalongianum was not in the least injured, showing that in a temperature above zero it would be safe. *M. T. M.*

* *Ligustrum Massalongianum*, Visiani, *Illustr. Piant. uovo rare del Orto Botanico di Padova*, Venezia, 1836, ab. 4; Decaisne, Monog. Ligustrum, &c., in *Nouv. Archiv. u Museum*, 2 ser., ii.

PLANT PORTRAITS.

Apple Ecklinville Seedling, *Florist*, March.—A noble Apple, raised at Ecklinville, in the north of Ireland. It is a great cropper, and is well suited for amateurs, and especially for culinary purposes.

Colchicum crociflorum, Regel, *Gartenflora*, t. 1035, f. 1 and 2, d, b.—A dwarf form, with cream-coloured flowers striped with purple; leaves linear. Turkestan.

Clematis æthusifolia, Turczan., *Bot. Mag.*, t. 6542.—A hardy climber, with finely cut leaves and long-stalked tubular bell-shaped flowers, each ½—¾ inch long, and of a creamy-yellow colour. Native of Pekin. Kew.

Clematis Othello, *Floral Mag.*, t. 439.—Rich lilac-purple flower. Messrs. Cripps.

Crawfurdia luteo-viridis, Clarke, *Bot. Mag.*, t. 6539.—A very curious and ornamental climbing gentianaceous plant, with stalked cordate ovate leaves, angular calyx with five fine points half the length of the funnel-shaped greenish-white corolla, fruit 1 inch long, fleshy, brilliant red, oblong obovate. Hort. Kew.

Crinum Moorei, *Garden*, March 5.—A South African species, with large bell-shaped, delicate rose-coloured flowers, grown out-of-doors at Glasnevin, protected by a mound of leaf-mould in winter, and where it flowers in May and June and again in September with C. amabile, scabrum, ornatum, and longifolium.

Dracæna Thomsoni, *Floral Mag.*, t. 441.—Leaves ovate acute, green margined with crimson, younger leaves almost entirely pale crimson. A seedling between terminalis and regina. Raised by Mr. Bausé for the General Horticultural Company (John Wills).

Eranthemum nigrum, *Illust. Horticole*, t. 404.—A stove shrub, with oblong lanceolate acute leaves of a blackish-purple colour. Solomon Islands. Hort. Linden.

Fourcroya cubensis var. inermis, *Bot. Mag.*, t. 6543.—Differs from the type in the absence of marginal spines to the leaf. See *Gard. Chron.* 1879, p. 623.

Lycaste Skinneri alba, *Illust. Horticole*, t. 405.

Millettia megasperma, Benth., *Bot. Mag.*, t. 6541.—A leguminous climber allied to Wistaria, but native of tropical Australia. The pinnate leaves are evergreen, the pea-shaped flowers in long clusters, each with a rosy-pink standard and purple wings. Hort. Kew.

Polyanthus, Gold-laced, *Florist*, March.—1, Sunrise, raised by Mr. Barlow from Bullock's Lancer crossed with George IV.; the ground colour is red, the eye and lacing yellow. 2, Cheshire Favourite; ground colour black, centre and lacing yellow; raised by Mr. Sanders of Northwich in or about 1844.

Rose Aimée Vibert, *Journal des Roses*, February.—Supposed to have originated from a sport of repens, Noisette, about the year 1830.

Rose Elizabeth Vigneron, *Journal des Roses*, March, 1881.—A seedling from H.P. Duchess of Sutherland, raised by M. Vigneron, of Olivet, near Orleans, but sent out by Mr. William Paul. Flower of the form and colour of centifolia.

Saxifraga Hirculus var. grandiflora, *Gartenflora*, t. 1035.—Leaves lanceolate entire; flowers golden-yellow. Alps of Central Europe.

Fig. 33.—Ligustrum massalongianum: flowers white.

Home Correspondence.

Strawberry Loxford Hall Seedling.—This variety has done remarkably well here, being the latest fruiter, except Frogmore Late Pine, the quality being very much superior to the last-named variety. The Strawberry season has been the shortest I ever remember, the drought combined with the extreme heat fairly roasting the plants. The kinds that have best withstood the ordeal are President, Vicomtesse Héricart de Thury, Sir Joseph Paxton, and Loxford Hall Seedling; and it is from these kinds alone that runners are to be had, at least in any quantity. *W. Wildsmith, Hants.*

Keston Common and Cæsar's Well.—May I supplement with a few words the interesting notices of Keston Common and Cæsar's Well which have lately appeared in the columns of your paper? One day early last spring I took a long ramble from the "Fox," at Hayes—the inn at which the omnibus from Bromley stops—to Leavesden Green, thence to Cudham Church, through the churchyard, across the fields, and round again through the village of Downe to the footpath that leads through Holwood Park to Keston Common, and so to the "Fox" again. The previous day my wanderings had taken me to the other side of the Sevenoaks high-road to Chislehurst, Orpington, and St. Mary Cray, and I was much struck with the resemblance, with a difference, of the two neighbourhoods, both having gentle slopes of broad fields, and roads of a somewhat painful, to the eye, chalky whiteness. At Orpington and the Crays, as is well known, the whole population may be said to live on fruit, or perhaps I should rather say live *by* fruit, for acres upon acres of thickly planted and cropped orchard and market garden land cover the valley and creep up the hill-sides. Vast fields of Strawberries cover much of the land, and I was, on seeing them, much struck with the large space given to each plant, and think that many amateur cultivators might get a useful hint for future practice from a visit to these superbly cultivated grounds. It was the season of weeds (Primroses and Violets rendered copse and hedgerow beautiful), but I do not think I exaggerate the cleanliness of cultivation when I say I did not see a single weed in the acres of land devoted to the growth of Strawberries. I must, however, return to Keston, or I fear I shall make these jottings as discursive and roundabout as were my spring rambles. Taking the footpath from Leavesden Green across to Cudham, I came, after much up and down and down and up walking, to Cudham church, which stands somewhat bleak and bare, save for two or three venerable Yew trees on the top of the hill. The church appears to be going somewhat to decay, and one of the Yews is a magnificent old specimen with a hollow trunk, protected by a rather unsightly iron railing across the opening. This Yew, I was informed, is 1600 years old; I do not answer for the historical accuracy of the fact, but it bears all the appearance of a very ancient tree. Entering Holwood from the Downe and Farnborough road, I found on the top of the footpath a stone bench—a welcome seat, of which I gladly availed myself, and was greatly surprised and pleased to find that historical as well as picturesque interest were awakened by a visit to this neighbourhood. Carved in the stone along the back of the seat was the following inscription:—"From Mr. Wilberforce's Diary, 1788.—'At length I well remember, after a conversation with Mr. Pitt in the open air at the root of an old tree at Holwood, just above the steep descent into the Vale of Keston, I resolved to give notice on a fit occasion in the House of Commons of my intention to bring forward the abolition of the slave trade.' Erected by Earl Stanhope, 1862, by permission of Lord Cranworth." Neither of your previous correspondents have mentioned this seat, nor do they appear to have gone through the park; if they had they could scarcely have missed it, nor another, to me most interesting object, which I can scarcely describe better than by calling it a double-headed tree, an Oak and a Yew growing on one perfectly united stem, only distinguishable by the difference of colour and surface of the bark. The Oak was, at the time of my visit, leafless, and reared bare branches over the deep evergreen boughs of the Yew in a manner that was at once striking and unique. The weather was sunny but bitterly cold—too cold, indeed, to hold pencil and paper, but I promised myself the pleasure of returning in a more genial season to take a sketch or two, collect data, and send you an account of the neighbourhood, but

"The best laid schemes o' mice an' men
Gang aft agley;"

circumstances prevented my making the researches I had intended, and after-visits to Hayes and Keston never extended beyond the Common. It may, however, interest some of your readers to know that Keston, Hayes, and the neighbouring copses are full of prizes for the botanist. I this season found on the boggy soil near Cæsar's Spring beautiful specimens of Sundew, the tiny plant that loves a cool damp mossy bed to rest upon and a bright warm sun to look at; also I found some beautiful little plants like miniature Irises [Doubtless Narthecium ossifragum]. I had made a collection of both of these, which flourished exceedingly in a large deep soup-plate covered by a glass shade and placed in a sunny window, and I was watching with daily interest to note the signs of inflorescence in my baby Irises when I lost the whole while removing to a distance. However, as I or mine are likely to visit Keston again this summer, I hope to get another good patch of moss, Sundew, and Iris, and try them in my present quarters. I also found Orchis mascula, but they are not very plentiful; also Blechnum Spicant. *T. S. J.*

The Night-blooming Cactus.—A somewhat remarkable sight was witnessed in the Cactus-house in the Botanic Garden, Bury St. Edmunds, on the night of July 16. There were no less than thirty-three fully-expanded blooms of the night-flowering Cactus (Cereus grandiflorus), which literally lit up the house, and loaded its atmosphere with an almost overpowering perfume. The house is a small lean-to structure, some 24 feet long by 12 feet wide, and is heated, when heat is required, by an ordinary fire flue. It contains, however, some very old and remarkably grotesque-looking specimens of the Cacteæ or Opuntiaceæ; but the species in question is, without doubt, as regards its flowers, the most beautiful as well as the most fugacious of the family, as its blooms seldom unfold before 10 o'clock P.M., and are faded by 3 or 4 o'clock on the following morning, so that a nocturnal visit to the plant-house is absolutely necessary to witness an expanded flower of this singular plant, and it is very seldom indeed that an opportunity offers itself of seeing such an assemblage of beauties as was afforded on the occasion alluded to. There are four plants, and about sixty flowers have unfolded upon them within the last few days, but the occasion mentioned afforded the grandest display. The plants are placed upon the top or the highest shelf of the stage, and are trained or secured to a rough trellis. They are in pots only some 7 or 8 inches in diameter, and the soil appears to be similar to what is generally used for this tribe of plants, consisting principally of lime scraps or similar materials. Mr. Pettitt, however (the lessee and manager of the garden) says that they have not been repotted for at least twenty years, but at certain seasons they are well supplied with frequent doses of liquid manure; and the treatment they receive, at all events, appears to suit them remarkably well. In cases where it may be desired to exhibit the truly splendid flowers of this plant in the broad light of day it may be accomplished by placing the same in a cool and perfectly dark cellar during the early part of the evening on which blooms are expected to unfold, and keeping it shut up in the dark until the time it may be required; by this method the flowers may be induced to remain expanded upon the plants until even somewhat late in the succeeding day. At all events, I have still some recollection of a Professor of Botany introducing in his class-room, to the great delight of his numerous students, a plant which had been thus treated, with several fully expanded flowers upon it, as late as 8 o'clock in the morning, and the lecturer facetiously remarked that it was exceedingly difficult to avoid being cheated under some circumstances, as in the case of the plant before him, which he said had been induced to believe that the morning was not so far advanced as was really the case. The plant is a native of Jamaica, and was introduced to the hot-houses of this country about the beginning of the eighteenth century. *P. Grieve.*

Mulching and Watering.—Not only are Peas, Scarlet Runners, and Tomatos refusing to set their flowers, owing to the dry parched condition of the earth and air, but fruit trees, except those that have been long planted and are deep-rooted, are languishing from want of rain, and unless assistance be rendered them, they will have great difficulty in carrying and perfecting their crop. Watering, however, without mulching is next to useless, and in many instances does more harm than good; for, as soon as it is applied, the famishing roots rush up to the surface after it, and having drunk in the moisture they die, as the sun soon scorches them up. With a thick mulching the case is different, as the ground is heavily shaded and kept cool, and as the water gradually soaks in, the feeders of the plants follow and remain at a depth where they are out of harm's way. Where seaweed can be got, nothing answers better than that as a mulching for Celery, and I have used it for Peas with equally good results; and last year, having plenty cast up on the shore near by, we spread some over the land among our fresh planted Cabbage, which approved of it much, and not only was it very beneficial during the dry weather in the autumn, but lying as it did all winter, it protected the plants by keeping out the hard frost. For fruit trees that have a crop of fruit to carry, half rotten manure from the cowyard is the thing, and if sewage can be got, heavy soakings of that instead of water will help the trees much. Dribblets are useless, and therefore, when either the one or the other is given, it should be in sufficient quantity to wet the whole earth as far as the roots extend, and to make sure that there is no waste it is a good plan to draw away the soil around the stems of the trees so as to form a saucer-like receptacle into which to pour the water, which hollows should first be filled with the mulch. *J. S.*

The Potato Disease.—With the long-continued wet we have been having here, with little sunshine, as a matter of course, we have been on the look-out for the Potato disease, which I am sorry to say has made its appearance this morning. I have had all the affected leaves gathered and destroyed, and I think if others would do likewise we might check its rapid progress. I for one shall do my utmost to stop it. I may add that it has only attacked the Early Kidneys, fit for lifting. *Robt. Craig, Gr., Levens Hall, Milnthorpe.*

Batatus paniculatus.—I received this plant from Kew two years ago, and find it one of the most interesting and floriferous of all summer blooming climbers. We have it growing here in a small pot, and the shoots are trained along the ridge of a warm Orchid-house, and every morning there is quite a show of its freshly opened lilac-purple flowers nestling among its deep green Passion-flower-like leaves. It blooms from May until November here. When the leaves turn yellow the plant should be cut down to the thick root-stock, and after resting awhile in a cool stove it may again be started in heat in February or March, and the shoots trained near the light. It requires ample feeding. *F. W. B.*

Lychnis Haageana.—Amongst the many good plants in the fine herbaceous border at Glamis Castle Gardens I noted this a few days ago, and a more showy plant for that purpose it is impossible to conceive. It has a compact branching habit, is very free flowering, and of the brightest rosy-scarlet colour imaginable. It is well worthy a place in every collection. *A. O.*

The Eccentricities of Covent Garden Market.—On the 8th inst. two and a half dozen Vegetable Marrows, the first from Bedfordshire, were sent to the market, and although small, they filled a bushel basket, and were of the usual size and sorts for Early Marrows and similar to those which in previous years have realised at the commencement of the season, but later in July, from 2*s.* to 3*s.* per dozen. The account received from the salesmen for these Marrows showed a gross return of 1*s.* 6*d.* for the two and a half dozen. On the day of sale there were but few Marrows in Covent Garden, and the retail price paid for a very small one at a greengrocer's the same week was 7½*d.* The salesmen on being communicated with say that the Marrows were small and delivered late by the railway company. Salesmen are generally prepared with an excuse when goods are given away, and a bad one is better than none; but as Marrows are not an especially perishable garden product, and as small Marrows are selling well, the excuses are hardly applicable. In contrast to this transaction a consignment of a like class of Marrows from the same grower to the same salesmen realised on the 19th instant a gross return of 2*s.* 6*d.* per dozen. The explanation must be sought elsewhere than in the want of market accommodation or over-supply, and it would be well if consignees would sometimes see how their produce is sold or given away in Covent Garden. *P.* [Probably the salesman did not know the value of the Marrows in the first instance, and was the victim of a "knock out." Such things are not unknown in Covent Garden. Eds.]

Lagerstrœmia indica.—On visiting the gardens at Orwell Park the other day, I was much pleased to see a fine well-flowered specimen of the above-named good old plant, now rarely met with in any collection, but which when large and in full bloom, like the one referred to, is one of the most effective and ornamental things it is possible to have. The way Mr. Wallis manages it is to prune it in after flowering, and that the wood may be thoroughly ripened the plant is fully exposed to the sun, which no doubt has much to do with bringing about such satisfactory results. *J. S.*

Sir Wilfrid Lawson's Grapes.—In his notice of Sir Wilfred Lawson's Grapes (see p. 71) "A." makes the following remark: "The leaves of these Vines are not so large as I have seen, but they are of a leathery texture, and clean and beautiful to look upon." These are exactly the conditions under which the very best Grapes in the country have been produced, and yet there are not wanting those who affect to criticise and teach, who deliberately state that

"big leaves" are a sure sign of high cultivation. There are doubtless a great many people honestly mistaken in the true symptoms of high cultivation in the case of the Grape-vine; but those who undertake to teach others ought to know better. The champion Grape growers of the country have not won their laurels in one single instance from Vines producing leaves other than is so correctly described by your correspondent "A.," who has done good service in pointing out the true conditions under which the Vine yields its best and finest fruit. *W. Hinds.*

Exhibiting.—We are now about the middle of the exhibiting season, and upon the eve of the great exhibition of the year which is to be held in Cottonopolis in a few weeks. The trouble and anxiety that these exhibitions entail upon all concerned is perhaps but faintly appreciated by the general public. Exhibitions of all kinds of horticultural ware, from models of greenhouses to boilers of all sizes and forms down to the very smallest garden requisite, are to be found at most of the great exhibitions of the present day. Manchester stands pre-eminently at the head of all other provincial exhibitions as the leading horticultural gathering held out of the great metropolis. Mr. Findlay has achieved a reputation for good management which has raised the status of the Manchester shows to the very first rank. The prize-list for the forthcoming great show is most liberal and comprehensive, including classes for almost every horticultural product. But what an effort the accumulation of such a vast quantity of vegetable products and machinery into one place must entail upon the exhibitors! Tradesmen will contribute to the exhibition at great inconvenience and considerable expense. The removal of several tons of iron in the shape of a collection of hot-water boilers a distance of 100 or 200 miles may not be considered a serious undertaking by many frequenters of horticultural exhibitions; but if anything like a practical estimate of labour and expense could be formed it would be seen at a glance how much the general public are indebted to the enterprise of those who are either directly or indirectly assisting to promote the interests of gardening in general. A tradesman has to risk a considerable sum in money to defray expenses for the removal of his goods to the show, which may or may not benefit his business. The nurseryman, in like manner, risks the chances of winning in competition, which is so keen at the present day that nothing but the choicest material stands the ghost of a chance of securing a prize, or what is the commoner practice of showing for exhibition only. In any case collections of the finest plants in the country are grouped with the greatest taste and skill, whether for competition or otherwise, and these are open for inspection to any and all who choose to avail themselves of the opportunity for the merest trifle. Collections of fruits and vegetables will be forthcoming from all parts of the United Kingdom, and probably a good many things from the Continent of Europe, which will impart additional interest to the show, and entitle it from a practical stand-point to be called International. There will probably be from three to forty, or even more, entries in some of the classes, and it should be borne in mind that the losers, who are often scoffed at by their friends and neigbours, contribute as much to the success of the show as their more successful opponents. There is often but a very faint shade—and sometimes only matter of opinion—between the relative merits of two collections of plants or fruits. A very small defect indeed turns the scale either one way or the other; so that it is no disgrace to be beaten in good company, as they say in sporting parlance, by a short head. Upon the contrary, there is credit due to all who, setting aside personal inconvenience, labour, and expense, take an honourable part in supporting an exhibition which has for its object the furtherance of every branch of horticulture and the gathering together of all the latest improvements in all kinds of machinery, &c., employed in gardens. It is a mistake to suppose that those only support the show who exhibit. Every gardener in the kingdom can support the show by his presence, for after all the finest exhibition in the world must be a failure if it be not a financial success. Such an opportunity of comparing notes, of exchanging opinions, of acquiring knowledge upon every conceivable subject appertaining to gardening may not present itself for some time. All should therefore join heartily together in supporting Mr. Findlay to render the forthcoming exhibition such a success as will stimulate others to follow his example. *Exhibitor.*

Mandevilla suaveolens.—This is one of the most charming greenhouse creepers extant. A rapid grower when once it is established, it is an ornament to any structure where a display of flowers has to be kept up during the summer months. The flowers, which are borne in great profusion upon the terminal ends of long slender shoots, are pure white, and so fragrant that no lady could pass a plant in flower without being attracted by the odour. The flowers do not last long in a cut state, but any one accustomed to handle cut flowers extensively would know how to turn it to account by replenishing the vases daily. This is by no means an extravagant idea, as the plant yields quantities of flowers at this season, and for important occasions I know of no other sweet-scented flower so well adapted for furnishing glasses of medium height, over which the sprays may hang gracefully, and if renewed daily, as suggested, a constant and agreeable perfume will be emitted which cannot fail to enlist admiration. The flowers are rather fragile in structure, and cannot stand draughts, but if carefully attended to by a competent person a *récherché* display may be produced which would be difficult to equal, much less excel. *W. Hinds, Canford, Dorset.*

Spatalanthus speciosus.—A pretty little magenta flowered bulb, from the Cape of Good Hope, has just flowered here in our collection for the first time, and is a great beauty. I owe possession of the bulbs to the generosity of the Rev. A. Rawson, who gave them to me a year ago. I carried them for a fortnight in my coat pocket, and then planted them in a pot of sandy earth. The pot was kept quite moist, even wet, in a cold Liverwort-growing kind of frame below the ground level, and about two months ago the pot was plunged under a shady hedge with a western exposure. They all along have had cool moist or wet treatment, and I have just been delighted by the vivid magenta star-shaped flowers, born among slender rush-like leaves on stalks 4 inches high. *F. W. B.*

Birds and Insects.—The great prevalence of insects of all kinds has already been commented on, but no one appears to have noticed the scarcity of thrushes and blackbirds, the song of which was greatly missed by us in the spring, as in this locality those birds used to be numerous at that season, when they filled the air with their rich melodious notes. We attributed their quietude before nesting time to the cold weather, and then to family cares after, but it is only too evident now that the hard winter and want of food has caused the death of most of them, for certain it is there are but few about, as we seldom see one in the garden, where fruit hangs or Strawberries lie almost unmolested. This immunity from the ravages of the feathered tribe is most unusual, but although the birds referred to are scarce sparrows are only too plentiful, and as they commit such havoc among the Peas and buds, and devour so many, and do no good in return, I much wish the fate of the useful blackbirds and thrushes had been theirs instead. *J. S.*

Baumforth's Seedling Raspberry.—I am always anxious to try anything new in the way of fruits, and with this view I gave Baumforth's Seedling Raspberry a trial this season, and so striking is the plant and fruit that every gardener calling here has noted it. It is no doubt the best of its kind yet out; the habit is strong, the fruit large and handsome, with plenty of it; for the dessert it is a great acquisition. I shall increase it, and make it my principal stock here. *W. Culverwell, Thorpe Perrow.*

A Giant Pine.—I was interested in reading the account by your correspondent, "A Planter from the South," of some of the trees (Pines) upon the estate of the Earl of Seafield, and herewith beg to send you the circumference of a giant Pine (variety unknown) which was blown down during a gale last February upon the estate of Hans Sloane Stanley, Esq., Paulton's Park, Romsey, Hants. The tree measured 15 feet 7 inches in circumference immediately above the ground; at 1 foot from the ground, 14 feet 6 inches; and at 20 feet above ground, 13 feet 6 inches in circumference. *W. Hinds.*

Potatos and the Disease.—Now that we have a change in the weather, it is not unreasonable to expect that ere many days are over—in fact, it may be in some localities already—the haulm of our Potatos, unless prompt and decisive action is taken, will be blackened with the much-dreaded Peronospora infestans. Such being the case a timely word of advice to those persons who are not in the habit of taking time and things by the forelock may not be without some good effect. The man who invariably takes things as they come, and who seldom reflects on the past or looks into the future, but contents himself with thinking that "what is to be will be," is not the man who studies either his own or his employers'—if he has any—interests, neither is he likely to fare so well with regard to his crop of Potatos as he might do. To such persons—or, for the matter of that, to the man of a different stamp—I would say, If you have not hitherto adopted the practice of cutting off the haulm to within 3 or 4 inches of the soil, do so without further delay, and when the short stems which are left have completely withered away dig up the crop. This, of course, applies only for the present to the early varieties, the tubers of which having now attained, or nearly so, their full size, no fears need be entertained either as to the quantity or quality of the crop. If the above plan were carried out at once, I would almost venture to predict that nearly 90 per cent. of the crops in the Southern, Midland, and Eastern Counties would this year be dug up free from disease. *J. Horsefield, Heytesbury.*

Inexpensive Medley Borders.—The summer embellishment of dressed grounds of any extent entails so much labour and expense that the description of any simple method of producing a good display is sure to be acceptable at this season, when the effect produced as well as the cost can be compared with more or less expensive systems. The border that I am about to describe is enclosed by a Laurel hedge, and is about 12 feet wide. The plants employed are all inexpensive, being either hardy altogether, or were raised from seeds during the past spring—chiefly the latter. A row of Cannabis gigantea is planted all along the centre of the border, at from 4 to 6 yards apart. The back row consists of Phloxes, Nicotianas, Cannas bronze and green, Helianthemums, Fuchsias, Achillea Ptarmica fl.-pl., Delphiniums, Aralia edulis, Symphytum officinale var., and Salvia patens. Next in order come the summer-flowering Chrysanthemums, Coreopsis lanceolata, Sweet Williams, which make a splendid show, Wigandia caracasana, Datura fastuosa, Solanum robustum, Hemerocallis (the Day Lily), while the margin of the border is composed of double Zinnias, seedling Lupins, Clarkia pulchella, Œnotheras, Mignonette, Bartonia aurea (a grand annual), Nemophila insignis, Collinsia bicolor, Virginian Stocks and Escheholtzia californica. There are, of course, other odds and ends worked in between, but the majority of the plants that are most effective are included above, and are within the reach of all who have any taste or desire to embark upon a cheap but at the same time effective system of border decoration. *Cultivator.*

Orchard-houses.—What would my old friend Rivers have said if he had read, as I have just read in your first article last week, p. 102:—"Orchard-houses, the dreams of sanguine minds, have with many other horticultural crotchets gone into the category of collapsed aspirations"? As he can no longer defend his favourite child, will you allow me, as one of his early disciples who has had the experience of two orchard-houses for twenty-five years with mostly the same trees, to say that we have had in a small cottage garden more fruit than our neighbours with large walled gardens, and an almost certain crop of all sorts—Cherries, Strawberries, early and late Plums, Apricots, Peaches, Nectarines, Pears, American Apples, and Grapes. The reason that orchard-houses have not had the general success they deserve is a very simple one. Rivers designed them especially for amateurs who would look after them. When they are started in large places they are found to require much work and close watching, while their results do not bring the honour and glory of forced fruits and stove plants; they, therefore, do not get the attention they require. When the profits resulting from the Royal Horticultural Society's country show at Bury St. Edmunds were expended in building the orchard-house at Chiswick, to which your article refers, I gave Mr. Barron the above opinion, and advised that the orchard-house should be put under the charge of a first-class man, and that he should have all the credit if it succeeded. *George F. Wilson, Heatherbank, July 23.*

—— Are they now to be viewed among the useless or unsatisfactory structures? It may be so in the South, but I can scarcely believe that such men as Thomson, of Drumlanrig, would say so. Were it not for them no really good French Pears could now be grown in the North. *W. H. M., Munches.*

Plant Label Competition.—The report of the committee, of which I was a member, mentions labels sent by me. I hope, therefore, that you will allow me to say that my labels were sent to the *Gardeners' Chronicle* Office to illustrate notes I wrote on the subject, and for the chance of their being of any public benefit, but without my having the least thought of competing for the prize offered. *C. Wolley Dod, Edge Hall, Malpas, July 25.*

Peach Pruning.—In the majority of cases this work is left till the winter or spring, but I see that Mr. Wallis, of Orwell Park, like a few others of the best cultivators, thins his trees in the houses directly the fruit is off; thus fully exposing the whole of the young wood well to the light, and giving it every chance of ripening off early, which shoots cannot do when buried up under their foliage. Not only does the thinning greatly aid the ripening process, but it assists the trees materially in plumping up and perfecting their buds, without which the flowers must of necessity be small, and their setting uncertain. With good fat buds that result in big bold blooms, the organs are sure to be right, and when that is the case a crop of fruit and its safe stoning is almost certain to follow, for the success of next year, as regards Peaches and Nectarines, depends in a very great measure on the doings of this. Even more important perhaps than the

thinning of the wood, is the keeping of the foliage clean and free from red-spider, which can only be done during such hot weather as we have recently had by the aid of a good garden engine or syringe, and a thorough soaking of water at the roots, as dryness, either in the air or border, brings on languor, insects, and weakness sooner than anything else. *J. S.*

Hybrid Lily.—I send you a bloom of a hybrid Lily which is now the chief ornament of my garden. It was raised and given me nearly three years ago by Mr. H. J. Mangles, of Valewood, Haslemere, and is the result of a cross between L. croceum and L. tigrinum. The stem is upwards of 5 feet, and is surmounted by a dense head of some forty flowers similar to the one I send you. It is growing in a mixture of sand silt, loam, and leaf-mould in a partially shaded position. *H. Harpur Crewe, Drayton-Beauchamp, Tring.* [Our correspondent was good enough to forward us a flower and a couple of leaves, which presented the following characters :—The leaves are linear-lanceolate, glabrous, dark green above, paler beneath, where the seven nerves are rather prominent, especially the central one ; the margins are slightly cartilaginous and minutely warted. The peduncle is cylindric, green with purplish spots, slightly bent at the summit. The flower is about 7 inches in greatest diameter, broadly funnel-shaped, perianth segments spreading, recurved beyond the middle, about 3½ inches long by ¾ inch wide in the middle, elongate, oblong, rounded at the tip, tapering gradually at the base into a rather broad, deeply-channelled stalk or claw, orange-yellow, with oval reddish-brown spots, especially towards the middle, and with a few wart-like projections at the base. The filaments are half the length of the perianth-segments, quite glabrous, anthers abortive. The ovary is about 1 inch long, cylindric, glabrous, deeply six-lobed. From this it may be gathered that the resemblance to L. croceum is greater than to L. tigrinum. It has the stem, foliage, inflorescence, and form of flower of croceum, but the perianth segments are narrower, less prominently warted than in croceum, and more recurved, although not so much so as in L. tigrinum. If this be not already named, it might bear the name of the raiser, and be termed Mangles' Hybrid Lily—L. Manglesii × . Eds.]

Notices of Books.

A Manual of Injurious Insects, *with Methods of Prevention and Remedy for their Attacks to Food Crops, Forest Trees, and Fruit, and with Short Introduction to Entomology.* By Eleanor A. Ormerod, F.M.S. (Swan, Sonnenschein & Allen.)

Year after year, for some time past, Miss Ormerod has done good service by collecting information as to the insects injurious to farm and garden crops, and as to the best means to be adopted to avert their attacks or diminish their evil effects. The present volume is a more ambitious effort, conceived in a thoroughly practical spirit. We have an evidence of this at the outset in the statement that the methods of prevention commended as "most serviceable are based, not on applications when the crop or trees are undergoing attack, but rather on modes of cultivation and treatment which may diminish the amount of insect presence beforehand by clearing away all points of harbourage and breeding-places, as well as attacking the pest generally, and on a broad scale, at the points where the details of its habit show that it is most open to injury ; also on means adapted to promote vigorous and healthy growth, whereby we lessen the liability of the plant to sustain damage, first by pushing it forward in its early stages, and afterwards by enabling it to overcome or outgrow the damage it may suffer in cases of ordinary amount of attack."

A short but clear introduction to entomology, showing the parts of an insect's organisation, the names given to them, and an indication of the principal groups into which they are divided, occupies a few preliminary pages, and then the principal insects injurious to food crops, forest trees, and fruit crops, are mentioned in alphabetical order, according to the crops they affect, beginning with the Asparagus-beetle and ending with the Turnip-gall weevil, in the case of the food crops ; in the forest trees a beginning is made with the Ash and the insects which affect it, and ending with the Spruce-gall aphis ; fruit crops open with the Apple and end with the insects which attack the Strawberry. A glossary and index are very useful additions to the work. The description of the several insects is clearly and accurately drawn up, but the sections on prevention and remedies, derived from various correspondents all over the country, are somewhat embarrassing from the number and variety of the prescriptions. This arises partly, of course, from the variations in climate, soil, &c., but the statements made are clearly of unequal value, and require to be carefully discounted. Thus, in the case of the Carrot-fly, while one observer saturates the soil with paraffin oil, watering afterwards, another, more careful, recommends the use of two wineglassfuls of paraffin oil to a gallon of water. The book, however, is so useful that we trust soon to see another and more complete edition prepared, including a fuller notice of the insects attacking Vines, Melons, Cucumbers, Pines, Pears, &c. In the present volume the Phylloxera of the Vine is not so much as mentioned, although its attacks were serious in the near vicinity of the author's residence. The Phytoptus of the Maple, the mite of the Pear leaf, the Phytomyza of the Holly, and various other insects which fall within the programme laid down by the author, are also not named. A fuller reference to the works of Boisduval, Kollar, Hartig, among many others, would have enabled the author to have more fully carried out the plan she laid down for herself. In spite, however, of these defects Miss Ormerod has produced a work which will be of great value to all cultivators, and will be of service by diffusing useful and practical information.

Ready Remedies in Medical and Surgical Emergencies. By an Edinburgh Practitioner. (Edmonston & Co.)

So far as we have seen, this is a trustworthy guide, evidently prepared by some competent practitioner, who would probably agree with us that the best advice he gives is that which recommends the reader, in case of need, to send at once for the nearest doctor.

Foreign Correspondence.

Russia.—After a very fine spring we had a severe frost, which killed the new growth of most of our plants. Winter itself was fatal to many plants. Many of the Strawberries perished. I am not so unfortunate ; my Strawberries of 1879 and 1880 bore well, but the berries are not large. A drought succeeded to the cold weather, which is perhaps the reason. Cherries have also much suffered. From some hundred standard Gooseberries, grafted on Ribes, no more than twenty-five remained ; they were all protected, as generally with us. Such is our climate. *P. Wolkenstein.*

Apiary.

British Bee-Keepers' Association. — The seventh great exhibition of bees and their produce, hives, and bee furniture, was opened at the Royal Horticultural Society's Garden, at South Kensington, on Tuesday, July 26, and closes on Monday next. The show was opened at 1 P.M., and during the afternoon a bee driving competition was held in the bee tent. The competitors were—Mr. J. K. Filbee, Mr. W. Hunt, Mr. W. Martin, Mr. S. J. Baldwin, Mr. J. Walton, and Mr. W. Marshall, and the judges the Rev. F. T. Scott, Rev. J. T. Sisson, and Mr. W. Carr.

The show of honey is certainly the finest ever yet brought together, and comprises exhibits from all parts of Great Britain and various Continental countries. In class 10, for the best exhibition of super honey from one apiary, there is a very grand show ; the samples from Mr. S. Thome and Mr. J. Walton are extremely good. Mr. J. M. Hooker, who took the 3d prize, does not show his honey to the greatest advantage, not being unpacked ; but the system of packing sectional frame honey in crates is well illustrated, and should be noted by those exhibitors whose honey came to grief through bad packing. In class 11, for the best super of honey not being sectional supers, Mr. J. K. Filbee, who is 1st, has a fine exhibit, but the collecting of honey in this form is not to be encouraged, as it is not portable and is easily broken. The exhibits in class 12, for the best glass of super honey, are very handsome indeed, but the same objection applies, and in hot weather it is scarcely possible to convey this class of honey without damage. The samples from Mr. W. Martin and Mr. Sells, of Uffington, Lincoln, deserve especial notice, but that shown by the 3d prize winner is certainly not attractive in appearance.

In classes 13, 14, and 15, for sections of comb honey, samples of the finest possible quality are exhibited, and here, as usual, Hertfordshire comes well to the front. The exhibit of Miss Gayton, of Hadham, is extremely fine, and a very good appearance is given to this exhibit by the fact that it is glazed and bound neatly with coloured paper. This is important, as purchasers can easily put a 2 lb. section in the pocket and carry it away without fear of damage to the honey. Mr. Thome, of Ashwell, has also a nice exhibit, very fine in quality.

In the class for the best twelve 1 lb. sections, there is a good show, and this class deserves encouragement from the fact that 1 lb. sections are very portable and therefore more readily saleable than any other. The glazing of the sections should be insisted upon, both for the sake of the seller and the purchaser—for the former to protect his honey while in the show from robber bees and from the fingers of the visitors ; and for the latter, so that the sections can be carried away without risk of breakage of the honey.

In classes 17 and 18, for run or extracted honey, the exhibitors are getting alive to the necessity of packing the honey in attractive looking bottles, the old green glass bottles are going quite out of use, and in this class great taste is shown in putting up the honey. Nos. 148 and 157 deserve special notice.

Class 19 is for the best sample of comb foundation made of pure beeswax, to consist of 2½ lb. thick (worker cells) for stock hive and 2½ lb. thin for supers manufactured in the United Kingdom, with price per pound attached at which the exhibitor is willing to supply any quantity. A few years ago comb foundation was almost unknown but bee-keepers are getting keenly alive to the honey-saving powers of foundation, and this principally through the unceasing admonitions of Mr. Abbott in the *Bee Journal*, and it is now most extensively used, one firm of dealers having during the present year sent out more than a ton. The amount of honey saved by the use of this quantity may be roughly estimated at from 40,000 lb. to 60,000 lb., and the bee is spared the labour of producing the wax also and can use the spare time in honey gathering. The foundation making competition was particularly interesting, and the way in which Mr. Abbott turned out sheet after sheet showed that he was a perfect master of the subject. The other competitor was simply nowhere.

In the class for the best super of honey not being a sectional super, the quality was good, but cottagers should be encouraged to collect their honey in a more saleable form. The show both of run and super honey is highly creditable.

In class 26, for the largest and best exhibit of honey in the comb, either in sectional or other supers, the total weight of each entry to be not less than 24 lb., Lucia Paglia, of Bologna, shows how honey may be packed in very nice looking glass sections. Though the taste of the honey is very fine, still the comb is badly built, and the honey not sealed. Teetotal bee-keepers will be gratified to see only one bottle of mead, or metheglin made from honey, though it certainly looks harmless enough, being as clear as water.

The collections of bee furniture are very complete. Here can be seen every article that the modern bee-keeper requires. The only wonder is that makers can be induced to send such collections when only medals are offered as prizes. The trouble and expense of getting such collections together must be very great indeed.

Honey extractors have made great advances during late years. The rapid and automatic machines of Mr. Cowan are perfect for their purpose. By their use honey can be taken from the comb in the bars of frame hive and the comb returned to the hive, to be again filled by the bees, thus saving all the labour and expense of building new combs.

The exhibit 238 is the finest specimen of beeswax we have seen. Those sent by Mr. Sell, of Uffington, are also very good. Honey jars should have had larger prizes offered, for they are most important articles with the modern bee-keeper, and a perfect jar at a moderate price is still a desideratum. The exhibits are poor—only four entries. Some very efficient crates for the conveyance of comb honey are shown. They are remarkably simple, can be made by any one, and should be noticed by honey sellers. The crate for run honey, No. 256, is perfect. No. 255 is very good, and could be made easily. A variety of interesting novelties are here to be seen in class 35. The long tin vessel, strongly resembling a chimney-

pot, is a device of Mr. Abbott's for ripening honey. When unsealed honey is extracted along with sealed honey the mixture will not keep: this device is for separating the two. The ripe or sealed honey being of a greater specific gravity, separates and falls to the bottom, and is drawn off. The unripe floats on the top, and is left.

The unicomb hives for observation purposes were objects of great attraction, and the various foreign bees in them were viewed with much interest. No. 6 observatory hive, by the Rev. E. Davenport, is a departure in a new direction, and well deserved a prize, though passed by the judges. The hives in class 4 were exhibited in duplicate, to show how bees are best wintered. This class was interesting in this respect, but the prices of most of them were prohibitory. In classes 5 and 6 the exhibits were both good and cheap. In classes 43 and 46 were fine samples of good workmanship and practical use, but somewhat high in price; certainly the workmanship was superior to many of those by professionals. The only exhibit in class 8 showed well how honey may be collected in the most approved form in sectional supers on straw skeps, and should be noticed by all old-fashioned bee-keepers.

This show of honey and appliances clearly proves the ability of the British bee-keeper to keep ahead of his American competitors. For some years the Americans sent over here large quantities of honey which, though attractive in appearance, was not pure, and certainly not so good in flavour as the English. Now that English bee-keepers are collecting their honey in a portable and attractive form they have little to fear. The total exhibits of honey weigh over 2 tons (4215½ lb.) in the show, and 900 lb. in the honey fair adjoining. The lectures in the bee tent have been a source of great interest, and have been well attended. Mr. S. J. Baldwin and Mr. T. B. Blow have been the lecturers.

Reports of Societies.

Royal Horticultural: *July* 26.

Scientific Committee.—Rev. H. H. Crewe in the chair.

Disease of Peas.—Mr. W. G. Smith exhibited Peas badly attacked by mildew. The Erysiphe was accompanied by the oidium, its early condition. During dry summers this fungus is frequently so destructive to late Peas near London that it renders their growth impossible. Mr. Smith also exhibited garden Mint infested with fungi. In this instance Puccinia menthæ, the same parasite, with Trichobasis labiatorum.

Effects of the late Winter in Belgium.—Mr. McLachlan described the terrible effects of the late winter in that country; how the Yews, Box, Conifers, and fruit trees were in many cases utterly destroyed. A report is about to appear on the subject.

Lilium speciosum rubrum.—Mr. G. F. Wilson exhibited leaves apparently injured by being chilled with wet and then subjected to the heat of the sun.

Gladiolus Lemoinei.—Mr. Wilson also exhibited a fine spike of this hybrid between G. gandavensis and G. purpureo-auratum.

Pears Diseased.—Mr. Henslow exhibited a Pear in which "hypertrophy of the grit" had occurred, appearing as efflorescent spots on the surface; also leaves from the same tree (growing at St. Albans) attacked by Eriocampa adumbrata, which completely skeletonises the leaf.

Floral Committee.—J. McIntosh, Esq., in the chair. Messrs. James Veitch & Sons were the principal exhibitors of new plants at this meeting, and First-class Certificates were awarded to them for Rhododendron Duchess of Connaught, a garden hybrid, apparently of the same pedigree as their beautiful R. Duchess of Edinburgh, the plant in every respect but in colour much resembling that variety; the truss is also, if anything, more compact, the blossoms more solid in texture, and of a rich glowing crimson-scarlet, without the slightest trace of the orange so conspicuous in the blooms of R. Duchess of Edinburgh. For Tachiadenus carinatus, a shrubby gentianaceous plant introduced from Madagascar, with bluish-lavender coloured, bell-shaped, five-lobed blossoms, with a slender corolla tube about 3 inches long. This is figured in the *Bot. Mag.*, t. 5094. For Ixora Burbidgei, a Bornean introduction, with orange-scarlet flowers freely produced in dense terminal clusters; and for Lindenia rivalis, a Mexican stove shrub with white long tubed five-lobed flowers, very freely produced on short spurs. Figured in *Bot. Mag.*, t. 5255. The Messrs. Veitch also exhibited ten thriving plants in flower of the pretty Phalænopsis violacea, illustrated in a preceding page; a nicely flowered specimen of the showy old Methonica, or Gloriosa superba; a good specimen of the fine white variegated Crinum Verschaffeltianum; Lilium auratum, and its beautiful and distinct varieties, virginale and platyphyllum; a good sulphur-yellow flowered border Carnation, named Mr. Toby, &c. From Chiswick, Mr. Barron brought up a collection of the best grown tuberous-rooted Begonias that has ever been seen in the Council-room, and which included such excellent varieties as Nellie May, Chiswick White, James McIntosh, Souvenir de Chiswick, a pretty, clear crimson-scarlet flower; Chiswick Yellow, of the same type as Pearcei, but a great advance on that variety; Nellie Barron, a fine crimson; Henry Webb, one of the best of scarlets, very free, and a good-shaped flower; and Major Mason, a nice pink. Mr. Barron also showed Montbretia crocosmæflora, one of Mons. Lemoine's novelties, much the same in colour as M. Potsii, perhaps a little more yellow, but the flowers larger—a very good plant, which gained a First-class Certificate. Mr. Hodges, gr. to E. Wright, Esq., Gravelly Hill, Birmingham, received a vote of thanks for cut flowers of one of the best types of Oncidium Lanceanum that we remember to have seen; and Mr. Cannell received a similar compliment for a fine collection of cut Verbenas, African Marigolds, &c. Mr. B. S. Williams showed Maranta Leitzii in bloom, the flowers being pinkish-white and inconspicuous. Mr. G. J. Cloke, gr. to J. A. Tinne, Esq., received a vote of thanks for Croton Tinneanus ×, a hybrid between C. Weismanni and C. Disraeli, and much resembling its last-named parent.

Fruit Committee.—H. J. Veitch, Esq., in the chair. Messrs. James Carter & Co. exhibited a large, and exceedingly well-grown collection of Tomatos in pots, one of which, named Dedham Favourite, was awarded a First-class Certificate. It differs from the old round red, in its heavier, more solid flesh, and crimson hue of colour, and is undoubtedly a first-rate novelty, but could not be distinguished from the sorts labelled Fiji Island, Holborn Ruby, and Early Acme, in the same collection. The committee recommended that a medal should be awarded to the exhibitors. Mr. J. Walker, nurseryman, Thame, received a vote of thanks for a collection of about forty dishes of Gooseberries and two of Currants. Mr. Hutchings, Rickmansworth Nursery, showed examples of a Pea named Challenge the World, and said to be a sport from Ne Plus Ultra, but which proved to be the true Ne Plus Ultra, the so-called parent being a bad stock of that variety.

Bishop's Waltham Horticultural: *July* 20.—

The annual show of this Society was this year held in Swanmore Park, the seat of W. H. Myers, Esq., who not only very generously threw open the whole of his garden and grounds but also offered special prizes to cottagers, and invited the surrounding gentry to an "at home," and this, coupled with the glorious weather of the show day, effectually established the Society on a sound financial basis, double the amount of cash being taken at the gates to that of any previous year. Of course the attraction of a newly-erected mansion that had taken the place of an old one, together with renovated gardens and pleasure-grounds, which all were anxious to see, must be credited as contributing somewhat to the financial success of the show. As regards exhibits, though not numerous, all were of unexceptionable quality, particularly the cottagers' productions, for whose encouragement the Society is mainly intended. All appear to excel in vegetable culture—Carrots, Onions, Cabbage, Lettuce, Turnips, and even Parsnips, at this early season, being wonderfully fine. Potatos alone were poor, for which fact the weather must be blamed, as early kinds, though matured, are small, and the late kinds are as yet simply tuberless. Amateurs, too, showed remarkably well, their collections of vegetables being at least equal to those of gentlemen's gardeners, and were quite as neatly staged.

With the exception of the collections staged by gentlemen's gardeners the fruit throughout was poor. The best exhibits in these classes were from the gardens of W. H. Myers, Esq.; G. Atherley, Esq.; and R. K. Wyndham, Esq.—the Hamburgh Grapes of the former being about the best finished we have seen this season.

The competition in the plant classes was of a limited nature, there being but two exhibitors in the groups of plants arranged for effect. These were adjudged of equal merit, the one to Mr. Cox, gr. to R. K. Wyndham, Esq., and the other to Mr. Molyneux, gr. to W. H. Myers, Esq. Both were excellent as regards material, but neither was so effectively arranged as could have been desired, though in this respect Mr. Cox's was undoubtedly the best group, that of Mr. Molyneux being too crowded, which was all the more to be regretted, seeing that all his plants had been so well grown as to bear close individual inspection. Pelargoniums, Fuchsias, table plants, and Ferns, were of more than average excellent.

In the non-competitors division of the show, Messrs. Pay & Son, nurserymen, Bishop's Waltham, had a fine display of Pelargoniums, Fuchsias, and seedling Petunias; there were some dozens of well-grown plants of the latter, the strains being of the finest. In addition to the very excellent display in the tents visitors were admitted to every part of the gardens, the vineries being the chief attraction, containing as they do magnificent crops of fruit, of Black Hamburghs, Muscat of Alexandra, and Madresfield Court. It would be difficult to find a better lot in the kingdom: most certainly may that be said to be true of Madresfield Court, among which there is not a single cracked berry—Mr. Molyneux attributing his success in this respect to allowing the laterals to ramble at their own sweet will. Other fruit-houses, containing Peaches, Nectarines, Melons, &c., were models of good culture and neatness, and the same may be said of the kitchen and fruit gardens. Flower gardening is almost entirely confined to hardy border flowers, Roses and flowering shrubs, for all of which the Squire has a peculiar affection, amounting to that of personally superintending their planting and their after needs.

The Rose Show at Sutton Coldfield: *July* 22.

—Birmingham, for a series of years, held a foremost position as a great centre for an annual exhibition of Roses, but these exhibitions fell through for a time, not for want of energy on the part of those who worked them out, but from a change from the town itself to Aston. This year it was thought advisable to endeavour again to establish an exhibition of Roses in this neighbourhood, and the Crystal Palace ground at Sutton Coldfield, which is almost a suburb of Birmingham, was pitched upon as a suitable place, and the directors of the Company, in conjunction with that well known amateur, the Rev J. A. Williams, and one or two others, took the matter in hand. Coming, as it did, somewhat late in the Rose season, Mr. Geo. Paul, Messrs. W. Paul & Son, Mr. C. Turner, Mr. B R. Cant, and others who would have exhibited, could not do so, the past tropical weather having destroyed their blooms; but it was still a very fine exhibition, remarkable, as one of the great rosarians observed, that it was "the best show which has been held this year for form, colour, and size." The promoters of the exhibition tried its arrangement on new lines, clearly indicating that the system adopted is a right one properly worked out. A spacious centre table, 6 feet wide, was placed down the centre of a large tent, with foliage plants arranged along the centre in three rows; then came a row of boxes fringed in front with a row of Ferns and other plants on a sunken shelf, with green calico in front. In the centre of the tent was a bank of plants to break a continuous line of Roses, and a circular group of plants was placed at each end. It gave repose to the display of Roses, and they nestled gloriously amongst these plants. The side tables were also filled with Roses and other subjects.

In a tent branching from this three fine groups of plants arranged for effect were displayed. There was no limit to space, and the winner of the 1st prize, Mr. Hans Niemand, of the Harborne Road Nurseries, Birmingham (Mr. W. Spinks, late of the Lower Aston Grounds, manager), had a beautiful and elaborate group, which was much admired, but a little more colouring was wanted. Of course the time at command in arranging a large group is limited, yet the arrangement altogether was in the right groove, but wanted more time to work it out artistically. Mr. J. E. Wilson, of Edgbaston, Birmingham, staged a fine group of plants, containing some fine exhibition specimens, with smaller things in their proper places—a group which was much admired, and justly deserved the 2d prize, a handsome Silver Cup. Messrs. H. Pope & Son, nurserymen, Birmingham, obtained the 3d prize with a very pretty group of smaller things, in which some charming plants of Ericas, nicely done, played an important part. Good prizes were also offered for three bridal bouquets, which brought out three exhibitors in greath strength. It is a rare thing indeed to see bouquets of such excellent quality away from London, and those who competed deserve high praise. Mr. Hans Niemand was placed 1st; Messrs. H. B. Pope & Son, Birmingham, 2d; and Messrs. Jones & Son, Shrewsbury, 3d.

Another marked feature of the exhibition was to be found in the introduction of a very fine display of epergnes and other glass ornaments for indoor floral decorations, contributed by Mr. Joseph Webb, Coaltown Hill Glass Works, Stourbridge. Close upon forty new designs in epergnes were displayed, as well as a quantity of other beautiful objects. It was a most interesting display, and quite in keeping with a flower show. These and a large display of hand-painted sheet-iron pot covers, contributed by Mr. W. H. Hilton, London Road, Liverpool, occupied a large centre table in the tent occupied by the groups of plants. It is only necessary to say in connection with these pot covers that Mr. Hilton had sold every one within three hours of the opening of the show and taken orders for a great many more. Mr. R. H. Vertegans exhibited a box of Gaillardia grandiflora seedlings, in which were some striking forms, one in particular being of great size and beauty. Messrs. H. G. Pope & Sons sent some fine examples of a seedling white-spine Cucumber, named Dreadnought, a really good variety.

As regards the Roses, Sutton Coldfield is to be congratulated. In the amateur classes, Mr. T. Jowitt, of Hereford renown, was 1st for thirty-six single trusses, twenty-four singles, and eight trebles. The 2d and 3d prizes in these classes were divided between Mr. C. Davies, of Banbury; Mr. A. Evans, of Oxford; and Rev. H. W. Watson, of Berkswell Rectory, Coventry; the two first exhibiting some excellent blooms. In the twelve single trusses the 1st prize was won by Mr. A. H. Griffiths, a most enthusiastic and hard-working rosarian, for his garden is situate within 2½ miles of the centre of Birmingham; Mr. J. Sladden, of Evesham, was a very good 2d (and really a good 1st two hours after the judges had finished their work); and Mr. Ed. Mawley, of Croydon, 3d. Mr. Griffiths was again 1st for twelve singles in the local class. For twelve Teas or Noisettes, Mr. C. Davies, Banbury, was 1st; and for six Teas, Mr. Ed. Mawley. In the nurserymen's classes, Cranston's Seed and

Nursery Company, Hereford, were 1st for forty-eight single trusses and sixteen trebles; Mr. Frettingham, of Nottingham, being 2d; and Messrs. Davison & Co. 3d. In the twenty-four singles Messrs. James Dickson & Sons, Chester, were easily 1st with one of the finest boxes in the show; the 2d prize was awarded equally to Mr. G. Prince, Oxford, and Messrs. Perkins & Son, Coventry; next came Mr. J. House, Peterborough.

Tea Roses were exhibited in most excellent form. In the nurserymen's class for twelve, distinct, Messrs. Robert Mack & Son, of Catterick Bridge, Yorkshire, were 1st, closely followed by Mr. Prince, of Oxford; 3d, Mr. Mattock, Oxford. For the quite new class of eight distinct Teas or Noisettes, three trusses of each, Messrs. Mack & Son were again 1st, with a box which was quite the feature of the show. Reine du Portugal, Madame Hippolyte Jamain, Comtesse de Nadaillac, Marie van Houtte, were shown in absolute perfection. It is not often one sees such a box of Teas. Mr. Prince, who was 2d, exhibited a box which at any other show this year would have been easily 1st. Marie van Houtte was lovely on this stand—the colour so excellent.

In the class for twelve blooms of any dark Rose there were staged Reynolds Hole, Général Jacqueminot, Devienne Lamy, Marie Baumann, Alfred Colomb, Marie Rady, &c. Mr. T. Jowitt was 1st, with a superb stand of Devienne Lamy; Mr. Frettingham, with Marie Rady, taking 2d honours; and Marie Baumann (shown by Jas. Dickson & Sons) 3d. Twelve blooms of any pink Rose brought forward six or seven boxes. Comtesse de Serenye, shown by Messrs. Jas. Dickson & Sons and Mr. T. Jowitt, secured 1st and 2d honours in the order named. For twelve blooms of any yellow Rose Mr. George Prince, 1st; Robert Mack & Son, 2d; each staging Maréchal Niel. Mr. Prince's blooms were good, and the stand even, but were wanting in colour; the colour on the other stand was perfect, but not so the blooms.

For twelve trusses, English raised Roses, Mr. T. Jowitt was 1st with (among others) Harrison Weir, Peach Blossom, Sultan of Zanzibar, Beauty of Waltham, and Reynolds Hole. For six Cheshunt raised Roses Mr. T. Jowitt was 1st, and Mr. Evans, Oxford, 2d. It only remains to say that the show was a success in every way but one: it was not a financial success, the company being a very poor one—so poor, that the refreshment-stand was a failure! (*From a Correspondent.*)

Buckingham Horticultural and Floral: *July* 26.—This flourishing Society, which claims to be one of the oldest in the United Kingdom, held its fifty-fifth annual exhibition at Buckingham on the 26th inst.; the tents being pitched in the grounds of G. R. Ellis, Esq., a most convenient site quite in the heart of the town. The Society is well supported by the gentry of the district, and by the townspeople generally, and is managed by a committee of good business men formed of some of the leading burgesses; and by working together unitedly and determinedly a greater measure of success has rewarded their labours than usually falls to the lot of societies. The annual show is made the occasion of a district holiday, and the tastes of the country people who flock in from the surrounding villages are also catered for. The Buckingham Society may be held up as a pattern of good management, which some country societies would do well to copy.

Five commodious tents were required to hold the exhibits. What is known as the open class tent contained the leading exhibits; but the splendid quality of the vegetables shown in all the divisions, and especially by the amateurs and cottagers, seemed to possess as great an attraction as the plants and flowers. Perhaps this is not to be wondered at in a purely agricultural district like Buckingham.

In the class for twelve fine-foliaged plants Mr. J. Parker, nurseryman, Rugby, who is always a prominent exhibitor at the shows in the district, easily secured 1st honours with a very good dozen, including Cycas revoluta, Areca lustescens, Croton interruptus, majesticus, Weismanni, Youngii, and variegatus, all in good condition; Latania borbonica, Cocos Weddelliana, &c. 2d, Mr. W. Miller, Whittlebury, whose leading plants were Latania borbonica, Seaforthia elegans, Areca sapida, Cissus discolor, Cycas revoluta, Acalypha musaica, well-coloured, &c. With six foliage plants Mr. G. Hoskins, The Gardens, Stone, was 1st with a very large and well furnished example of Phormium tenax, a very good piece of Screw Pine, and other smaller subjects; 2d, T. P. Willis, Esq., Winslow. The best specimen foliage-plant was a Cycas revoluta from Mr. J. Parker.

Ferns were a leading feature. The best six in the class for members only were staged by Mr. Miller, his leading plants being a fine Adiantum gracillimum, A. farleyense, Blechnum corcovadense, Davallia polyantha, Gymnogramma chrysophylla, and Lygodium scandens. T. P. Willis, Esq., was 2d. In the class open to all, Mr. Willis had the best six, staging a fine Cibotium princeps, Adiantum farleyense, A. cuneatum, Davallia polyantha, and two others; 2d, Mr. J. Parker, Rugby.

In the class for six greenhouse plants, open to all, Mr. Parker was well to the fore with an excellent half-dozen, consisting of Dipladenia amabilis, Stephanotis floribunda, Clerodendron Balfourianum, Statice profusa, Ixora coccinea, and Vinca rosea alba; 2d, Mr. W. Miller, with Stephanotis floribunda, Allamanda Schottii, Nepenthes Phyllamphora, a capital Tritonia aurea, and two foliage plants. (Seeing such ample provision is made for these ast, flowering plants should be required in this class). 3d, Mr. Hoskins. The best specimen plant in flower was Stephanotis floribunda, from Mr. J. Parker, Mr. J. Bloxham being 2d, with Kalosanthes coccinea. Other flowering plants comprised Petunias, Balsams, tuberous-rooted Begonias, Fuchsias, Pelargoniums, and the classes filled fairly well. In the class for a group of plants arranged for effect there was but one competitor—Mr. Hoskins, to whom the 1st prize was awarded.

In the division for cut flowers Mr. George Prince, nurseryman, Oxford, was far away a-head with twenty-four varieties of Roses, three blooms of each, staging superb specimens cut from plants worked on the seedling Brier. The varieties were Madame Sophie Fropert, Fisher Holmes, Maréchal Niel, Alfred Colomb, Baroness Rothschild, Louis van Houtte, Duke of Connaught, Mabel Morrison, the white sport from Baroness Rothschild; Sénateur Vaisse, Comtesse de Serenye, Ferdinand de Lesseps, Catherine Mermet, Madame Eugénie Verdier, Xavier Olibo, Madame Marie Verdier, Annie Wood, Souvenir de Mons. Boll, Duke of Wellington, Marie Baumann, Auguste Rigotard, Prince Camille de Rohan, Mons. E. Y. Teas, Pierre Notting, and Impératrice Eugénie. 2d, Mr. John Mattock, Headington. In the class for twelve varieties Miss Watson Taylor, Manor House, Headington, was 1st, having good blooms of Alfred Colomb, Ferdinand de Lesseps, Louis Dove, Madame Victor Verdier, Reynolds Hole, François Michelon, and Perle des Jardins. 2d, Mr. W. Narroway, Headington, whose leading flowers were A. K. Williams, Madame Victor Verdier, Devienne Lamy, Prince Camille de Rohan, Harrison Weir, a brilliant red Rose; Alfred Colomb, and John Hopper. In the class for six variettes there was a good competition also. In the class for twelve bunches of cut flowers some excellent specimens were shown. The best twelve bunches in the open class came from Mr. J. Parker, who had Bougainvillea glabra, a charming white Erica, Ixora regina, Pancratium fragrans, &c.; 2d, Mr. J. Prewett, nurseryman, Hammersmith. Cut Pelargoniums of the zonal section were well shown by Messrs, J. W. Thorpe and J. Parker, who were 1st and 2d. Marigolds, Phloxes, perennial and annual Stocks, &c., were all fairly well shown.

Fruit was somewhat sparingly shown. The best collection of eight dishes came from Mr. Jonathan Price, who had good examples of black and white Grapes, Peaches, Nectarines, Melons, Cherries, &c.; 2d, T. P. Willis, Esq. There was also a class for six dishes, but the display was rather mean, the Hon. J. D. Drummond being 1st. Mr. T. P. Willis had the best two bunches of white Grapes, staging Foster's Seedling; Mr. W. Sturdy, of Thornton, being 2d, with Buckland's Sweetwater. Mr. W. Miller, Whittlebury, had two good bunches of Black Hamburgh in the black class; Mr. Bloxham, gr. to the Hon. F. Barrington, being 2d in the same. Mr. Bloxham had a dish of excellent Peaches, followed closely by Mr. Price; and in the Nectarine class Mr. Bloxham was 1st with the best dish we have seen this season, the variety Violet Hâtive. Cherries, Melons, Gooseberries, Currants, &c., were all well shown.

In the matter of vegetables the Buckingham show was a great surprise. This district had evidently been favoured with more rain than London, and every kind of vegetable was in wonderfully good form—clean, symmetrical and nicely staged. Good as the amateurs' vegetables were, we think they were surpassed by the cottagers', and the task of the judges must have been a very onerous one. In the class for six dishes of Potatos there were fourteen collections, a majority of them very good indeed. Such Carrots, Onions, Beans, Peas, &c., we are rarely privileged to look upon so early in the year. The special prizes offered by Messrs. Sutton & Sons were well competed for, six dishes of vegetables being required. The best came from Mr. W. Pursell, who had very fine Tripoli Onions, Vegetable Marrows, Carrots, Turnips, Cauliflowers, and Potatos; 2d, George North.

The collections of wild Ferns shown by cottagers were in the highest degree meritorious, and proved the district to be rich in native plants.

The weather was very fine, and the town altogether *en fête*. We hope that plenty of gate money rewarded the exertions of a committee who well deserve success.

Obituary.

Of the many gardeners who have passed through Chiswick during the last half century there are few, we imagine, who will not learn with regret of the death, on the 22d inst., of Mr. Benjamin Hyde, who for a period of about fifty-five years was seedsman, and of late years packer, in the service of the Royal Horticultural Society. For several years past Mr. Hyde, or, as he was most familiarly called, "Old Ben," had been very feeble, but it was only a few months ago that he actually gave up work, the good old man being thoroughly worn out. Thus has gone to his rest the last of the old Chiswick school, the man who of all others was probably the first in this country to cast eyes on the introductions sent home to the Society by Douglas, Fortune, Weir, Bowman, and others, and through whose hands passed into general cultivation the seeds of many plants that are now the commonest objects in our gardens. What a period in the history of British horticulture does not this represent. What a host of valuable things have there not been introduced through the Society during that long period of service? What a chequered career has not the Society itself passed through? Yet we are glad to say that the Society stood to the last by its faithful old servant, who, as hundreds of gardeners can testify, was the friend of every other *employé* in the gardens, the enemy of none, and who enjoyed the warmest respect and good wishes of all. Though the old gardens, modernised though they have been, will know his familiar face no more, it will be a long time before the memory of "Old Ben" will pass away.

—— We regret to have to record the death of the veteran botanist, Mr. Hewitt Cottrel Watson, who was certainly our best authority on the geographical distribution of British plants, and whose work on that subject, *Cybele Britannica*, is a monument of painstaking devotion to a tedious and difficult subject.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
For the Week ending Wednesday, July 27, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
July	In	In.	°	°	°	°	°	°	°		In.
21	29.84	+0.06	74.2	52.5	21.7	61.1	— 1.2	46.7	59	NNW.: N.E.	0.00
22	29.77	—0.01	62.0	54.0	8.0	57.0	— 5.3	51.0	81	S.W.	0.04
23	29.77	—0.01	70.2	54.0	16.2	60.5	— 1.7	54.4	81	N.W.: S.W.	0.08
24	29.64	—0.13	70.3	56.2	14.1	60.5	— 1.7	56.8	88	S.W.	0.00
25	29.48	—0.29	67.0	52.0	15.0	58.0	— 4.2	51.1	78	W.	0.00
26	29.50	—0.26	69.1	54.0	15.1	59.5	— 2.7	49.9	70	W.: W.S.W.	0.00
27	29.92	+0.16	63.2	51.5	11.7	55.3	— 6.9	50.0	83	N.E.: E.S.E.	0.23
Mean	29.70	—0.07	68.0	53.5	14.5	58.8	— 3.4	51.4	77	S.W.: N.E.	0.35

July 21.—A very fine day; a dark, quiet, calm night.
— 22.—A very cold, dull day; slight rain from 11 A.M. to 1 P.M.; a fine night.
— 23.—A fine morning. A few drops of rain at 1 P.M., and again at 9 P.M. Cloudy day and night.
— 24.—A dull but fine day; a fine night.
— 25.—Dull, cold morning; afternoon pleasant, windy; fine, quiet night.
— 26.—A fine day, but often dull; light rain in the evening; a cloudy night.
— 27.—A moderately fine morning; a very cold day. Hail and rain began at half-past 4, and ceased at a quarter to 5. Rain measured 0.21 inch. A cloudy night.

London: *Atmospheric Pressure.*—During the week ending Saturday, July 23, the readings of the barometer at the level of the sea increased from 30.10 inches at the beginning of the week to 30.13 inches by 9 A.M. on the 17th; decreased to 29.85 inches by 3 P.M. on the 19th; increased to 30.05 inches by midnight on the 21st; decreased to 29.93 inches by midnight on the 22d, and was 29.97 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.97 inches, being 0.19 inch lower than that of the preceding week, and 0.01 inch below the average for the week for forty years.

Temperature.—The highest temperature in the shade in the week was 88°.4 on the 18th; the next in order were 86°.1 on the 19th, and 83° on the 17th. On the 22d the temperature did not rise above 62°, a point lower than the lowest temperature on the 17th, which was 62°.5. The mean of the seven high day temperatures was 76°.8.

The lowest temperature in the week was 52°.5, on the 21st; on the 17th the lowest temperature was 62°.5, and on the 19th was 61°.3. The mean of the seven lowest temperatures at night was 57°.5.

The greatest range of temperature in one day was 27°.4, on the 18th; the next in order were 24°.8 on the 19th and 21°.7 on the 21st; the smallest was 8°, on the 22d; the mean of the seven daily ranges was 19°.4.

The mean daily temperatures were, on July 17, 70°.8; July 18, 73°; July 19, 73°.3; and on July 20, 63°; and these were above their averages by 8°.1, 10°.4, 10°.8, and 0°.6 respectively. The mean daily temperature on July 21 was 61°.1, on July 22 was 57°, and on July 23 was 60°.5; and these were below their averages by 1°.2, 5°.3, and 1°.7 respectively. It will thus be seen that the mean temperature of July 22 was 16°.1 of lower value than that of July 19; the day was painfully cold.

The mean temperature for the week was 65°.5, being 3°.1 lower than that of last week, and 3°.1 above the average of the same week for sixty years.

The highest reading of a thermometer with black-

ened bulb in vacuo, placed in the full rays of the sun was 140° on the 18th, and the highest point reached on the 22d was 71°.5; the mean of the seven readings was 117°.

The lowest reading of a minimum thermometer with its bulb resting on short grass exposed to the sky was 49°, and the mean of the seven readings was 53°.

Rain fell on four days to the amount in the week of 0.14 inch.

ENGLAND: *Temperature.*—During the week ending Saturday, July 23, the highest temperatures were 91°.6 at Nottingham, 88°.4 at Blackheath, and 88°.2 at Cambridge and Norwich. The highest temperature in the week at Liverpool was 71°.8 and at Bradford 72°, these readings being nearly 20° lower than that at Nottingham. The mean from all stations was 81°.

The lowest temperatures in the week were 43°.3 at Nottingham, 45° at Hull, and 45°.5 at Wrottesley; at Blackheath the lowest temperature was 52°.5, at Liverpool 51°.1, and at Brighton and Norwich 51°. The general mean from all stations was 47°.5.

The greatest ranges of temperature in the week were 48°.3 at Nottingham, and 41°.2 at Cambridge; the smallest ranges were 20°.7 at Liverpool, and 25°.8 at Bradford. The general mean was 33°.6.

The mean of the seven highest day temperatures exceeded 78°.5 at Cambridge and Nottingham, and were 65°.6 at Liverpool, and 68°.2 at Bradford. The general mean was 73°.

The mean of the seven low night temperatures was 52°.1 at Nottingham and 52°.7 at Sunderland, the lowest; and was higher than 57° at Blackheath and Norwich. The general mean was 54°.

The mean daily range was larger than 25° at Cambridge and Nottingham, and was 11° only at Liverpool. The general mean was 18°.8.

The mean temperature for the week exceeded 64° at Blackheath, Norwich, and Cambridge, and was 56° or less at Bristol, Sheffield, Liverpool, and Sunderland. The general mean was 61°.8.

Rain.—The largest falls were 0.44 inch at Liverpool, and 0.43 inch at Norwich; the smallest falls were 0.03 inch at Leeds, and 0.05 inch at Plymouth. The general mean from all stations was 0.16 inch. It fell on five days at Liverpool, but generally rain fell on one or two days only in the week.

SCOTLAND: *Temperature.*—During the week ending July 23 the highest temperature was 74°.5 at Aberdeen, and 64°.2 at Greenock. The general mean was 68°.5, being 12°.5 lower than the general mean in England.

The lowest temperature was 43° at Dundee, at Aberdeen the lowest in the week was 46°.3. The general mean was 44°.8.

The mean temperature was highest at Dundee, 58°.8; and lowest at Greenock, 55°.6. The general mean was 57°.3, or 3°.5 colder than in England.

Rain.—The largest fall was at Greenock, 1.46 inch, and the smallest at Dundee, 0.25 inch. The general mean was 0.67 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

CATTLEYA REGALIS: *G. W. L.* The bloom sent is a very fine one of one of the grandest of its race, but the name is not familiar.

CUCUMBERS GUMMING: *H. B., Southgate.* No satisfactory explanation of the cause of gumming has yet been given, and we are sorry we cannot help you to a remedy.

FUNGUS UNDER ELM BARK: *R. Hurst.* See p. 147.

GOOSEBERRY: *T. Harvey.* We think it is Ironmonger, but you do not describe the habit of the tree.

LEAFY PISTIL OF WHITE CLOVER: *G. S.* Many thanks. Such cases are not uncommon, but this year they are less frequent than usual.

MALT-DUST: *Cognomen.* The difference between kiln-dust and malt-dust, as you describe it, would appear to be that the former is a little more dried than the latter. As this is but a further loss of moisture, we do not see that it is likely to affect its manurial properties.

NAMES OF PLANTS: *W. Roberts.* 1, Cyrtomium caryotideum; Pteris argyrea; 3, P. cretica; 4, P. serrulata; 5, Adiantum concinnum; 6, Selaginella Martensii.—*A. M.* Aerides odoratum.—*Ward & Co.* Medicago sativa. In Lucerne the pods are many-seeded, but in Sainfoin one-seeded.—*R. Barrington.* Santolina incana; the other not recognised.—*C. E. F.* Not determinable without the rosette of leaves.—*W. McKelvie.* 1, Spiræa ariæfolia; 2, a form of Mimulus luteus; 3, Zephyranthes grandiflora.—*C. J. Terry.* 1, Pleopeltis pustulata; 2, Adiantum assimile; 3, Diplazium Shepherdii; 4, an Athyrium, but incomplete; 5, Microlepia khasyana; 6, Lastrea glabella.—*R. N. C.* Onychium japonicum.—*G. W. B.* 1, Narthecium ossifragum; 2, Galium verum.—*C. E. F.* 1, Pyrus floribunda; 2, a species of Pyrus we are unfortunately unable to name. It appears to be a very marked species; can you say where it comes from?—*A. W.* Trifolium agrarium.—*Bath.* Tilia europæa laciniata.—*S. F., Penrith.* Fenugreek, Trigonella Fænum græcum.

ORCHID BASKETS: *A Subscriber.* We cannot tell you, but you might try Corry, Soper, Fowler & Co. Most of the Orchid growers make their own baskets.

PINK: *Beatrice Percival.* A pretty flower for rock-work, but of no commercial value. There is nothing peculiar in the branching.

COMMUNICATIONS RECEIVED:—B. F.—J. R. J.—D. R. & Co.—R. J. L.—H. L. & Co.—D. T. F.—G. N.—G. D.—H. W. W.—S. J.—E. H. K. & Son.—W. D.—T. S. J.—D. Morris.—J. B.—A. O.—W. H.—T. S.—F. W. B.—W. G. S.—R. D.

Markets.

COVENT GARDEN, July 28.

We have received the bulk of the soft fruit, and prices generally have been good throughout the season, and show signs of still greater improvement. Grapes are cleared at a slight fall. Business generally quieter. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Herbs, per bunch	0 2– 0 4
Asparagus, English, per bundle	0 9– ..	Horse Radish, p. bun.	4 0– ..
Aubergines, each	0 4– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
Beans, French, p. lb.	0 6– ..	— Engl. Cos, score	1 6– ..
— Broad, per bush.	4 0– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
— New Fr., bund.	0 9– 1 0	Parsley, per bunch	0 4– ..
Cauliflowers, English, dozen	4 0– 6 0	Peas, per bushel	5 0– 8 0
Celery, per bundle	1 6– 2 0	Radishes, per bun.	0 2– 0 6
Cucumbers, each	0 6– 1 0	Rhubarb, per bund.	0 4– 0 6
Endive, per doz.	2 0– 3 0	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	4 0– ..
		Tomatos, per lb.	0 9– 1 0
		Vegt. Marrows, doz.	3 0– ..

Potatos very plentiful, and prices much lower.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apricots, per box	1 6– 2 6	Lemons, per 100	4 0– 6 0
Cherries, per ½-sieve	3 6–10 0	Melons, each	2 6– 4 0
Currants, red, ½-sieve	3 0– 5 0	Peaches, per dozen	4 0–15 0
— black, ½-sieve	6 0– 7 0	Pine-apples, Eng., lb.	2 0– 4 0
Figs, per dozen	3 0– ..	Raspberries, per lb.	0 4– 0 6
Gooseberries, ½-bush.	2 6– 3 6	Strawberries, per lb.	0 6– 1 3
Grapes, per lb.	1 0– 4 0		

An advance of 20 per cent. on the above prices may be taken as a fair average of the retail value of the articles quoted.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Foliage Plants, various, each	2 0–10 6
Arbor-vitæ (golden), per dozen	6 0–18 0	Fuchsias, per dozen	3 0– 9 0
— (common), dozen	6 0–12 0	Ivy Geranium, doz.	4 0– 6 0
Begonias, per doz.	4 0–12 0	Lilium longifl., doz.	15 0–24 0
Calceolaria, per doz.	4 0– 9 0	— lancifolium, doz.	12 0–36 0
Creeping Jenny, doz.	3 0– 4 0	— auratum, p. doz.	24 0–60 0
Cyperus, per dozen	6 0–12 0	Lobelia, per dozen	4 0– 6 0
Dracæna terminalis	30 0–60 0	Marguerite, white, per dozen	18 0–24 0
— viridis, per doz.	12 0–24 0	— Yellow, per doz.	12 0–30 0
Euonymus, various, per dozen	6 0–18 0	Mignonette, per doz.	3 0– 6 0
Evergreens, in var., per dozen	6 0–24 0	Myrtles, per doz.	6 0–12 0
Ferns, in variety, per dozen	4 0–18 0	Palms in var., each	2 6–21 0
Ficus elastica, each	1 6– 7 6	Pelargoniums, doz.	9 0–18 0
		— tricolor, per doz.	3 0–12 0
		— scarlet, per doz.	3 0– 6 0
		Rhodanthe, per doz.	6 0–10 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

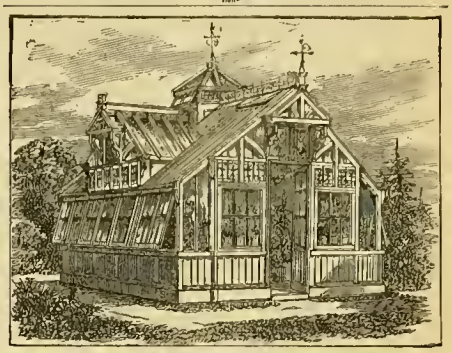
	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 2– 0 4	Marguerites, 12 bun.	4 0– 6 0
Antirrhinum, 12 bun.	6 0– 9 0	Mignonette, 12 bun.	1 6– 3 0
Arum Lilies, 12 blms.	4 0– 6 0	Pelargoniums, 12 sprays	0 9– 1 0
Bouvardias, per bun.	0 9– 1 6	— zonal, 12 sprays	3 0– 6 0
Calceolaria, 12 bun.	6 0–12 0	Pinks, various, 12 bunches	3 0– 6 0
Carnations, 12 bun.	3 0– 6 0	Primula, double, per bunch	0 6– 1 0
Cornflower, 12 bun.	1 6– 3 0	Rhodanthe, 12 bun.	8 0–12 0
Eucharis, per doz.	4 0– 6 0	Roses (indoor), doz.	1 0– 3 0
Feverfew, 12 bun.	3 0– 6 0	— (outdoor), 12 bun.	4 0– 9 0
Forget-me-not, 12 bunches	3 0– 6 0	Stephanotis, 12 spr.	3 0– 4 0
Gardenias, 12 blms.	3 0– 8 0	Sweet Pea, 12 bun.	3 0– 6 0
Heliotropes, 12 sp.	0 6– 1 0	Sweet Sultan, 12 bun.	4 0– 8 0
Lapageria, white, 12 blooms	4 0– 6 0	Tropæolum, 12 bun.	1 0– 3 0
— red, 12 blooms	1 0– 3 0	Tuberoses, per dozen	0 9– 2 0
Lilium longiflorum, 12 blooms	3 0– 4 0		

SEEDS.

LONDON: *July 27.*—The seed market to-day was poorly attended, and there was not much business doing. For red Clover seed a strong feeling has sprung up; a few parcels of yearling seed have been exported to France. With regard to Trifolium incarnatum the situation is unchanged; French holders continue firm in their demands, whilst buyers here persist in holding off. The new Trefoil, both home-grown and Continental, shows good quality. Some excellent Essex Rye is now obtainable. There is very little business in either Mustard or Rape seed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

POTATOS.

The Borough and Spitalfields Markets reports state that supplies of new are increasing, and meet a fair demand. Quotations:—Cherbourg round, 5s. 9d. to 6s. 6d.; ditto kidneys, 7s. 6d. to 8s.; Jersey round, 6s. 6d. to 7s. 6d.; kidneys, 7s. 6d. to 8s. 6d.; English shaws, 6s. 6d. to 7s. 6d.; ditto kidneys, 7s. 6d. to 8s. per cwt.—The imports into London last week were as follows:—8536 boxes Cherbourg, 1529 cases Barfleur, 500 sacks 400 barrels 150 boxes St. Malo, 147 packages Boulogne, 50 boxes Rotterdam, 200 boxes Gibraltar, 400 cases St. Vaast.



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HORTICULTURAL BUILDERS AND HOT-WATER ENGINEERS.
Conservatories and Greenhouses of every description from £4 10s. upwards.
Portable Melon Frames, 8 feet by 6 feet, £2 10s.
See Illustrated SHEET, Two Stamps.
CATALOGUES, Sixpence. Estimates on application.
NOTE.—The above structure is ready for immediate delivery, 20 feet by 14 feet, tenant's fixture or otherwise.
WORKS: ANCHOR STREET, CHELMSFORD.
N.B.—Patentees and Manufacturers of the Patent Portable Throttle Valve.

W. H. LASCELLES,
HORTICULTURAL BUILDER,
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Special DESIGNS and ESTIMATES given for Ornamental CONSERVATORIES, without charge, and for all Horticultural Work of all kinds.

GARDEN BOXES and LIGHTS are generally kept in Stock, and WOODEN HOUSES suitable for Store-houses, Tool-houses, &c.
Illustrated Sheets sent, post-free, on application.

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SECTION OF PATENT ROOF VENTILATOR

Illustrations, Price Lists, and Testimonials free.
Hot-Water Apparatus fixed in any part of the Kingdom, and guaranteed.
Send for particulars to
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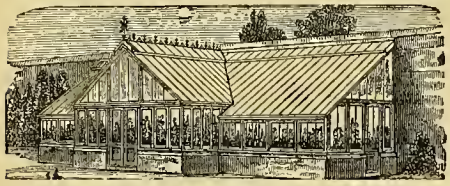
PARHAM'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY,

With Wrought-iron Channelled Rafters, continuous Lapped Glass, and Rain-proof Ventilators under Glass Super Roof.



The only really imperishable system of Roofing. The lightest in appearance and the strongest. By far the least costly in repairs and repainting. The only system free from drip—all condensed vapour carried off in the channelled rafters. Any Gardener's man can replace a broken glass. Equally adapted for Glass Roofs of Factories, Railway Stations, &c.

Specimens on view at either address. An Inspection is respectfully invited.

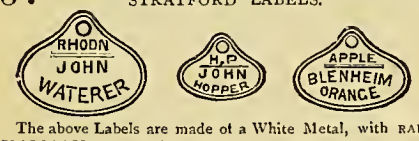
Prospectus, Plans and Estimates on application.

W. PARHAM, Northgate Works, Bath, And 280, Oxford Street, London, W.

PARHAM'S GARDEN FRAMES and ACME PLANT PRESERVERS are glazed on the same system, so that a few squares can be kept on hand, and any unskilled man can replace a broken glass, no glazier being required. The saving this effects is obvious.

Under the Patronage of the Queen.

J. SMITH'S IMPERISHABLE STRATFORD LABELS.



The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

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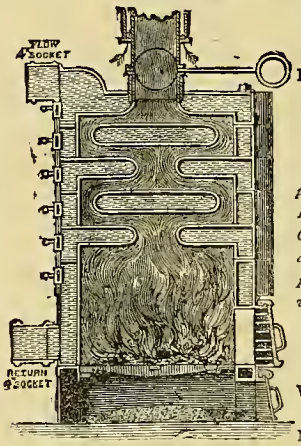

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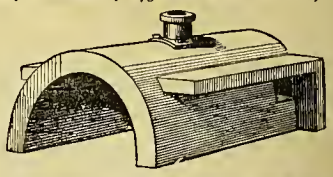

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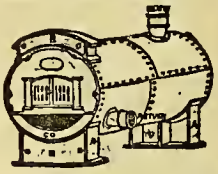

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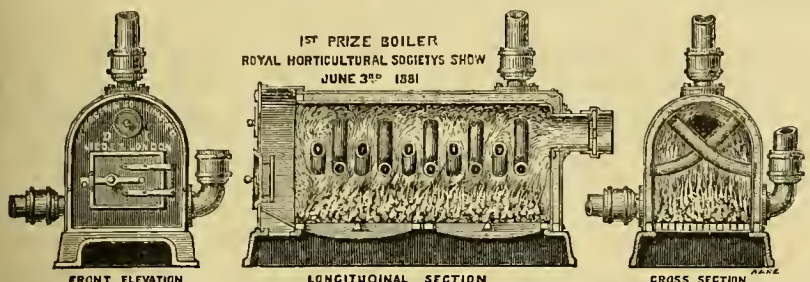

The "Journal of Horticulture" of June 9 says:—

"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

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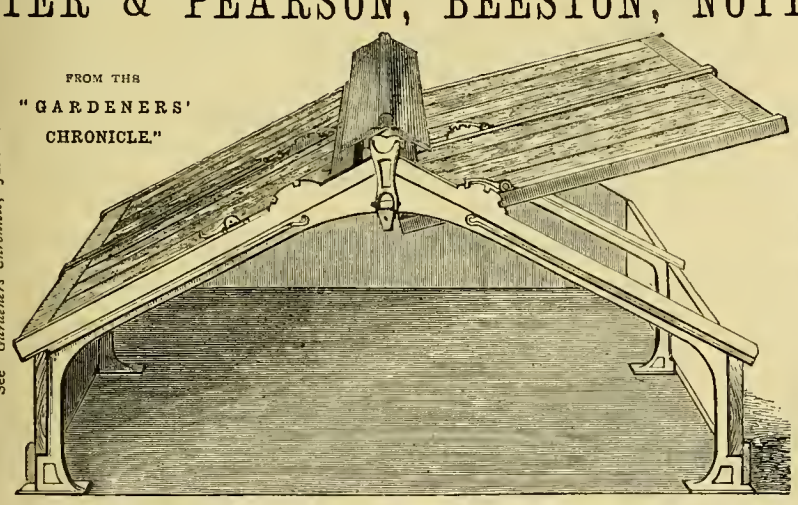

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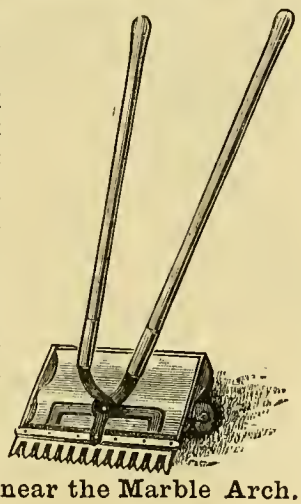

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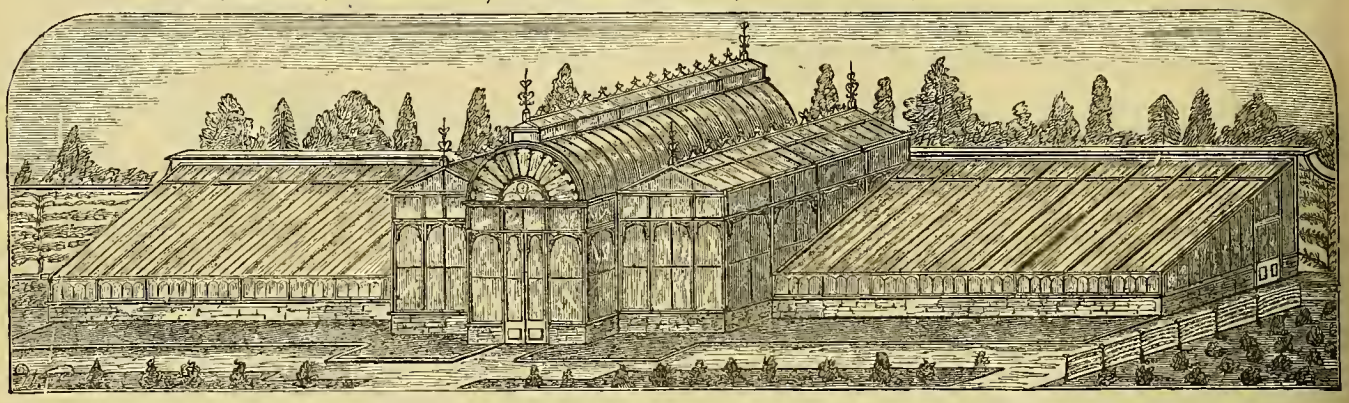

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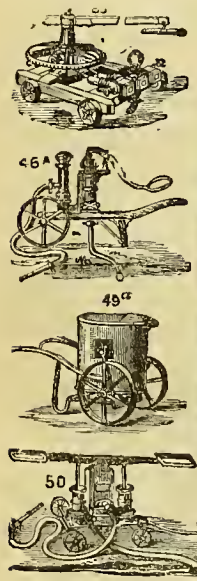

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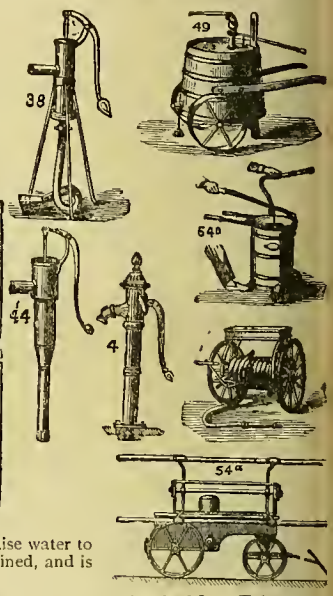

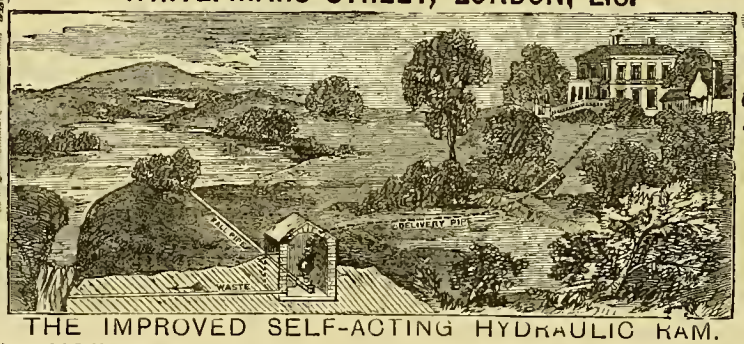

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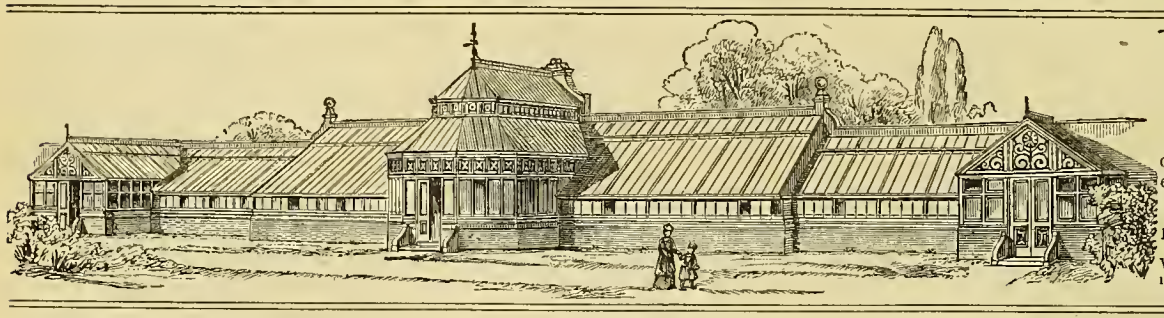

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THE

GARDENERS' CHRONICLE.

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ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M.; General Meeting for the Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, August 9.
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JAMES KIRK, Wollaston Nurseries, Stourbridge.

LILY OF THE VALLEY (Convalaria majalis), hardy roots, of best quality, 36s. per 1000; 10,000 at 35s. 6d. per 1000; delivered free on board Hamburg or Bremen (packing included).
OSKAR KNOPFF AND CO., Erfurt, Prussia.

WALLFLOWERS, for present planting.—30,000 Seedlings of Ware's Dwarf Yellow, &c., and Dark Blood, fine sturdy plants. Samples and price upon application.
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To the Trade Only.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 353A) of Dutch Flower Roots, and miscellaneous Bulbous and Tuberous-rooted Plants for 1881-82 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

WANTED, good Roots of White Dogstooth VIOLETS, Triteleia uniflora conspicua.
Apply to W. HOPWOOD AND SON, who are offering good plants of PTERIS TREMULA, 3s. per dozen.
CYNOPTERIS VIVIPARA, 4s. per dozen.
ASPLENIUM FABARIUM, 4s. per dozen.
SELAGINELLA KRAUSEII AUREA, 4s. per doz.
Also 100 stock plants of HYDRANGEA, Mr. Hogg, 6s. per doz.
Hewlett Road, Cheltenham.

WANTED, CUTTINGS of BRONZE GERANIUM McMAHON. State quantity and price to
CHAS. KERSHAW, Slead Syke Nurseries, Brighouse.

WANTED, Bulbs of White Roman HYACINTH. Send sample and price per 1000 to
G. WALKLING, College Park Nursery, Lewisham, S.E.

FLORAL COMMISSION AGENCY.—Nurserymen and Gentlemen having a surplus quantity of choice FLOWERS and FRUIT, are requested to communicate with W. CALE, Commission Agent, 4, Tavistock Row, W.C.

WANTED, CONSIGNMENTS of PEACHES, NECTARINES, APRICOTS and other FRUITS, CHOICE CUT FLOWERS, TOMATOS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

SUTTONS' PRIMULA, THE FINEST STRAINS, NEW SEEDS, 1s. 6d., 2s. 6d. and 5s. per packet, post-free.

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JULES DE COCK'S SPECIALITIES.—AZALEA, indica, mollis, and pontica; CAMELLIAS, DEUTZIA GRACILIS, HELLEBORUS NIGER; SPIRÆA, japonica, variegata, and palmata. Many thousands are for disposal at
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THOMAS METHVEN AND SONS beg to offer their choice strain of the above, in five colours, viz., Scarlet, Purple, White, White-wall-leaved, and Crimson, at 1s., 2s. 6d., and 5s. each colour.
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The Very Best Selections.
CALCEOLARIA, CINERARIA, PRIMULA, GLOXINIA, BEGONIA, each, 1s. 6d., 2s. 6d., and 5s. per packet. These, as well as Seeds of all sorts, of best quality, post and carriage free.
JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

ORCHIDS.—Some cheap Established and Semi-established Surplus Plants, in healthy condition, of some good varieties. Apply by letter to
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GERANIUMS.—The best of the New, all that took Prizes or Certificates.—Denny's Romeo, Dudu, &c., eight varieties, post-free, for 6s.; Catlin's (Carter & Co.), five varieties, for 4s.; Cannell's, ten varieties, for 7s. 6d.; Pearson's, ten varieties, for 7s. 6d.; Cuttings half-price. All the best Doubles in Cultivation. Also PELARGONIUMS Regal and others. See CATALOGUE.
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THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

LAPAGERIA ALBA, the finest and largest stock in Europe, strong hardy plants which have been wintered in cold frames, from 15s. to £15 15s.
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ROSES, on own roots, extra strong, in 4½-inch pots, £2 5s. per 100, for cash. Now on offer, large quantities of Isabella Sprunt, Gloire de Dijon, and Rêve d'Or.
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TO BE DISPOSED OF, cheap, over 100 Fruiting and Succession PINE PLANTS, of the rarest kinds. Most smooth-leaved, true. They are particularly clean, healthy and stocky. Their place wanted for other use. Sample sent. Address to
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RAPE SEED and WHITE MUSTARD.
H. AND F. SHARPE will be pleased to submit SAMPLES of the abovenamed SEEDS, of the finest quality, and at very moderate prices.
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MR. J. C. STEVENS will SELL by AUCTION, on the Premises, High Cross, Tottenham, on WEDNESDAY, August 17, at half-past 12 o'Clock precisely, the GREENHOUSES, consisting of Hot-water Boilers, Pipes, Staging, Slates, Flags, Bricks, Tanks, &c., without reserve, belonging to J. Day, Esq. Sold in consequence of giving up the culture of Orchids.
On view the day prior and morning of Sale, and Catalogues had.

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Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
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CALCEOLARIA BURBIDGEI.—This beautiful plant is a cross between C. Fuchsiæfolia and C. Pavonii, and is exactly intermediate between the two parents. The foliage is downy, about one-third that of C. Pavonii in size; the habit of the plant is free and branching, and, unlike C. Fuchsiæfolia, not at all subject to sunscorch; the flowers are the same colour as the latter plant. It flowers during the autumn and winter months. It was raised by Mr. Burbridge, of the College Botanic Gardens, Dublin.
Trade price, strong plants, 36s. per dozen.
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HUGH LOW AND CO. have an unusually large and fine stock of FERNS in good leading decorative kinds, such as:—
ADIANTUM CUNEATUM, 30s., 40s., and 75s. per 100.
" DECORUM, 30s., 40s., and 75s. per 100.
" MACROPHYLLUM, 40s and 50s. per 100.
ASPLENIUM FŒNICULACEUM, 40s. and 75s. per 100.
LOMARIA GIBBA, 30s., 40s., 50s., 75s., and 100s. per 100.
PTERIS CRETICA, 50s and 75s. per 100.
" " ALBA LINEATA, 30s., 40s., 50s., and 75s. per 100.
" SERRULATA, 30s. per 100.
" " CRISTATA, 30s., 40s., 75s., and 100s. per 100.
LYGODIUM SCANDENS, 40s., 75s., and 100s. per 100.
The above and other good leading varieties, selection left to Hugh Low & Co.:—
In small pots, 30s., 40s., and 50s. per 100.
In 48-size pots, 75s. and 100s. per 100.
An inspection invited.
Clapton Nursery, London, E.

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" LONGIFOLIA	3 6	25 0
" CRETICA ALBA LINEATA	3 6	25 0
LOMARIA GIBBA	3 6	25 0
NEPHRODIUM MOLLE CORYMBIFERUM	4 0	28 0
LYGODIUM SCANDENS	4 0	28 0
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TRADESCANTIA VIRGINICA, in four varieties
TROPÆOLUM SPECIOSUM
And many other Hardy BULBS and FLOWER ROOTS, which he offers at very low prices.
Dedemsvaart, near Zwolle, Netherlands.

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CHARLES WILSON, of Summerhow Nurseries, Kendal, begs to offer to the Trade and large Buyers generally, Tea, Noisette, and China ROSES, in 4½-inch pots, at £3 3s. per 100, or £28 per 1000, purchaser's selection. C. W. having many thousands in stock, they cannot fail to give satisfaction. Also Scarlet, White, and Pink BOUVARDIAS, mixed, at 6s. per dozen, now ready for shifting into 4½-inch pots, being in 3-inch pots for convenience of carriage. ADIANTUM CUNEATUM, at 25s. per 100, or £10 10s. per 1000. Orders booked for Double White PRIMULAS, to be delivered in August. Price on application. An inspection of his large Stock and extensive Nursery is respectfully solicited. Plants given to compensate for carriage. CATALOGUE on application. Please note the address—SUMMERHOW NURSERIES, KENDAL.

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SUNBURST, best and finest red, 20s. per 100.
PILRIG PARK, fine white, 14s. per 100.
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BRILLIANT, golden-yellow, 16s. per 100.
CLIVEDEN, purple, 2s. 6d. per dozen.
POLEMONIUM CŒRULEA VARIEGATA, 3s. per dozen.
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CINERARIA PLANTS of the finest Market Strain can be had, by the Trade only, from Cold Frame Seed-bed, fit to Pot singly, at £2 per 1000 for cash.
EDWARD SAWYER, Hyde Nursery, Edmonton, N.
Post-office Order to Edmonton Green, N.

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PLANTS.—Nonpareil CABBAGE, Hardy Green COLLARD, and Sprouting BROCCOLI—in any quantity; well-rooted and guaranteed good Plants in every respect, 2s. 6d. per 1000; package 1s. extra (returnable). Post-office Order or Cheques with Order to
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1881.—A B C Bulb Guide.—1881.

THE PRESENT YEAR'S EDITION of this CATALOGUE is in the Printer's hands, and will be distributed in a few days to the whole of my Customers, and may be had post-free upon application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

Balsams in Bloom.

F. AND A. SMITH'S Collection of 4000 of the above are now fit for inspection.
They beg to announce their intention of EXHIBITING a SELECTION at SOUTH KENSINGTON on TUESDAY NEXT, August 9. West Dulwich, S.E.

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Admirers of the above should order at once
R. H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and Description on application. Price, the Set, £3 3s.; Single Plant, 7s. 6d.; Seedlings, 6s. per dozen. Seed, per packet, 3s. 6d. and 5s. Usual Discount to the Trade.
CHAD VALLEY NURSERIES,
Edgbaston, Birmingham.

ATHYRIUM f.-f. ACROLADON (described by Lowe as "at once the rarest and most remarkable of British filices") will be exhibited, along with other rarities and novelties, at the forthcoming Interoational Show at Manchester by F. W. AND H. STANSFIELD, Sale, near Manchester.

DOWNIE AND LAIRD beg to intimate that their splendid collections of Show and Fancy PANSIES, also VIOLAS, are now in full flower. Inspection invited at Pinkhill, near Edinburgh.

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Lion Walk, Colchester.

Hyacinths, Tulips, &c.

BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B. have an immense stock of CHRISTMAS ROSES which they can strongly recommend. Prices on application.

CABBAGE PLANTS.—200,000 Enfield Market and 200,000 Robinson's Drumhead. Good strong plants, 2s. 6d. per 1000. Cheque to accompany order.
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B. MALLER has much pleasure in again offering his usual superior stock of the following:—
ERICA HYEMALIS and other varieties, EPACRIS, GENISTAS, AZALEAS, CYCLAMEN, BOUVARDIAS, SOLANUMS, ADIANTUM CUNEATUM and other Ferns, GREVILLEAS; also a fine lot of VINES in Pots. An inspection invited.
Trade CATALOGUE forwarded on application.
The Annual SALE by AUCTION will be held in September.
Burnt Ash Lane Nurseries, Lee, S.E.

ATHYRIUM f.-f. ACROLADON (Moore).—See description by E. J. Lowe, Esq., at p. 74, vol. ii., *Our Native Ferns.*
The undersigned can now offer a few good plants of this magnificent rarity, at 10s. 6d. each; extra strong specimens, Or Guinea each. We believe this most beautiful of all Crested Ferns is now offered to the public for the first time.
F. W. AND H. STANSFIELD (Successors to TOM STANFIELD, formerly of Todmorden), Sale, near Manchester, and Pontefract, Yorkshire.

Come and See.

Our Begonias, Pelargoniums, Dahlias Verbenas, Cockscombs, Balsams, Petunias, Coleus, &c.

All these form an exhibition of themselves, and it would be difficult matter to overstate their beauty and value.
The *Journal of Horticulture* says, "All should endeavour to visit the 'Home for Flowers' at least once in the season."

IN our Home for Flowers we have several acquisitions of great value:—"WHITE MALLOW," "NICOTIANA AFFINIS," PELARGONIUMS "CRIMSON" and "PURPLE," VESUVIUS, "GOLDEN MIGNONETTE, "SNOW" Bedding PANSY, perfect crop with the hardy and tender Gladioli, &c. All these and many other Novelties should be seen by all lovers of flowers, and the our descriptions of the same at the time of sending out are correct.

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H. CANNELL AND SONS beg to state that they have immense quantities of CUTTINGS of almost every known kind of Soft-wooded Plants, which they would, during August and September, offer at a cheap rate. One can hardly fail to strike them in any shady position at this season.

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Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper Russia Mats, &c. Write for Free PRICE LIST.
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Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload
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COCOA-NUT FIBRE REFUSE by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order.
CHUBB, ROUND AND CO.,
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HOYA GLOBULOSA (Higginsii).

"Under the name of Hoya globulosa, Cranston's Nursery and Seed Company, Hereford, exhibited, at the meeting of the Royal Horticultural Society, on April 13, 1880, a charming Hoya, so pretty and distinct as to merit and receive a First-class Certificate of Merit.

"We can confidently recommend is as a most useful and valuable plant, blooming profusely and thriving well under the same treatment as other Hoyas. The flowers are of a bright straw colour, the coronal protuberances white, the interstices of a shining brownish-pink, forming a very pleasant contrast; the trusses large and freely produced; and the leaves of a shining green colour, with dark green veins." *Floral Magazine.*

Strong Plants, now ready, 10s. 6d. and 15s. each.

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KING'S ACRE, near HEREFORD.

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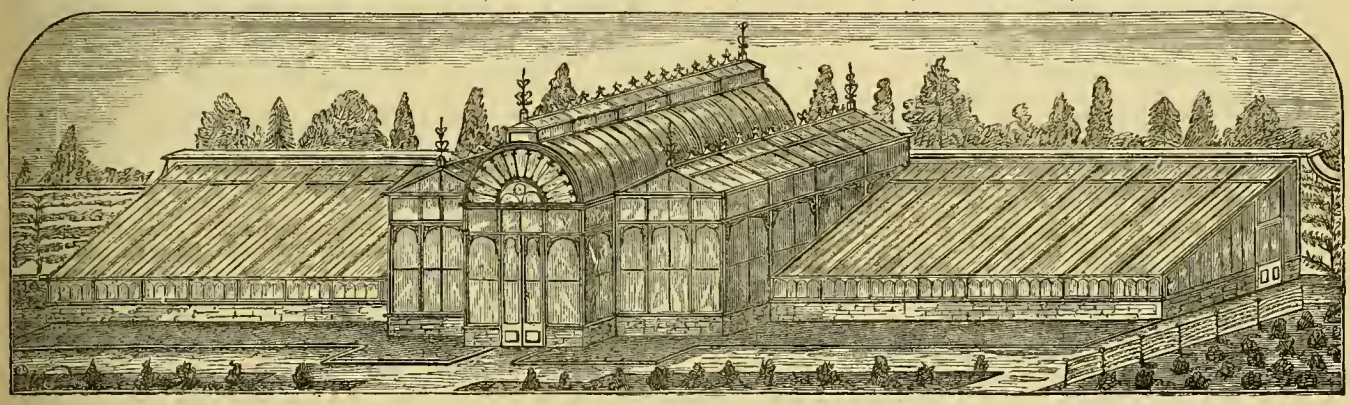

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It has all the improvements which have of late been introduced into this class of Machine, either in England or America.

It will cut wet or dry grass of any length, will turn in its own width, and is so light that a lady can use a 15-inch Machine of this make with greater ease than a 10-inch of the ordinary kind.

It is made, as it name implies, at Coventry, by skilled English workmen, and of best English Steel and Iron.

These Machines can also be supplied with ROLLERS at the same price, and with GRASS BOXES at the following extra cost:—8-inch, 6*s.* 6*d.*; 10-inch, 7*s.*; 13-inch, 7*s.* 6*d.*; 15-inch, 8*s.* 6*d.*; 18-inch, 9*s.* each.

Front Wooden Rollers for cutting verges:—8-inch, 2*s.* 6*d.*; 10-inch, 2*s.* 9*d.*; 13-inch, 3*s.*; 15-inch, 3*s.* 6*d.*; 18-inch, 4*s.* each.

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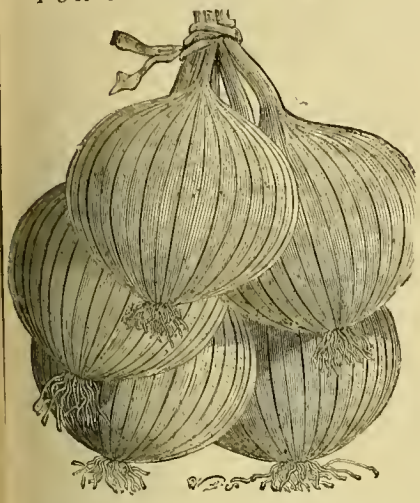

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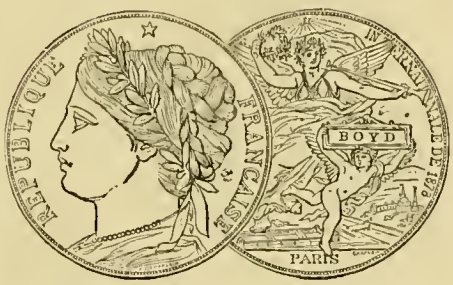

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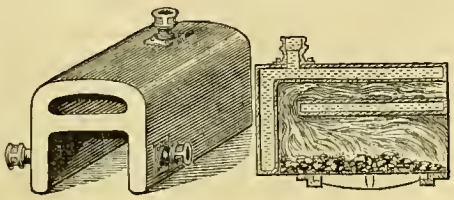

THE

Gardeners' Chronicle.

SATURDAY, AUGUST 6, 1881.

FLOWER LORE: AUGUST.

THE Flora of August, like that of the preceding month, includes the richest and most extensive variety of those countless flowers which in succession adorn our meadows and gardens throughout the year. The corn now begins to glow in all its golden hues, and a popular flower that gracefully adorns the cornfield is the red Poppy, which in many places is known as the "Corn Rose." It has various other nicknames, such as "Corn Poppy," "Canker Rose," "Red Weed," and "Head-ache," the last term being applied to it because its bright red colour has been supposed to have injurious effects on the head. It was also formerly known as "Cheese Bowls," and "Joan's Silverpin," because, says Parkinson, alluding to its showy flower and staining colour, "it is fair without and foul within." According to Forby the phrase "Joan's Silverpin" means amongst the East Anglians "a single article of finery produced occasionally and ostentatiously among dirt and sluttery." By our forefathers the Poppy was regarded as a symbol of death, and it was on this account styled the "Sister of Sleep." Amongst the many items of folk-lore that have clustered round this plant is one mentioned by Theocritus, who tells us that its petals prove talismans for Cupid, thus:—

> "By a prophetic leaf I found
> Your changed affection, for it gave no sound,
> Though in my hand struck hollow as it lay,
> But quickly withered like your love away."

The ancients, too, had a notion that no cornfield was good unless it had a sprinkling of red Poppies, and at their harvest thanksgivings the ears of corn and the seeds of the Poppy were among the offerings presented to Ceres.

The Blue Bottle is another plant which adorns the cornfield, so called from the bottle shape of its involucre, and its brillant blue flower. In Scotland its popular name is "Blue Bonnet,' and in some counties it is termed "Blue-Blaw." In days gone by the name "Hurt-Sickle" was given to it, "because," says Culpeper, "with its hard, wiry stem it turneth the edge of the sickle that reapeth the corn." The Latin name Centaurea is said to have originated in the circumstance that the Centaur, Chiron, cured himself of a wound received from Hercules. Gerard, speaking of this flower, informs us that in his day it was grown in gardens, and "by cunning looking to doth oftentimes become of other colours, and some also double."

The Corn-cockle, often described as the "troublesome weed," may now be seen in the cornfields, although its presence is much disliked by the farmers from its being said to do mischief to the Wheat, its seed getting mixed with the corn. From the earliest times it has had a bad name, and in *Coriolanus* (act iii. sc. 1) Shakespeare says:—

> "We nourish 'gainst our senate
> The cockle of rebellion."

Some think that Job mentions the Corn-cockle in the following passage: — "Let Thistles grow instead of Wheat and Cockle instead of Barley. Spenser speaks in the same strain :—

"And thus of all my harvest-hope I have
Nought reaped but a weedie crop of care,
Which when I thought have thresht in swelling sheave,
Cockle for corn and chaff for Barley bare."

This plant has several nicknames, the well-known ones being "Corn Campion" and "Corn Pink."

Again, the Amaranth blooms freely during the present month, and one species is popularly known as "Love-lies-bleeding," perhaps, as Dr. Prior says, from the resemblance of its long red spiral flower-spikes to a stream of blood, and the confusion of the first two syllables, *Amar*, of its Latin name, with "Amor." Some of its other nicknames are "Velvet Flower," and "Thrum-wort," and one of its French names is "Fox's Tail." It was cultivated by Gerard as the "Branched Flower Gentle," and, describing its flower, he says, "I can compare the shape thereof to nothing so fitly as to the velvet head of a stag, compact of such soft matter as is the same, but of a deep purple colour."

The wild Clematis, which, during the month of August so profusely adorns our country hedges, and fills the air with its fragrance, has had numerous names bestowed upon it. Thus one of its old and popular ones is "Traveller's Joy," a term to which Bishop Mant alludes :—

"The Traveller's Joy,
Most beauteous when its flowers assume
Their autumn form of feathery plume.
The Traveller's Joy! name well bestow'd
On that wild plant."

A common name for it among our country peasantry is "Old Man's Beard," on account of its white feathery awns. It has also been nicknamed "Love," from its habit of entwining itself round the hedges. Another of its popular names is "Virgin's Bower," as suitable to be a bower for maidens; and among the many other fanciful terms ascribed to it may be mentioned "Lady's Bower," "Smoke Wood," "Hedge Vine," &c. In floral language it has been made the emblem of artifice; its leaves having been used by mendicants to produce ulcers, in order to arouse commiseration. The Yellow Bedstraw, or, as it is more frequently termed, "Ladies' Bedstraw," is a gay flower, and an ornament to our country lanes. It derived its name, "Bed-straw," from having in days gone by been in request for strewing on floors and laying in beds at a period when feather beds and luxurious spring couches were almost unknown. Another of its popular nicknames is "Maid's Hair," so called, says Dr. Prior, "from its soft flocculent habit, like the loose unsnooded hair of maidens, and its yellow colour, to which, as a beauty in the hair of women, such frequent allusion is made by Chaucer and other romance writers." It is also called "Cheese Rennet," from its supposed property of curdling milk, and in some places it is known as "Petty Mugget." According to Ray its flowering tops, when distilled, make a refreshing beverage, and by the French it was formerly used as a cure or epilepsy.

A handsome flower in our gardens about this time is the Balsam, to which the name of "Touch-me-Not" has been given on account of the elasticity of the capsule when ripe, which darts out its seed the moment it is touched; and it is to this curious peculiarity that Darwin alludes in the following line :—

"And hurls her infants from her frantic arms."

For the same reason it has also been termed "Quick-in-the-Hand," or "Alive-in-the-Hand."

The cultivation of the Hollyhock is of great antiquity in this country, and Gerard, writing in 1598, informs us that it was then universally sown in gardens. The derivation of the English name has much puzzled antiquarians, some tracing it back to the Saxon language, the old name of "holyoak" being the same as "holi-hec." Dr. Prior, however, considers that the first syllable, "holli," may be from the Latin "caulis," "with the meaning of a Cale, or Cabbage hock, and referring, as in Cabbage-Rose, to its well filled double flowers, or used in the sense of stalk, and referring to its lofty habit, in contrast with that of the lowly Hock-herb or Mallow." The second syllable, "hock," he would derive from the Latin *alcea*, by the change of *l* to *n*, and the usual prefix of *h* to Latin words beginning with a vowel upon their becoming English. Mortimer, in his old work on husbandry, remarks how "Hollyocks far exceed Poppies for their durableness, and are very ornamental." It is known by the French under various names, such as Rose trémière, Rose de Mer, and Rose de Damas. Its botanic name, Alcea, is said to have originated in its supposed medicinal strength, it having been held in high repute in the case of certain diseases. A good strong cloth, it is said, may be made from the fibrous stalks of this plant, and in one year, says Phillips, in his *Flora Historica*, about 280 acres of land in Wales were planted with the common Hollyhock, with a view of converting the fibres of this plant into thread similar to that of hemp or flax.

Among the innumerable other flowers now in bloom may be mentioned the Chicory, or wild Endive, a flower which generally attracts attention on account of its pretty blue flowers. It is called by the French "Monk's Beard," and has been extensively cultivated on the Continent for the sake of its root, which is much used for flavouring coffee. A curious little plant which deserves notice is the Sundew, called also "Youthwort," and "Lustwort." According to Mr. Lyte "It is a herb of very strange nature and marvellous, for although the sun do shine hot, and a long time thereon, yet you shall find it always moist and bedewed, and the small hairs thereof always full of little drops of water, and the hotter the sun shineth upon this herb so much the moister it is." It has various medicinal properties, and Burton, in his *Anatomie of Melancholy*, speaking of it, tells us that "Bernardus Ponottus prefers his *herba solis* before all the rest of herbs in this disease (melancholy), and will admit of no herb upon the earth to be compared with it." The Creeping Loosestrife is a pretty flower, and according to Pliny it derived its name from a certain King Lysimachus, and he further adds that if it be laid on the yoke of oxen when they are quarrelling it will quiet them. One of its popular names is "Money-wort." The Ground Ivy, popularly nicknamed "Hedge-maids," or "Hay-maids," is a common wayside plant. The second syllable of its name originated, says Dr. Prior, in its having been used as a "gill" to ferment beer, a word that also bore the meaning of a "girl," or "maid," as in the proverb, "Every Jack must have his Gill." Hence it has been also called "Gill-creep-by-the-ground," and "Gill-go-by-ground." It has various other names, such as "Ale-hoof," in allusion, some consider, to the chaplet that surrounded the ale-stake, or sign, at a public-house, to which Chaucer refers :—

"A gerlond hadde he sette upon his hede,
As gret as it were for an ale-stake."

It is also known by the names of "Tun-hoof" and "Cat's-foot." Then again there is the Scabious, more commonly designated the "Devil's Bit." "The great part of the root," says Gerard, "seemeth to be bitten away. Old fantastic charmers report that the devil did bite it from envy, because it is an herb that hath so many good virtues, and is so beneficial to mankind." Threlkeld, referring to this legend, says that "the root was once longer, until the devil bit away the rest, for spite, for he needed it not to make him sweat, who is always tormented with fear of the day of judgment. It is called by the French and Italians the "Widow's Flower," and two of its popular names with us are "Blue Caps" and "Forebitten More."

The Flowering Rush, which has been appropriately termed the "Pride of the Water," because it displays its bright-coloured flowers in marshy localities, and is thus described by Withering—

"Her rosy umbels rears the flowering Rush,
While with neglected charms the waters blush."

It has frequently been termed, too, the "Water Gladiole," and by old writers it is designated "Grassie-Rush." Once more: the Willow-herb is a pretty plant, generally found in moist places. It is so called from the supposed resemblance which its leaves bear to those of the Salix or Willow. It has various nicknames, such as the "Rosebay Willow-herb," "Apple-pie Plant," and "French Willow." Gerard, enumerating its many qualities, informs us that it stops bleeding, heals wounds, and drives away snakes, gnats, and flies. The Marsh Trefoil is another beautiful aquatic plant, and has been styled "Buckbean" in the old Herbals. It has been considered a good remedy against scurvy; and, according to Withering, its leaves have been used during a scarcity of Hops as a substitute for them in the brewing of beer.

New Garden Plants.

Thunia pulchra, *Rchb. f.*

A glorious specimen of this is at hand from Mr. W. Bull. It has a rather nodding, rich inflorescence of ten fine flowers, and these make one think of Cœlogyne cristata is their pure whiteness. The lip has yellow and brown crests, but very little of those is to be seen as long as you do not expand the flowers artificially. The genus Thunia was established by the writer of these lines, in Dr. Lindley's lifetime, in Von Schlechtendal and Von Mohl's *Botanische Zeitung*, 1852, p. 764, having been regarded as Phaius till then: it has been universally admitted. Let us now imagine somebody had refused its acceptance, and declared it once more a Phaius and not a Sobralioid Arethuseæ, then it should have waxy and not amylaceous pollen. What is a waxy pollinium? The one that, by being covered with a layer of exina, is fit to resist the entrance of water a good while, and is hard and stringy, usually bright yellow, seldom green, hyacinth-red, or whitish. This one has no cover of exina, though I admit that the pollinia are not quite as soft as in Bletilla hyacinthina, called Sobralia bletioides by excellent botanists of Paris for its mealy pollinaria, yet they are nearly as in some Galeola, which I had the pleasure of seeing fresh. Blume, indeed, has, in 1856 (*Museum*, p. 181), quoted Phaius albus, Lindl., as Phaius, yet in his last Orchid book he omitted the plant, no doubt having been informed of its separation—at least I cannot find it in his last book. After all Blume did not know the marks of distinction between Phaius and Bletia. Morphologically our plant teaches us once more not to rely too much on the presence of the spurs. Our plant has no spur, and T. alba enjoys a spur. Thunias have a terminal inflorescence on the leafy shoots, when Phaiuses have their inflorescences and their fascicles of leaves apart. Thunias have fleshy membranaceous leaves, Phaiuses have plaited ones; Thunias have persistent, Phaiuses deciduous bracts; Thunias have four, Phaiuses eight pollen masses; Phaius flowers get blue when dried, Thunias keep white, or get brownish flowers in this state. If you look to the propagation you can make cuttings of Thunias as of a Dracæna. Try it with Phaiuses! A representation of Thunia pulchra will be given in *Xenia*, and it is intended to add for mere comparison a representation of Phaius! *H. G. Rchb. f.*

Masdevallia Wallisii discoidea, *n. var.*

This is a rather pretty variety of the now well-known Masdevallia Wallisii. It is furnished with three whitish discs, one at the apex of each sepal. The blotches are larger, the brown is more tinged with purple, and the beard is much stronger. I have received it on several occasions from Mr. Charles Winn, The Uplands, Selly Hill, Birmingham. *H. G. Rchb. f.*

THE FORTHCOMING MANCHESTER SHOW.

Hints for Intending Visitors.

The great four days' fruit, flower, and implement show in the Manchester Botanical Gardens, to open on Wednesday, August 24, promises, as we have already said, to be one of the finest things of its kind ever seen in the provinces. Comparisons in these matters are not called for; we have simply to remind our readers that since the great International Show at South Kensington in 1866 there have been no exhibitions out of London which from their intrinsic merits have attracted such numbers of visitors every day they have continued on view as those held in Manchester. It was from South Kensington that Manchester took the hint, and in reference to the subsequent doings of the industrious and ambitious Cotton Metropolis we may be pardoned once more quoting the sevenfold familiar line in old Horace—

"O matre pulchra, filia pulchrior!"

("O daughter, more charming than your lovely mother!")

An average total of 50,000 people has been accustomed to visit the great annual or Whitsun-week Manchester shows ever since they were first set on foot, now thirteen years ago, and the forthcoming one will doubtless attract a company quite as large before it closes. The special reason for holding the show is that the present year marks the jubilee of the Botanical and Horticultural Society, to whom the gardens belong, under whose auspices, at whose actual risk, and with whose money everything heretofore has been done—we were going to say attempted, but nothing in the Manchester shows has ever been simple attempt. Everything begun has invariably been carried forward to brilliant success. Some years, no doubt, have been better than others; this chiefly through more advantageous weather, but there has never been anything presenting even the shadow of a failure or a disappointment. If the past is to be taken as a presage of the future there is every reason for hope and confidence in regard to the show now at hand. The profits accruing upon it are to form the nucleus, and if all goes well a very considerable item towards the sum required for rebuilding the whole of the original range of greenhouses, hothouses, and conservatory. For many years it has shown signs of weakness, especially in winter, and the accommodation is now far too limited for the constantly increasing quantity of valuable plants. The building is also inconvenient in form, and much of it is too low in the roof for the matured growth of many of the evergreen shrubs from the Southern Hemisphere. When erected, more than half a century ago, the houses were right enough, but no gardener of any experience needs to be told that the requirements of 1831 will not do for 1881, and it was certainly a very happy thought to let the jubilee year be commemorated by the beginning of so splendid, as well as desirable, a piece of reconstruction as the new range will doubtless be. The actual expenses of the show are all provided for—a first-rate list of subscriptions now lying before us, so that every shilling paid by visitors at the gates will be a direct and personal contribution to this excellent object; and every one who pays his shilling will be justly entitled to consider himself as immediately assisting in the good work the money will go to. A more eligible place for a flower show than the Manchester Botanical Gardens England scarcely contains. The principal part of the display is set out in a permanent glass edifice—larger than many churches, arcaded, and charmingly festooned with Ivy, Vines, and flowering shrubs of the Forsythia suspensa kind. Besides this (the "exhibition house" pre-eminently) there are a couple of prodigious tents, one of them supported on permanent ironwork, the canvas removable, and the ground laid out in gravel walks and raised terraces of turf; and when the show itself has been enjoyed, there are the gardens themselves, with their pleasant paths, partly by the side of an extensive sheet of ornamental water (wanting in so many gardens, though so important to completeness), with ample and well-kept lawn, and for the lover of "hardy herbaceous," a collection by no means inconsiderable.

To secure the opportunity of visiting such an exhibition as this will be, and having an object as regards the application of the money the promoters wish to raise so thoroughly consistent with the spirit of genuine horticulture, gardeners everywhere should aim. The season is one when most gardeners can be better spared from their duties at home than in the earlier months of the year, and the facilities for getting to the ground are very good. The gardens lie at Old Trafford, a suburb on the south-western side of the town, and at a distance from the centre of a trifle over 2 miles. A railway station lies closely adjacent, and this can be reached in five minutes from the point of departure in Oxford Road, trains going every half hour, and at some periods of the day oftener. It is easy also for travellers going to Manchester by the London and North-Western Line, the Great Northern, and the Sheffield and Manchester (all of which great railways enter the town at the station called London Road, or sometimes Bank Top) to proceed direct from London Road to Old Trafford by trains which have their starting place at the former, calling at Oxford Road as they pass through. The trains which start from London Road for Old Trafford leave at 10.10, 10.20, 11.9, 12.5, 1.55, 2.35, 3.5, 3.25, 4.35, 5.5. Of course there are corresponding trains from Old Trafford to London Road, the times of departure of which may easily be ascertained. Visitors going to Manchester by the Midland line are recommended to go direct to the Central Station, from which it is only five minutes' walk to the Oxford Road one. Visitors from the North, coming by the Lancashire and Yorkshire line, arrive at Victoria, and these must proceed to Oxford Road, distant about a mile. In addition to the excellent railway service there are omnibuses and tramcars in plenty, starting from the centre of the town, and proceeding by two distinct routes. We cannot specify hotels without an appearance of personal favour; it will be sufficient to say that there is ample choice, especially in the immediate neghbourhood of the London Road Station, where will be found the "Queen's," the "Royal," the "Brunswick," the "Waterloo," the "Albion," the "Mosley Arms," and many besides. Not far from the Victoria Station (*i.e.*, Corporation Street) there is a first-class temperance hotel, called the "Trevelyan."

The vicinity of Manchester abounds in places interesting to gardeners. The great public parks, especially the Alexandra, are well worth visiting. The beautiful grounds and gardens at Worsley (the Earl of Ellesmere's) reached by train in twenty minutes; those at Tatton (Lord Egerton's), 12 miles distant; and those at Haigh Hall, near Wigan (the Earl of Crawford), will be found immensely enjoyable by any who may be able to give themselves leisure for the exploration. In addition there are numerous private collections of choice Orchids and other plants, and foremost among which may be mentioned Dr. R. F. Ainsworth's, Broughton; Mr. Joseph Broome's, Didsbury; Mr. Wm. Leach's, Fallowfield; Mr. Jas. Hardy's, Timperley; and Mr. T. N. Birley's, Pendleton. Admission to these will be readily obtainable by visitors having proper credentials. A very fine collection of alpines and "hardy herbaceous" plants has of late years been brought together by Mr. Wm. Brockbank, again at Didsbury. All these immediately local places are accessible, easily, by omnibus or tram-car, and when the show has been visited, will be found eminently deserving of any time there may be to spare. We are empowered by Mr. Leo Grindon, 71, Rumford Street, Manchester, to say that if any one desires special information, by letter, on any matter not falling directly within the province of the managers of the show, or of the Curator of the Gardens (Mr. B. Findlay), he will be happy to supply it, a stamped and directed envelope being enclosed with the application.

African Rubber for India.—Under this head the *Journal of Applied Science* says [the best results are anticipated from a small parcel of seeds of a new East African india-rubber plant which Dr. Kirk, of Zanzibar, has collected during a journey from Dar-es-Salaam and sent to India. Dr. Kirk says that the particular plant of which he procured the seeds occurs in great abundance along the road towards Nyassa. An important observation made by him is that the supply seems to be but little affected except in the immediate neighbourhood of villages, by the reckless mode of tapping employed by the natives when collecting the material. Dr. Kirk adds that in many parts a native may still collect three pounds of rubber in a day. With careful cultivation and proper modes of collecting the produce, this plant ought to prove an invaluable addition to Indian commercial products.

THE WINTER OF 1880-81 AT KEW.

Now that a fairly correct estimate can be formed of the losses sustained at Kew, and of the ruthless way in which many old garden friends, have been treated by the late exceptionally severe winter, it may be as well to put on record the comparative behaviour under similar conditions of a considerable number of Ornamental Trees and Shrubs. Many things which scarcely any one would have expected to withstand such an ordeal have prominently come to the front, whilst on the other hand a good many which have hitherto braved our trying and changeable climate without flinching, and have, so to speak, borne irreproachable characters, have at last given in, probably not so much on account of the great cold now and then experienced, as from the long and steady continuance of biting east winds and of a temperature which kept lower for many weeks than the average for the same period during recent years. Such a shrub is Veronica Traversii, a fine specimen of which is killed to the very ground in the same spot where it stood the previous winter without receiving the slightest injury. Mr. Ellacombe tells us that even with him at Bitton it has been seriously crippled, and also that previously it had never been affected by frost; V. pinguifolia, and V. carnosula, from the same country, have, however, stood, but as they are smaller growers, the thick coating of snow would about cover them, and act as an efficient shelter. Another New Zealand plant, and a very desirable one—Olearia Haastii—has proved itself thoroughly able to take care of itself both against a wall and in the open; this when better known will no doubt become a general favourite. Cassinia fulvida, perhaps more frequently known under its garden name, Diplopappus chrysophyllus, has also stood in the open. Amongst New Zealand Conifers probably the only representative which can claim to be hardy is Dacrydium Franklinii; this both against a wall and in the open border is uninjured. The pretty Sophora (Edwardsia) microphylla is badly damaged against wall, and under similar conditions Clianthus puniceus, Coprosma Baueriana, Plagianthus betulinus, Muhlenbeckia adpressa, Embothrium coccineum, and Aristotelia racemosa, are killed, or killed to the ground; some which had their bases covered with a good thickness of cocoa-fibre broke fairly well as soon as the warm weather set in; the Chilian representative of the last-named genus, A. Macqui, and its variety variegata, are completely killed in shrubbery.

The only Eucalyptus of any size which has stood the winter is the famous old tree on the mound near the Museum No. 1; this has hitherto been named and always spoken of as E. polyanthemos; but Baron Mueller, to whom a specimen was sent, has declared it to be the true Cider-tree, E. Gunnii. Although this certainly suffered somewhat, the leaves and young shoots being killed, it has broken freely from the thick trunks and branches. Young plants of E. coccifera have stood successfully against a wall. Pittosporum tenuifolium and P. Tobira, and an unnamed species, spared in the open by the winter of 1879-80, have succumbed to its successor in spite of careful protection by mats; small plants of some other species have survived against a wall.

Leaving the antipodes for the present, and coming to South and East Europe, the Mediterranean region generally, and East Asia, we find that the natives of these regions have suffered severely. The Carob, or St. John's Bread, Ceratonia Siliqua, in spite of its covering of mats, has been killed, and Convolvulus Cneorum, under the same conditions, has shared the same fate. Aristolochia altissima was killed to below its cocoa-fibre covering, but it broke well from the roots, and is now flowering freely, and will shortly appear figured in the *Botanical Magazine*. The Retam, Genista monosperma, Cistus latifolius, C. (Rhodocistus) Bertholetianus and Cneorum tricoccum, are quite killed, with the exception of the first-named, which broke from below the surface of the ground—although protected by a wall and well matted. Cistus ladaniferus in the open has in some places only escaped with life. Some of the Rock Roses, amongst which are Helianthemum Rhodax and H. halimifolium have also gone. The Pomegranate and its numerous varieties are all killed in the open and badly cut against a wall. Bupleurum fruticosum seems to have suffered just as much against a wall as it has in the shrubbery border. Amongst Portugal Laurels the only varieties which have quite succumbed in the Kew collections are azorica and aureo-picta; C,

Laurocerasus Jeffreyi, and intermedia are the forms of the common Laurel which have fared worst, although all in one place or another were more or less cut. Coriaria myrtifolia has gone; and Styrax officinale, the plant supposed to have yielded the Sweet Storax mentioned in Scripture, has only escaped with life. Generally speaking, such plants as the Myrtles, Sweet Bays, Laurustinus, &c., which suffered somewhat during the winter of 1879-80, have suffered much more severely during the past winter. The Chaste-tree, Vitex Agnus-Castus, is killed in the open and badly cut against a wall. Atriplex Halimus, as far as Kew is concerned, has gone; Phlomis fruticosa is, however, uninjured in the open, and so is Camphorosma monspeliaca against a wall. Some of the evergreen Oaks, Quercus Ilex and its numerous varieties, seemed for a long time as if they were past hope, but few are seriously crippled; nearly all are now clothed with young leaves, and are growing vigorously. The Cork Oak for some time seemed in a very bad way, every leaf and young twig being killed; but the plan of not being in a hurry to grub up apparently dead trees has in this and other instances proved a good one, as the old branches of one large specimen broke freely when stimulated by the sun of spring and early summer. Most of the Phillyræas are considerably touched, seemingly those which have come off worst are P. media, which in places is quite killed, and its varieties buxifolia and angustifolia injured. A striking exception in this genus is P. Vilmoriniana, a recently introduced Eastern species with large, dark green leathery leaves; the foliage of most of the other species was killed, but that of this seemed to have received no injury whatever. The Syrian Fontainesia phillyræoides has escaped with but comparatively slight injury against wall; in the open it is quite killed. Paliurus aculeatus, one of the plants sometimes cultivated under the name of Christ's Thorn, and Buxus balearica are quite untouched.

The ranks of the Berberries and Mahonias have been sadly thinned. B. Darwinii and B. concinna are much injured, whilst B. glauca, Wallichiana, Knightii, glaucescens, ilicifolia, asiatica, fuchsioides, virgata, Lycium, coriacea, and angulosa are killed. Mahonia pallida must be classed amongst the killed, and M. angulosa amongst the wounded; the other species of Mahonia are quite free from injury. Magnolia grandiflora and a numerous collection of its varieties planted a few years ago in the Dell have been badly treated, but the grand old specimen of the type in the open near the south door of the Succulent-house has, however, escaped with but the loss of a great deal of foliage. We have seen specimens on houses and sheltered walls more cut than the tree just mentioned. The deciduous Chinese and Japanese Magnolias, M. conspicua and M. obovata, and their numerous varieties, have successfully passed through the cold winter uninjured; but the Kew M. Kobus (M. gracilis of Salisbury's *Paradisus*), a Japanese species, is dead.

(*To be continued.*)

NOTES FROM BLECHINGLEY.

Sir George Macleay always has something of interest to show at Pendell Court. When I was down there, a few weeks ago, the shrubbery borders were gay with Foxgloves and a foreground of Sweet Williams, whilst the air was redolent with Mock Orange. In moist shady corners peeped out the spikes of our common Spotted Orchis, and down the steps of the sunk garden—spoilt artistically by being repaired—clambered that favourite of the Italian old masters, the Ivy-leaved Toadflax. Last winter's frost proved fatal to the large plant of Gunnera manicata, but G. scabra still looks effective in isolated plants near the water; whilst a gigantic Sow-Thistle, a very fine specimen of the mammoth Cow-Parsnip (Heracleum gigas), and a clump of Aquilegia chrysantha, similarly standing apart, were even more striking. Sir George finds water-fowl hardly compatible with choice aquatic plants, and in his greenhouse tank the fishes have been equally destructive to the interesting group of Rhizocarps, Marsilea, Salvinia, and Azolla; but on the rockwork out-of-doors Rubus nutkaensis holds its own in grand style. My favourite long herbaceous border by the wall of the kitchen garden was gay with a background, mainly blue, of Aconitum, Delphinium, and Campanulas, in front of which were Funkias and Snapdragons, with the low-growing but bright-looking Cheddar Pink. Berberidopsis has been growing out-of-doors here for some time, but within the houses the most interesting of the larger plants were the Papaw, Musa Ensete and Lagerströmia indica, which were in full flower. Sir George has recently been drinking home-ripened Coffee. There is here a very representative little series of carnivorous plants, including Drosera dichotoma and some other choice Australian specimens. Orchids were mainly represented in flower by Cypripediums and a few Masdevallias, though the series of plants may fairly be termed magnificent; but from a merely artistic point of view undoubtedly the fernery, draped with moss from the roof, where a cascade falls between clumps of large-leaved Begonias and Maidenhair, is the gem of the locality. I could not, however, help regretting that the pretty "dropping well" of moss should be surmounted by anything so unreal as a fountain.

Hard by Pendell Court is a less known, but in many ways interesting garden—that of Blechingley Rectory. Where a good-sized garden has been for more than thirty years in the hands of a true lover of plants, the result, as here, can hardly fail to be worthy of attention. Not to dwell on such merely plebeian topics as a splendidly grown Lime, and a still finer Beech, now covered with fruit, there are here a large Tulip-tree and good specimens of Catalpa, Araucaria, Portugal Laurel, Cedar, and deciduous Cypress, mainly planted by the present Rector, one specimen of the last-mentioned species having suffered considerably from the snow. The Tulip-tree was at the time of my visit covered with bloom, and the large bushy Kalmias were just over; but the best part of the garden is the wilderness—a somewhat marshy, unkempt lawn, dotted with Ragged Robin and bounded by the clumps of Rhododendrons, Osmunda, Rose Bay and other Willow herbs, yellow and purple Loosestrife, and such plants which girt the water, in which are Sweet Sedge, yellow Iris, and white Water Lilies innumerable. The charm of wild luxuriance about this spot can hardly be approached on paper. *G. S. Boulger.*

PLANT PORTRAITS.

Aria Decaisneana, Lavallée, *Arboretum Segrezianum*, t. 18.—A white Beam, with large ellipsoid leaves, hoary beneath, rounded at the base, sharply pointed and doubly serrate. Flowers white, corymbose. Fruits oblong obtuse, red. The distinguishing characteristics are to be sought in the stamens, which exceed the petals in length.

Cherry St. Margaret's, *Florist*, July.—An excellent late variety, with large black fruit of fine flavour. It is the Gros Bigarreau of Leroy, the Tradescant's Heart of Hogg, and has other synonyms.

Clematis Belle of Woking, *Florist*, July.—A fine double variety of the florida type, obtained from C. lanuginosa candida, crossed by C. Fortunei. The colour is a bluish-mauve or silver-grey. Messrs. Geo. Jackman & Son, Woking.

Cratægus heterophylla, Flugge; Lavallée, *Arboretum Segrezianum*, t. 17.—A Caucasian Thorn, with entire or 3-lobed, obovate, sharply toothed or almost entire leaves. The flower-stalks are very long, bearing white flowers, succeeded by ovate obtuse red fruit of medium size.

Cratægus punctata var. xanthocarpa, Jacquin; Lavallée, *Arboretum Segrezianum*, t. 16.—A North American Thorn, with obovate leaves, wedge-shaped at the base, and large yellow edible fruit.

Dahlia William Dodds, *Floral Mag.*, t. 456.—Pale purple, perfect in form, high close centre. Messrs. Keynes.

Idesia polycarpa, Maximowicz; Lavallée, *Arboret. Segrez.*, t. 13.—A large Japanese Bixaceous tree, with stalked cordate tail-pointed glabrous leaves, and clusters of diœcious apetalous many-stamined flowers. Berry the size of a Pea.

Pershore Plum, *Florist*, plate 540, June, 1881.—A medium-sized Plum, of ovate form and golden-yellow colour. The flesh is tender, and adheres to the stone, deficient in flavour, though excellent for preserving purposes.

Prunus divaricata, Ledeb.; Lavallée, *Arboretum Segrezianum*, t. xv.—A Plum, native of the Caucasus, with the appearance of the Myrobalan and the fruit of the Mirabelle Plum. The fruit, however, is of no value, the tree being chiefly remarkable for the elegance of its flowering branches in spring.

Rhodotypos kerrioides, Sieb. and Zucc.; Lavallée, *Arboretum Segrezianum*, t. 14.—A hardy Japanese Rosaceous shrub, with opposite, Hazel-like leaves (*sic*) and large terminal white flowers, like those of a Philadelphus. Fruit drupe-like.

CANFORD MANOR.

(*Concluded from p. 135.*)

Crossing the road at Mr. Hinds' cottage through a well-made gate, and a short avenue which is up-hill, with a nice piece of pleasure ground, in which are luxuriating a few nice Conifers, we come to the new herbaceous garden, which, if I remember rightly, is circular, and inside of which are two sets of circular beds divided into four quarters by grass walks, which also run between the beds, and having a circular bed in the centre; this is bounded on the south by an evergreen hedge. A succession of flowers is aimed at in this garden; but, before proceeding further, I may as well state that the beds are 2 feet deep, and, like those in the new rosery, made of Phylloxera-affected soil taken from Vine borders where that disease was rife, but, judging from the evidence then before me, it evidently suited both Roses and herbaceous plants. The latter include the following varieties, viz.:—Hepaticas, Cyclamens, Crocuses, Saxifrages, Alyssum saxatile, Dielytras, Spiræas, Trollius japonica fl.-pl. and T. europæus, Gentiana acaulis, verna (?), Iris in variety, Pyrethrums, Lilies, Delphiniums (a fine collection), Potentillas, Hesperis (purple and white), Helianthemums, Hemerocallis (the Day Lily), Phloxes, Campanulas, Dianthuses, Bocconia cordata, Anchusa italica, Epilobium angustifolium, Coreopsis lanceolata, Geranium sylvaticum fl.-pl., Tritomas, Veronicas, Mertensia sibirica, Rudbeckia Neumanni, Salvia patens, Sedum spectabile, Asters, Œnotheras, Carnations, summer flowering Chrysanthemums, Scabiosa caucasica coma, Thalictrum glaucum, Acanthus latifolius, Lobelia syphilitica and L. cardinalis, Pentstemons, Monarda didyma, Papaver bracteatum, Aquilegias, Pascalia glauca, Poronys, Lathyrus latifolius, Senecio abrotanifolium, Lithospermum prostratum, Polygonum cuspidatum, &c.

Forcing Department.—Adjoining the herbaceous garden, and at the south side of the hedge which forms the boundary of the latter, are a series of good forcing pits, in which were Melons, Cucumbers, Balsams, Celosias, and numerous other plants of a furnishing and decorative character. In one of the pits I noticed a good example of early Celery, which was evidently grown for no ordinary purpose. A short distance from these pits, which are immediately in front of the young men's apartments, offices, &c., and nearly in a line with them, are 500 well-grown plants of Chrysanthemum, which include most of the leading varieties, for the winter embellishment of the conservatory. In adddition to these there are 500 more planted out, if I remember aright, in an empty outside Vine border, in which a limited quantity of suitable mould had been previously placed for that purpose, upon a cement bottom, and into which the roots are not likely to push—the obvious object being to obtain dwarf shrubby plants; moreover, plants thus grown will experience less check when being potted up in the autumn.

We now proceed to the forcing and plant-houses proper, of which there are several ranges. No. 1 is a Melon and Cucumber-house, and in which, in addition to Melons and Cucumbers, are a finely-flowered plant of Allamanda Schottii and a good batch of Calanthe Veitchii. No. 2, Tomatos and Cucumbers. No. 3, furnishing-house, which contains a splendid lot of young well-grown decorative and half-specimen plants, which included a good specimen of Pancratium fragrans coming into flower, and several single bulbs in small pots; Crotons and Ferns in variety, Acalypha tricolor, A. musaica, and A. Macafeeana, finely coloured; Ixoras, Caladiums, &c., with a margin on the left (central pathway) of Ferns, small plants, and on the right a good strain of well-grown and grandly-flowered plants of Gloxinias, and the roof draped with Stephanotis floribunda and Allamanda Hendersoni, the latter in grand condition. Leaving this range we come to two "north houses," which are used for retarding furnishing and other plants, and in which were some finely-flowered plants of Eucharis amazonica, Pelargoniums, and Balsams, a good strain; whilst in the second house were a collection of Ferns for cutting from, together with Palms and Tree Ferns, all in good condition.

We next come to the kitchen-garden range, which

is divided in the middle by a transverse central walk, on either side of which, in a little border outside the doors of the houses, are growing plants of Erythrina crista-galli.

In the east angle of this garden, and connected with this range, is the Azalea-house, and in which there was a nice collection of clean plants well set with flower-buds; and as to their fine condition, Mr. Hinds attributed it to the use of Standen's "Gardeners' Friend" manure. A plant of Maréchal Niel Rose trained to the roof in this house afforded an agreeable shade to the plants underneath.

The next compartment in this range is a Peach-house (second early house), in which are fine well-established trees, carrying large and well coloured fruits of Pine-apple and Stanwick Elruge Nectarines, Late Admirable and Bellegarde Peaches. The trees here, as also those in the adjoining early house, and from which the crop had been gathered, were in admirable condition.

The next and last house in the range is the Strawberry-house, now filled with Tomatos, and the back wall draped with well-flowered plants of Abutilon Boule de Neige, whilst in another part of the house a batch of Cockscombs showed to advantage. Proceeding from this house we enter, at the opposite side of the walk referred to above, a range of vineries—vineries which, upon Mr. Hinds taking charge of the gardens two years ago last spring, he found to be badly affected with Phylloxera, and which so soon as the Vines had been cleared of their crops, he tackled with a determination to completely eradicate the disease, and this Mr. Hinds expresses himself confidently as having succeeded in doing. Considering what he has done with that object in view, together with the present vigour and general appearance of the Vines, he may reasonably form that opinion—an opinion which the writer echos, having been himself engaged at the same time as Mr. Hinds in doing battle with the Phylloxera on a large scale, and can, therefore, form a very correct idea of the labour, thought, and anxiety—anxiety as to the ultimate result of the treatment necessarily attending such an important and laborious proceeding.

In dealing with the Phylloxera Mr. Hinds adopted what is known among gardeners as the "stamping-out process"—the only apparently safe remedy. He had every particle of soil removed from the vineries, the latter thoroughly cleansed, and the walls, piers, and floors cemented; and twelve months later had his borders made and his Vines (cut-backs) planted, and these are now fine, strong, plump-eyed rods up to the top of the rafters. In addition to the permanent rods there are temporary canes planted in the middle of the several vineries, and under the centre of each sash, for fruiting next year, and there are some carrying a few nice bunches this year in one of the Black Hamburgh houses.

We next come to the show-house, which was gay with Fuchsias, Pelargoniums, Celosias, &c., with the roof clothed with Mandevilla suaveolens. Leaving the show-house we next enter the plant stove—the last compartment of this range—in which there are some nice specimen and other plants, amongst which are the following:—Alocasia metallica, Marantas albo-lineata and zebrina, Dracæna congesta, &c., Davallia Mooreana, 6 feet through; D. bullata, also a good plant; Gymnogramma chrysophylla, &c.; Bougainvillea glabra and Passiflora princeps depending from the roof and finely flowered, had a very graceful and telling effect.

Cold Peach-houses.—At the south side of the north (Morello) wall in the kitchen garden are, one on either side the doorway, two nice-sized houses with Peaches and Nectarines planted and trained against the back wall, and similar varieties in pots in front, one house being planted with later kinds than the other.

The kitchen garden, of which 4 acres are enclosed by a good brick wall, the latter well covered with a variety of fruit trees, is nearly square, and slopes gently to the east. The soil, which is rather stiff, is about 2 or 2½ feet deep, and, judging from its appearance, rests upon a gravelly subsoil. This garden, which is well and judiciously cropped, is divided into four quarters by two central walks—one lengthwise and the other crosswise—with the usual boundary walks and indispensable borders between the latter and the walls, and, like the place in general is in first-rate order. *Tourist.*

ABELIA TRIFLORA.

This beautiful Indian shrub has been spoken of in terms of the highest praise in our volume for 1860, the specimens there referred to having been grown at Glasnevin, whence also those here illustrated (fig. 34) were received a short time ago. The Glasnevin plant was raised in 1847 from seeds sent by Major Madden from Simla, and Wallich's specimens, first described, were from the highest mountains of Northern and Western Kumaon towards the Himalaya. It grows into a large shrub, and bears a profusion of delightfully fragrant flowers. The late Dr. Moore pronounced it "one of the very finest of our hardy free-flowering shrubs, and coming in at this late period [this was written in July], when most of the others are past, enhances its value." It appears to have been first flowered by Dr. Moore in June, 1852, and from specimens communicated by him to Dr. Lindley a figure was published in Paxton's *Flower Garden* (iii., t. 91), but which bears no comparison for growth and development with that now represented from the better established plant.

Fig. 34.—Abelia triflora; flowers white and pink.

"The branches are slender, grey, and covered with long hairs. The leaves are very dark green, bordered with red, ovate-lanceolate, very acute, slightly silky on both sides, and copiously fringed with long hairs. The flowers, which appear at the ends of the branches in clusters of three, are remarkable for the very long hairs which cover the five narrow, sharp-pointed, reddish erect sepals, and which are as long as the tube of the corolla. The latter is pale yellow before expansion, but when open, with a flat white limb, having fine rounded lobes, delicately tinted with rose." (Paxton's *Flower Garden.*)

A note on this and other species of Abelia will be found in our volume for 1878 (vol. x., n.s., p. 625). *M.*

THE POTATO CROPS OF 1881.

SCOTLAND.

Aberdeen.—Except in damp low-lying districts where they were killed to the ground by the frost of June 10 the Potatos in this neighbourhood look well, and give promise of a good crop. They are from a fortnight to three weeks later than in ordinary seasons. Only a few of the earliest sorts are at this date fit for use. As yet I have not heard of any appearance of the disease. *John Forrest, The Gardens, Haddo House, Aug.* 1.

Argyll.—The Potatos look well, but are very tall. The weather in July was very wet; we had only four dry days in that month, and the rainfall was 5.59 inches. *A. Brown, Kilmorey, Lochgilphead, Aug.* 1.

Berwick.—The crops of Potatos are looking well, both in gardens and fields, and so far the early sorts are productive, and of good quality; but to-day (July 30) I have lifted a patch of Lemon Kidney slightly affected with disease both in tops and tubers, which may have been accelerated by the almost total absence of sun of late; however, such varieties as Bresee's Peerless, Schoolmaster, and White Don, are all that could be desired. In fields it is the Champion variety that is mostly planted; they also are looking admirable: a large breadth being planted, and being a good disease-resisting variety, an abundant crop is anticipated. *W. Taylor, Mertoun House, St. Boswells.*

East Lothian.—Myatt's Ashleaf, and the old Ashleaf, also Smith's Early, have been a splendid crop, excellent in quality, and not diseased. All the other varieties look quite as well. Field Potatos look very promising, but are not so strong in the haulm as I have seen them, though quite as healthy. *L. Dow, Newbyth Gardens, Prestonkirk, Aug.* 1.

Kincardine.—Potatos promise well at present in this district, being very strong and healthy. *Geo. Wighton, Fasque, Aug.* 1.

Lanark.—The Potato crops have at present a very favourable appearance. Ashleaf Kidneys in the gardens are quite ripe and free from disease; other earlies also look well. Field Potatos look very luxuriant and a great breadth has been planted, but of late the weather has been cold, wet, and unfavourable for vegetation. *Andrew Turnbull, Bothwell Castle, Aug.* 1.

Midlothian.—At the present time the field Potato crops are looking very fine and show no signs of disease; however, a continuance of the present close, rainy weather is almost certain to bring on an attack, as the field crops are just at the stage of growth when they are most liable to it. Early garden Potatos were about a fortnight later than usual. The crop and quality have been first-rate; no appearance of disease among them, and the earliest sorts are ripening fast, so that they are not now likely to be much damaged. Veitch's Ashleaf is the best early kidney, and Coldstream is the best early round Potato. Early Rose is of better quality than usual, almost first-rate, and an enormous crop. Model, Grampian, Magnum Bonum, and Victoria are favourite later sorts. Field sorts are principally Dalmahoys, Regents, Rocks, Fortyfolds, Victorias, and Champions, but the last is losing favour, as it grows too much to top, and is of poor quality in the richly cultivated soil of the Lothians. *Malcolm Dunn, Dalkeith Gardens, Aug.* 1.

Perth.—Potatos are looking well, and early sorts have yielded a splendid crop. *P. W. Fairgrieve, Dunkeld Gardens, Aug.* 1.

Roxburgh.—These never looked better on the whole. Kidneys are most excellent, clean and dry, and those planted the end of April are better than those planted earlier. Late planting has given the most satisfactory crop, and practical people have no faith in the very early, or autumn and winter planting. No disease has yet appeared in our midst, but the rains, which are now too frequent, are often the pioneer of that dreaded malady—the smell of which gives out such a sickening foreboding of both "losses and crosses and such like sores.' *H. Knight, Floors Gardens, Kelso, July* 30.

Stirling.—Potatos so far look well, but the tubers are rather slow in growth owing to wet and showery weather. *M. Fitzgerald, Dunmore Park, July* 30.

Wigton.—The Champion is the variety principally grown in this district and throughout Scotland for late crops, and for some years past has all but proved proof against disease, producing crops equal to what were grown before the disease first made its appearance, and thus tending to reduce the price of this valuable esculent, once more bringing it within the reach of all. Its robust constitution points it out as the best variety from which to raise seedlings of sufficient vigour to resist the ravages of the fell disease. Early Potatos are now grown in this locality to a larger extent than formerly, and are ten days later than usual, owing to the comparatively cold and wet season. As yet I have seen no appearance of disease, although it is reported to have appeared in some gardens in the neighbourhood. For many years after the disease first appeared in Wigtownshire the haulms of the Potatos were blackened by the first week in August. Of late years it is generally about a month later before this occurs, even with early varieties. Whether this is owing to the disease being less virulent or to more attention having been paid to raising seedlings from varieties with strong constitutions, it is not easy to decide; perhaps both causes have had to do with it. One thing is certain, that all the old field varieties have been replaced by new ones. This year the crops look well, and promise an abundant yield. *Archibald Fowler, Castle Kennedy, Aug.* 1.

ENGLAND.—NORTHERN COUNTIES.

Northumberland.—Potatos in this district are looking exceedingly well considering the cutting down they got on June 10. In some situations, where early varieties escaped the frost, they are turning out very well, but later sorts, where they were cut to the ground, will, I fear, be very small. *Thomas Bowie, Chillingham Castle Gardens, Aug.* 1.

Cumberland.—Early Potatos are excellent in quality, and in quantity are an average crop. The disease has not appeared in this immediate district up to the present date, and if it keeps off for a week or two longer the crops in the fields will be a full average. *J. Hammond, Brayton, Carlisle, Aug.* 2.

Westmoreland.—Early Potatos lift well, but a few diseased ones are being found now. The haulm of the flukes showed spots at the beginning of the week. *W. A. Miller, Underley Gardens, Kirkby Lonsdale, Aug.* 2.

—— Potato crops look well, and there is no sign of the disease as yet. *W. Shand, Lowther Gardens, July* 30.

Durham.—The Potato crops here are very good, and up to the present are lifting well, being clean and dry and free from disease. This refers to all varieties, although on a heavy soil there is no sign of disease in the county. *J. Hunter, Lambton Fence Houses, July* 30.

Yorkshire.—Potatos are looking well everywhere, and promise to be very fine and good crops. The samples in the markets are good and the prices very moderate. So far there is no disease; everything promises well. *M. Saul, Stourton Castle, Aug.* 1.

Lancashire.—Early Potatos have been good and free from disease. I have never seen late crops look so well. *Andrew Jamieson, The Gardens, Haigh Hall, Wigan, Aug.* 1.

—— Tubers small at present, but very clean and promising. *W. B. Upjohn, Worsley Hall Gardens, Aug.* 2.

—— The crops of Myatt's and Mona's Pride are first-class; the latter decidedly the best indoors and out. The disease has made its appearance, but not to the extent one would expect, for we have had a good supply of heat and moisture. The haulm of Lapstone and Schoolmaster look very suspicious. In this locality the Champion is in possession of the fields. *W. P. Roberts, Cuerdon Hall, Preston, Aug.* 2.

MIDLAND COUNTIES.

Derby.—The crops in this neighbourhood I have not seen look so well for years past. We have been taking up new Potatos since March, and I am happy to say we have not come across one diseased tuber. *Wm. Brown, Bretby Park, Burton-on-Trent, Aug.* 1.

Salop.—Our crops of Ashleaf and Myatt's Kidneys are first-class, and free from disease; it does one good to see them turned out. Snowflakes are excellent. Schoolmaster is coming into form hereabouts. Magnum Bonum, Champion, and Skerry Blues are our field sorts; they look first-rate at present, and with good weather must prove highly satisfactory. Potatos are selling at 9*d.* per peck of 20 lb. about here, although some sorts are realising a trifle more. The outlook is certainly cheering at present—*i.e.*, for the consumer. *A. S. Kemp, Haughton, Shifnall, July* 30.

—— Potatos here are better and finer than have been seen for the last four years, and all crops look well, both early and late, and show no signs of disease as yet. *John McLean, Pitchford Hall Gardens, July* 30.

—— The crops in this district look remarkably well. We have seldom seen the field crops look so promising, and if we keep clear of blight there is every prospect of a very large yield; so far, we have failed to find any signs of the disease. *James Louden, The Quinta, Chirk, Aug.* 1.

Stafford.—Potatos look remarkably well, I have not seen or heard anything of the disease this season quality good, and very heavy crops. *W. Davidson, Sandon, Stone, Aug.* 1.

—— Both early and late sorts were never seen better. No disease. *J. H. Rabone, Alton Towers June* 30.

—— Both early and late sorts never looked better. There is no trace of the disease here, but in low districts I hear that it has been found. We lie on the sandstone, and very dry. *W. Chapman, Hawkesyard Park, Rugeley, Aug.* 1.

—— A fine crop, and excellent in quality. *E. Simpson, Wrottesley, Wolverhampton, Aug.* 1.

Leicester.—Uniformly healthy in haulm, flowering freely, and producing more seed than usual. The early kinds are clean, prolific, and quite free from the taint of disease. The Champion has made an extraordinary growth, and Magnum Bonum almost rivals it. The prolonged drought must tend to reduce the size of the tubers. We have only registered 7.32 inches of rain since March 1. *William Ingram, Belvoir, Aug.* 1.

—— Remarkably good; no signs of the disease at present. *J. Hatfield, Gr., Calthorpe Towers, July* 30.

Beds.—Ashleaf Kidneys are a good crop, fair in size and sound. Later sorts look very promising. I have not seen a sign of disease yet. *C. Butters, Luton Hoo Park, July* 30.

Bucks.—Potatos are all looking well, and there are no signs of disease as yet. They run small, on account of the long dry weather, but are fine in flavour. The best sorts here are Myatt's Ashleaf Schoolmaster, Ferrin's Kidney, Holborn Favourite and a sort sent to me last year named Carter's Newest and Best. *A. Donaldson, Latimers, Chesham, July* 30.

—— Early Potatos, in the field, were good in quality but smaller in sample than usual. Second earlies are fine in every way. Late sorts look strong and promising. The long red Dutch variety is always the first to show disease here, but as yet the late rain has brought no signs. *J. F., Cliveden, Aug.* 1.

—— Very fine indeed, and no symptom of disease at present. *Thos. Bailey, Shardeloes Gardens, Amersham.*

Herts.—All kinds look remarkably well. The earliest sorts have been lifted; good clean crops, tubers small but splendid in flavour. This fine rain, so acceptable for other crops, I am afraid will cause the later Potatos to grow out. Altogether this will be one of the best seasons we have had for a number of years. *J. C. Mundell, Moor Park Gardens, Rickmansworth, Aug.* 1.

EASTERN COUNTIES.

Lincoln.—There are excellent crops of early potatos, fair in size, quality good, and disease nearly, if not quite, absent. Late kinds also bid fair to be heavy crops, although the past dry weather was somewhat against the formation of the tubers. *James Taylor, Lea Hall, Gainsborough, Aug.* 1.

—— A wonderful crop, both in field and garden, and free from disease. *Isaac Dell, Stoke Rochford, Aug.* 1.

—— I have never seen the Potato crop finer in this neighbourhood, and have heard of no disease. There is also every prospect of the late kinds being equally fine, as at present they are in splendid condition. *G. B. Tillyard, Brocklesby Park, Ulceby, Aug.* 2.

Suffolk.—From the commencement of July the effects of the very high temperatures we then experienced, and the want of rain, became almost everywhere only too apparent, and especially so on early sorts, such as Early Rose and the Ashleaf kidneys, the haulm of which on many plots was quickly dried up and killed. The complaint one mostly hears now is that the tubers are small in size. There is no trace of disease, and looking at the present condition of the haulm they are now likely to be free from it. As to

how the late crop will turn out it is difficult to even conjecture at present. From July 25 to August 1 we have had over an inch of rain, which has freshened and reinvigorated the haulm wonderfully, but there are scattered about, thinly at present, the too familiar and much dreaded spots on the leaves, showing the presence of Peronospora infestans. *John Wallis, Orwell Park, Ipswich, Aug.* 1.

—— The crops look as well as can be. The tubers are small, but sound, free of disease, and of excellent quality. They have that nutty flavour, so rare of late years and so highly prized by all who value good Potatos. We have lifted all that have their skins set and stored in soil. The late Potatos need rain much to develope the tubers into a profitable size. It has been rather long in coming for this purpose, and is likely to land the crop in supertuberation or the deluge —that is, the disease. But these are prophecies of the future, not records of the present, and up till now the Potato crop is sound and promising, and the earlies first-rate. *D. T. Fish, Hardwicke, Bury St. Edmunds, July* 30.

—— The prospect for a fine Potato crop is again most promising, as the rain, although a little late, is in time to help the late sorts very materially, and as there is as yet no appearance of disease the tubers are likely to be all sound and good. Spring frosts and the cold after affected the early kinds, but where late planted they have done remarkably well, and are now fit to dig for storing. *J. Sheppard, Wolverstone Park.*

Essex.—The Potato crops are looking well everywhere, but I do not think the tubers in this immediate neighbourhood will be large, as we have suffered much for want of rain lately. But it has improved the eating qualities very much. At present there is no sign of any disease. *W. Bowman, Hylands, Chelmsford, July* 30.

—— Very good, but small. *W. Bones, Havering Park, Romford, Aug.* 1.

SOUTHERN COUNTIES.

Berks.—Potatos at present look well, and are free from disease. The best kind here for early use is Veitch's Improved Ashleaf, and for late use Sutton's Magnum Bonum and Paterson's Victoria. *Joshua Atkins, Lockinge Gardens, Wantage, July* 31.

—— The early sorts never were better. Veitch's Ashleaf and Turner's Ladybird, the latter a good one, are our best early sorts. The late kinds are looking well. *James Tegg, Bearwood, Aug.* 2.

Middlesex.—The Potato crop so far has been all that could be desired. The early kinds, such as Fenn's Early Market and Veitch's Improved Ashleaf Kidney, have been and are still most excellent, both as regards quantity and quality. The later kinds—Scotch Champion, Magnum Bonum, Dunbar Regent, Red-skin Flourball, St. Patrick, and the like—are in a most vigorous condition, and, should we escape the disease the promise of an abundant crop is most flattering. *T. P., Stanmore, Aug.* 1.

—— Potatos are wonderfully fine and promise well, the late sorts probably growing too much to haulm, and inclined to supertuberate—a common result in dry seasons. No disease apparent. *A. F. Barron, Chiswick, Aug.* 2.

—— Potatos generally look remarkably well, with no signs of disease at present. The early kinds have turned out well. The crop is abundant, clean, and good. *John Woodbridge, The Gardens, Syon House, Brentford, Aug.* 1.

Kent.—The Potato crops appear to be free from disease up to this date. There is not a large quantity of haulm; some of the late-sown crops are specially deficient in this respect. At present the prospect is of a slightly under-average yield of excellent quality. *Charles Whitehead, Barming House, Maidstone, Aug.* 1.

—— The Potatos have suffered much from drought, and the crop will be small and light. I find many kinds are dying down, and the skin is quite set, so that if we now get rain it will result in the young Potatos growing: the yield will be much under average. Although at present tolerably free from disease, I have seen some diseased tubers. *J. Charlton, Summervale Nursery, Tunbridge Wells, Aug.* 1.

—— Owing to the want of rain, the Potatos have been rather small, but the quality very good indeed; the foliage is healthy, and at present no signs of disease. On the whole I consider them promising in this neighbourhood. *John Cox, Redleaf, Penshurst, Aug.* 1.

—— Potato crops are good and the quality excellent. *R. Gray, Chevening, Sevenoaks, July* 30.

Surrey.—So far free from disease, and likely to turn out a first-rate crop. The breadth of Potatos about this part of Surrey is very large, putting one in mind of Potato culture in the North of England and Scotland. *Wm. Denning, The Gardens, Combe Lane, Norbiton, Aug.* 2.

—— The crop in this district is very good, but small on our sandy, dry soil, owing to the intense heat and long drought; but on more retentive soil there are some fine crops being lifted. The varieties I find to have swelled to the greatest average size are Veitch's Royal Ashleaf, Myatt's Prolific, Porter's Excelsior, Beauty of Hebron, Radstock Beauty, and McKinlay's Pride. *Alfred Evans, Lythe Hill, Haslemere, Aug.* 1.

—— Early kinds are very good, and free from disease; late sorts look promising. As soon as we detect the spot in the leaf we shall pull the haulm clean away, as I find year by year that this is the best plan of dealing with the disease. *J. Child, Garbrand Hall, Ewell, Aug.* 1.

—— Early and second earlies are a fine crop but somewhat smaller than usual; they are quite free from disease and are fit to harvest. Late ones also promise well. Should the disease make its appearance I shall immediately clear off the haulm, as another season's experience convinces me that it is the quickest and safest way to save the crop from destruction. *Thos. Foote, Leigham Court, Streatham, Aug.* 2.

Sussex.—Potatos are rather light in the yield, but the quality is all that can be desired. The early kinds are ripe, the mid-season soon will be, and the late kinds promise well. There is no disease. I grow Veitch's Ashleaf, Bresee's Peerless, St. Patrick, American Rose, Grampian, Beauty of Hebron, and Scotch Champion. Speaking for this part of the country, gardeners and their employers have reason to be thankful for the abundant yield of the garden. *J. Rust, Eridge Castle, July* 30.

—— All the Potatos throughout this district gave promise of a heavy crop early in the season; but for the want of rain all kinds are completely dried up, and they are being taken up as fast as possible. The tubers are plentiful, but small and free from disease. *Sidney Ford, Leonardslee, Aug.* 1.

—— The early crops in this neighbourhood are very much diseased. The late sorts are looking well, such as Magnum Bonum and Victoria. *John Wilson, The Castle Gardens, Arundel, Aug.* 2.

—— Potatos about here are very good, but a little later than generally. Covent Garden Perfection and Rector of Woodstock are extra good; Lapstone Kidney and the Schoolmaster, which I grow largely, promise well, and I am pleased to say show no signs of disease at present. *William Allen, Normanhurst, Battle, Aug.* 2.

—— Potatos are very good in quality and plenty of them, but small; the late sorts may improve now after the rain, but many of the early sorts were quite ripe. *G. Breese, The Gardens, Petworth, Aug.* 2.

Wilts.—Potatos in the gardens and fields in this district, though the tubers are under rather than over the ordinary size, are everything that could be desired —good in quality and quantity, and, as yet, free from disease. The sorts we grow in the gardens are Rivers' Ashleaf, Lee's Hammersmith, Myatt's Prolific, and Lapstone Kidneys, and in the field Early American Rose (to succeed the garden varieties) and Scotch Champion, both of which look well. *H. W. Ward, Longford Castle, Salisbury.*

—— Potato crops are excellent, a few spots of disease appeared on the leaves a fortnight or three weeks back, but it has never spread much, and the early varieties are now out of danger. *Wm. Taylor, Longleat, Warminster, Aug.* 1.

—— The present state of the Potato crop in and around this district is very satisfactory, and if taken on all fours will bear favourable comparisons with any of the crops of recent years. Although we cannot, strictly speaking, say the crop will be a heavy one, it is on the other hand highly gratifying to think that the tubers of such sorts as we are now eating are of the best quality and perfectly free from disease. *J. Horsefield, Heytesbury, Aug.* 1.

Hants.—All are free from disease at present, and early kinds most excellent in quality and ready to take up. Late kinds look most promising. *Wm. Smythe, The Gardens, Basing Park, Alton, Aug.* 1.

—— Without exception all the early kinds are fine both in quality and quantity, and are being harvested without a speck or trace of the murrain. Late kinds have developed an abnormal amount of haulm, but at present the tubers are very small and the drought has so checked them that they are ripening, so that it is to be feared that the rain we are now having will induce supertuberation rather than the swelling of those already formed—a very strong reason why as much as possible we should confine ourselves to early varieties only. *W. Wildsmith, Heckfield.*

Dorset.—All the early sorts are good, and free from disease; late sorts are looking well but small. No disease at present. *W. P. Leach, Bryanston, Blandford, Aug.* 1.

—— I have taken up very heavy crops of early sorts, all free from disease. Late sorts, such as Scotch Champions, Magnum Bonums, Scotch Rocks, Surrey Blues, are all looking well; I am in hopes that, after the beautiful rain we have had, they will not grow out. *J. Beck, Crichel House, Wimborne, Aug.* 2.

—— The crop on the whole is a good one, although the early varieties in many places were much injured by the late frosts. Late sorts up to last Saturday looked exceedingly well, but with the wet came disease and for the last few days it has spread alarmingly. About a fortnight since, I found the disease in a large piece of early Potatos. Just one spot about 4 yards square was attacked; I at once prepared a mixture of paraffin oil and water, and with a coarse rose on a large water-pot watered this spot? and the result is, I am pleased indeed to say, the malady is or was completely stopped, and up to the present time it has not gone another foot. *C. Hazel, The Gardens, Leweston House, Sherborne, Aug.* 2.

WESTERN COUNTIES.

Hereford.—The crops in this district are all that can be desired; no disease has appeared at present. Magnum Bonum, Champion, and Schoolmaster are the principal late sorts grown in this district, and they seem to keep more free from the disease than any others. *A. Young, Holme Lacy, Aug.* 1.

—— No disease to report at present. Early Hammersmith Kidney has been good, and a little in advance of Myatt's Prolific for earliness, but not for quality. All other sorts are looking extremely well. Crop generally is very abundant. *Wm. Ward, The Gardens, Stoke Edith Park, Aug.* 2.

Worcester.—Early and second early kinds are all that can be desired, the tubers being of good size, clean, and quite free from disease. Covent Garden Perfection is particularly good. St. Patrick, though a later kind, promises to become a standard variety, the tubers being large and clean, white, and of good flavour when cooked. Early Rose, where grown, is diseased; it is surprising how cottagers stick to this variety, when, year after year, they lose three parts of the crop. Of late kinds I am afraid the yield will be small—the long-continued drought is withering the haulms; we have had scarcely any rain in this district since they were planted. *Arthur Barker, Hindlip Hall, Aug.* 2.

Gloucester.—The crops in this neighbourhood look well; early sorts are rather small, but very good. Late sorts look very healthy, and up to the present time there are no signs of disease. *Alex. Scott, The Gardens, Sherborn Park, Northleach, Aug.* 2.

—— Potatos have not been so good for years. Very fine crops of all sorts, and no disease at present. *G. Turner, Fretherne Court, Stonehouse, Aug.* 2.

Somerset.—The crop in this neighbourhood is a very good one, with very little sign of disease in the tubers, but it has made its appearance amongst the haulm, and the latter is going off very suddenly. *W. A. Beale, Cricket St. Thomas, Chard, Aug.* 2.

Devon.—The crops of all early Potatos are abundant and of excellent quality, and as these are now full grown we are lifting up to make room for other crops, such as late Broccoli, &c. Late crops in general look promising. No signs of disease at present amongst the Potatos in this district. *A. Ayson, Oxton House, Kenton, Aug.* 1.

—— We are again favoured with fair crops, and up to the present free from disease. I have heard of its appearance in the stem and leaf, but not in the tuber, though, no doubt, we shall soon hear of its ravages The quality has been very good indeed, but the size will not equal that of last year. The American Early Rose is grown largely by our cottagers in their gardens and allotments. These have been excellent in quality, noticeable always in dry seasons, but the reverse in wet ones. Sutton's Magnum Bonum is fast

becoming the main crop. I have grown it for the last four or five years with good results, and entirely free from disease, neither have I heard of its appearance in this variety in our neighbourhood, a thing which cannot be said of any other. Early varieties will be fit to take up in about a week hence. *D. C. Powell, Powderham Castle, Exeter, Aug.* 1.

CORNWALL.—Our earliest crops of kidneys have been excellent, and without a trace of disease. The field crops have hitherto looked well, but the showery weather we have been having has caused the disease to make its appearance in very many places. *James Murton, Tredrea, Perranarworthal, Aug.* 1.

—— The early varieties yielded good crops, and splendid in quality. The disease is just making its appearance. Late varieties look well, and there is every prospect of an abundant crop. *George Knox, Gr., Port Eliot, Aug.* 1.

WALES.

CARMARTHEN.—All kinds are looking well, indeed I never saw them better. We are now lifting a splendid crop of Myatt's Prolific Kidney. I have heard of the appearance of disease in the neighbourhood, but so far we have escaped; I am afraid some of the more delicate varieties will soon show appearance of it should the wet weather continue. *T. Bowen, Gr. to Sir J. Drummond, Bart., Edwinsford Gardens, Llandilo, Aug.* 1.

MONMOUTH.—Heavy crops and good, there not being a spot of disease. The tubers are very clean, the result of using plenty of lime in planting and of the recent dry weather. All the early varieties I consider safe now in the ground; the haulm is yellow and beyond the point of attack by disease, but the frost in some situations quite spoilt the crop in size on June 8 and 9. *C. Raffill, Tredegar Park, Newport.*

MONTGOMERY.—The crops in this district are splendid, and the quality excellent. There are no signs of disease up to now. *William Lee, Powis Castle Gardens, Welshpool, Aug.* 1.

PEMBROKE.—The early varieties came out a fairly good crop. The second earlies are a grand crop, and the late crops promise to turn out remarkably good. The disease made its appearance here on July 7. We removed the haulm immediately the first spots were observed from all except the late sorts, by which means we saved our crops, as we have lifted large quantities since, and not found a single diseased tuber. *Geo. Griffin, Slebech Park.*

IRELAND.

CAVAN.—Up to the present time the general crop of Potatos, almost everywhere, never looked more promising. There is a slight appearance of disease among some of the early sorts, but nothing to signify, and it does not appear to be spreading; the crop of early sorts is most abundant and of fine quality. Market price here from 3*d.* to 4*d.* per stone. *W. J.*

CLARE.—The Potato crop looks exceedingly well in these parts, and has made good growth, but the forerunner of the disease is showing itself on the stalks. *Wm. Wilson, The Gardens, Dromoland Castle, Aug.* 1.

DUBLIN.—Potatos look very promising so far, with no appearance of disease. Early varieties are good quality and heavy crop. *J. Ellam, Brenanstown House, Cabinteely, Aug.* 2.

QUEEN'S COUNTY.—The Potato crops are promising really well. The Champion is doing well, but will have to give way to Sutton's Magnum Bonum for general use. No disease set in yet. *E. Ennis, Emo Park, Portarlington, Aug.* 1.

CHANNEL ISLANDS.

JERSEY.—The early crops were small, which was made worse than it might have been by being dug too soon. The late crops are good, and producing well, as much as 2 cwt. to the perch, where the cultivation has been carefully attended to, and there has been no stint of manure. This last is the great secret of Potato culture — carefully selecting seed, well spurted before planting in highly manured soil. As a rule, the shorter time the tubers are in the ground, consistent with fair development and maturity, the better the crop. Early planting generally proves a very costly mistake to growers. *Charles B. Saunders, St. Saviour's, July* 30.

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 136.)

5. RESTREPIA.—Sepals erect or spreading. Petals usually very narrow and thread-like. Labellum articulated with the base of the column, which is elongated. Pollinia 4. Peduncles one-flowered, solitary or clustereds. Uually tufted herbs. With the exception of Masdevallia, this is the most attractive genus of the group, having relatively large flowers, which ae singularly formed and beautifully coloured, It is very closely allied to Pleurothallis, the only constant distinctions being the greater number of pollinia, and the one-flowered peduncles; but the flowers are usually larger. About fifteen species are known, inhabiting the mountains of tropical America from Brazil to Mexico.

1. R. ANTENNIFERA, H. B. K., *Kth. Syn.*, i., p. 341; H. B. K., *Nov. Gen. et Sp.*, i., p. 367, t. 94; *Ill. Hort.*, t. 601; *Gard. Chron.* 1869, pp. 1182, 1254; *Bot. Mag.*, t. 6288; *R. maculata*, Lindl., *Orch. Lind.*, n. 19.—New Grenada and Venezuela, at 6000 to 10,500 feet. Hort. Kew. This is the finest of the genus, and appears to have been first introduced alive into Europe by Schlim.
2. R. DAYANA, Rchb. f., *Gard. Chron.*, n.s. iv., p. 257.—Costa Rica, at 3000 feet, Endres. Hamburgh Botanic Garden, 1875. A lovely little plant.
3. R. ELEGANS, Karst., *Ausw. neuer Gewächs Venez.*, p. 8, t. 2; *Flore des Serres*, t. 743; Lindl., *Fol. Orch.*, n. 2; *Bot. Mag.*, t. 5966, the dissections here reproduced (fig. 35). — Caracas, 5000 to 6000 feet; introduced by Linden about 1851. Hort. Kew.
4. R. FALKENBERGII, Rchb. f., *Gard. Chron.*, n.s., xiii., p. 232.—New Grenada (?). Falkenberg and Schmitchen.
5. R. LANSBERGII, Rchb. f. and Wagener, *Bonplandia*, 1854, p. 23; *Xenia*, i., p. 170, t. 60, fig. 1—4.—Caracas, at 5000 feet. Wagener. Cultivated on the Continent in 1858.
6. R. MUSCIFERA, Rchb. f., Lindl., *Fol. Orch.*, n. 7; *Pleurothallis muscifera*, Lindl., *Bot. Reg.* 1842, Misc., p. 79.—Guatemala, Skinner. "Living cultivated plants seen." Lindley. Hort. Kew.
7. R. OPHIOCEPHALA, Rchb. f., *Bonplandia*, ii., p. 88; Walp. *Ann.* vi., p. 203; *Pleurothallis ophiocephala*, Lindl., *Bot. Reg.* 1838, Misc., 48; *Fol. Orch.*, n. 94; *P. puberula*, Klotzsch, Otto and Dietr., *Allg. Gartenz.* 1854, p. 393; *P. peduncularis*, Hook., *Journ. Bot.* 1841, t. 9; *P. aphthosa*, Lindl., *Bot. Reg.* 1838, Misc., 71; *Fol. Orch.*, n. 96.—Mexico. Cultivated by Loddiges. Guatemala, Skinner. Hort. Kew.
8. R. PROREPENS, Rchb. f., *Xenia*, iii., p. 8, 206, iii., iv., fig. 11—17.—Costa Rica, Endres. Hamburg Botanic Garden.
9. R. REICHENBACHIANA, Endr., *Gard. Chron.*, n.s., iv., p. 356; *Xenia*, iii., p. 7, t. 206, ii., fig. 5—10.—Costa Rica at 4000 feet, Endres, 1868. Hamburg Botanic Garden. An inconspicuous species. [R. VITTATA, Lindl., *Journ. Hort. Soc.* iii., p. 314, with a figure, is *Pleurothallis*.]
10. R. XANTHOPHTHALMA, Rchb. f., *Hamb. Gartenz.* xxi., p. 300; *R. Lansbergii*, *Bot. Mag.*, t. 525 *nec* Rchb. f.—Guatemala and Venezuela. Cultivated in German gardens in 1865. "A pretty species, with yellow, purple-blotched flowers."
6. BRACHIONIDIUM. — An American genus, of which three species have been described, but not one, we believe, has been in cultivation. It is distinguished from the allied genera by habit, and the greater development of the petals. The pollinia, however, are unknown, and the position of the genus doubtful.

(*To be continued.*)

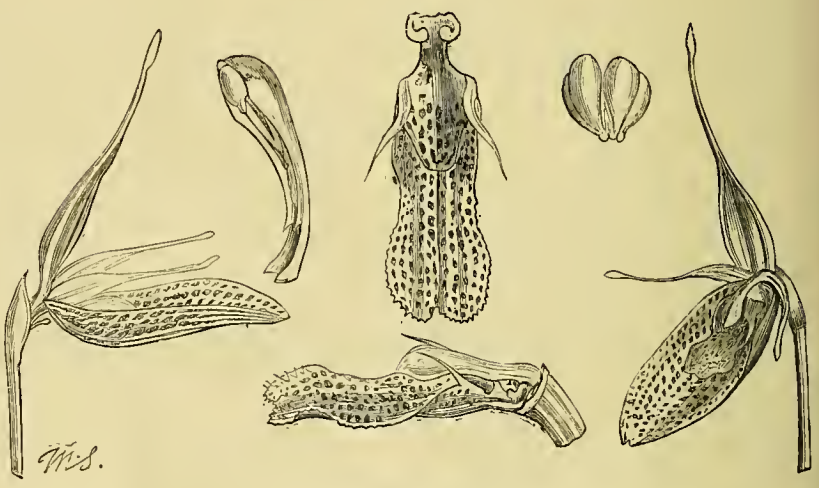

FIG. 35.—RESTREPIA ELEGANS.

Orchid Notes.

ODONTOGLOSSUM HEBRAICUM.—This pretty Odontoglot was described by Professor Reichenbach in our columns some two years since (*Gard. Chron.* n.s., xi., 462). It is regarded by him as a wild hybrid, closely related to O. odoratum. The accompanying illustration (fig. 36) shows its general aspect and the curious markings on its petals, which latter have given rise to the name adopted, from their being regarded as suggestive of Hebrew characters. The plant was imported by Mr. Bull, of Chelsea, from plants in whose establishment our sketch was made. The flowers are yellow, with brown spots on the sepals and lip, and irregular brown stripes on the petals, these latter being the markings which are considered as recalling the appearance of certain letters of the Hebrew alphabet; the flowers are twice the size of those of Odontoglossum odoratum, which it resembles in colour, but the lip is a darker yellow at the base. The elegant habit of the plant and the showy colours of its flowers give it a claim to rank high as an ornamental plant. It was, we believe, obtained from the United States of Colombia.

CATTLEYA MENDELII VAR. PULCHERRIMA.

The distinguishing characteristic of this most beautiful variety is in the great size of the individual flower. Sepals and petals a lovely captivating white with a slight dash of lemon towards the base of the midrib of the petals. Labellum nearly orbicular at extremity, upper part completely enveloping column and also white; the lower portion a sort of purplish peach blossom, a tint as beautiful to look upon as it is difficult to describe. The frilling of the expanded portion is very marked and enhances the general appearance of the flower, in this outline, in fact, not inferior to the frilling of the leaves of many German Greens. This grand variety has so surprised every one who has been fortunate enough to see it in flower, that some sort of varietal description seems necessary to bring it within the general knowledge of Orchidists. Last time the writer saw it in flower was in the collection of Holbrook Askell, Esq., Norton Wood, Liverpool, and although flowering from a smallish pseudobulb it was captivating in the extreme. The large figure which it commands, places it in the meantime beyond the pale of the general buyer, but in time, from its rapid style of growth, it will doubtless be obtainable at lower rates. *J. A.*

Aerides odoratum purpurascens.

A correspondent very recently stated that the old and well-known Aerides odoratum was but seldom seen at exhibitions in recent years. He was alluding to the Manchester district, but the same remark applies to London and other districts as well. Exhibitors are not to blame for this; they are wise in their generation, and know full well that small plants well grown and flowered of the more recently introduced species and varieties, such as Odontoglossum vexillarium, O. Roezlii, O. crispum, O. Pescatorei, or the brilliant Masdevallias would be placed before a plant of Aerides odoratum by the judges, even if the latter was ten times the size; and in the case of an exhibitor who has to convey his plants many miles to the place of exhibition he wisely selects those that, though of small size, are of the highest quality. Some of the normal forms of Aerides odoratum cannot be considered very choice or showy plants, but there are some varieties of it which are well adapted for exhibition. Perhaps the best form of the species is the variety purpurascens. It is remarkable for the length of its spikes, which are thickly set with beautiful waxy-white flowers tipped with red. There is a grand plant of this variety in the gardens of John T. D. Llewellyn, Esq., Penllergare, Swansea, which has a history of its own. In the year 1858 it was a very small plant indeed, less than a foot high, and in bad health owing to the plant having been lost for about six months behind some pots, when it became much shrivelled, and on being examined was found infested with white-scale. Mr. Nunn, who was gardener at the time, had the white scale destroyed by washing the plants with the following mixture — it will thoroughly destroy the scale, Mr. Nunn says, and does not injure the plant:—Sulphur, 8 oz.; snuff, 8 oz.; hellebore powder, 8 oz.; nux vomica, 6 oz.; soft-soap, 6 oz.; Cayenne pepper, 1 oz.; and 1 quart of tobacco liquor; add to it a gallon of boiling water, stir the mixture well and strain through a cloth. It is also recommended by Mr. Hamilton to destroy scale on Pines. The plant was then placed in a teak basket in sphagnum and clean potsherds, and placed in the Pine-house. It was ultimately placed in the Orchid-house over a tank of water heated by hot-water pipes. The house is a span-roofed one, and at the time was glazed with very small panes of glass, usual in many houses. The plant formed roots speedily, which had a tendency to descend into the tank, but were coiled up before doing so. The plant increased rapidly in size; and has been placed in a basket 12 feet in circumference. It is now a very large specimen, and produced sixty-eight spikes of bloom this season. The minimum temperature of the house in winter is 60°, and during the growing season from April to October it is 70° with the usual increase by day. This plant is a living witness that Orchids of this kind may be grown for many years, and be maintained in health when the circumstances are favourable. About twenty-five years ago Mr. Nunn also took charge of a small plant of the rather miffy Vanda cœrulea. It stood for some years on the stage of the house with other Orchids; but as usual did not make much progress, until it was suspended near the glass, under a ventilator that was frequently open. From the time it was placed in that position it made vigorous and healthy growth, and is now a large and valuable specimen, producing large spikes of its beautiful pale blue flowers every autumn. Last season there were four spikes on the plant, which produced in the aggregate sixty-four flowers. This plant is grown in the same house as the Aerides, and has the same material to grow in. There is yet another noteworthy plant in this Orchid-house of which Mr. Nunn may feel justly proud. It is a plant of Vanda teres, which has also taken a quarter of a century to grow from a small plant. This species has a tendency to run up with a very slender stem to a great height. It will grow 2 feet in twelve months. Mr. Nunn's plan was to cut the head of it when it reached the top of the house, and to tie it to an upright flat piece of cork. This has been done many times, and now a large specimen has been formed, which this season produced eighteen spikes of its large, quaint, but extremely beautiful flowers. The plant is simply fastened to the cork, and has no sphagnum or peat for the roots to run into. It is syringed two or three times daily during the growing season. During winter it is kept very dry, receiving only enough water to keep the plant from becoming quite shrivelled. With this treatment the Vanda teres flowers as freely as the V. suavis. We have two plants of different varieties at Loxford Hall, and each of them flowered this season, treated as above described. Mr. Nunn has now left Penllergare, and one of the young men who was trained under him, is now gardener, and the plants

Fig. 36.—Odontoglossum hebraicum: flowers yellow and brown.

succeed as well under his fostering care as they did under that of Mr. Nunn. There is not much chance of Orchids like these being found in some large collections, the poor plants so often change hands. I am sure there are certain Orchids must have been under Mr. Stevens' hammer six times at least, to my own knowledge, and every time there must have been a change of treatment, because no grower would be likely to treat a plant exactly the same as it had been managed previously. *J. Douglas.*

THE CULTIVATION OF CATTLEYAS.

There can be no doubt that Mr. Bruce Findlay has raised a very important question as to whether Cattleyas should be treated purely as epiphytes, rather than in the use-and-wont semi-terrestrial mode of culture. It has often occurred to me in visiting the different collections of Orchids in the country, and seeing the various systems at work — some almost quite the antipodes of the other, and yet more or less attended with success—that after all there is no royal road to culture. It is all very well for a man if he has been successful in evolving what might be called an approach to the superlative qualities of a particular species to suppose that his system of culture is the thing needful; but before he is in a position to make an assertion of this kind it is needful for him to see that every other system is acting prejudicially, or rather that it is not attended with a corresponding success. We all know that there are many injudicious or haphazard modes at work killing their thousands—and for aught I know in these days their tens of thousands—of imported and established plants; but notwithstanding that, there are many excellent examples of culture brought about in a variety of ways. Take, for instance, the subject at issue—Cattleya and its cognate species — than which there is not what might be called a more gorgeously beautiful race, and yet how unsatisfactorily they generally appear in the majority of collections established for some time in this country. The anomaly becomes more pronounced when we find that those that are successful are successful in exactly opposite ways. No one will venture to gainsay that Sir Trevor Lawrence's collection of Cattleyas and Lælias, both for extent, variety, and general excellence, stands unrivalled. Almost as much might be said for those of Mr. George Hardy, of Pickering Lodge, Timperley, whose magnificent examples have from time to time graced the famed national exhibitions at Manchester. Now, these plants, or the majority of them, are cultivated on the semi-terrestrial system. Of course, something more than that is needed to command success, but the principle is there.

Take again the Constable Burton Orchids, which seem to have risen, Phœnix-like, into existence and notoriety,* and some of the Cattleyas and Lælias are certainly prodigies of culture. The Cattleya Warnerii, in the possession of Mr. Fred. Yates, of Higher Fenniscowles, is simply not equalled in this country. There is no doubt the variety has something to do with it, but such pseudobulbs and leaves I certainly never saw, and the flower-spikes, I think Mr. Yates said, bore eight to ten flowers, as long as a man's arm from the elbow downwards—such a thing, in fact, as one could give another a whisk on the side of the head with to some purpose! Now this Cattleya was grown on a raft with the bark on it; good sound pieces of a wood I did not know, with scarcely, if anything, of a plastic nature in the interior. The same treatment had been followed out with Cattleya Mossiæ and other Cattleyas as well. I did not quite understand whether those enormous masses of Cattleya Skinneri I saw at Mr. Hardy's and at Mr. R. Percival's, The Clevelands, Southport, had been originally treated in the same way, but any of these gentlemen, or their gardeners, will no doubt furnish particulars to any anxious enquirer. There is this fact at any rate established, that superlatively grown specimen Cattleyas have been grown upon the purely epiphytal principle; whether any or everybody could grow them that way or not is a very different matter. One word, as our spiritual leaders say, "by way of application." Mr. Findlay says the roots die if embedded in the peat and sphagnum for any length of time; so they do also in the wood when it decays, and there hangs the difficulty with all culturists. Whenever the grower allows his specimen to get too firmly attached to the pot, semi-terrestrial fashion, or to the block or raft, or whatever it may be, on the epiphytal system, then come his difficulties. Every culturist knows that to keep Orchids healthy, with the view of growing them into specimens, there must be no check, and if this be true of the generality of species it is emphatically the case with Cattleyas, which, when once checked, never regain the same power of producing bulbs, flower-spikes, or flowers. It is my firm opinion, founded on no inconsiderable practice and observation, that when once a man has provided the proper climate for growing Cattleyas, and can keep them clean and grow them well, that if he is not afraid to handle them, and can handle them at the proper time and in the proper way, he is bound to be successful on either of the two systems. Of course I am describing the probabilities supposing each exponent of his system to have been master of it for three or four years to start with, because there are many details for the beginner to attend to over and above the physical conditions under which the roots love and enjoy life. *James Anderson, Meadowbank.*

* Although I had the pleasure of knowing the late Mr. McLaren, who was a relative of the late Mr. Thomas Dawson, and who invited me to see what he called his "little lot," I had no idea of their importance from his modest way of speaking of them, else I would have made a point to have had a look at them as they were.

A SEEDLING CYPRIPEDIUM.

J. C. Bowring, Esq., Forest Farm, Windsor Park, has in flower now a most beautiful seedling Cypripedium Hookeræ. It is as far away from the original form of Hookeræ as is a poor variety of barbatum from the very best barbatum superbum. The cross I understand is between Hookeræ and barbatum, but in foliage the novelty is entirely after Hookeræ. The sepals and petals are of a dark purple, the lip is dark brown, with an incurved division down the centre, as if forming a double labellum. Mr. Bowring has raised a number of seedling Cypripediums, but nothing, I should say, to equal this. How much the varieties differ out of the same seed-pod!—for there is another flowering called gemmiferum, more like a form of villosum. *S. J., Ascot.*

Foreign Correspondence.

ST. PETERSBURG: *July* 12.—RUSSIAN APPLES.—I send you the description and drawings of three of the best known Russian Apples, belonging to the three sections of—1, summer, or early Apples, which ripen on the tree, such as "Beloi naliv;" 2, autumn Apples, which ripen a fortnight later, and may be kept until winter ("Borovinka"); and, 3, winter Apples which are gathered at the end of autumn, and which do not ripen before the commencement of winter ("Antonovskoë"). It must be remembered that in consequence of the immense extent of Russian territory, and the distribution of the Apple in almost every part of the empire, the number of varieties, as well as the diversity of names, is excessive. It is, therefore, indispensable to adopt the commercial nomenclature, such as is employed in the great towns, and especially in Moscow. Besides the Crimea, which supplies enormous quantities of Apples of the best quality and of very marked characteristics, it is especially the provinces south of Moscow, such as Toola, Koorsk, Voronege, and Saratov, whence is sent the greater part of the Apples used in Moscow, St. Petersburg, and other places where the consumption is large.

The manner of culture is very simple. Standard trees alone are planted; cordons, espaliers, and every description of trained trees are unknown. The cultivator of our Apple trees is generous Nature herself, unassisted by the agency of man. In this case, as in so many others, the scanty development of our industries is due to the abundance of the natural resources of our country. There can be no doubt that many of our varieties of Apples, if properly cultivated according to the most approved methods, would hold their own in competition with the best foreign products. Even as it is, many of our Apples are of such quality that we need not envy foreign productions.

1. *Beloi naliv.*—Literally translated, this meaus opaque white. The word Beloi (white) is applied in consequence of the whiteness of the flesh and of the skin, and naliv (opaque) to mark the difference between this variety and one very like it, called Skvosnoë (transparent), which becomes, after the cold nights of autumn, so transparent that the pips may be seen through the flesh. The opaque white is an Apple of moderate dimensions, 2½ inches in diameter, rather elongated, with slightly projecting ribs, especially towards the summit. Its flavour is slightly acid. The flesh is white and juicy. It ripens on the tree towards the middle of August, and is easily preserved until the end of autumn. It is, therefore, an early, or summer variety. The tree produces scattered branches, with cinnamon-brown bark, with narrow leaves. It begins to fruit three or four years after the graft, and yields a good crop every other year.

2. *Borovinka, Borovinskoë, Bravinskoë.* — The last name, although less used than the others, is the preferable one. It means the Apple of Mr. Bravin, a landed proprietor of the government of Toula, who was the first to raise it—or, at least, was one of the first to grow it in quantities. It is an Apple of moderate size, 3 to 4 inches in diameter, of a pretty rounded form. The skin is yellow, striped. The flavour is pleasantly acid; the flesh juicy, crisp. It ripens on the tree at the end of August, and may be preserved in the fruit-room until the new year, when it becomes mellow and sweeter. The tree has a rounded head, with rather narrow deep green leaves. It bears the fourth season after the graft, and yields a good crop every year. This variety is largely grown, and is in general use. It belongs to the autumn Apples—*i.e.*, it ripens after a short time in the fruit-room.

3. *Antonovskoë*, or *Antonovka*, or Antony's Apple, was formerly known under the name of Douhovoe (perfumed), by reason of its odour of Vanilla, or of Melon. Fruit of medium, or of more than medium size, 3 or 4 inches in diameter. Its form is sub-globose, slightly elongated, with ribs more prominent in the smaller than in the larger specimens. Skin greenish, becoming shining yellow. It ripens towards the end of September. The flavour of this Apple is delicious, with a very agreeable refreshing acidity. The flesh is yellowish, juicy, and crisp. It is an excellent variety. Having a thick skin, it travels well. It keeps for a long time, even until the next season, and makes magnificent preserves with sugar, or, preserved in brine, it forms a good salad. It is made into marmalade, which forms an essential constituent of the preserve called pastila. The tree bears an open head. The wood is strong. It begins to fruit the fifth year after the graft, and produces a crop almost every year. *P. Wolkenstein.*

Garden Operations.

KITCHEN GARDEN.

The long-looked-for and much needed change in the weather—rain—has come at last! and as a consequence of the nice steady rains which we have had during the last few days the subjects in this department show a marked improvement in condition; for although the garden-engine, water-tubs, and watering-pots have been almost in continual use during the day, the water so applied to the roots of the various crops was, owing to the combined and intense heat of the sun, the atmosphere, and the earth, together with the exceeding dryness of the latter, absorbed almost before it even reached the surface-roots. However, with crops of Peas, Tomatos, Beans, &c., which had a good mulching of short dung, the case was widely different, inasmuch as the latter conserved the moisture at and kept the roots cool. Cauliflower plants seem to have suffered most from the effects of the excessive heat and deficiency of moisture at the roots, as a large percentage of them either went "blind" or button-hearted; especially is this the case where the soil was light and open, but with plants growing in stiff (moisture-retaining) land the results are more favourable. Tomatos.—The present is a most favourable season for the cultivation of Tomatos out-of-doors, inasmuch as it is unquestionably a sun-loving plant, and when the roots of the plants can push *ad libitum* into the surrounding soil they require comparatively little water at the roots, especially if the latter are well mulched with rotten dung. However, in addition to the surface-mulching of the plants we found it necessary during such weather as we have been having up to the 28th ult. to water them a couple of times a-week with weak liquid manure. This not only stimulates a vigorous growth in the plants, which are naturally free-growing, but also enables them to swell finer and a greater quantity of fruit. Attend well to the thinning and stopping of the shoots and leaves, so that anything like overcrowding of either may be avoided, and that the fruit may be fully exposed to the influence of the sun, and see that the shoots are, with nails and shreds, tacked to the wall as soon as they require it to be done, otherwise they will be liable to get damaged by the wind. If

the above simple cultural details are attended to there need be no fear of the result being otherwise than satisfactory this season.

General Work. — Early Potatos, which are excellent in quality, are, owing to the dryness of the season, under rather than over the ordinary size. We lifted the greater portion of our early kinds this week, which were sized and put away on the shelves in the Potato-house—those for seed in one place, and those for table in another. A portion of the ground thus cleared will come in for the winter crop of Spinach, Cauliflowers, and Broccolis. The beginning of next week, in cold districts, and a week later in warmer localities, will be a good time to make the first sowing of winter Spinach, and again about ten or twelve days later, in shallow drills, not less than 16 to 18 inches asunder. About the 18th or 20th of this month Cauliflower and Lettuce seed should be sown on a warm border for wintering in pits and frames, and to be transplanted under handglasses and in the open in February and March next. For this purpose we prefer Early London, Walcheren, and Veitch's Autumn Giant Cauliflower—the latter to fill in the blank that otherwise might, and frequently does occur between the supply had from the autumn-raised plants and those raised in heat in January; and black-seeded Bath Cos, Lee's Immense Hardy Cabbage, and Hammersmith Hardy Green Cabbage Lettuce: three excellent hardy winter varieties. These sowings, however, should be made a week earlier or later than the dates above given, according as the situation is cold or warm. Our own practice, and one that we would recommend to others, is to sow another pinch of seed of the respective kinds about the 25th of the present month. The seed should be sown thinly rather than otherwise, to prevent the plants from damping off when they come up through being too close together, and protected from the ravages of birds by a piece of netting supported by short forky sticks, to prevent the former getting at the seeds through the latter. Sow the seed of Lamb's Lettuce thinly in drills 1 foot apart and 1 inch deep on a warm border about the middle of this month, and, as also the seeds above referred to, water through a fine rose in the event of the weather rendering it necessary at the time of sowing or subsequently. Continue to plant out late Broccolis, Savoys, and Winter Greens as ground for that purpose becomes vacant. Another planting of Celery (from late sowing) and Leeks may still be made. As soon as the seedlings of Cabbage Lettuce and Endive—the result of the seed sown on July 25—are large enough to handle, prick them out in small beds and guard against the depredations of slugs by dusting a mixture of lime and new soot along the side and at the ends of the beds; and so soon as the young plants of Endive and Lettuce become large enough let good breadths be planted of each sort for autumn and winter use. Make a small sowing of Chirk Castle and Orange Jelly Turnips, which are two good winter varieties. Continue to sow Radishes, Mustard and Cress in a warm border; the latter, we find, comes up better when shaded with a mat for a few days after sowing. Clip Box-edgings in kitchen gardens; this should be done either "round or square fashion;" in either case it will be necessary to use the line, but the operator must also have a keen eye and good taste; for this is a piece of garden workmanship, which, according to the manner in which it is executed, adds to, or diminishes from, the appearance of a garden and the credit of the workman. *H. W. Ward, Longford Castle.*

FRUIT HOUSES.

Peaches and Nectarines. — As succession-houses become cleared of fruit give them the same treatment as was applied to the early houses as regards syringing, maturing, &c., taking out all weak and useless wood not required for bearing fruit next season. By doing this now very little pruning will be required in the winter, and the wood will get thoroughly ripe and well prepared to carry a crop. Peaches and Nectarines have come in very quickly indeed during the hot weather we have had, and have required looking over and gathering most days, in doing which the greatest possible care should always be taken. It is best done early in the morning, and before they are quite ripe, as if allowed to get ripe the slightest pressure from the fingers causes a bruise, and I always think the fruit is better flavoured if gathered before it is fully ripe. As they are gathered place them in a padded box or basket, and put them in a cool fruit-room on a padded shelf. By doing so they may be kept in good condition for a week or ten days after they are gathered. Keep late houses clear of red-spider by constant syringing. Stop all lateral growth and ventilate according to the time they are required to be ripe. *J. Wallis, Keele Gardens.*

Melons.

In my last Calendar I pointed out the necessity of looking ahead with regard to autumn crops, and endeavoured to elucidate, by way of illustration, a variety of ways by which a supply of fruits would be best obtained during the latter part of the season. It is, of course, well understood by all that Melon growing after the middle or end of September cannot be successfully accomplished without a fairly good house heated by hot-water piping; but it is by no means impossible to grow late crops of Melons in houses of the very humblest description, provided there is anything like adequate heating surface to keep up the required temperature. Even houses that are not constructed or equipped according to modern ideas may be so far made to answer the purpose by a little makeshift, which is seldom wanting in practical gardeners, that the desired end may be attained by foresight and management. Where hot-water piping is deficient for supplying bottom-heat the area to be warmed should be circumscribed by enclosing the piping with a 4½-inch brick wall to, say, a width of 18 inches which will be ample width for a border run in autumn and winter. Strong wooden spars should be laid over the bottom-heat pipe or pipes, and a thin layer of leaves should then be spread over the spars previous to putting on a layer of half-rotted turf to form a base for laying on the compost. Upon the same principle if top-heat is deficient a bottom-heat pipe may be called into request temporarily if the house or pit is a span-roofed one, in which case a piece of trellising used as a staging for plants would be no obstruction to the heat ascending, which would give a higher temperature, and perhaps in many cases would be an advantage where glass accommodation is limited. Narrow ridges of compost are undoubtedly the best for Melon growing in autumn. The plants grow less vigorously and more hardy when their roots are restricted to space, than when they are allowed to ramble in a large, rich body of earth, which predisposes the plants to damping off at the base of the stem in wet, dull weather. I have found no compost better for autumn work than a free rather open loam with a heavy dash of wood-ashes well incorporated with it. Planted in this and given plenty of fresh air daily, the plants will grow stocky and set and swell their fruits freely, notwithstanding the adverse conditions through which they will have to pass towards the last stage of ripening. Crops that are now swelling and ripening will be all the better for a little assistance in the shape of fire-heat at nights, and the supplies of water to the roots of the plants should be reduced should the weather continue cold and dull. *W. Hinds, Canford.*

Cucumbers.

The conditions under which Cucumbers succeed in a young state correspond so exactly with that recommended for Melons, that the preparation for winter forcing that applies to one case will apply also to the other. There is, however, an important difference with regard to present planting. In the northern parts of the kingdom the first batch of plants for early winter supply should be ready for planting about the middle of August, while a fortnight, or even three weeks, later will be soon enough in the South. A variety sent out by Mr. Pettigrew, of Cardiff Castle, and bearing his name, has served me so well this season that I cannot refrain from bearing testimony to its fine constitution and productiveness a second time. It is a "cut-and-come-again" variety, that is sure to become popular for winter forcing. Not long ago it was common enough to see light soils recommended for winter Cucumber growing, but experience has proved this to be an error. The soil most suitable for winter culture is a rich mellow loam, generous and open, that has been stacked up for not less than six months and having occasional layers of well-rotted dung put between the turfs in stacking. The feeding propensities of the Cucumber are so well known that I need only mention the fact to show how needful it is to provide a suitable compost for winter planting. Light materials, such as mixtures of peat and leaf-mould, do not contain much of the elements of nutrition, which the Cucumber requires to sustain it in winter. Plants, it is true, grow in such composts, and bear well for a while, but they lack stamina to pull through the winter and often collapse at the turn of the year, which is the critical time of the whole season. The work among bearing plants at the present time is of a routine description, such as pinching, training, and giving the necessary supplies of water to the roots, as well as constant syringing, to keep down insect pests and to maintain a growing atmosphere. Where a supply of pickling Cucumbers is deficient now is a good time to make up the blank from plants that are fruiting freely in houses, pits, and frames. *W. Hinds, Canford.*

FLOWER GARDEN.

Roses, Edgings, and Shrubs.—At last we have been favoured with rain in rich abundance, and growth is very rapid, and everything should be done to make the most of the present favourable conditions. Roses should have every bad flower and sucker removed, and long or irregular shoots shortened back, to encourage an early second bloom. Sprinkle the beds with guano, and for fly syringe the plants with tobacco-water; tie up climbers, shortening back the growth as needed. Evergreen edgings and hedges of all kinds should be neatly trimmed with shears, and specimen shrubs with a knife; unfortunately some have succumbed by reason of the severe winter, and these ought to be dug right up, and the crippled ones be cut back to the live parts. Other trees and shrubs—in our case Rhododendrons especially—that were planted late in the spring seem all but dead, but most of them may be expected to break from the bottom, and so at present should only be cut down. Where labour is abundant and the seed is not wanted, every seed-vessel should be picked off Rhododendrons and straggly shoots shortened back, to keep the plants evenly shaped without being too formal. At this season it is also necessary to have a general turn at all shrubs that overhang walks and roads, the only rule to observe in pruning these being the avoidance of formality of outline, by knifing, not clipping.

Hardy Flowers, &c.—Many of these are very effective just now—none more so than the Phloxes, Achillea Ptarmica flore-pleno, Spiræa Filipendula alba, Antirrhinums, and Pentstemons; constant attention is needed to keep them tied to supports, and bad flowers removed, that their seeding may not hinder the development of succession flowers. Gladiolus, Sweet Peas, Dahlias, and, indeed, any other tall growers that have been planted in such borders to fill out vacancies, should be tied up and be kept well in bounds that they may not injuriously affect the permanent occupants, and should there still be space for others the present showery weather affords a good opportunity for putting out Wallflowers, Lavender, Sweet Williams, and any kinds of hardy annuals that may be at hand. If not carpeted with undergrowth plants, keep the surface soil loose and open.

Subtropical and other Bedding Plants.—Subtropicals have grown so freely of late that it requires an effort to keep pace with them, to see that they do not suffer for want of ties, or of being crippled by former ties cutting into their stems. Pinch back—not too stiffly though—the undergrowth plants, and in any beds not yet fully clothed a few pegs may help to complete the covering which also serves as a mulching, as well as a cushion for the better display of the taller plants. Carpet-beds being quite filled out, the only further keep needed will be the preventing of the plants running together and so spoiling the designs. This is very little trouble in our case, for the simple reason that all rank growers have been discarded in favour of those that grow close naturally, and do not require such frequent clipping or pinching: the names of the best of these have been given in former notes. Ordinary bedding-plants, such as Pelargoniums, Petunias, Heliotropes, and Calceolarias, need frequent picking over to keep the beds in trim order. Cuttings of many kinds of Pelargoniums may already be had in plenty without marring the beds, and these if at once put in will make fine plants for winter decoration, as well as fine specimens for the vases next bedding-out time. Violas, Pansies, Calceolarias, Verbenas, and Lobelias, will only continue in full flower the whole season when the bad flowers are removed before seed formation begins; this done, and plenty of water given, their continued gaiety is certain through the season.

General Work.—To keep walks well rolled and free of weeds by hand-weeding—walks that are hoed are never usable, at least with any degree of comfort—grass verges should be cut once fortnightly, and mowing of turf about once in ten days. From now to the end of September may be said to be the height of the season as regards flower gardening, and therefore high keeping, that is, the most perfect neatness in everything, is more desirable now than at any other period. *W. Wildsmith, Heckfield, Hants.*

A Cane Boat.—A Fijian colonist has hit upon an ingenious method of utilising the canes which grow in such abundance in all tropical countries in the construction of a small centre-board boat, which took part in the late regatta at Levuka. The canes of which the vessel is constructed are about the size of a man's thumb, split into laths, and worked diagonally in two layers, those in the outer "sheathing" crossing in an opposite direction to those of the inner layer. The whole has been caulked with a preparation made from indigenous india-rubber mixed with turpentine, a coating of the same mixture in a thinner form being painted over all as a varnish. The boat, strengthened inside with thwarts and iron beams, is thus of an elastic nature, which enables her to withstand an enormous amount of knocking about without leaking, while her lightness is equally remarkable. She is constructed on the "ram" principle, and is but 13 feet long, and of the great beam of 6 feet; but, notwithstanding her great breadth, she proved at the regatta that she is possessed of good sailing qualities. The experiment is certainly worth repeating on a larger scale, since an amount of buoyancy, lightness, and stiffness, combined with elasticity, can apparently be obtained in vessels built of canes which cannot be obtained in any other material. *Colonies and India.*

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	Aug 9	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M. Weston-super-Mare Horticultural Society's Show.
Wednesday,	Aug. 10	Royal Botanic Society's Anniversary Meeting, at 1 P.M.

SOME seem to think that the Rose season ends with June, or at the latest July. This is, however, a great mistake. The trade, by the help of maidens alone, runs the season through August and well into September. Before these late maidens have finished flowering the old established plants have begun to bloom afresh; and thus through young blood a liberal supply of Roses in the open may be gathered from April to November, for the Maréchal Niel on warm walls may be had in bloom in April, and plentifully in mild seasons in May—Gloire de Dijon makes haste to follow its lead, and the latter Rose is generally the last to be gathered, plucked as it were, a thing of beauty and sweetness, "a joy for ever," from the cold jaws of winter. It is one of the merits of the Gloire de Dijon and a few other Roses to freeze and thaw with comparative impunity. The buds seem able to bear from 8° to 10° of frost without losing their growing force; hence a few days' mild weather and a few glints of sunshine brings them out even after their hearts have been frozen through. A few more Roses equally hardy and persistent in blooming would do very much to lengthen and heighten the beauty of the Rose season at both ends.

Singularly enough, too, though Maréchal Niel as a rule only flowers once under glass, it may be made to bloom twice in the open air, and thus keep the Gloire de Dijon company in the autumn and early winter. To effect this desirable object it is only needful to work the Maréchal as a standard on the Brier, and plant it in the open. Here it will flower well early in June, and again flower far more sparingly from September onwards till arrested by the frost. La France is another of the most valuable autumn-flowering or, rather, perpetual-blooming Roses. Either on the Brier or its own roots it can be forced by high culture alone, that is, rich feeding with liquid-manure, to go on growing and flowering—the two in La France being inseparable—until the end of the season.

Hence if we say the Rose season has been short, we mean the season in private gardens rather than in the nurseries or on the farms of the trade. The season has, however, hardly been an average one. What with frosts, droughts, extreme heats and sudden depressions, the Roses have had a hard and trying time of it. They may be said equally to dislike zero and zero plus 100° of heat; subject to both within an interval of little more than six months it is little wonder that a good many Roses succumbed under the double trial.

The long-continued drought also proved very trying to Roses in many localities, and not a few gave way under it in shallow, light, and poor soils. Good soils and even the power of irrigation ought to be at the command of Rose growers, if they are to baffle seasons and always have their Roses good alike.

The past season also shows the necessity of originating and multiplying more hardy Roses. In pursuit of form, fragrance, perpetual blooming—all qualities of the highest merit—it is possible that an excess of Tea or China blood has been poured into many of our best and most popular Roses. Hence many of them have grown in tenderness even faster than they have grown into beauty. Surely with so many species to work with it might be possible to retain or even heighten the beauty while adding to the hardiness of our Roses.

Until this is done, a certain amount of protection must be given to our best Roses. As a preliminary to better protection it might be wise to alter the character of most of our Roses. Standards, for example, seem made to be hit hard by the frost. Raised from 2 to 4 feet above the ground, with the point of union between bud and stock, necessarily the most tender in all the plant, fully exposed to all weathers, it is little wonder that many of the plants are crippled or killed outright. All their most vulnerable parts are set, as it were, in the teeth of the north-east wind.

By planting Roses on their own roots, these roots and the lower portions of their stems can readily be made safe. It is just as easy to earth-up the lower portions of the stems of Roses with, say, 6 inches of soil, as it is to earth-up Potatos. Roses so earthed would fight the weather with compound force, the ridge of earth would keep the stems dry; and even zero is powerless to pass through a few inches of dry earth. Were there any danger of this, 3 inches of loose litter over the soil would quadruple its protective power and render the Rose roots and stems frost-proof against any possible cold incident in our climate.

The efficiency of these modes of protection were well tested during the past winter, and in no case that we have heard of, where they were used in time, did they fail. A spread of litter alone over the roots saved tens of thousands of Tea and other Roses; it might have saved almost all. A handful of litter or Fern fronds in the crowns of standards proved also very useful. In the case of these, however, the stocks are not seldom frozen to death under the Rose. The latter looks all right, starts into bud, attempts to leaf, at the first budding of spring. The sap, then suddenly summoned from the roots to the aid of the growing top, is, however, speedily arrested by the frost-bitten stems, and the welcome promise of life is soon wrecked in hopeless death. Of course, it would be possible to protect the whole of the stems with haybands or some other means, but surely it would be wiser to dispense with them, if, as now seems well established, as many as good, or better, Roses may be gathered from dwarfs as standards.

The slaughter of the latter last winter has done more to alter the form and fashion of Roses, than all that has been written against them; nevertheless, it will be a long while before standards disappear. It is just as well that it should be so. Violent changes of fashion are hardly consistent within the domain of high art, and no one can deny that standard Roses belong to the latter. The trade may also be said to have a vested interest in standards: of course, we mean a legitimate vested interest. Their stocks at the present moment are doubtless many millions strong. In some of the Rose farms there can be hardly less than half a million Briers budded, or about to be budded, this year. The whole of the vigour and all the root-force of this dense forest of Briers will speedily be diverted to the service of our best Roses with as much certainty and almost as much ease as each private water cistern is filled from the main.

It is all very well for us or others to advocate Roses on their own roots, but to the trade, with all the stem and root force of Briers ready to force the Rose buds into bushes with leaps and bounds, it must seem very like telling the householder who has his connections with water mains complete to dig a well for his own use, as to urge the trade to strike their Roses from cuttings. In the latter case they have to create, or, at least, develope force; in the former they have simply to divert it. It must also be confessed that the Briers, standards or dwarfs, are like horses in the stable ready harnessed to be put-to at the shortest notice, whereas Rose cuttings are more like unbroken colts at large in the meadows. We do not say these are our views, but they are those that must needs strike the trade, and no one can fail to admit their force. And it must also be admitted that the greatness and success of horticulture in most of its branches is largely based on the imprisonment of the strength and energy of wild plants for the service of cultivated varieties. Logically and physiologically there seems no more cogent reasons why Roses should grow on their own roots than fruit trees or other shrubs or plants. The fact is, an enormous number of cultivated plants borrow roots, not flowers, from other plants; and the arrangement cheapens production, and hastens, beyond all calculation, the multiplication of species and varieties.

The trade in Roses may be said to be built up on borrowed roots. They are time and money-saving expedients, of enormous power and importance, and for these reasons alone they will be certain to be used for many years. The tastes, the interests, the power of the trade, in this matter suits the means and the wishes of their customers. Rapid, moderately cheap, and large supplies are what is chiefly desiderated by the public. The trade has purchased, prepared, furnished these Rose farms to meet and satisfy these demands; it would seem well nigh impossible to satisfy them without the use of borrowed roots, and for the present that consideration may settle the matter.

Nevertheless, on our visits to Rose farms we should like to see more Roses on their own roots. There need not be a healthy Brier the less for the present, but surely there might be many tens of thousands more rooted cuttings. There is room enough throughout the country for all that can be produced. It is one of the most pleasing signs of the times to find that in such a season of severe depression as the country has passed through—if it is yet through it—that the Rose trade has suffered little, if at all. Everywhere we note extensive improvements, more and finer stocks of Briers and Roses, and the symptoms of extended and extending trade. Large and prosperous as is our Rose trade we believe it is as yet, as it were, but in its infancy. With more warm walls, and more glass for Tea and other tender Roses, and larger areas of land in the open devoted to Rose growing, the time may yet come when Roses will be well nigh as plentiful in November as in June, or when Roses all the year round will be brought within the range of all who care to make the smallest sacrifice to possess them. In the Rose trade it is almost the same as if the ordinary maxims of political economy were being reversed—that the supply was creating and sustaining the demand; but having given the masses a taste for the best and sweetest Roses the cry is still for more. Thus the trade in Roses is sure to prove a growing one, and to keep pace with the growth of wealth, intelligence, and culture. In regard to the latter the Rose is likely to exert a powerful influence, for if it be true—and it is—that men become assimilated to the objects of their pursuits and affections, surely close companionship with the Rose will form a centre of sweetness, a source of light, to many, and a refined and ennobling pleasure for all.

—— Garden Architecture.—The house we illustrate this week on a separate sheet, has been recently built in the Cambridge Botanic Garden, for the residence of the Curator. It is built of red brick with white painted wood barges and cornices, and contains dining and sitting-rooms, office, kitchen, scullery, four bed-rooms, and bath-room. The coal-cellar and conveniences are beneath a separate roof, and adjoin at the back of the house. The office is conveniently provided with separate entrance and door communicating with the house passage. A ground plan accompanying our illustration will explain the internal arrangements, which are very convenient. The house is situated near the Panton Street entrance, which is chiefly used in business and by visitors; its principal aspect is south, the windows overlook a portion of the garden and the road leading from the gate into the garden is commanded from the

office. The architect was Mr. W. M. Fawcett, M.A., whose design has proved eminently successful. The house is in perfect harmony with its surroundings, and bears the most evident fitness of character. The neighbouring ground has been relaid out, and improvement has been effected by the removal of decayed shrubs and alteration of the walks, &c.

—— Pelargonium Society.—The annual meeting of this Society was held, according to announcement, on the 3d inst., in the gardens of the Royal Horticultural Society at Chiswick. The report of the committee showed a steady advance in the prosperity of the Society, though the aid of the friends of the Society is still needed in order to sustain, and if possible enlarge, its operations. Its chief effort has hitherto been made in the direction of exhibitions, which have been encouraged as the most ready means of acting on the sympathies of the public. That of the present year was in every respect satisfactory; the amount paid in prizes, which were well contested, was £124. Eighteen First-class Certificates have this season been awarded to novelties in the several groups of Pelargoniums now cultivated. The balance-sheet shows a sum of £41 19*s.* 1*d.* in the hands of the Treasurer, to be carried on to the next year's account. The officers elected for the ensuing year were:—Chairman, Mr. T. Moore; Vice-Chairman, Mr. W. Paul; Hon. Treasurer, Mr. H. Little; Hon. Secretary, Mr. S. Hibberd. As is customary on these occasions, the members present partook of luncheon in the great vinery, and a pleasant social hour closed the proceedings for 1880-81.

—— Hereford Roses at Regent's Park.—Cranston's Nursery and Seed Company, Hereford, opened an exhibition of cut Roses in the gardens of the Royal Botanic Society on Tuesday last, and which will remain open to the 9th inst. The display consists of about 2000 blooms, maintained fresh and gay by daily relays from the nursery.

—— The International Horticultural Exhibition at Manchester.—Again we remind intending exhibitors that the entries for the implement section close on the 10th inst., and for the horticultural on the 14th, and no entries will be received after these dates. A moment's reflection must convince the most thoughtless that unless the conditions in regard to this matter are observed it would be impossible to carry out a great exhibition like this in a satisfactory way. Some exhibitors seem to have a notion that they are the only persons requiring consideration. Another matter deserving the most serious attention on the part of exhibitors is not to enter for competition unless they intend to exhibit. No language we can use is strong enough to condemn such a practice. In the third edition of the schedule there are no fresh classes, as stated in our columns by mistake last week. As an illustration of the interest excited by the exhibition, we hear that over 2000 applications have been made for schedules. The details in connection with the opening ceremony will be given in our next issue. The Corporation of Manchester have granted the committee the free use of their municipal palace for the purpose of the banquet, which will take place in the evening of the first day of the exhibition.

—— Mr. John Verschaffelt's Nurserv.—We are informed that the widow of John Verschaffelt has retired from business, having parted with the horticultural establishment in the Faubourg de Bruxelles, Ghent, to Messrs. Romain and Raphaël de Smet, nurserymen, of Ledeberg, Ghent, who in future will carry on the establishment under the name of De Smet Frères.

—— Mr. Hewett Cottrell Watson—In the death of Mr. Watson, which took place at his residence at Thames Ditton on the 27th ult., at the age of 77, and which, was briefly noticed in our last, British botany has lost one of its most indefatigable workers. For upwards of fifty years he had been a prolific writer on the geographical distribution of British plants, his best known books being the *New Botanist's Guide* (1835-37), and *Cybele Britannica*, 4 vols., with supplements (1847-59). He was prominently connected with the London Botanical Society, and mainly the editor of the eight editions of the *London Catalogue of British Plants*. He was a copious contributor to periodical literature, especially to the old series of the *Philologist*. His garden at Thames Ditton has long been an object of pilgrimage for those who wished to see a fine living collection of rare and critical British plants. In 1847 he spent three months investigating the flora of the Azores, which was then little known, and he then discovered, described, and introduced into cultivation several of the more interesting endemic Azorean plants, such as Myosotis azorica and Campanula Vidalii.

—— Summer Bedding at Heckfield.—Although the season has been a trying one for all kinds of flowers, yet it has amply vindicated the right of summer bedding displays to a good position in public esteem. The flower garden at Heckfield is this year as beautiful as ever, and if it be possible even excels itself, though the bedding arrangements, designs, and material employed become simpler each season. Mr. Wildsmith made a most happy hit in largely employing the deep green Herniaria glabra for carpets and edgings, for the freshness of this capital hardy plant stood out in strong contrast to the brown condition of the lawn grass. Then the next most favoured carpet plant is Sedum glaucum, and these two form the basis of the greater portion of the beds. Alternantheras, usually wanting colour in damp, cold seasons, have this year suffered from the effects of too much heat, and for a time were very dull. The brightness wanting is now fast presenting itself, and with that the bedding will be perfect. Blue Lobelia plays an important colour part in the production of rich but not gaudy hues; and in the bright coloured Heckfield Favourite, the only one now used, may be seen the very best bedding Lobelia of the day, and one of the most enduring. There is a vague notion existing that the maintenance of a mass of carpet bedding, such as is here seen in good condition, entails a large amount of work. Such, however, is not the case; indeed, it is marvellous how perfect and beautiful it is kept with so little trouble, but the plants largely used are not exotics, and need little assistance. The succulent beds are gems in their way, cool, fresh, and without a fault. In the kitchen garden borders the introduction of small decorative Coniferæ with silver Thistles, and elegant leaved Grevilleas, lend a desirable feature that will be much admired, and when the fine plants of Sedum Fabarium [spectabile] are in bloom these borders will indeed be attractive and far more beautiful than any unstudied arrangement of plants possibly could be.

—— Cos Lettuce.—Sir Joseph Hooker, C.B., writes:—My correspondent, Mr. Calvert, H.B.M. Vice-Consul at Alexandria, who has recently contributed to the Kew Museum samples of Lettuce oil, for which the Lettuce is extensively cultivated in Egypt, asks how the garden name of Cos Lettuce has arisen, adding "My idea is that the word 'Cos' may have been derived from the Arabic word 'Khass,' which means Lettuce in general. In Turkey Cos Lettuce (Laitue romaine) is called 'Khass Marol;' 'Marol' (Lettuce), is derived from the Greek 'Marouli.'"

—— "The Bibliographer."—We understand that Mr. Elliot Stock will issue a magazine entitled *The Bibliographer* in the autumn; it is to be uniform in size and style with *The Antiquary*, and will be devoted exclusively to book-lore.

—— The North of Scotland Horticultural Association.—The following is the programme of this Association for the session 1880-81. The meeting place is the Music Hall Buildings, Union Street, Aberdeen:—Sept. "Lecturer," Mr. John Sadler, Edinburgh (Mr. Sadler's lecture will be delivered on the Friday evening of the Royal Horticultural Society's flower show, at 7.30 p.m.). Oct. 15, "Economy in Fuel," Mr. A. D. Makenzie, Edinburgh. Nov. 19, "Remarks on Vegetable Novelties of Recent Introduction," Mr. G. H. Smyth, Aboyne. Dec. 17, "The Arrangements of Flowers in the Flower Garden for Effect," Mr. A. M'Donald, Cluny. 1881. —Jan. 21, "Native Ferns and their Habitat," Mr. W. Walker, juo., Aberdeen. Feb. 18, "Potato Culture," Mr. R. Farquhar, Fyvie. March 18, "The Cultivation of Hard-wooded Greenhouse Plants," Mr. John Forrest, Haddo House. April 15, "Fruit Tree Culture, and sorts best adapted for the North of Scotland," Mr. J. Webster, Gordon Castle. April 15, "Pelargonium," Mr. P. Harper, Murtle. May 20, "Lecture," Professor Trail, Aberdeen. June 17, "Native Plants and their Culture," Mr. W. Sim, Gateside. July 15, "The Culture of the Vine," Mr. Jas. Henderson, Seaton Cottage. Aug. 19, "Hybridism—Natural and Artificial," Mr. James Taylor, Clashfarquhar.

—— The Weather.—With very contending emotions must the heavy rainfall of Sunday last have been contemplated. Those uppermost in the minds of the townspeople, who saw in it the possible forerunner of a wet Bank Holiday, may well be imagined Vivid recollections of the August Bank Holiday of 1879 would doubtless flit before them, and after such a long spell of dry and hot days the possible change of weather just now was not even contemplated—nay, is looked upon as a somewhat cruel proceeding. It is well the control of the weather is not in our own hands; for, were it so, and the question had just now been put to a popular vote, whether we should have a wet Bank Holiday or not, it is but too evident that the reply would have been by no means unanimous. Universally gardeners have wanted rain, but especially the market gardeners; and these can perhaps view a heavy downpour at the beginning of August with more complacency than most people. Their small fruits are all gathered, and give no farther concern. The top fruits sadly want rain, to invigorate the trees and swell the fruit. Apples, Pears, and Plums, all need the rain badly, and will improve their crops vastly under its benign influence. Peas are fairly past; early Potatos cannot now be affected, but late ones want rain; so also do runner Beans, Onions, Turnips, and other autumn crops. But their great trouble has been with Winter Greens, of which few indeed have yet been got out. Now they may plant out as fast as they like, and have no further concern as to the ultimate growth. Private gardeners, having similar troubles, have wanted rain badly for their parched lawns and flower-beds. The agriculturist, however, has his satisfaction alloyed, for his corn crops are either cut or ready for the sickle, and rain can do these little good, but perhaps much harm; still his cattle and pastures have long cried out for rain, and his root-crops sadly need it; so that if harm comes in one direction there are compensations. We may well hope that, whatever weather may come, all in the end will be for the best.

—— Grape Growing in Belgrave Square.—At this time, when roof and window gardening engage the attention of benevolent horticulturists, it will interest them to learn that in a conservatory in Belgrave Square, with an easterly aspect, and no artificial heat, an abundant crop of Grapes has been produced. Beneath this thick leafage Ferns have been raised, and now make a grand display of verdure, to the surprise of those who assert that damp and shade are necessary for their production. Two hundred bunches of Grapes will be soon sufficiently ripe to gather close to the drawing-room door.

—— Tomatos.—A clever writer has declared that in the eating of Tomatos lies the hope of the human race for deliverance from liver complaints. This should be good news alike to unfortunate sufferers from the ills to which the liver is heir and also to growers of the Tomato. We may be pardoned for thinking that this assurance is a little exaggerated, and that, further, it is not probable that because of the discovery medical men will have to shut up shop. If but one tithe of the virtues found or said to be found in various fruits or compounds were genuine, death should long since have become unknown to us, and the human race should be enjoying the felicity of living in perfect health and beauty for ever. But whilst we may throw just a shade of doubt over the light of the Tomato discovery, we can hardly desire to offer any check to the general and, if the public like, unlimited consumption of that fruit. That they will ever become acceptable as ordinary uncooked fruits seems improbable. A boy who would devour sour Apples with gusto, and think himself the envy of the human race if he had a bushel of such acid and indigestible products, would turn with disgust from the mawkishly sweet Tomato. We must train for a long while to get an appreciative palate for them, and when we have obtained that, too probably the appreciation for better fruits will be gone. Therefore we must fall back upon the Tomato in its cooked form if we are to be saved from the horrors of bile and disorganised livers, and there it is our troubles

begin, because it is not every one who can cook a Tomato. We may go further and say that, what with the difficulties with which bad seasons now and then beset the plants, it is not every one who can grow them. All the world eats Potatos, and to these we have already ascribed certain antiscorbutic properties: who will so far become the benefactor of mankind, particularly that portion troubled with deranged livers, as to tack on to the Potato the medicinal properties of its brother Solanum, the Tomato? That would be indeed a glorious result, worthy the approbation of grateful humanity.

—— Royal Horticultural Society's Gardens.—The number of visitors to the Society's garden at South Kensington, and the Medical and Sanitary Exhibition, on Bank Holiday, was 12,209.

—— Replanted Apples and Pears at Sudbourne Hall.—Those who are opposed to the system of root treatment, by which early fertility and a limit of branch growth proportionate to the situation which the trees occupy are secured, might have their opinions somewhat altered by a sight of the collection of Apples and Pears in the new kitchen-garden at this place. The soil is naturally such as to favour strong growth whilst the trees were young, and most of them were too vigorous to permit of their forming fruit-spurs. To remedy this and keep them within due bounds for the place they are in, right and left of the walks in the usual way, Mr. Bethell had them all a ken up and replanted last autumn, beginning as soon as the leaves dropped. As might be expected, the check has stopped all rampant growth, and induced the formation of plenty of fruit-buds, but beyond this the trees in many cases are carrying—on such bearing wood as they already possessed—fruit, just as if their roots had never been disturbed. They had been planted five or six years.

—— The Medical Congress.—We understand that the floral decorations at the luncheon given by the President, Sir James Paget, at which H.R.H. the Prince of Wales and the Crown Prince of Germany were present, were carried out by Mr. Appleby, of Dorking.

—— Gardeners' Royal Benevolent Institution.—Mr. Cutler sends us the following note relating to the simultaneous collection for the augmentation of Pensions Fund:—"As I dare to say that many of your readers are anxious to know how this affair progresses I beg to inform you that up to and including this morning (August 4) I have received 206 responses to the appeal, contributing no less a sum than £241 14*s.* 1*d.*, being an average of £1 3*s.* 5*d.* each response." We are somewhat surprised there has not been a more prompt response to a proposal which so cordially commends itself to the sympathy of gardeners and the friends of gardeners.

—— Mr. Abraham Holmes.—Lovers of the Carnation will hear with regret of the death of Mr. Holmes, for many years Parish Clerk of Wakefield, who died from apoplexy on the 26th ult., aged sixty-two. Mr. Holmes was a marked example of the dignity and gentleness conferred by a genuine love of Nature on those whose opportunities and position in life are not specially favourable for the development of such qualities, and was never more happy than when discoursing of his beloved flowers, or the history and particulars of his grand old church. As the raiser of the fine varieties, Sibyl, rose-flake, and Dan Godfrey, scarlet-flake, he will live long in the mouths and memories of Carnation growers.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 1, issued by the Meteorological Office, London:—The weather has been unsettled and cloudy, with more or less rain in all parts of the kingdom. Over the west and south of England the rain was very heavy. Thunder-storms occurred in many places on the 26th, and again at some stations on the 31st. The temperature has been from 3° to 5° below the mean in all districts. The highest reading recorded during the period was only 75°, which was registered at Nottingham on the 31st. The minima were low everywhere and at Cirencester and Marlborough during the early morning of the 28th the sheltered thermometer went down to 36°. At other stations in our central, east, and south districts temperature fell to between 39° and 43°. On the grass readings were, of course, much lower. The rainfall was less than the mean in "Scotland, E." and "Ireland, N.," but more elsewhere. In "England, S.," "S.W.," and "N.W." the excess was large. Bright sunshine was rather scarce, the percentage ranging from 41 in England and 42 in "Ireland, S." to 28 in "Scotland, W." Depressions observed:—The depressions during this period, travelling in an easterly direction, have been very numerous, but generally small and shallow. On the 30th, however, a rather serious disturbance was advancing towards Ireland from the Atlantic, and moving towards the north-east during the following day, caused strong south-westerly and southerly winds in England, variable air in Scotland, and fresh westerly breezes in Ireland. At the close of the period it had reached the west of Norway, and the wind had veered to west or north-west at all except our south-west stations, blowing strongly in the north of Scotland.

—— Publications Received.—*Country Pleasures, chiefly in a Garden.* By George Milner (Longmans).—*Proceedings of the Academy of Natural Sciences of Philadelphia.*—*Familiar Garden Flowers, Familiar Wild Flowers,* and *European Ferns* (Cassell & Co.)—*Handbook of Jamaica for* 1881.—*Newfoundland to Manitoba.* By W. Fraser Rae (Sampson, Low & Co.)

—— Gardening Appointments.—Mr. Andrew Roche, late Gardener at Betley Hall, Staffordshire, has been appointed Gardener to David Bromilow, Esq., of Bitteswell Hall, Leicestershire.—Mr. Alexander Dewar, who has been Foreman for some years at Archerfield, N.B., has been appointed Gardener to W. B. Davenport, Esq., Capesthorne Hall, Cheshire.—Mr. Joseph Turner, for three years Foreman to Mr. Bates, at Poulett Lodge, Twickenham, has been engaged as Gardener to R. H. Combe, Esq., Pierrepont, Farnham, Surrey.

RENDLESHAM HALL,

The Suffolk seat of Lord Rendlesham, is situated some 5 miles from the market town of Woodbridge, and 3 miles from the Wickham Market station of the Great Eastern Company's line. The early history of Rendlesham dates far back to times of which little is known except that conveyed through the usual fragmentary records of the distant past, but enough of these are existent to show that the place was one of importance when this part of the island was in many ways considerably in advance of others less under civilising influences. The mansion is approached from five different entrances, each with a lodge; the one near the village of Rendlesham deserves especial mention on account of its style being identical with that of the old Hall, of which some portions still remain. This old Hall was a very large building, standing at some little distance away from the new mansion; although much the greater portion was destroyed by fire some fifty years ago, sufficient yet remains to show its character and extent—the ruins with their mantle of Ivy being still very interesting. The new mansion, standing at some distance westward of the site occupied by the old building, is a handsome structure, erected about ten years ago, built of red brick with light coloured stone dressings. It is pleasantly situated in a splendidly wooded park of several hundred acres.

The great feature of Rendlesham is its beautiful trees, which, though magnificent, are not old enough to admit of conjecture as to whether or not they had vegetated at the time the Conqueror came, and are far from approaching the patriarchial condition indicated by hollow trunks and dismantled heads, that although often vastly interesting, too plainly foreshadow approaching exit, and in this way give rise to feelings somewhat sad. On the contrary, the trees here are in the full tide of their prime and vigour, their thick trunks encased with bark as smooth as saplings, except where rent in deep channels by the still rapid growth of wood. The unusual branch extension of many shows that with them there has been no lengthened struggle in which the fittest, though conquerors, yet bear the blemish marks inflicted by the vanquished; but they have from the first had room enough to show the form which Nature gave them. In addition to all that has been already said on this matter of enough room for trees that are planted to give effect, a volume might still be written, yet it is doubtful if all that could be added would induce people to give the subject that consideration which would lead to a better state of things, so opposed is the inclination generally to remove a tree when once it is planted. The spreading trees at Rendlesham give evidence stronger than words as to the advantages of head-room from their infancy. The whole grounds in the vicinity of the mansion are interspersed with fine trees, but the largest stand eastward from it. Amongst a number of the common Beech, the largest extends its branches some 90 feet in diameter—with others only a little less. A purple Beech not far away stretches its great limbs across a space of 75 feet from outside to outside. Sycamores, Oaks, and other deciduous trees thrive equally well, showing that the nature of the soil is such as to suit them. In the same way comparatively young Cedars of Lebanon, some eighty years old, which have been freely interspersed throughout the grounds adjacent to the Hall, have attained a size that exemplifies the rapidity of growth in this the finest of evergreen trees, where the soil and climate are favourable to it.

There is an extensive lawn around the mansion, well furnished with shrubs and flowering trees of various kinds. A handsome span-roofed conservatory, about 45 feet by 27, is attached to the western side of the building adjoining the drawing-room. It is a good-looking structure, composed of stone and iron, with large squares of bent glass in the roof, and lantern ventilation the entire length. A number of large healthy Camellias are planted out in the body of the house and are doing well. These are supplemented by the usual movable fine-leaved and flowering plants, amongst which Tea Roses and perpetual flowering Carnations form an important part, being used in quantity and very well managed.

The principal lot of plant and fruit houses are at some distance, near the remains of the old Hall, close to which there is an old conservatory—a structure that speaks of the earlier attempts at plant-growing under glass; it is now mostly occupied by Roses, which are planted out in the body of the house, and trained to trellises so as to bring their heads up towards the roof; they include most of the best Tea hybrids. On the front stage are grown a quantity of Nerine Fothergillii and Amaryllis, consisting of named kinds and seedlings raised by Mr. Mill, the energetic gardener, who has been twelve years here. There is here also another large house, which at one time did duty as a conservatory; it is used as a stove, and comes in very useful for growing such things as Eucharis amazonica, small Palms, Crotons, Dracænas, Ferns, and other stock that are wanted for room decoration and furnishing material for cutting. A couple of plants of Bougainvillea glabra in this house show the size this plant will grow to with its roots confined within a limited space. The stem of each is as thick as a man can grasp in the hand, yet they have their roots kept within a slate box, 3 feet 9 inches by 1 foot 8 inches wide. Trained to a wall near here is a large example of Wistaria sinensis that has attained an unusual thickness in the stem, measuring 7½ feet in circumference a little above the ground.

The principal fruit-houses are inside the walled kitchen garden; they are lean-to's, about 300 feet in length, divided into seven compartments, at one time warmed by flues, but now by hot water, and are a useful lot, well adapted for Grapes and Peaches, which are grown remarkably well, the Grapes especially having the finish about them in colour and bloom that marks successful cultivation. Commencing at the western end, the first house is filled with a mixed lot composed of Black Hamburghs, Madresfield Court, Lady Downe's, and Black Alicante, bearing a very good crop; these have their roots all in an outside border. The next division are all late sorts—Black Alicante, Lady Downe's, and Trebbiano, planted inside the bed, occupying three-fourths of the inside space with outside preparation for the roots as well; these also are bringing on a good even crop that promise well. We then come to a house occupied by Muscats alone, three years planted with a double lot, every other of which is ultimately to be removed to make way for the permanent Vines: this is the second year of bearing, and they are now carrying a nice crop, evenly distributed from top to bottom of the house. Adjoining is a Peach-house, the roof of which is filled with a couple of grand trees, Royal George and

Stirling Castle Peaches, with Elruge and Pitmaston Orange Nectarines on the back wall: these have been planted five years, and were carrying a beautiful lot of fruit. Next is another division with Peaches three years planted, and containing Vines also, which latter are being gradually confined to the space unoccupied by the Peaches. The Vines, over such space as yet remains to them, were carrying a satisfactory crop; the Peaches in fine order. The adjoining house is mostly occupied by old Vines, all Hamburghs except one Golden Champion and one Golden Queen. The last of the range is filled with Vines, and a large old White Marseilles Fig in excellent trim, bearing quantities of fruit. Half the battle in securing highly finished Grapes consists in keeping the foliage perfectly clear from insects, and in being content with as much fruit as the Vines can carry without over-taxing their strength. A glance through the houses here at once shows that these essentials are duly considered, for although the crops are ample there is no over-loading; and the leaves, even where the crop is finished, are as green and healthy as they can be. And as to the condition of the roots there is abundant evidence of their being right, both as to quantity and condition. At a short distance from these are two houses for forcing Strawberries, and for French Beans in winter; occupied in summer with Dracænas, Crotons, Ferns, and other plants of a similar description for table decoration. There is also here another house used for Strawberries, of which there was a quantity of beautiful fruit at the time I saw them, just before those from outside came in. Besides these are a couple of small houses devoted in the winter to forcing Carnations, which are well done, giving a continuous succession.

Then come the Orchid-houses, in seven divisions, filled with a good collection, representing most of the favourite genera, which are beautifully grown, the plants remarkable for their stout vigorous condition, the result of treatment best calculated to maintain a continued healthy state, by keeping them close to the glass, with the houses much less darkened by close shading even in bright weather than is often looked upon as the right course to follow. Commencing with the cool division, which comprises such Odontoglots as O. crispum, O. pardinum, O. Pescatorei, O. pulchellum, O. miniatum; Cattleya citrina, Epidendrum vitellinum, and most of the best Masdevallias; Oncidium macranthum, O. zebrinum, growing like a weed; these, and many others of the cool section were evidently at home under the management they receive. The next house is occupied by kinds requiring a little more warmth. There was here a beautiful lot of Sophronites, numbering some two dozen large plants; Odontoglossum citrosmum, Epidendrum Friderici Guilielmi, bearing a fine spike. Here also the plants collectively were in good condition, growing and flowering freely. In the adjoining compartment were numerous forms of Lycaste Skinneri, with bulbs almost as large as those of Anguloas, including the scarce A. Skinneri alba, Maxillaria venusta, Oncidium varicosum, O. crispum, O. incurvum, with Lælia autumnalis and L. autumnalis grandiflora, L. albida, Odontoglossum vexillarium, O. grande, and Masdevallia tovarensis. The Dendrobium-house contains, in fine growing order, quantities of D. formosum on blocks, D. suavissimum, D. Falconeri, D. heterocarpum, D. Bensoniæ, D. Wardianum, D. crassinode, D. tortile, D. thyrsiflorum, D. crystallinum, D. bigibbum, D. macrophyllum, along with others that thrive under like usage.

The East Indian-house contains a grand lot of plants, a few of the most noticeable amongst which are the scarce Phalænopsis Porteana, with six good leaves; the plant is over 1 foot from point to point of the leaves. A number of unusually large plants of other varieties of Phalænopsis, one specimen of P. amabilis, having leaves 14 inches long; another of the same fine kind has eight leaves, the largest of which are nearly as big as the one named. P. Schilleriana carries leaves over 16 inches in length; P. grandiflora is above 20 inches across; these with many others, including numbers of P. Lüddemanniana, are hung up close to the glass in a very light house; the foliage is of the thick leathery description, which is only present when the plants are in rude health. The miffy Cattleya superba is quite at home here, strong, and flower regularly; the Vanda Denisonæ is a fine example. Another plant, not usually seen in good condition, is Brasavola glauca, as vigorous as it well could be; and near it Burlingtonia fragrans, stronger than I ever before saw it. Saccolabium Blumei, S. ampullaceum, S. violaceum, Aerides suavissimum, A. quinquevulnerum, Angræcum sesquipedale, and Phaius Bensoniæ, with a host of other heat-requiring species, evidently liking the treatment they receive.

In another house are a quantity of Pleiones in variety, which for size and strength it would be difficult to match; amongst them are pans of P. maculata, 3 feet across, with other species nearly as large; Cœlogyne cristata, 5 feet in diameter, with big bulbs; Anguloa Clowesii, in fine order, Odontoglossum cirrhosum in quantity, equally well done; also the rare Anguloa Turnerii in flower; Lælia Dayanum, Cymbidium affine, and several large vigorous specimens of C. eburneum, one of which this spring had upon it twenty-one flowers, and is over 2½ feet across. From the stout sturdy growth present in the Cattleyas it is clear that the treatment they get suits them. I noticed C. gigas, C. labiata, C. Regnellii, and C. Skinneri, all in superb condition. In Lælias were L. anceps Dawsoni, L. anceps alba; numbers of Vanda cœrulea, hung close up to the roof, are thriving beautifully. Aerides crassifolium was likewise in bloom. The appearance of the collection of these plants, of which the above-mentioned are only a few that struck the eye in a hurried run through them, at once convey an impression that their present healthy state is not the only gratifying circumstance connected with them, for, beyond this, their appearance is such as gives promise of continued healthy growth, there being an absence of the soft, flabby, over-green looking leaves, which often turn out to be deceitful in their continuance.

Hardy fruit culture is equally successful with that of the indoor department, especially in regard to the most useful of all—Apples and Pears. Soil and climate combined with judicious treatment have brought about a condition of the trees, both such as are trained on the walls and also those in the open ground, that they seldom fail to produce good crops. I had an opportunity last summer, as well as the present, of seeing the trees, and the crop was then, as now, abundant. On the walls are numbers of Pears that have attained an age and size which usually results in their being of little worth; of these the principal kinds are Jargonelle, Glou Morceau, Winter Nelis, Beurré Diel, Joséphine de Malines, Doyenné du Comice, Louise Bonne de Jersey, Williams' Bon Chrétien, and Marie Louise: of the latter excellent variety there is one tree which rarely fails to yield from 4 to 6 bushels. There is a fair crop of Peaches and Nectarines on the walls, and some Apricots. A large number of pyramid Pears and bush Apples, planted by Mr. Mill some six years ago, made excellent progress and are bearing a very fine crop. Outside this enclosed garden there is a very big old standard Apple, Reinette Blanche d'Espagne, or Cobbett's Fall Pippin, that never fails to bear; last year it carried something like 3½ sackfuls, and this season it is quite as heavily laden, the branches at the end of June beginning to bend down with the weight of the fruit. It is a cooking sort, of excellent quality, with large fine-looking fruit, keeping up to the end of the year, and although seldom met with deserves to be planted largely in every garden where Apples succeed. Near it is one of the finest Walnuts I ever met with, as full of vigour as any of the big trees mentioned in the park; the trunk is 12 feet in girth, and the head of extraordinary size, the spread of its branches being 27 yards in diameter. Altogether there is much in the shape of good gardening to be seen at Rendlesham. *T. B.*

ALPINE PLANTS.

(*Continued from p.* 106.)

The alpine flora offers special peculiarities which distinguish it at first glance from that of the lowlands. Our flora very nearly resembles that of the Arctic regions, with which, moreover, it has certain species in common. A peculiarity of the flora of the glacial districts, whether in the Himalayas or the Arctic regions, or of the high American mountains, of the Pyrenees, or the Alps, is the dwarfed and stunted character which the plants have. The flora has thus with reason been called a Liliputian flora. The alpine species are all perennial, with one or two exceptions, such as Gentiana nivalis. They form tufts which spread over the soil like the finest and most delicate moss. The higher we ascend the mountains the more stunted the plants become. Herbaceous plants are dwarfed, and seem to be afraid to raise themselves above the level of the soil into which they plunge their roots. The grasses, which in the lowlands and valleys attain a height of 3 feet, at these elevations are only 2 or 3 centimetres in height. The shrubs especially are only found in a dwarfed and stunted condition, never attaining a height of more than 2 or 3 centimetres. Thus in this zone we meet with several species of Willows and Birches so dwarfed, and of such creeping habit, that they might be taken, at a distance, for mosses and lichens. The turf at these elevations is compact, and of a deep green colour, which surpasses in beauty and fineness that of an English park, although English turf is certainly very beautiful. It must be remembered that the air at these heights is cool and moist, and that the soil, heated during the day by the rays of the sun, preserves its heat for a long time; it is, therefore, natural that these plants should become contracted, and that they should hug the soil in order to protect themselves from the icy air, and that they should spread their foliage upon the surface to avail themselves of its warmth. What use would a tall stem be to them if they did possess it? They could not resist the frightful storms which occur throughout the year in these high regions. Are they not much more beautiful thus dwarfed, with their innumerable and many-coloured flowers and their carpet-like appearance? The flowers are often so numerous that they cover the whole tuft, and the foliage seems to have no other use than that of setting off the bright colouring of the flower. It is, moreover, quite evident that, considering the short space of time available to the plant to live, flower, ripen its seeds, and reproduce itself, it has no time to lose, and must concentrate all its energies in the production of flowers and seeds. It is evident that a Beech or a Birch could not accomplish all its season's work in two or three months. It is precisely the most characteristic feature of our flora that its plants should be stimulated to action by a very slight degree of heat, and that the growth should be extraordinarily rapid. During the three months, July, August and September, these plants complete the cycle of their existence, become covered with leaves, flowers and seeds, and form buds for the next season's growth. The slightest amount of heat awakens their activity, but that heat must be accompanied by intense light. It is light, even more than heat, which stimulates their growth. What gardener is there that does not know the life-history of those charming Soldanellas which do not even wait for the snow to disappear ere they unfold their flowers in the little cavities of melted snow around them. The solar rays have not yet sufficient power to melt the snow completely, and yet already the plants are stimulated, not by the heat, which cannot pass through the layer of snow without melting it, but by the light. The fact that the alpine plants only just awakened from their winter slumber are immediately exposed to the bright light of July, August, and September, for eighteen hours out of the twenty-four, accounts for their rapid development; indeed, as soon as the snow is melted the plants by which it has been covered for nine months are exposed to the solar rays during a day at least a third longer than that to which their sisters of the plain were subjected in early spring on awakening from their sleep. They are placed under conditions which are more favourable in proportion as the soil in which they grow is kept moist in proportion to the intensity of the sun's light and to the rarity of the atmosphere. By the action of these circumstances may be explained the astonishing rapidity of growth, such as also occurs near the Poles, where there are no nights in summer and no days in winter. The nights are very short and very bright on our mountains, as may be seen by the following illustrative figures:—At an elevation of 5000 feet the length of day increases 10 minutes 13 seconds; 6000 feet, 11 minutes 12 seconds; 7000 feet, 12 minutes 5 seconds; 8000 feet, 12 minutes 55 seconds; 9000 feet, 13 minutes 42 seconds; 10,000 feet, 14 minutes 27 seconds. This is not much, doubtless, but on adding up at the end of three months the amount of light and heat to which alpine plants are subjected in excess of that enjoyed by the lowland plants a total is obtained sufficiently important to be taken into consideration.

To the presence of this bright and continuous light may also be attributed the vivid colours of the flowers, which increase in intensity the higher we ascend the mountains, so much so that the same

-pecies has flowers of a totally different tint when growing in the valleys to what it has on the mountain. The insects which here, as elsewhere, are the principal agents in fertilisation being less numerous at these elevations than in the valleys, it is important that the flowers should be proportionately conspicuous, so as to attract the few that are present. The light on the mountains is so intense that comparatively few fungi are found upon them, and almost the only Cryptogams which are found are precisely those to which light is essential. Lichens are abundantly represented, and it is these plants which are the advanced guard of the alpine flora. They are found at great elevations, and even on the loftiest summits. On the highest peak of Monte Rosa, in the interstices of the rocks, many lichens are found. These strange plants in decaying supply the first layer of vegetable mould in which seeds, conveyed by the wind, by birds, or any other cause, may germinate and grow where previously lichens only existed. The foliage of these plants, rotting in its turn, adds to the thickness of the layer of humus. Other seeds arrive, and thus the alpine flora extends its boundaries.

Flowering plants are found at great elevations; wherever they can find suitable conditions there they establish themselves. Those which are found at the highest elevations are Cheleria sedoides, Chrysanthemum alpinum, Saxifraga bryoides, Silene acaulis, Poa laxa, Gentiana imbricata, G. brachyphylla; Saxifraga Seguieri, S. planifolia; Senecio uniflorus, Aretia helvetica, A. glacialis; Eritrichium nanum, Cerastium latifolium, Saxifraga oppositifolia, Ranunculus alpestris, &c. De Saussure gathered, at the height of 3200 metres, Aretia glacialis, Geum reptans, Silene acaulis, &c. On the St. Théodule, at a height of 3100 metres, Eritrichium nanum, Linaria alpina, Salix retusa, &c., are found. Saxifraga Boussingaultii is found on Chimborazo at an elevation of 4800 metres. Hooker met with bushes of Rhododendrons at 17,000 feet, and Gnaphalium and Artemisia at 18,500 feet. Strachey asserts that the limit of flowering plants in Thibet extends as high as 19,000 feet. *H. Correvon, Geneva.*

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.—V.

Subgenus II. Platyaster. — Perianth tube straight or slightly curved, the lanceolate segments spreading or ascending when fully expanded. Filaments equilaterally divergent from the suberect style.

** Australian Species.

24. *C. angustifolium*, R. Br., Prodr. 297; C. asiaticum var. angustifolium, Benth. Fl. Austral. vi. 454; C. arenarium, Herb. in Bot. Mag., t. 2355; C. australasicum var. arenarium, Herb. Amaryll. 259; Kunth. Enum. v. 567.—Bulb subglobose, with a very short neck. Leaves linear, 1½—2 feet long, 1—1½ inch broad, firm in texture for the genus, with close veins, tapering gradually to the point, the margin slightly scabrous. Scape about a foot long, green. Flowers 5—6 in an umbel; pedicels at most as long as the ovary; spathe-valves lanceolate, about 2 inches long. Ovary with 5—6 ovules in each cell. Perianth-tube slender, 3—4 inches long, curved in an early stage; segments of the limb lanceolate, shorter than the tube, 2½—3 inches long, ½ inch broad at the middle, spreading when fully expanded. Filaments bright red, about an inch shorter than the perianth segments; anthers linear, ½ inch long. Style finally about as long as the perianth segments.

A native of North Australia, representing closely in this part of the world C. americanum and erubescens of America. There are many varieties. The plant mentioned by Mr. Bentham, gathered by Hulls at Adams Bay, well represents Herbert's arenarium. C. confertum, Herb. in *Bot. Mag.*, t. 2522, is a robust form with leaves 1—1¼ inch broad, about eight sessile flowers, and a perianth limb 4 inches long, a little exceeding the tube; var. blandum, Herb. in *Bot. Mag.*, t. 2531, has broader leaves, distinct pedicels, pale filaments, not more than half as long as the perianth-segments, which latter are 1 inch broad in the cultivated specimens, and faintly tinged with red on the outside. A form found by Mr. J. G. Veitch has larger leaves, 2—2½ inches broad, smooth at the edge, short pedicels, a perianth tube 4½—5 inches long, and 2—3-inch segments. Another, found by Dallachy at Rockingham Bay, has still broader leaves (3 inches broad), quite smooth at the edge, pedicels sometimes an inch long, and a very slender tube 3 inches long, equalling the perianth-segments.

25. *C. uniflorum*, F. Muell. Fragm. iii. 23; Benth. Fl. Austral. vi. 454.—Bulb small, ovoid, with a short neck. Leaves 5—6 to a bulb, narrow linear, 1—1½ oo long, about ¼ inch broad, channelled down the face, tapering to a point, the margins smooth or distinctly scabrous. Scape slender, ½—1 foot long. Flowers often solitary, sometimes in pairs; pedicels none, or very short; spathe-valves 2—3 inches long, linear with a dilated base. Ovary oblong, with several ovules in a cell. Perianth-tube slender, 3—4 inches long, white, curved in an early stage; segments of the limb lanceolate, pure white, 2½—3 inches long, ½ inch broad above the middle. Filaments bright red, half as long as the perianth-segments; anthers under ½ inch long. Style much overtopping the anthers.

A native of North Australia and Queensland. J. G. Veitch gives the station as "sandy flats exposed to the sun." A very distinct species. It is in R. Brown's herbarium, from the Gulf of Carpentaria, on the same sheet with C. angustifolium. I am not aware that we have it in cultivation at present, but there is a specimen in Sir J. Smith's herbarium from Loddiges' garden, dried in the year 1789, and another marked "Amaryllis sp. nova uniflora, Hunter ad. Perryhill, prope Birmingham."

26. *C. venosum*, R. Brown, Prodr. 297; Benth. Fl. Austral. vi. 453. — Bulb and leaves unknown. Scape slender, not more than ¼ inch in diameter. Flowers 6—8 in an umbel; pedicels at most as long as the ovary; spathe-valves thin, lanceolate-deltoid, about 3 inches long. Perianth-tube very slender, 3—4 inches long, curved in an early stage, quite erect when the flower expands; segments lanceolate, 1½—2 inches long. Filaments about ½ inch long, equalling the linear versatile anthers. Style only a little overtopping the anthers.

A native of North Australia and Queensland, known in this country only from a few dried specimens. The short anthers mark it at once from all the forms of angustifolium, which otherwise it resembles closely so far as known. It may be identical with C. brevilimbum, *Herb. Amaryll.* 266, of which all that is known is a note of Dr. Carey's that it has "very rigid acute leaves and a broad short perianth-limb, like that of a Primrose," and came from Australia.

*** Tropical African Species.

27. *C. purpurascens*, Herb. Amaryll. 250; Kunth, Enum. v. 554; Baker in Bot. Mag., t. 6525. — Bulb ovoid, about 2 inches in diameter, with a short neck and abundant stolons. Leaves above twenty to a bulb, linear, thin in texture, 1½—3 feet long, 1 inch broad, much undulated, with a distinct midrib and a very narrow slightly scabrous margin. Scape under 1 foot long, subterete, tinted with purple, produced from the axil of one of the outer leaves. Flowers 5—9 to an umbel; pedicels none, or extremely short; spathe-valves purplish, about 2 inches long. Ovary small; ovules 3—4 in a cell. Perianth-tube very slender, 5—6 inches long, curved in an early stage, straight when mature; segments of the limb lanceolate, 2½—3 inches long, spreading when fully expanded, ¼—⅜ inch broad at the middle, tinted claret-red on the outside. Filaments bright red, nearly as long as the perianth-segments; anthers very narrow, 1 inch long. Style as long as the perianth-segments.

A native of Fernando Po and Old Calabar, growing, says Mann, in freshwater streams. My description is taken from a plant that flowered at Kew in the summer of 1879, sent by the Rev. Hugh Goldie. I have seen also a plant from Messrs. Veitch, raised from bulbs collected by Kalbreyer, and from Mr. B. S. Williams. Perhaps it would be better placed in the Stenaster section.

28. *C. subcernuum*, Baker.—Bulb large. Leaves lorate. Peduncle stout, compressed, 2—3 feet long, springing from the bulb outside the leaves. Flowers 10—15 in an umbel; pedicels sometimes 1—1½ inch long; spathe-valves lanceolate-deltoid, reflexing, 2½—3 inches long. Ovary oblong; ovules several in a cell. Perianth-tube 4—5 inches long, curved at the tip before expansion; segments of the limb linear-lanceolate, reflexing, 2½—3 inches long. Filaments bright red, about 1 inch shorter than the perianth-segments; anthers ½—¾ inch long. Style as long as the perianth-segments.

Common from Kongone up the Zambesi to Nyassa Lake, growing in stiff alluvial soil. Known only from the specimens and drawings procured in the Livingstone expedition in 1861—1863 by Dr. Kirk.

29. *C. Hildebrandtii*, Vatke, in Monat. Konig. Acad. Wiss. Berlin, 1876, 863.—Bulb columnar, 3—4 inches in diameter. Leaves lorate, 1½—2 feet long, 2½—3 inches broad, undulated upwards. Scape compressed, 1 foot or more long. Flowers 6—8 in an umbel; pedicels very short. Perianth-tube 7—8 inches long; segments lanceolate, spreading when fully expanded, about 3 inches long. Stamens a little shorter than the perianth-segments; anthers above ½ inch long.

Mountains of Johanna Island, at about 3000 feet above sea-level; discovered several years ago by Dr. Hildebrandt. Known to me only from the published description above cited, from which it seems nearest C. erubescens of well-known types.

30. *C. augustum*, Roxb. Hort. Beng. 23; Fl. Ind. ii. 136; Herb., in Bot Mag., t. 2397; Amaryll. 246; Kunth, Enum. v. 551; Baker, Fl. Maurit. 367; C. amabile var. augustum, Gawl., in Bot. Reg., t. 679.—Bulb ovoid, nearly 1 foot high by half a foot in diameter, with copious thick dull brown tunics. Leaves 20—30 to a bulb, lorate, 2—3 feet long, 3—4 inches broad, bright green, moderately firm in texture, narrowed to a point, with close veins and a narrow entire cartilaginous edge. Scape lateral, 2—3 feet long, much compressed, 1 inch thick, much tinged with purple upwards. Flowers 12—30 to an umbel; pedicels often 1 inch or more long. Spathe-valves reflexing, 3—4 inches long, bright coloured externally. Ovary oblong. Perianth 3—4 inches long, much tinged with red, curved in bud; segments lanceolate, as long as, or rather longer than, the tube, ½—¾ inch broad at the middle, bright red on the outside, erecto-patent when fully expanded. Filaments half as long as the perianth segments; anthers ¾ inch long. Style reaching half-way up the perianth limb.

This, I think, is decidedly the most effective species in the whole genus. It has long been known in Mauritius, where it grows or grew in marshes at Flacq and Pamplemousses, and on the banks of the Riviere des Citroniers; and lately Mr. Horne has found it in the Seychelles, both in the islands of Mahé and Curieuse, and Mr. T. Baines has brought both a drawing and a specimen from the Transvaal. My description is taken from a specimen that flowered at Kew in April, 1875, the bulb of which was sent by Mr. Horne.

31. *C. buphanoides*, Welwitsch, MSS.; Baker, in Trimen's Journ. 1878, 195.—Bulb the size of the head of a small child. Leaves lanceolate, 1¼—1½ foot long, 2—2½ inches broad at the middle, tapering gradually to a point, firm in texture for the genus, closely veined, the edge fringed with distinct linear scales. Peduncle about 1 foot long, under ½ inch in diameter. Flowers 30—40 to an umbel; pedicels finally 1—1½ inch long. Perianth-tube slender, 3—4 inches long; segments of the limb linear-lanceolate, 2—2½ inches long, ¼ inch broad, keeled with red down the back. Filaments nearly as long as the perianth-segments; anthers linear, under ½ inch long.

A native of Angola, in sandy woods of the subtemperate region of the province of Pungo Andongo, discovered by the late Dr. Welwitsch. A very distinct species, which has not yet been brought to Europe alive. *J. G. Baker.*

(To be continued.)

LINDENIA RIVALIS.

This fine Rubiaceous or Cinchonaceous plant was named by Mr. Bentham, in the *Plantæ Hartwegianæ*, in compliment to M. Linden, of Brussels, by whom it was first discovered growing on the banks of the Teapa, in Southern Mexico. Living plants appear to have been imported many years ago by M. Linden, who published a figure in his *Hortus Lindenianus*. Recently it has been exhibited by Messrs. Veitch & Sons, of Chelsea, at one of the meetings of the Royal Horticultural Society, and was awarded a First-class Certificate by the Floral Committee. It is an evergreen stove shrub, of moderate size and of considerable beauty. The lance-shaped leaves, which are 2 to 3 inches long or more, are clustered towards the ends of the shoots, and amongst these, in small few-flowered corymbs, are produced the long-tubed conspicuous flowers, the tube of which is about 5 inches long, slender, and of a pale rosy tint outside, while the limb, which is white and spreading, consists of five oblong lobes an inch long. It appears to flower during the summer months, having been recorded as blooming at Kew in the month of May, and Messrs. Veitch having exhibited it in July last. It is an interesting and beautiful plant, and being thoroughly distinct is one well worth cultivating in collections where variety of character and inflorescence, if associated with beauty, are more valued than the speciousness of a few decorative subjects. The annexed woodcut (fig. 37) was taken from Messrs. Veitch's plant. *M.*

ST. OSYTH, AUGUST, 1881.

A day devoted to St. Osyth during the floral season is sure to bring its reward in the shape of making the acquaintance of new popular flowers, trained with especial care, and either ready for immediate distribution to the public, or probationers in course of being developed and fixed—a process which often proves long and tedious, from fifteen to twenty years being sometimes absorbed in accomplishing this object, as we learn from Mr. Gardner, who is Messrs. Carter & Co.'s factotum at the St. Osyth seed farms.

The immediate object of our visit to this establishment on the 2d inst. was to see the new dwarf Tropæolum majus, called Empress of India, growing *in situ*, and a glorious sight it was, if richness and brilliancy of colouring are to count for anything in this fastidious age. Mr. Gardner had here done his part well, for in the large stretch of ground occupied by this variety not a rogue could be seen, and very few indeed were the gaps in the rows indicating the places whence inferior seedlings had been removed; this may be regarded as a strong test of constancy, as the whole batch of plants were at the time we saw them in full bloom. The plant is of dwarf compact habit, like King of Tom Thumbs, with dark-tinted foliage, and flowers of a deep but brilliant crimson, many degrees deeper and richer than in the variety just named, from which it has probably originated. We know of nothing which comes so closely to it in colour as some of the brighter crimson forms of Phlox Drummondii, which are peculiarly rich and velvety in the intensity of their brilliant colouring. We have no hesitation in saying that, as seen by us on this occasion, Tropæolum Empress of India will rank far ahead of anything of the kind which has previously been known.

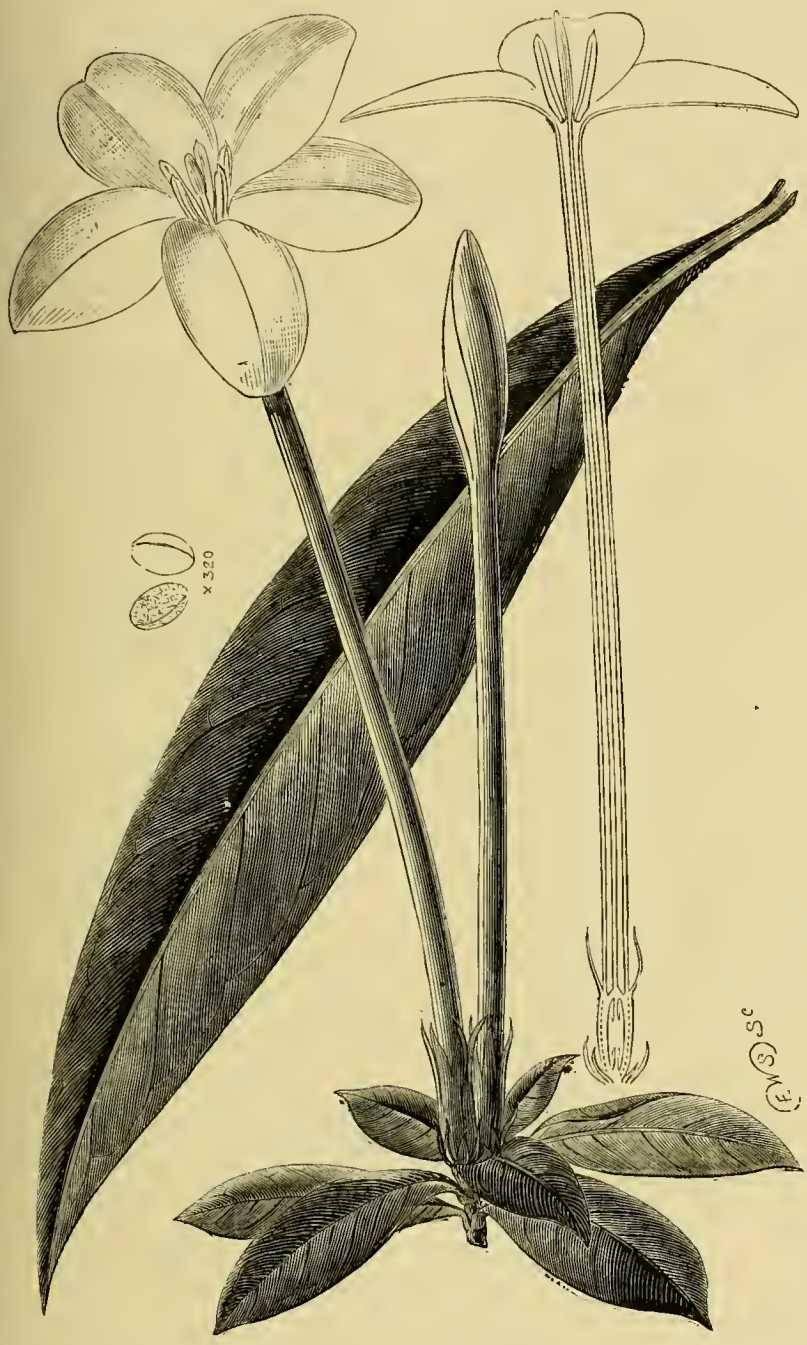

Fig. 37.—Lindenia rivalis: flowers with red tube and white limb.

Another good novelty—and yet not exactly novel, since it was raised thirty years ago by Mr. Gardner, but subsequently lost and again reproduced or reclaimed in a form which has required years of patient rogueing to bring it to a proper state of constancy—is what was called the very dwarf gold-striped French Marigold, the long rows of which were as even in the development of the plant as if they had each been pruned into the dwarf compact tuft in which it grew. In this case the plants do not exceed 6 inches in height, and average nearly a foot across, a close mass of foliage and flowers, the latter very double and perfect in form, some having the bronzy tint common to these flowers, but the bulk of them brightly and symmetrically striped with rich brown on a bright golden-yellow ground.

Another class of plants on which Mr. Gardner has been bestowing much attention are the bedding Pansies, which he has been working at incessantly in order to get them to come true to colour from seed. In this he has been wonderfully successful, as the broad masses of black, of blue, of Cliveden purple and of Cliveden yellow bear witness. These are reproduced almost without variation, the slight differences visible on a close inspection not being detected in looking at the mass.

What are called the Emperor Larkspurs are very beautiful, and must be extremely useful for flower gardens where annuals are much used either in beds or borders. They grow about 1½ foot high, are moderately branched, and bear a fine massive terminal spike of double flowers. The pure white form, the silver-grey, and the blue—the latter being of a rich deep purple, with an admixture of petals coloured of the bright metallic blue so conspicuous in the flowers of the old double Delphinium grandiflorum—are particularly pleasing.

Another Tropæolum which attracted our attention, and which cannot be too highly commended, is one called Spotted Queen, which is of the deep golden tint called dead gold, but here bright and sparkling in the extreme, and with the scarlet spots remarkably effective. For intensity and richness of colour it ranks amongst the yellows equal to the Empress of India amongst the scarlets, and the two would make a splendid pair to grow in contrast. The variety called Chameleon, a curious and varying sort, of a sulphur-yellow edged and sometimes flaked with scarlet, and having scarlet spots, is still undergoing improvements, the colours being more evenly distributed, and the plants more uniformly coloured than we have noticed them in former years.

Two new forms of Godetia, though not yet ready for distribution, are worthy of record, as an indication that other good things are in store; one is strong growing but dwarf, compact and free flowering, the flowers large and of a soft lake or satiny-rose colour; it is a very telling flower. Another is raised from reptans, and forms a carpet-like tuft of small foliage decorated with pretty white flowers having a small rosy spot on each petal, and which are produced continuously for a considerable period. A new double Rhodanthe Manglesii is in the same category of probationers; it is compact growing and very floriferous, with every flower-head completely doubled, and the colour brighter than in the original. This will be an acquisition, because the double variety now in cultivation is not constant, only a few of the principal flowers being duplicated. Still another probationer is a new carmine Eschscholtzia raised from Mandarin, which has the flowers of a deep lake-rose on the outer surface, white within—a great advance on the older variety in the same style. Two or three dwarf, compact-growing Lobelias are in process of being worked into constancy and usefulness. One distinguished at present as White Gem is very close and compact, of a pure white, but has not yet received Mr. Gardner's finishing touch; another, a form of L. speciosa, called Compact Blue, is also good; and a third, which might be called Ruby, from its intense purplish-red colour, is in training, and may be looked for in due time. An older form called Cobalt Blue is a bright-coloured self, which must be valuable on account of this latter quality, no less than for its cheerful tone of colour.

A very pretty and distinct Mignonette, called Golden Queen, will be a good addition to this fragrant family. It is stout-growing, but forms compact tufts, and the whole plant has a golden glow, owing to the presence of yellow instead of red anthers; hence it is appropriately named Golden Queen, and it is so distinct that if it can be kept constant, as there seems no reason why it should not, it will be a very desirable acquisition.

Turning for a moment to culinary subjects, it is only fair to say that in the Moss-curled Parsley Messrs. Carter have one of the most beautifully curled varieties that can be desired, and one which it is difficult to persuade to run to seed. A considerable breadth,

which we were assured had been on the ground two years, and intended for a seed crop last year, was only now in flower, and the lines were still abundantly furnished with plants which had not run. This property, added to its beautifully crisped leaves, should make it a valuable sort for general kitchen garden purposes. Another good thing was evident in the Southampton White Broccoli, a large stretch of some acres of which had stood in a very exposed position, and, as was quite evident, had suffered so little during the past severe winter that scarcely a blank space could be seen. It is said to be a very white, and we may assume it is a very hardy variety. *T. Moore.*

PLANTS CERTIFICATED AT CHISWICK,

BY THE FLORAL COMMITTEE (J. McIntosh, Esq., in the Chair), July 22, 1881.

Pelargoniums as Bedding Plants.—First-class Certificates.

Erckmann Chatrian (Lemoine). — Plant of very dwarf compact habit, very free flowering; trusses very large and compact, of a beautiful crimson-shaded scarlet; very showy.

Député Duvaux (Lemoine).—Very dwarf habit, free flowering; trusses large, well thrown above the foliage; very dark scarlet.

No. 9 (Lemoine).—Fine close growing habit, very free flowering; the trusses very large, and well thrown up, of a beautiful clear scarlet; very effective.

Pelargoniums as Bedding Plants.—Second-class Certificates.

Louis (Pearson).—Plant of very fine dwarf habit, free flowering; trusses and individual flowers large, of a beautiful magenta-scarlet; good.

Excelsior (Denny).—Fine dwarf habit, free flowering; the individual flowers large, of fine form, bright scarlet with distinct white eye; very pretty.

Single Pelargoniums in Pots.—First-class Certificates.

Dr. Orton (Pearson).—Plant of very fine dwarf compact habit; very free flowering, the trusses and individual flowers large and of fine form, very dark scarlet; very effective for pots.

Hettie (Pearson).—Plant of very strong vigorous habit; very free flowering, the trusses very large, well thrown up on very strong footstalks; the individual flowers very large, of fine rounded form, very pleasing magenta shaded scarlet with clear white eye; remarkably fine.

Double Flowering Pelargoniums.—First-class Certificates.

Sylvia (Pearson).—Plant of very dwarf compact habit, remarkably free flowering; trusses of medium size, very compact, well thrown above the foliage; flowers of a beautiful shade of pink; very fine.

Hero (Pearson).—Plant of remarkably dwarf habit; very free flowering; trusses large, the individual flowers also large and double, of a clear magenta-scarlet; very effective.

No. 62. (Lemoine).—Plant of very vigorous habit; very free flowering; the trusses and individual flowers large and full; flowers very clear salmon.

Ivy-Leaved Pelargonium.—First-class Certificate.

Anna Pfitzer (Lemoine).—Plant of long trailing habit, free flowering; leaves slightly zonate; flowers very large, semi-double, pink, slightly shaded with magenta, the top petals having distinct bands of purple; very distinct and pretty.

Lantanas in Pots.—First-class Certificates.

Reveil (Lemoine).—Plant of very fine dwarf compact habit, remarkably free flowering; the trusses of medium size, of a bright yellow colour; very fine.

Giselle (Lemoine).—Plant of tall, vigorous growth, very free flowering; the trusses of medium size, composed of two colours, the upper part of the truss composed of florets of a pale saffron-yellow, shaded with pink, the remaining part of the flower very pale pink, with a slight shade of magenta; very pretty.

Pentstemons.—First-class Certificates.

Jeanne d'Arc (Lemoine).—Strong vigorous habit, very free flowering; flowers large, pure white. A great acquisition.

Edison (Lemoine).—Strong vigorous growth, very free flowering; the individual flowers very large, beautiful dark purple, with very distinct white throat, slightly streaked with purple; very fine.

Marjolaine (Lemoine).—Very strong habit, very free flowering; individual flowers large, dark scarlet on upper side, and having a very distinct white throat; a good variety.

Begonia.—First-class Certificate.

Queenie (R.H.S.).—Plant of very strong vigorous growth, very free flowering; flowers large, and of good form, of a beautiful magenta shaded pink; very fine.

FRUIT COMMITTEE, CHISWICK, JULY 22, 1881.
(Harry J. Veitch, Esq., in the chair.)

The committee examined the collections of Peas and Potatos sent for trial, when the following awards were made:—

Peas.

Pride of the Market (James Carter & Co.).—A dwarf blue wrinkled Marrow. First-class Certificate.

Robert Fenn (Hurst & Son).—A dwarf wrinkled Marrow. First-class Certificate.

Potatos.

Cosmopolitan (Dean).—A large, early white kidney. First-class Certificate.

Early Cluster (Dean).—A half round early white Potato; very short haulm. Considered very suitable for forcing. First-class Certificate.

Lord Mayor (Dean) was greatly approved, and ordered to be cooked and exhibited at South Kensington.

Home Correspondence.

The Effects of the Winter of 1880-81.—I saw a few weeks since, in the columns of the *Gardeners' Chronicle*, some very interesting notes respecting the effects of hard frosts and such severe weather as that of last winter on trees and shrubs. Many facts were stated to prove that shrubs and other things had been killed in the valley, while similar subjects in high localities had escaped damage. A remarkable instance of the same nature has just come under my own notice at Little Missenden, Bucks. This village is situated in a somewhat narrow valley, and has the appearance of being sheltered on every possible side by rising ground, and in many parts by thickly planted woods. The place is noted for an excellent dark red Cherry, locally known as "Danglers;" Black Heart Cherries are also very plentiful in the neighbourhood. The Danglers, however, appear to be the greatest favourites, as tested by the numerous magnificent old trees of a size I scarcely ever remember to have seen elsewhere, and certainly never in such numbers; these trees in the valley orchards had the blossom entirely destroyed, while on the tops of the hills they have borne full crops. In the valley the kitchen garden crops also suffered most severely, Broccoli, Brussels Sprouts, Cabbages, everthing being cut down; while in the exposed gardens, on the tops of the hills, almost everything escaped injury. I cannot learn that "Danglers" are known by any other name; perhaps the local one, being expressive, is considered sufficient. The Cherries grow six or seven or more in a bunch, and hang on very long stalks, hence the name; they are a rich dark red-coloured fruit, of a medium size, particularly juicy and exceptionally sweet, and are, as I have been informed, very generally used for putting in "pasties," for the making of which the neighbourhood is noted. Apples and Plums appear to be a very full crop; of Pear trees I have seen but few round about, but those I have seen are loaded. Nuts are very plentiful, even in the hedgerows, while the individual nuts, as well as the clusters, are as large as those growing in the garden. Wild Raspberries, which are very fine, have been abundant in the hedges, and many may still be found in the woods; wild Strawberries also line the banks at the sides of roads and lanes. *T. S. 7.*

Proliferous Double Mignonette. — Mr. W. Balchin, of the Hassock's Gate Nurseries, lately obtained a First-class Certificate for a very remarkable Mignonette, which when first exhibited resembled the ordinary kind, only the flowers were double, forming little balls of minutely fringed petals. On Tuesday last he was good enough to send me two cut branches of this same Mignonette in a much better-developed state. The large panicles—for they can no longer be called spikes in the botanical sense—were over a foot long, profusely branching to within a few inches of the apex, with elegantly depressed branches, having the tips turning upwards. The whole is covered with double and richly-scented flowers. The peculiar part about it is that every branch proceeds out of the centre of a flower, occupying the position of the pistil. Sometimes two branches appear to rise from one and the same flower. Each of the branches may bear lateral branches; these also in the same manner rise out of the centre of the flowers—hence the term prolifera suggested for this remarkable variety. It of course cannot set seed, but can doubtless be readily propagated by cuttings. It is very handsome, totally unlike the very finest of the ordinary Mignonettes, and bears a rich perfume of Apricots, or that of Peaches, as suggested by some members of the Scientific Committee, before whom the specimens were laid. It will prove a valuable acquisition to gardens and conservatories. *George Henslow.*

Tulip Thieves.—We suppose the Dutch Bulb Catalogue mentioned at p. 58 to be ours, as we think there is no other firm here offering this speciality. There are a great number of varieties of Tulips, among which is a form of atavism. Occasionally some specimens lose their character and return to a form of Tulips with narrow flowers, and mostly of one colour only. These Tulips are known in Holland as thieves, and are always taken out and thrown away as of no value. We have for some years planted these variations separately, and found them constant. They have no horticultural value at all, or at least a very small one, but from a scientific point of view they seem to be of great interest, and only as such are they offered. We continue our observations in this matter, which perhaps will give an opportunity to make some communication later. *E. H. Krelage & Son, Haarlem, July* 26, 1881.

Picotee Painted Lady (Somers).—I beg to hand you flowers, just cut from plants in the open border, of the Painted Lady Picotee, a robust and floriferous variety, which I find admirable for supplying cut flowers at this season. As you will see, the colour is a bright scarlet, the petals fringed and backed with white. In the warm sunshine its brilliancy is wonderful, and it always attracts attention from visitors. It was given to me two years ago by the raiser, John Somers, Esq., of Dublin, an enthusiastic amateur florist. From a "florist's" point of view it has faults, but I think it a sterling good thing as a decorative variety or for cut flowers, and as such I can most thoroughly recommend it. Its "grass" is most vigorous, and as it roots freely from pipings a stock may soon be obtained. You will notice its rich full Clove-like perfume. *F. W. B.* [Curious and interesting. Eds.]

Bignonia radicans grandiflora.—Calling not long since at the Barborne Nurseries, Worcester, belonging to Messrs. Rowe & Co. (Limited), I met with a large batch of this plant in small pots in one of their houses. These plants, which were about 2 feet high, were flowering beautifully, and were struck from eyes put in last November in bottom-heat, and they broke into growth about January. When I look back to the old system of growing Bignonia radicans and B. radicans major from roots, as we did thirty to forty years ago, I confess to the wish that I had known of this system then. *Commercial.*

Digging and Storing Potatos for Seed.—Although the season has not been favourable for the growth of late Potatos, owing to the absence of rain, which they have much wanted to swell their tubers, it has been just the thing for the early kinds, as so far there is no disease, and the crops are everywhere ripening off in the most satisfactory manner possible. The skins being now set, there is nothing gained by leaving them in the ground, and the best way is to secure them at once by taking them up, as then they are safe, but if left with their stems and leaves still green, they are liable to attack any day, and, as is well known, the spores of the oidium spread at a great rate when once the plants are stricken, and the poison speedily enters the tubers, which soon after rot. To dig Potatos after the haulm is affected is something like locking the stable door when the steed is stolen, as the movement is too late in both cases; but if Potatos are out of the ground disease cannot affect them. Many, however, think they take it after, but that is a mistaken idea, as it can only enter through the circulation, and with the tops gone the circulation has ceased. What injures seed Potatos very much is exposure to the fierce sun after lifting, when many allow them to lie on the ground for days, thinking to ripen and harden them, which latter it does sure enough, for I have seen some that might easily have passed muster for stones. If Potatos are to be kept sound, plump, and good they must be placed in a cool airy shed or cellar, and the thinner they lie there the better. The kidney sorts should never be more than one deep, and so laid that the ends where the shoots are remain uppermost. What I like for them are shallow boxes, as in them they may be stored and lifted about anywhere, and at planting time carried to the ground without further handling. Managed and cared for in that way the shoots come strong and firm, and there is no fear of

breaking them off, as there always is when they have to be moved hither and thither in baskets. The round kinds, having so many eyes, do not need so much care to be taken, but even with these it is a great point towards securing a good crop if the first and best shoots are preserved, as to lose any of these tends much to draw out and waste the strength of the tubers. In the digging and saving Potatos for seed they should be lifted without bruising, and selected and sorted according to size, the best for planting being the regular shaped ones that are not over large, as such sets always produce the most satisfactory crop. *J. S.*

Orchard-houses: Plant Labels.—Will you allow me to correct a clerical error, which alters the sense, in my note on orchard-houses, p. 151. What I intended to write was, that the orchard-house should be put under the charge of a *not* first-class man. I am responsible for Mr. Wolley's Dod's labels being shown to the Label Committee, though not in competition for the prize. I thought them of merit, and therefore showed them. *George F. Wilson.*

Campanula Hendersoni.—For duration and abundant flowering this bright blue perennial Bellflower is unsurpassed. The plant and flowers are about of the size of C. carpatica, but the colour is better, the bunches larger, and the flowers far more numerous. *C. Wolley Dod, Edge Hall, Malpas, Cheshire.*

Nicotiana affinis.—The plant figured at p. 141 (fig. 31) under the above name is grown here under the name of N. acutifolia, and forms a stately and conspicuous object as its large flowers unfold in the evening. Self-sown plants are the most robust and symmetrical, many flowering stems rising from a whorl of broad radical leaves which lie flat upon the surface of the soil. What perplexes me most, however, is your statement that this plant has a pleasing perfume in the evening. [Powerfully so, but only at night. Eds]. Our plants are scentless at all times, and yet it agrees with your figure and description in all ways, except that the bulge in the tube where the filaments are inserted is much shorter (4—6 lines long only). A smaller species grown here is N. longiflora, which is indeed most fragrant at night. It is the plant so faithfully and gracefully figured by Sydenham Edwards in the *Botanical Magazine*, t. 673, and there described under the name of N. undulata. Is the N. suaveolens, alluded to at p. 144 as being grown at Sudbourne Hall, this species, or is it distinct? N. longiflora makes a pretty pot plant for a greenhouse; it is easily raised from either seeds or cuttings. It is possible that N. affinis may be a fragrant form of N. acutifolia, which, if I mistake not, was distributed by Max Leichtlin, of Baden-Baden, who may be able to guide us as to its geographical distribution. I beg to send herewith leaves and flowers of N. acutifolia, as also of N. longiflora (= N. undulata = N. fragrans = N. odorata), above alluded to as being figured in the *Botanical Magazine*. *F. W. B.*

Large Peaches.—Mr. Carmichael (p. 85) has done good service in speaking out on this subject. To such an extent has this rage for size in fruits for exhibition and other purposes been carrred that, when acting as judge, I unhesitatingly put the knife into them, and thus very often turn the tables on the monster large ones exhibited. You may tell me, if you like, that it is something new to taste Peaches at exhibitions: very likely; but as "the proof of the pudding is in the eating," it most assuredly holds good here also—more especially as lately the market, so to speak, has been flooded with new varieties. There is no necessity to taste the old varieties, their characters are known, and if size and colour be right, the flavour can then be trusted; but what I hold is, that before those new kinds receive first honours at our exhibitions let them in every way be fairly compared against old varieties, and this more especially applies to Peaches and Pears. *J. Rust.*

The Water Lilies of the Lower Mississippi.—The author of *Four Months in a Sneak-box* (*i.e.*, a duck-shooting punt) quotes (p. 132) the description given by an "intelligent observer" of the Water Lilies of the Lower Mississippi to the following effect:—"Two noble flowers—our familiar northern Water Lily grown to a royal form, its flowers 10 inches broad, and its floating pads near a foot across; and another grander flower, the Wampapin Lily. . . . From the midst of its great floating leaves, which are 2 feet or more in diameter, rise two large leaves, borne upon stout footstalks that bring them a yard above the water; from between these elevated leaves rises to a still greater height the stem of the flower. The corolla itself is a gold-coloured cup a foot in diameter, Lily-like in a general way, but with a large pestle-shaped ovary in the centre of the flower, in which are planted a number of large reeds, the 'pins' of Wampapin." Now blossoms of Nymphæa 10 inches in diameter would be splendid objects, but what is to be said of blossoms of Nuphar a foot in diameter? Do such things really exist, or has the "intelligent observer" indulged in a little poetical exaggeration? The blossoms of the American Nuphar do not in this country seem to exceed 2 or 2½ inches in diameter. Can climate and soil produce so astonishing an increase of size, or is the "Wampapin" Lily a different species from Nuphar advena? And if so, why do we not see it in some of our hothouses? *A. Nesbitt, Oldlands, Uckfield.*

Oxalis arborea.—Mr. Ellacombe having favoured me with a specimen of the plant mentioned by him under the above name, I find it to be Oxalis stricta. Mr. Ellacombe states that he had it many years ago under the name of O. arborea, which he afterwards discovered to be an incorrect name, but had forgotten the circumstance when he sent his note to this paper. Of Anomotheca cruenta Mr. Ellacombe writes:—"This is in blossom, and I have no doubt all the blooming plants are old bulbs. I have never seen reason to doubt its complete hardiness." *N. E. Brown.*

A Late Frost.—"Just about a frost this morning," were the words with which I was greeted early on the morning of July 27. "Nonsense: must be a heavy dew," was the rejoinder; and so saying I was soon away to the flower garden to look at the carpet beds, and sure enough there was a frost, and of sufficient intensity, too, to cut Alternantheras, Dahlias, and Potatos. To experience a difference in temperature of something like 100° in the same month is, even in our fickle climate, I should say, almost unprecedented. *J. Horsefield, Heytesbury, Wilts, Aug. 1.*

Late Peaches.—A dish of very fine Barrington Peaches staged, not for competition, by Mr. Thompson, gr. to W. Baring, Esq., Normans Court, at Southampton Show on Saturday last, took a great many persons, I doubt not, by surprise, and is worth a passing word of comment. Not having myself ever seen larger fruit I was led, partly from curiosity and partly from a desire to glean facts and information, to put a few interrogatories to Mr. Thompson, and it may possibly interest some of your readers and those who saw them to learn that the largest scaled 14 oz. The tree on which they were borne is quite an old stager and annually produces a good crop, but this year (owing to an unforeseen occurrence, the details of which I need not enter into here, and for which Mr. Thompson is not responsible), it only carries a crop of between four and five dozen; this, in a measure, accounts for their extraordinary size, but there are still some left on the tree which are larger than the ones under notice and which are not unlikely to run close up to 16 oz. *J. Horsefield.*

Convolvulus Soldanella—In a deep light soil, and an open, sunny place, this perennial makes a good garden plant, both leaves and flowers being very ornamental. I never saw it more abundant anywhere than on the sandy banks on both sides of the mouth of the Conway, to which it is a great ornament during the month of July. I have moved it successfully even when in flower, but it is necessery to dig to a depth of at least 2 feet. As it grows in loose sand, this is not a difficult operation. *C. Wolley Dod, Edge Hall, Malpas.*

Ferns in Areas.—There is no need to go so far as Eastbourne to see magnificent Ferns in areas. A walk through the pleasant streets of Mildmay Park, Newington, will be found very interesting and rather nearer home. No doubt Ferns may be grown in most areas in London (see p. 144). *C. L.*

Philesia buxifolia.—I have pleasure in responding to your call in this day's *Gardeners' Chronicle*, and in informing you and your readers that I have flowered this plant yearly for several years past, and both this and last year abundantly, on my rockwork, where it has stood unprotected without suffering very much from frost in any one year. A few of the leaves only were browned—perhaps killed—in the bygone winter, yet the blooms now fading off seemed to be as profuse as ever. But it never goes to seed, though I have often fertilised the stigmas with its own pollen. It was given out some years ago that a cross had been effected at Messrs. Veitch's establishment between Philesia and Lapageria and a hybrid raised from it [Philageria Veitchii x. See p. 358, 1872. Eds.]; if so, it will be most interesting to know if it still lives. Perhaps Messrs. Veitch will kindly say. I had Desfontainea on the same rockery, but being unprotected, it succumbed one winter two or three years ago. I do not know of it proving hardy with any one in this quarter. *I. Anderson-Henry, Hay Lodge, Trinity, Edinburgh, July 30.*

—— In your issue of to-day (p. 146) you inquire about two interesting plants from the southern hemisphere. Philesia buxifolia I have had for several years; at first in a greenhouse, but for the last two winters certainly (if not longer) in a corner exposed to the north and west, in the open air. It flowers most freely, and is now loaded with blossom; a shrub about 2 feet high and the same wide. Desfontainea spinosa I have had in the open garden for about a dozen years. It, too, is just now in abundant blossom. I inclose a sprig of each. *P. H. Gosse, F.R.S., Sandhurst, Torquay, July 30.*

Gooseberry Caterpillars.—Seeing that you have had complaints respecting the solution of quassia chips and Gishurst Compound, which I recommended in a former number (p. 674 of your last volume), I beg to say that since then I have had a plague more numerous than the first, which I noticed on July 8. On that day I obtained 10 lb. of quassia chips and a 3s. box of Gishurst Compound I had by me. The quassia I tied in a bag and put in a tub and added hot water, precisely as before, putting in the box of Gishurst Compound. I only added cold water to the amount of 30 gallons, being an extra 5 lb. of quassia. With this quantity one of my men syringed all the bushes (over 300) on the 9th, and not a leaf suffered. Had I not persevered I should have had neither a leaf on the bushes nor a fruit to eat or for the kitchen. I have used the same mixture with equal effect on Vines covered with red-spider, and on Melon plants infested with a small yellow insect in shape like thrips, which proves fatal if not destroyed. I send by the post a box containing Gooseberries and Cherries to be tasted; I also send shoots and leaves from the bushes. In the shoots you will perceive before and after the application; on the old leaves you will see the sediment, also on the Gooseberries. *W. B. B.* [The leaves on the shoots sent were quite unharmed; and the fruit—Cherries and Gooseberries—had no trace of unpleasant flavour. Eds.]

Aimée Vibert Rose.—In "Plant Portraits," in your last issue, p. 149, you quote *Journal des Roses* as giving the supposed origin of Aimée Vibert Noisette Rose, which I venture to think is not quite correct as to the raising by a sport. In 1826 or 1827 M. Vibert wrote to our firm in great ecstacy with regard to this Rose, which I have little doubt was raised from seed His words were, as nearly as I can recollect, "Je viens d'obtenir une nouvelle et magnifique Rose, devant laquelle tous les Anglais doivent se mettre à genoux, et je l'ai nommé apres ma fille Aimée." The reputation of this Rose has certainly been deservedly great, as is shown by its being still in cultivation, and being still the most beautiful white Noisette that we have. *Chas. Lee, Hounslow.*

Florists' Flowers.

Gloxinias.—We now have many very fine varieties amongst the numerous kinds distributed, but the raisers of seedlings should aim very much at obtaining substance, combined with form, in varieties to be sent out. I had heard of a very fine collection at Mr. G. H. Birch's, The Friary, Handsworth, Birmingham, so went a few miles out of my way to see them, and I then found some of the newer kinds wanting in substance, and suffering from the great sun power, although the house was shaded, whilst those of great substance were in no degree affected. The best new kinds as they have been introduced have been added to the collection, and I found the following varieties to stand out as distinct and fine amongst the others:—

Mrs. Bause.—Pure white, with a ring of rosy-pink, and white throat; of very fine form.

Pulcherrima (Williams).—Marbled lavender lobes and pure white throat; very distinct.

Hebe (Felton).—Rosy-carmine at the base of the lobes, with broad white margin and throat; fine form and substance.

Robert Forrester.—Deep rosy-crimson, with pale margin and clear white throat, fine form and substance.

Amœna (Williams).—Deeper in colour than Pulcherrima but wanting in substance.

Mirabile (Williams).—A beautiful flower, deep violet with a delicate margin of blush-white; good form and substance.

Magpie (Williams).—A flower of fine form, almost white with a delicate lavender ring at the base of the lobes, and white throat; a fine flower and plant of good habit.

Mdlle. Howlet.—Pure white delicately suffused with pink, and a bright pink small spot at the base of the lobes; a distinct and beautiful flower.

Madame Hubert.—A very similar flower, but with smaller spots.

G. F. Felton.—A distinct variety, the throat pure white extending into the base of the lobe, which is of blue-lilac, with lighter margin, and is of good form and substance.

Mont Blanc.—Is a fine pure white.

Mr. Edward Garrett, the gardener here, has been carefully hybridising for some time plants, and amongst his seedlings on trial, selected from last and previous year, are:—

Queen Victoria.—A marked improvement on all the

dark centred flowers. The throat and base are of an intense scarlet-crimson colour, in which scarlet preponderates, with a regular clearly-cut broad margin of white, of full size and wonderful substance and of good habit; a really fine variety.

Leviathan.—A very fine flower of bright rosy-carmine colour, tinted with violet in the throat and with paler margin; a grand flower.

Princess Alice.—Another grand flower, carmine with violet tinted throat and broad white margin; of fine form, large size and great substance.

Refinement.—A quite distinct and beautiful flower, with great breadth of green, pure white margin, with rich pale violet markings and pure white throat; of perfect form and substance, and capital habit.

Duke of Albany.—A flower somewhat resembling Queen Victoria, but with not so much colour in it, but here again that wonderful substance is prominent combined with form, which characterises all Mr. Garrett's seedlings.

Mr. Garrett has confined himself almost exclusively to the erect section. He has, however, paid some attention to the drooping kinds, and one variety, which has been named Queen of Roses, is a grand flower, and stands out boldly amongst the drooping kinds. It is of a beautiful soft rosy-pink colour, with rosy-crimson coloured throat, of great size and substance, and of excellent form. *D.*

Reports of Societies.

Woodford: *July* 20.—The annual exhibition of the Woodford and District Horticultural Society was held during exceptionally pleasant weather in the beautiful grounds of H. F. Barclay, Esq., Monkhams, contiguous to Woodford Green. The display was a remarkably good one. Mr. Donald staged many finely-grown stove and greenhouse plants, as well as fine-foliaged plants, &c., for which he took 1st prizes in the more important classes. Mr. Simmons staged the best Fuchsias, his Lucy Finnis being particularly well grown and bloomed. Palms in groups and singly were a remarkably good display; Mr. Turk secured the 1st prize and E. N. Burton, Esq. (Mr. A. Grove, gr.), the 2d. Perhaps the best Cockscombs that have been staged for some time were sent by Mr. Windebank (1st prize), Mr. Monk also showing very huge "combs," but with greater length of stalk and foliage. Caladiums were a good feature, and were grown in comparatively small pots. The best came from H. F. Barclay, Esq. (Mr. Williams, gr.), Mr. Monk coming in a good 2d. Gloxinias were very fine, the collections of Mr. Loudon and Mr. Grove being exceptionally so. Groups of plants were moderately numerous, and consisted more of new or rare kinds of plants, than, as is generally intended, showing effective arrangement, which is the special object for which they are asked. Mr. Monk was 1st, Mr. Williams 2d, and Mr. Turk 3d in this class. Hydrangeas are generally well grown and shown in this neighbourhood, and fine examples of both the normal coloured variety, and admirable examples of the blue-flowered form, were staged by Mr. Pertus, who was 1st, and Mr. Groves, 2d. Club-mosses and fine-foliage plants were best shown by Messrs. Rimball and Turk; baskets of pot plants from the former, and Ferns from Mr. Jones.

Miniature gardens were excellent here this season, the competition being very severe, and in the result the prizes were awarded to Messrs. Thurgood, Peters, and London, in the order given. With cut flowers Messrs. Turk, Baker, and Monk were successful. There is here a very good display generally of cut flowers in a variety of designs for drawing and dining-room ornamentation: in these classes Mrs. H. F. Barclay arranged a very pretty design in five or more glasses or divisions. These consisted almost entirely of wild Poppy, Cornflowers, and wild Pyrethrums, with grasses elegantly intermixed amongst them. Miss Barclay also showed a very light and effective water bouquet. Other ladies who won prizes were the Misses Harrold and Cluse, Mrs. Abbott, &c. Splendid displays of cut Roses were staged by Messrs. W. Paul & Son, Waltham Cross, Messrs. Paul & Son, Cheshunt, Mr. Rumsey, and others; and Mr. B. S. Williams sent up a collection of new and rare plants. Fruit was a very good display for the season. (*From a Correspondent.*)

Royal Horticultural of Perthshire: *July* 22.—This Society held its annual show, which was fairly patronised considering the wet state of the weather, in the City Hall, Perth. The show on the whole was a very satisfactory one, and the arrangement and staging were well carried out. Stove and greenhouse plants were fairly represented. Tuberous Begonias were well done, also table plants. Orchids were not numerous, but the Cattleya crispa shown by Mr. Macdonald, of Woodlands, Perth, was a very fine one, having twenty-two flowers upon three spikes. Cut flowers were well represented, especially the Roses, staged both by amateurs and nurserymen. Messrs. Cocker & Sons, Aberdeen, staged a magnificent lot not for competition, also a good collection of Pinks and Pyrethrums; and Mr. Smith, Stranvar, also showed well. Fruit was poor, not at all up to the average. Vegetables were very good, the collections being very clean and nicely put up. Messrs. Dickson & Turnbull exhibited a fine collection of plants, containing many novelties, both flowering and fine-foliaged, neatly set up. Pansies where good, especially those exhibited by Mr. Sutherland, of Lenzil. Bouquets were poor, except the table bouquet that took the 1st prize; the others were masses of confusion. The committee's attention may be drawn to the fact that all plants, fruit, &c., should be named, which would be a great benefit to the public; but in these cases, with the exception of the nurserymen's, nothing was named.

Newcastle Horticultural: *July* 27, 28, *and* 29.—The annual summer exhibition of this Society was held on the above dates, and was a decided success, both as to the quantity and merit of the productions shown. It is only within a comparatively few years that the exhibitions here have assumed the comprehensiveness and important character which they now possess: and it is highly gratifying to see the marked improvement that has been effected in the productions forthcoming from the local exhibitors, showing the influence which the work of the Society has exerted on horticulture in the neighbourhood.

In the open class for eight plants, in bloom, the competition was close, Mr. Cypher, Cheltenham, taking 1st with an even lot, amongst which were Erica tricolor Kingscotiana, E. tricolor impressa, and Allamanda Hendersoni, nicely flowered. Mr. Letts, gr. to the Earl of Zetland, Upleatham, Marske-by-the-Sea, who was 2d, had Stephanotis floribunda, densely flowered, and several Heaths, of which E. insignis and E. ampullacea Williamsii, were in fine condition. 3d, Mr. Tudgey, gr. to J. F. G. Williams, Esq., Worcester, showing, along with others, a well bloomed Dipladenia.

Six blooming plants (amateurs).—These were in very fresh condition, and full of bloom. Mr. E. Adams, who took 1st, had in his collection well-managed examples of Statice profusa, densely flowered and well coloured, a large and healthy Erica Marnockiana, Phœnocoma prolifera, and Kalosanthes coccinea, which, although a soft-wooded, easily managed subject, is, when well bloomed, much preferable to plants of more difficult growth, when in indifferent order; 2d, Mr. J. Noble, gr. to — Fry, Esq., showed a fresh, well-flowered lot, containing the rose-coloured Lapageria, Erica retorta major, and Ixora Williamsii; 3d, Mr. T. Battensby. With three stove and greenhouse flowering plants Mr. Adams won 1st easily, staging Statice profusa, Phœnocoma prolifera, and the pretty but seldom seen Tetratheca verticillata. Fine-foliage plants were present in very large numbers and in grand form, being the principal feature of the plant department of the exhibition. In a close run, Mr. Letts came in 1st, showing Croton majesticus and Johannis, well furnished and unusually highly coloured; a splendid Gleichenia rupestris glaucescens, 8 feet in diameter, and in the best of health; Encephalartos Vroomii, Cycas revoluta, and a beautiful form of Dasylirion acrotrichum, in faultless condition. Mr. Hammond, gr. to Sir Wilfrid Lawson, Carlisle, who was 2d, had also a very fine group, the best of which were Croton majesticus and C. Weismanni, both large and in fine order; Macrozamia Fraserii, and Cordyline indivisa, fine examples. Mr. Cypher was 3d, having, in a well grown lot, Pritchardia pacifica, Verschaffeltia splendida, and Gleichenia rupestris. Six fine-leaved plants (amateurs): here Mr. Tudgey took the lead with a handsome group, but somewhat wanting in bright-coloured foliage, his best plants being Geonoma princeps, Phœnix reclinata, and Cocos Weddelliana; 2d, Mr. Hammond, who likewise staged a handsome collection; 3d, Mr. Noble.

Orchids were sparely represented, Mr. Cypher being 1st, with a well-flowered half dozen, which included a beautiful plant of Odontoglossum vexillarium, the major variety of Saccolabium Blumei, and a lovely form of Odontoglossum crispum; 2d, Messrs. J. Thompson & Son.

In the open class for six Ferns Mr. Letts was easily 1st, staging large and handsomely grown examples, amongst which was a grand specimen of Gleichenia rupestris glaucescens, Cibotium regale, and the rare Sadleria cyatheoides, some 9 feet across: this is one of the most distinct and handsome large-growing Ferns in cultivation; 2d, Mr. Hammond, who also had a meritorious group, in which Woodwardia radicans, Gleichenia Mendelii, and Dicksonia antarctica were the best. Six exotic Ferns (amateurs): With these Mr. Noble took the lead, showing nice plants of Goniophlebium subauriculatum, Adiantum concinnum latum, and the ever-present Davallia Mooreana; 2d, Mr. Crossland. Six British Ferns: 1st, Mr. Robson, exhibiting a distinct and nicely managed lot; 2d, Mr. Black, gr. to Miss Pease.

Three Crotons.—These were well represented, the plants large and finely coloured. 1st, Mr. McIntyre, gr. to Mrs. Pease, with fine specimens of C. majesticus, C. Andreanus, and C. Queen Victoria; 2d, Mr. Hammond, whose exhibit contained a good plant of C. Johannis, one of the best of the long, narrow-leaved section.

Groups of plants here, as now in most places, were one of the main features of the show, and as there was a keen and spirited competition, they made an imposing display. Several of the exhibitors, in both the character of the plants they prepared, and the way they arranged them, clearly realise what these arrangements are now recognised to be, though others who showed evidently do not, using numbers of large, stiffly-trained specimens totally unfit for the purpose. Mr. Hammond came in 1st with one of the best examples we have seen, alike as regards the description of the materials, their colour, and putting together. In a setting, principally green, and composed of Maidenhair Ferns and Lycopodiums, were introduced Palms of graceful habit, such as represented by the elegant Leopoldinia pulchra in different sizes, single stemmed Crotons, Dracænas, Aralias, and Celosia pyramidalis, the deep crimson plumes of which were never seen to better advantage—Mr. Noble, a good 2d, also having a very tastefully managed group that harmonised well in form as well as colour. 3d, Messrs. Thompson & Son.

Heaths were present in much greater numbers than usually seen at provincial exhibitions, so far showing that these fine decorative plants are, as they deserve, coming again into fashion. For four Mr. Letts took 1st, with Shannoni, æmula, ferruginea superba, and tricolor Wilsoni. Mr. Tudgey, who was 2d, had even fresh plants, the best of which were Lindleyana and the highly coloured metulæflora bicolor. 3d, Mr. Cypher. Three Heaths: 1st, Mr. Methven; 2d, Mr. Letts, both having medium sized examples in good order. Three Fuchsias: 1st, Mr. E. C. Deighton, large healthy plants, not quite sufficiently in bloom.

A quantity of dinner-table plants were exhibited, many amongst them, as usual, being too large. Mr. Hammond had 1st, with a nice light, airy-looking half dozen. Cut flowers were forthcoming in plenty, in almost every shape that they are usually seen. Twelve bunches of stove and greenhouse varieties: 1st, Messrs. Thompson & Son—massive bunches of Lapagerias (red and white), Anthuriums, Ixoras, Heaths, Stephanotis, Rondeletia, &c.; 2d, Mr. Letts, with a box little inferior to the winning one. Six bunches: 1st, Mr. McIntyre; 2d, Mr. T. Battensby.

Considering the lateness of the season and the burning weather we have had, Roses were unusually fine, both Southern and Northern growers exhibiting grand lots of flowers. For forty-eight The Cranston Nursery Company took 1st, with blooms that would not have disgraced these noted exhibitors in the height of the Rose season: their best flowers were Pierre Notting, Mrs. Jowitt, Charles Lefevre, Marie Baumann, Beauty of Waltham, Marie Rady, and A. K. Williams; 2d, Messrs. R. Mack & Son, who likewise had a very good stand. Thirty-six: 1st, The Cranston Nursery Company; 2d, Mr. E. R. Whitwell. Twelve yellow Roses: 1st, Messrs. R. Mack & Son; 2d, The Cranston Nursery Company. The Cranston Nursery Company exhibited a dozen blooms of their new dark Rose Louisa Gretton—a very fine variety in the way of Jean Soupert, the shape of the flower and form of petal is like A. K. Williams. With twelve Roses, any colour, The Cranston Nursery Company took 1st, showing a magnificent box of Mrs. Jowitt. Twelve Tea-scented Roses: 1st, Messrs. R. Mack & Co. 2d, The Cranston Nursery Company. Twenty-four Roses (amateurs): 1st, Mr. E. H. Whitwell; 2d, Mr Jowett. Twelve Roses (amateurs): 1st, Mr. Jowitt 2d, Mr. E. B. Whitwell. Twelve Pinks: 1st, Mr. T Flowdy, Gateshead; 2d, Mr. R. Scott, Newcastle. Six Pinks: With these the same exhibitors occupied the same positions.

There was a good display of fruit, both as to quantity and quality; Grapes especially were well shown. In the class for eight dishes Mr. Mann, gr. to Mrs. Hornsby took the lead with a good collection, comprising Black Hamburgh and Muscat of Alexandria Grapes, good examples of their respective kinds; a handsome Queen Pine, Dr. Hogg Peaches, Pitmaston Orange Nectarines Brown Turkey Figs, Black Circassian Cherries, and a Melon. 2d, Mr. Edmonds, gr. to the Duke of St. Albans likewise a meritorious exhibit, in which were Black Hamburgh, and Muscat of Alexandria Grapes, nicely shown; Elruge Nectarines, and a very fine dish of Royal George Peaches. Mr. Ingram, gr. to the Duke of Northumberland, 3d. Four dishes: 1st, Mr. Mackie 2d, Mr. Johnson; each having nice collections. Four bunches of Grapes: Here Mr. Hammond had an easy victory with Black Hamburgh and Buckland Sweetwater in excellent condition; 2d, Mr. T. R. Jowsey, showing amongst others, Venn's Black Muscat, well finished.

White Grapes, Muscats, two bunches: 1st, Messrs Mavin & Son, Muscat of Alexandria; 2d, Mr. T. R Jowsey, who had the same variety. Two bunches white Grapes, not Muscats: 1st, Mr. Hammond, Buckland Sweetwater; 2d, Mr. Johnson. Two bunches Black Hamburghs: Of these there were ten exhibitors mostly staging good examples, the 1st prize going to Mr Hammond, for a pair of very close bunches, black, and heavily covered with bloom; Mr. Edmonds a good 2d. Two bunches, any other black Grapes: 1st, Mr. Fixter, Muscat Hamburghs, large and well finished; 2d, Mr. Ingram Madresfield Court in nice condition. Dish of Peaches 1st, Mr. Clayton, gr. to J. Fielden, Esq., good Noblesse 2d, Mr, McIntyre, Exquisite, well coloured. Nectarines 1st, Mr. Crozier; 2d, Mr. Black. Melon, green-flesh 1st, Mr. J. L. Thorburn. Melon, scarlet-flesh: 1st, Mr H. A. Mann. Pine: 1st, Mr. Ingram; 2d, Mr. Letts.

From Mr. B. S. Williams, Holloway, came, not for competition, a large and interesting group of flowering and other plants. Messrs. Thompson & Son had also a nice collection of similar character. Mr. Matthews, the Royal Pottery, Weston-super-Mare, contributed a extensive and varied assortment of garden pottery, comprising vases, window-boxes, Orchid-pots, &c.

Liverpool Horticultural: *July* 30 *and Aug.* 1—The exhibitions which this Society are now able to bring together are such as can fairly lay claim to rank amongst the first in the kingdom, both in regard to the extent and the merits of the productions in the different departments of which the shows are composed. Liverpool has long been second to no place for the excellence of the fruit grown in the neighbourhood, especially Grapes; and such strides have of late years been made by the local plant growers that only those who were accustomed to see their productions in times past can correctly gauge the advance that has been made.

In the open class of twelve stove and greenhouse plants six blooming and six foliage, Messrs. Cole, Withington took the lead with a good lot, amongst which were Ixora Williamsii, bearing some forty-five heads of flower; Allamanda nobilis, Erica Lindleyana, E. ampullacea vittata a grand specimen of Gleichenia Mendelii, 7 feet through Kentia Fosteriana, Leopoldinia pulchra, and Croton Weismanni; 2d, Mr. J. Peers, gr. to R. Rayner, Esq Hillside, Wavertree, who likewise had a fine group,

cluding one of the best examples of Allamanda Hendersoni we have seen for some time, large and well-flowered; Bougainvillea glabra, well bloomed, but scarcely enough open; Statice Holfordii, Ixora Prince of Orange, Croton angustifolius, Calamus ciliaris, not by any means a common plant, but distinct and handsome. Messrs. Caldwell & Sons, Knutsford, were 3d, having Erica Irbyana, fresh and finely flowered; Clerodendron Balfourianum, large and well done; Ixora amboinensis, and Allamanda Hendersoni, with a handsome lot of fine-foliage specimens, the best of which were Leopoldinia pulchra, Thrinax elegans, and Cycas revoluta.

Ten stove and greenhouse plants, flowering and fine-foliage (local exhibitors): With these Mr. Mease, gr. to C. W. Neumann, Esq., occupied the post of honour, staging a remarkably fine lot of plants, both blooming and foliage, all in good condition, the most noteworthy being Erica jasminiflora alba, Allamanda Hendersonii, large and well flowered, a grand Bougainvillea glabra, Kalosanthes coccinea, well done; Croton variegatus, big and highly coloured; and Alocasia macrorhiza variegata, in excellent form; 2d, Mr. Faulkner, gr. to F. R. Leyland, Esq., with a well managed lot, amongst which was the handsome Erica metulæflora superba, Dipladenia amabilis, a magnificent Alocasia Lowii, Gleichenia rupestris glauscescens, &c; 3d, Mr. Blomiley, gr. to H. Crosfield, Esq., a fresh lot of young specimens. Six stove and greenhouse plants: The 1st prize in this class was easily won by Mr. Blomiley, who, in a well bloomed six, had Ixora coccinea, I. javanica, Allamanda grandiflora, and Bouvardia Vreelandii, 3½ feet through; Messrs. Cole 2d, a fresh collection, in which was Ixora Colei and I. Prince of Orange; 3d, Mr. Faulkner. Four stove and greenhouse flowering plants (local): With these Mr. Mease was again 1st, staging in a well-flowered lot Allamanda grandiflora and Bougainvillea glabra, unusually good; 2d, Mr. Blomiley. Single stove plant: 1st, Mr. Blomiley, with a beautiful young specimen of Ixora coccinea; 2d, Mr. Mease, Allamanda Hendersoni. Single greenhouse plant: 1st, Mr. Elliott, who staged a very fine Erica retorta major; 2d, Mr. Cromwell, Erica ampullacea, well flowered; 3d, Mr. Mease. Four Heaths: 1st, Messrs. Caldwell, with nice fresh, small specimens; 2d, Mr. Faulkner; 3d, Messrs. Cole.

Fine-foliage plants were well shown, the 1st prize collection of eight coming from Mr. Cubbon, gr. to Mrs. A. Johnson, who, in a nice group, had Alocasia Lowii, Latania borbonica, Cycas revoluta, Croton Weismanni, and Dicksonia antarctica, very well grown; 2d, Mr. Peers, handsome plants, in which Cibotium regale and Alocasia macrorhiza variegata were large and in beautiful order. Messrs. R. P. Ker & Sons, 3d, with a smaller but very creditable exhibit, containing, along with others, Croton Disraeli, C. majesticus, and Anthurium crystallinum. Six foliage plants (local exhibitors): Here Mr. Cromwell, gr. to T. Moss, Esq., took the lead, staging a beautiful group of healthy plants, fresh and bright in colour—Croton Weismanni, Anthurium crystallinum, and Alocasia metallica, being the most noteworthy. Mr. Faulkner, 2d, with a meritorious half-dozen. Mr. Finnigan, gr. to N. Burnyeat, Esq., 3d.

Ferns.—In a close competition of well grown and healthy plants Mr. Ramsden, gr. to W. Rathbone, Esq., took the lead with a fine collection, in which Cibotium Schiedei, Alsophila excelsa, Dicksonia squarrosa, and D. antarctica, were the best. Mr. Faulkner, who was a near 2d, had Adiantum lunulatum, 4 feet across; A. cardiochlæna, equally well done, and Davallia Tyermanni, 5 feet through. 3d, Mr. Gore, gr. to T. Holder, Esq., likewise a fresh healthy lot of plants. Six Ferns (local): In this class Mr. Peers easily came in 1st, with Davallia Mooreana, Gleichenia rupestris glauceseens, G. dichotoma, and Davallia polyantha, the last one of the best of the Davallias, but now seldom seen; 2d, Mr. Roberts, gr. to W. D. Holt, Esq. Twelve hardy Ferns: 1st, Mr. Faulkner, a large and finely grown group; 2d, Mr. Gore. Six hardy Ferns: 1st, Mr. Faulkner. Lycopodiums: 1st, Mr. Wright, gr. to E. Lawrence, Esq., with a pretty six.

Orchids were few in number. With four Mr. Sherwin, gr. to M. Sparke, Esq., had 1st, showing Saccolabium Blumei major, Dendrobium superbiens, Odontoglossum Uroskinneri, and Disa grandiflora, bearing fourteen strong spikes of bloom. Mr. Mease took 2d, with a nice group, in which was a very fine form of Saccolabium Blumei major. One Orchid: 1st, Mr. Landon, gr. to Mrs. Harwood Banner, a strong and finely grown example of Oncidium Lanceanum, with some seven or eight spikes. Equal 2d, Mr. Sherwin and Mr. Elliott, gr. to W. J. Bateson, Esq., the former having Saccolabium Blumei, the latter Dendrobium nobile, beautifully flowered; 3d, Mr. Mease, Peristeria elata, with thirteen large spikes of bloom, not sufficiently open, but a fine specimen.

Six zonal Pelargoniums: 1st, Mr. Wright; 2d, Mr. Hurst, gr. to W. B. Bowring, Esq, both showing well-flowered, not over-trained plants. Six Fuchsias: 1st, Mr. Hurst, large and finely bloomed examples; Mr. Butler, gr. to — Dugdale, Esq., 2d. Three Fuchsias: 1st, Mr. Wright.

Petunias were remarkably well done, Mr. Mease taking 1st, with beautifully-flowered plants; Mr. Hurst, who was 2d, also had a very meritorious lot. Coleus were well shown, Mr. Savin's 1st prize collection being large and splendidly coloured. Tuberous Begonias were unusually fine, the plants big, compact in growth, and grandly bloomed. 1st with six, Mr. Hurst; 2d, Mr. Wright. Three: 1st, Mr. Wright; 2d, Mr. T. Moss.

In the open class for a group of plants arranged for effect, the 1st prize went to Messrs. R. P. Ker & Sons, whose exhibit was well put together, and composed of suitable plants; 2d, Messrs. Caldwell & Sons; 3d, Messrs. F. & A. Dickson, Upton Nurseries, Chester.

There were a number of exhibitors in the local class for group of plants arranged for effect, Mr. Cox, gr. to W. H. Watts, Esq., being well to the front with a pleasing arrangement; Mr. Mease, 2d, introducing the handsome Campanula pyramidalis (the white-flowered variety), with the best result; 3d, Mr. Sherwin. Messrs. James Dickson & Sons, Chester, were 1st, receiving the Society's Gold Medal for a group of coniferous plants in every way deserving the award they received, comprising as they did all the best proved decorative species. Messrs. F. & A. Dickson likewise contributed a nice lot of Conifers.

Roses, for so late in the season, were well shown. With forty-eight distinct varieties, three blooms of each, The Cranston Nursery Co. took 1st, as also for forty-eight single blooms, having very fine flowers in both classes; the 2d prize going to Messrs. J. Dickson & Co., and 3d to Messrs. F. & A. Dickson. Twenty-four distinct varieties (amateurs): 1st, Mr. Jowitt. Twenty-four (local); 1st, Mr. T. B. Hall. Twelve dark Roses, one variety: 1st, The Cranston Nursery Co., who also had 1st with twelve light Roses, one variety. Messrs. W. Paul & Son's special prize for twenty-four Roses went to Mr. T. B. Hall, Rock Ferry, who had a creditable lot of flowers. The Cranston Nursery Co.'s special prizes for the best and most tastefully arranged box of Roses were won by Mr. E. Claxton, Wavertree, and Mr. A. Tate, in the order of their names. Eighteen varieties, cut stove and greenhouse flowers: 1st, Mr. Faulkner; equal 2d, Mr. Mease and Mr. T. H. Oakes. Twenty-four varieties cut herbaceous flowers: 1st, Mr. Mease; 2d, Messrs. F. & A. Dickson. Two hand-bouquets: 1st, Messrs. Jones & Sons, Shrewsbury; 2d, Messrs. Turner—the same exhibitors being 1st and 2d for a single bouquet.

Fruit.—Eight dishes: 1st, Mr. Ward, gr. to T. H. Oakes, Esq.—Black Hamburgh and Muscat of Alexandria Grapes, a Queen Pine, Bellegarde Peaches, Downton Nectarines, Jefferson Plums, Brown Turkey Figs, and a Colston Bassett Melon; 2d, Mr. Faulkner, his best dishes being a Queen Pine, Black Hamburgh Grapes, and Prince of Wales Peaches. Six dishes: 1st, Mr. Elsworthy, gr. to A. R. Gladstone, Esq., with a very good half dozen varieties, including Madresfield Court and Muscat of Alexandria Grapes, Bellegarde Peaches, Pine-apple, and Nectarines, beautifully coloured; 2d, Mr. Mease, having in his collection Muscat of Alexandria Grapes, splendidly finished, of the right amber colour, so seldom met with; Chancellor Peaches, and a Melon. Mr. Hanagan, gr. to R. C. Naylor, Esq., Hooton Hall, 3d, his most noteworthy dishes being Madresfield Court Grapes, finely done, and Foster's Seedling. Two Pines: These were well shown. 1st, Mr. Faulkner, with a couple of very handsome Queens; 2d, Mr. Goodacre, gr. to the Earl of Harrington, who had good examples of the same variety; 3d, Mr. Pratt, gr. to Lord Hill. One Pine: 1st, Mr. Faulkner; 2d, Mr. Whitfield, gr. to J. T. Cross, Esq. Grapes, four bunches: 1st, Mr. Elsworthy, with Muscat of Alexandria, Black Hamburgh, Duke of Buccleuch, and Madresfield Court; 2d, Mr. Ward, a little smaller bunches, but in nice condition. Two bunches, Black Hamburgh: 1st, Mr. Barker, gr. to Alderman Raynes, large and well finished examples; Mr. Ward 2d, also having good bunches. Muscat of Alexandria, two bunches: 1st, Mr. Mease, beautiful fruit, even in berry, handsome bunches, and quite up to the mark in colour; 2d, Mr. Elsworthey. Two bunches, Black Grapes (local): 1st, Mr. Metcalf, gr. to R. Anderson, Esq., with extremely well finished Black Hamburghs; 2d, Mr. Barker, with Madresfield Court, large and well done. Two bunches, white Grapes (local): 1st, Mr. Mease; 2d, Mr. Hargreaves. Six Peaches: 1st, Mr. Elsworthy, very good Bellegarde; 2d, Mr. Keen, gr. to Sir T. Earl, with Barrington. Six Peaches (local): 1st, Mr. Elsworthy, with Bellegarde, fine in size and colour; 2d, Mr. Evans, gr. to Mrs. Lockett, with Royal George, Dish of Nectarines (local): 1st, Mr. Keen, with Downton; 2d, Mr. Roberts, with Violette Hâtive. Dish of Nectarines: 1st, Mr. Keen; 2d, Mr. Elsworthey.

Mr. B. S. Williams, Holloway, Messrs. R. P. Ker & Sons, and The Liverpool Nursery Co., each had a large and varied collection of flowering and fine-leaved plants.

Roses, in addition to those for competition, were contributed by Messrs. F. & A. Dickson, Messrs. Dickson & Robinson, Manchester, and Messrs. W. Paul & Son, Waltham Cross,

There were a considerable quantity of garden requisites shown, including glass erections of various kinds, amongst which was a greenhouse, exhibited by Mr. J. Webster, Wavertree, to which the Society's Medal was awarded for several improvements in the construction. Mr. Bramham and Mr. Mee each had an extensive display of their respective heating apparatus, including boilers and fittings of various kinds, which well sustained the reputation of both these gentlemen as hot-water engineers.

Romsey Horticultural: *July* 27.—The first show of this Society was held, by permission of Lord Mount Temple, in the Park at Broadlands, the noble owner himself taking a personal interest in it, there being also such an array of noble names advertised as patrons as rarely falls to the lot of any similar society; what wonder therefore that the show should be a success, both as regards exhibits and finances, beyond the expectations of even the most sanguine? The schedule contains the usual three divisions, of gentlemen's gardeners, amateurs, and cottagers, and under each division the products were such as did credit to the district, and it is only justice to the cottagers to say that in vegetable culture they well beat both the other classes of exhibitors; their Onions, Carrots, and Cabbage being very good indeed, and considering the season their Potatos also. By accidental oversight in the revision of the schedule, in the gentlemen's gardeners class, a novel, but as the writer thinks, a desirable feature was introduced, viz., a prize offered for the best collection of fruit and vegetables: this brought out three competitors, all showing admirably, and staging equally so, the varied exhibits coming in for more than the average share of attention simply by reason of the rarity of seeing Grapes and Pine-apples, in such close association with Carrots and Onions. The principal prize winners in the various classes, and also exhibitors of plants, &c., not for competition, were the gardeners at Norman Court, Melchet Court, Lockerley Hall, Paultons, and Northlands, the exhibits from these well known gardens being supplemented by others from Messrs. Keynes, of Salisbury, Mr. W. J. Cross, also of Salisbury, and Messrs. Elcombe & Son, of Romsey, the former having several magnificent stands of Roses and Dahlias; Mr. Cross, of Roses and Carnations, among the latter being a new seedling variety called The Governor, for which he received a First-class Certificate of the Society—a well deserved recognition of a flower that we feel sure is destined to become popular. It is of unusual size and substance, colour blush-white, petals large and flat, and never bursts open: the plant has a free robust habit and flowers most profusely. The Messrs. Elcombe are famous for Pelargoniums of every type, and their display of zonal and double varieties was something to be remembered.

The garden and grounds were thrown open to all visitors to the show—a privilege appreciated to the full, if one may judge from the evident interest the many hundreds of people took in viewing the flower-beds, shrubs, and the handsome trees in which the pleasure-grounds at Broadlands abounds. Mr. Thirlby, the gardener here, though young, is already a "master of arts" both in flower gardening and arboriculture; indeed, as regards the latter, no man of thought could live long at Broadlands without getting enamoured of the handsome trees; some of them—the gigantic Elms especially—are perfectly unique. Tulip trees, deciduous Cypresses, Turkey Oaks, and a magnificent specimen of the Maiden-hair tree (Salisburia adiantifolia) are among the best of very many fine trees. In most gardens one can generally discern the gardener's weak point—perhaps it should be called the strong point; however, be that as it may, the fruit trees on the walls proclaim very plainly Mr. Thirlby's fondness for them, and well they have repaid his care; a finer set of Peaches, Apricots, Pears, Plums, and Morello Cherries could not be desired—clean, well trained, and full of fruit, and if any kinds are better than the others the palm must be awarded to Peaches and Apricots. In the houses are excellent crops of Peaches, Figs, and Grapes. The general keep of the place is perfect, and this, too, notwithstanding the fact that the gardens and grounds are often—sometimes twice a week—visited by many hundreds of people. On this occasion there were over 3000 people present, consequently the Society, after paying all demands, is able to carry forward a balance of £50 towards next year's show.

Harborne Floral and Horticultural: *Aug.* 1.—The annual show of fruits, flowers, and vegetables, of the above Society took place on Monday, August 1, in the grounds of Metchley Grange, the residence of Henry Wiggin, Esq., M.P., a Vice-President of the Society. The show in itself was one of an exceedingly large and attractive character, and contained many well-grown specimens in their respective classes. No less than five large tents were necessary for the accommodation of the varied exhibits, which were erected in such a manner as to enable visitors to step from one to the other, and the entire arrangements throughout the show reflect great credit on the Society. Fine weather prevailing, visitors were exceedingly numerous, In the cottagers' classes were to be met many well-grown examples of window plants, bouquets of wild flowers, and collections of flowers, varied, and of considerable interest. Among bush fruits, Currants and Gooseberries were generally good. Collections of vegetables were largely shown, and of great merit.

Gentlemen's and nurserymen's class: For six zonal Pelargoniums Thos. Tanks, Esq., was awarded 1st with well grown examples of Vesuvius, Lady Hanly, Mrs. Pearson, John Gibbons, Lady Sheffield, and Captain Holden. For six specimen Gloxinias, Harry Heaton, Esq. (Mr. Lamb. gr.), was 1st with large and well flowered examples; 2d, Mr. T. Tonks. For the best group of six exotic Ferns: 1st, Mr. H. Heaton; 2d, Mrs. Grice. For six Cockscombs Mr. S. Eaton came 1st with large deeply coloured combs. For the best two bunches of Grapes: 1st, Mr. J. B. Manley; 2d, Mrs. Grice. For the best collection of twelve stove or greenhouse plants, in or out of flower, Mr. S. Eaton came 1st, Mrs. Grice 2d. For the best six Fuchsias, distinct, Mr. Tonks came 1st, having fine, handsome, well flowered plants; 2d Mrs. Grice—these two latter classes were limited to those resident in the parish. For the best collection of twelve stove or greenhouse, in or out of flower, open to all comers, only three exhibitors competed for the Silver Cup value £7 7s., the 1st prize being awarded to J. E. Wilson, Esq., Edgbaston (Mr. Jinks, gr.), who was a good 1st with a highly creditable lot of plants. Among his best plants may be mentioned Croton Andreanus, which was in itself a feature, being well coloured and vigorous, about 7 feet high and 5 feet through, and without doubt one of the finest plants in the country; C. Weismanni was richly coloured; the remainder of this group contained Dipladenia amœna, large and well done; D. boliviensis, Ixora regina, a nice healthy plant; Statice profusa, Alocasia Sedeni, Areca lutescens, having eighteen leaders; this forms a most handsome specimen; and a new species of Plectocoma, a highly graceful Palm. The 2d prize went to Thomas Hall, Esq. (Mr. Herne, gr.), who had fine plants of Nepenthes Hookeri, Gleichenia Mendelli, Pandanus Veitchii, Clerodendron Bal-

fourianum, a large and well flowered specimen some 3 feet 6 inches through; Latania borbonica, and others. Among exhibits not for competition Mr. R. H. Vertegans, of the Chad Valley Nurseries, staged a group of greenhouse and other plants, conspicuous in their midst being the dwarf Tuberose The Pearl, some good spikes of Bougainvillea glabra, Lilium auratum in pots, and others. This same gentleman also exhibited a showy and interesting collection of annuals, which attracted considerable attention, together with a box of double Potentillas, cut blooms, which latter comprise some good forms; box of cut Roses, and a group of Pelargoniums, single and double, all of which had exceedingly fine trusses on the whole. The show was of a highly creditable character, and well deserving the support it received. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 3, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
July	In	In.	°	°	°	°	°	°	°		In.
28	29.98	+0.22	72.8	45.5	27.3	58.6	— 3.6	45.3	61	S.W.	0.00
29	29.82	+0.06	73.0	55.5	17.5	62.9	+ 0.6	55.5	77	S.W.	0.00
30	29.67	—0.09	66.1	56.2	9.9	61.0	— 1.3	58.4	92	S.	0.15
31	29.38	—0.38	66.8	57.2	9.6	60.0	— 2.3	56.8	90	S.S.E.: S.S.W.	0.48
Aug. 1	29.68	—0.07	73.2	52.0	21.2	61.4	— 0.9	52.3	72	S.W.: S.E.	0.08
2	29.97	+0.22	74.0	55.3	18.7	62.7	+ 0.4	50.8	66	N.E.: S.E.	0.00
3	30.09	+0.34	71.0	52.0	19.0	60.7	— 1.5	57.5	90	S.W.	0.00
Mean	29.80	+0.04	71.0	53.4	17.6	61.0	— 1.2	53.8	78	S.W.	0.71

July 28.—Fine, bright, very calm morning; windy afternoon. Dull dark night.
" 29.—A fine day, a strong wind. Cloudy night.
" 30.—Dull but pleasant morning; some rain. Fine night.
" 31.—Rain early in the morning; frequent rain during the day. Fine night.
Aug. 1.—A fine day. Still night. Cloudy.
" 2.—A fine pleasant day and night.
" 3.—A fine but generally dull day. Windy. Fine, still, warm night.

London: *Atmospheric Pressure.*—During the week ending Saturday, July 30, the readings of the barometer at the level of the sea decreased from 29.97 inches at the beginning of the week to 29.59 inches by 9 A.M. on the 26th; increased to 30.24 inches by 9 A.M. on the 28th; and was 29.81 inches at the end of the week. The mean reading for the week at the level of the sea was 29.89 inches, being 0.08 inch lower than that of the preceding week, and 0.05 inch below the average for the week.

Temperature.—The highest temperature in the shade in the week was 73° on the 29th; the next in order were 72.8° on the 28th, and 70°.3 on the 24th. On the 27th the temperature did not rise above 63°.2. The mean of the seven high day temperatures was 68°.8.

The lowest temperature in the week was 45°.5, on the 28th; on the 24th and 30th the lowest temperature was 56°.2. The mean of the seven lowest temperatures was 53°.

The greatest range of temperature in one day was 27°.3, on the 28th; the next in order was 17°.5, on the 29th; the smallest was 9°.9, on the 30th; the mean of the seven daily ranges was 15°.8.

The mean daily temperatures were, on July 24, 60°.5; on July 25, 58°; on July 26, 59°.5; on 27th, 55°.3; on 28th, 58°.6; on 29th, 62°.9; and on 30th, 61°; and these were 1°.7, 4°.2, 2°.7, 6°.9, and 3°.6 below their averages respectively; on the 29th it was 0°.6 above its average, and on the 30th was 1°.3 below.

The mean temperature for the week was 59°.4, being 6°.1 lower than that of last week, and 2°.8 below the average of the same week for sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 131°.5 on the 28th, and the highest on the 30th was 83°.5; the mean of the seven readings was 110°.7.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 41°, and the mean of the seven readings was 48°.7.

Rain fell on three days to the amount of 0.4 inch in the week.

England: *Temperature.*—During the week ending Saturday, July 30, the highest temperatures were 77° at Cambridge, 75°.4 at Nottingham, and 73° at Blackheath and Hull. The highest temperature in the week at Bradford was 66°.4, at Wolverhampton was 66°.7, and Liverpool 67°.4. The mean from all stations was 70°.9.

The lowest temperatures in the week were 37° at Truro, 41° at Nottingham, and 42°.5 at Wolverhampton; at Liverpool the lowest temperature in the week was 50°.1, and at Bradford and Leeds was 49°. The general mean from all stations was 45°.3.

The greatest ranges of temperature in the week were 34°.4 at Nottingham, 34°.2 at Cambridge, and 33° at Truro; at Liverpool it was 17°.7, at Bradford 17°.4, and at Leeds 20°. The general mean was 25°.6.

The mean of the seven highest day temperatures exceeded 69° at Cambridge, Nottingham, and Hull; and were 63°.5 at Liverpool and Bradford. The general mean from all stations was 67°.

The mean of the seven lowest night temperatures exceeded 53° at Plymouth and Brighton; and was 48°.9 at Nottingham, and 49°.2 at Wolverhampton. The general mean was 51°.4.

The mean daily range exceeded 20° at Cambridge and Nottingham, and was less than 12° at Liverpool and Bradford. The general mean was 15°.7.

The mean temperature for the week was 59° or higher at Blackheath and Brighton, and was less than 56° at Wolverhampton and Bradford. The general mean was 57°.3.

Rain.—The largest falls were 1.96 inch at Truro and 1.08 inch at Brighton; the smallest falls were 0.36 inch at Norwich and 0.37 inch at Hull. The general mean fall was 0.74 inch. It fell on an average of four to five days in the week.

Scotland: *Temperature.*—During the week ending July 30 the highest temperature was 70°.1 at Aberdeen; at Leith the highest in the week was 63°.1. The general mean was 65°.6.

The lowest temperature was 42° at Dundee and Paisley; at Glasgow the lowest temperature in the week was 49°.5. The general mean was 43°.6.

The mean temperature was highest at Dundee, 57°; and lowest at Greenock, 55°.2. The general mean was 56°.2.

Rain.—The largest falls were 2.52 inches, at Greenock, and 2.47 inches, at Glasgow; the smallest falls were 0.4 inch, at Dundee, and 0.43 inch, at Aberdeen. The general mean was 1.32 inch.

JAMES GLAISHER, F.R.S.

Obituary.

We regret to record the death, on July 29, of Mr. William Sharpe, Gr. to Sir J. S. Richardson, Bart., at Pitfour Castle, Perthshire, aged seventy-seven years. Mr. Sharpe passed his early years in the gardens of Sir P. Murry, Ochtertyre, Crieff, and subsequently in the Experimental Gardens, Edinburgh, then adjacent, but now incorporated with the Royal Botanic, under the late Mr. Barnet. After spending some few years at Edmiston and Lexmount, he was called about the year 1834 to the service of Sir John Stewart Richardson, Bart., where he became a competitor at the Caledonian Horticultural shows, and made his mark by carrying off for three consecutive years the Society's Gold Medal for collections of fruits, flowers, and vegetables. Dahlias were at one time his study, and he raised several varieties of superior merit, for which large sums were paid by leading English florists of the time. In November, 1859, he entered the service of the late Earl of Eglinton, and shortly after his death Mr. Sharpe retired to a cottage at Saltcoats, in Ayrshire, but only remained there some four years, when he returned to the service of his former employer, Sir John S. Richardson, where he again displayed his ability by restoring the garden to some of its wonted beauty and fertility.

Answers to Correspondents.

Begonias: *J. Child.* They have not yet been classed as florists' flowers, and should not be disqualified under the circumstances you mention.

Broccoli: *D. P.* The plant has gone blind: in other words it has not continued to develope a growing point.

Cystopteris: *C. E. F.* You had better send another and more perfect specimen.

Errata.—In Mr. Scott's paper at p. 86, on the island of Socotra, for "about 20 miles long and 18 in breadth," read "about 70 miles long, and from 18 to 20 miles in breadth." For "Oxalis Tradescanti," read "Oxalis and Tradescanti;" and for "another shrub, about 5 to 6 feet, of the Euphorbiaceæ," read "and apocynaceous shrubs, some of which are not more than from 5 to 6 feet in height, were found, &c."

Fig: *T. W.* Brown Turkey.

Names of Plants: *A Subscriber.* Send a flower and a leaf in a tin box. Your bloom was smashed, as might have been anticipated.—*X.* 1, Calceolaria pinnata; 2, a Medicago; 3, Campanula urticæfolia alba plena.—*R. G.* The Cattleya appears to be a form of C. Mendelli.—*G. Taylor.* Pavia macrostachya.—*T. Ford.* Nigella romana; obtainable at any seedsman's.—*Thomas Jones.* 4, Achillea Ptarmica flore pleno; 5, Linum perenne; 6, Galega orientalis. The others we do not recognise.—*D. P.* It is certainly a Gypsophila, but the specimen is not sufficient for further identification.—*W. D.* The Costmary, Balsamita vulgaris, or Pyrethrum Tanacetum.—*F. W. B.* Chrysanthemum (Balsamita) grandiflora, Lindheimera Texana, and Hæmanthus puniceus.—*T. Smith, Newry.* 1. Alyssum argenteum; 2, specimen insufficient; 3, fruit required for determination; 4, Senecio giganteus.—*Camjee.* Spiræa ulmaria, probably, but we cannot be sure without leaves. The Orchid is, perhaps, a species of Cœlogyne, but it came to hand in such a bad state that we cannot name it; the box was smashed, and delivered to us without any address label. Correspondents who give us the trouble to identify their plants should take some pains to send them securely packed.—*T. Herbert.* Next week.—*C. E. F.* Sempervivum arvernense.—*J. Bayliss.* 1 Spiræa ariefolia; 2, Odontoglossum læve. The other Orchids next week.

Vines: *John Chadwick.* The best season to transplant your Vines will be in October. Duchess of Buccleuch will not succeed in a cold-house. White Frontignan will do fairly well; but the best of all for your purpose will be Ascot Citronelle.

*** Correspondents are specially requested to address post-paid, all communications intended for publication to the "*Editors,*" and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ Foreign Subscribers sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

Walter Macfarlane & Co., Sarracen Foundry, Possil Park, Glasgow—Illustrated Price List of Iron Castings.

Todd & Co., 7, Maitland Street, Edinburgh—Dutch Bulbs, &c.

Blake & Mackenzie, School Lane, Liverpool—Seed Pockets, Drawer Labels, Sack Tickets, &c.

Hogg & Robertson, 22, Mary Street, Dublin—Hyacinths, Tulips, and other Flowering Bulbs.

Communications Received:—T. Wever. — J. E. C.—G. W. L. S.—E. J.—D. T. F.—A. T.—W. B.—A. H.—M. D.—W. H.—H. C.—W. G. S.—J. J. B.—A. G. R (next week).—G. C. S.—H. McM.—F. W. B.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Hardy Annuals.—Mr. Leo Grindon, 71, Rumford Street, Manchester, will be greatly obliged if any one can send him, in a little chip or pasteboard box, a nice flowering branch of the following, or of any of them, seeds supplied from London for three or four years past having failed to germinate. The postage will be refunded: — Catananche lutea, Polycolymna Stuartii, Waitzia aurea, Centauridium Drummondii.

Markets.

COVENT GARDEN, August 4.

The supply of soft fruit is now falling off, prices remaining as last week. Peaches are in good demand, and well maintain their value. *James Webber, Wholesale Apple Market.*

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0- 6 0	Herbs, per bunch	0 2- 0 4
Asparagus, English, per bundle	0 9- ..	Horse Radish, p. bun.	4 0- ..
Aubergines, each	0 4- ..	Lettuces, Cabbage, per doz.	0 6- 1 6
Beans, French, p. lb.	0 6- ..	— Engl. Cos, score	1 6- ..
— Broad, per bush.	4 0- ..	Mint, green, bunch	0 4- 0 6
Beet, per doz.	1 6- 2 6	Mushrooms, p. baskt.	1 6- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bushel	5 0- ..
Carrots, per bunch	0 4- 0 6	— Spring, per bun.	0 6- ..
— New Fr., bund.	0 9- 1 0	Parsley, per bunch	0 4- ..
Cauliflowers, English, dozen	4 0- 6 0	Peas, per bushel	5 0- 8 0
Celery, per bundle	1 6- 2 0	Radishes, per bun.	0 2- 0 6
Cucumbers, each	0 6- 1 0	Rhubarb, per bund.	0 4- 0 6
Endive, per doz.	2 0- 3 0	Small salading, pun.	0 4- ..
Garlic, per lb.	1 0- ..	Spinach, per bushel	4 0- ..
		Tomatos, per lb.	0 9- 1 0
		Vegt. Marrows, doz.	3 0- ..

Potatos very plentiful, and prices much lower.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apricots, per box ..	1 6– 2 6	Kent Filberts, per lb.	1 0– ..
Cherries, per ½-sieve	8 0–15 0	Lemons, per 100 —	4 0– 6 0
Currants, red, ½-sieve	3 0– 5 0	Melons, each ..	2 6– 4 0
— black, ½-sieve..	6 0– 7 0	Peaches, per dozen..	4 0–15 0
Figs, per dozen ..	3 0– ..	Pine-apples, Eng., lb.	2 0– 4 0
Gooseberries, ½-bush.	2 6– 3 6	Raspberries, per lb.	0 4– 0 6
Grapes, per lb. ..	1 0– 4 0	Strawberries, per lb.	0 6– 1 0

An advance of 20 per cent on the above prices may be taken as a fair average of the retail value of the articles quoted.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Foliage Plants, various, each	2 0–10 6
Arbor vitæ (golden), per dozen	6 0–18 0	Fuchsias, per dozen	3 0– 9 0
— (common), dozen	6 0–12 0	Ivy Geranium, doz.	4 0– 6 0
Begonias, per doz. ..	4 0–12 0	Lilium longifl., doz.	15 0–24 0
Calceolaria, per doz.	4 0– 9 0	— lancifolium, doz.	12 0–36 0
Cyperus, per dozen	6 0–12 0	— auratum, p. doz	24 0–60 0
Dracæna terminalis	30 0–60 0	Lobelia, per dozen..	4 0– 6 0
— viridis, per doz...	12 0–24 0	Marguerite, white, per dozen.. ..	18 0–24 0
Euonymus, various, per dozen	6 0–18 0	— Yellow, per doz.	12 0–30 0
Evergreens, in var., per dozen	6 0–24 0	Mignonette, per doz.	3 0– 6 0
Ferns, in variety, per dozen	4 0–18 0	Myrtles, per doz. ..	0 0–12 0
Ficus elastica, each	1 6– 7 6	Palms 10 var., each	2 6–21 0
		Pelargoniums, doz.	9 0–18 0
		— scarlet, per doz.	3 0– 6 0
		Rhodanthe, per doz.	0 0–10 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutiloo, 12 blooms	0 2– 0 4	Marguerites, 12 bun.	4 0– 6 0
Arum Lilies, 12 blms.	4 0– 6 0	Mignonette, 12 bun.	1 6– 3 0
Bouvardias, per bun.	0 9– 1 6	Pelargoniums, 12 sprays	0 9– 1 0
Calceolaria, 12 bun..	6 0–12 0	— zonal, 12 sprays	3 0– 6 0
Carnations, 12 bun.	3 0– 6 0	Pinks, various, 12 bunches	3 0– 6 0
Cornflower, 12 bun..	1 6– 3 0	Primula, double, per bunch	0 6– 1 0
Eucharis, per doz. ..	4 0– 6 0	Rhodanthe, 12 bun.	8 0–12 0
Everfew, 12 bun. ..	3 0– 6 0	Roses (indoor), doz.	1 0– 3 0
Forget-me-not, 12 bunches	3 0– 6 0	— (outdoor), 12 bun.	4 0– 9 0
Gardenias, 12 blms..	3 0– 8 0	Stephanotis, 12 spr...	3 0– 4 0
Heliotropes, 12 sp. ..	0 6– 1 0	Sweet Pea, 12 bun..	3 0– 6 0
Hypageria, white, 12 blooms	4 0– 6 0	Sweet Sultan, 12 bun.	4 0– 8 0
— red, 12 blooms..	1 0– 3 0	Tropæolum, 12 bun.	1 0– 3 0
Lilium longiflorum, 12 blooms	3 0– 4 0	Tuberoses, per dozen	0 9– 2 0

SEEDS.

LONDON: *August* 3.—To-day's market was moderately attended, with but little business doing. For trifolium there is an improved sale at a substantial advance on recent values. Higher prices are now asked for new French Italian. Samples of home-grown Winter tares have appeared, but quotations for same are not yet established. The new Essex Rye shows excellent quality. There has lately been much more demand for Sowing Mustard and Rape seed. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, London, E.C.*

CORN.

At Mark Lane on Wednesday the demand for Wheat was only moderate, and the spot business was principally at the extreme of last Friday's rates for both English and Foreign. Flour met a quiet sale at steady value. Barley, Beans, and Peas were fully as dear as last week. Maize was quiet at late rates. Oats, with good arrivals, moved off slowly at unchanged value. Average prices of corn for the week ending July 30:—Wheat, 47*s.* 1*d.*; Barley, [illegible]*s.* 6*d.*; Oats, 23*s.* 1*d.* For the corresponding week last year:—Wheat, 44*s.* 2*d.*; Barley, 27*s.* 1*d.*; Oats, [illegible]*s.* 1*d.*

CATTLE.

At Copenhagen Fields on Monday first quality cattle maintained late value, rather from the limited supply than from much demand. Second qualities, though not numerous here, sold badly, owing to heavy supplies at Deptford. Sheep and lambs, of which the number was very moderate, met a slow sale. The calf trade showed increased dulness. Quotations:—Beasts, 4*s.* to 4*s.* 8*d.*, and 4*s.* 10*d.* to 5*s.* 4*d.*; calves, 4*s.* 8*d.* to 5*s.* 8*d.*; sheep, [illegible] to 5*s.* 8*d.*, and 5*s.* 10*d.* to 6*s.* 4*d.*; lambs, 6*s.* 8*d.* [illegible] 7*s.* 9*d.*—Trade on Thursday was without any feature of importance. Both beasts and sheep moved off slowly at about the above prices, and calves fully realised them.

HAY.

Tuesday's Whitechapel Market report states that moderate supplies were brought forward, and were a quiet demand at the following prices:—Prime Clover, [illegible]0*s.* to 132*s.*; inferior, 60*s.* to 90*s.*; prime meadow hay, 90*s.* to 126*s.*; inferior, 60*s.* to 80*s.*; and straw, [illegible]*s.* to 52*s.* per load.—On Thursday there was a moderate supply of fodder on sale, with a fair trade. Prices: Prime Clover, 100*s.* to 132*s.*; inferior, 60*s.* to 95*s.*; prime meadow hay, 85*s.* to 130*s.*; inferior, 30*s.* to 75*s.*; and straw, 30*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior old meadow hay, 108*s.* to 126*s.*; inferior, 80*s.* to 92*s.*; new hay, 90*s.* to 120*s.*; superior old Clover, 132*s.* to 140*s.*; inferior, 90*s.* to 105*s.*; new, [illegible]0*s.* to 120*s.*; and straw, 48*s.* to 54*s.* per load.

COALS.

The following are the prices current at market during the week:—East Wylam, 15*s.* 6*d.*; Walls End—Hetton, [illegible]*s.* 6*d.*; Hetton Lyons, 14*s.*; Hawthorns, 14*s.* 3*d.*; Lambton, 15*s.* 6*d.*; Original Hartlepool, 16*s.*; Wear, [illegible]*s.*; South Hetton, 16*s.*; Radford Navigation, 17*s.* 6*d.*

Government Stock.—On Tuesday (Monday was Bank Holiday) Consols closed at 101 to 101⅛ for delivery, and 101⅛ to 101¼ for the account. Wednesday's final quotations were 100⅞ to 101 for delivery, and 101 to 101⅛ for the account.—The closing figures on Thursday were, for delivery, 100⅝ to 100¾, and 100¾ to 100⅞ for the account.

Great Success of

SMITH'S WEED KILLER.—The only way to keep your carriage drives and gravel walks free from weeds is to use Smith's Weed Killer, a liquid preparation which, when mixed with cold water and applied with an ordinary watering-can, will prove thoroughly destructive to all vegetable growth. Testimonials from all parts of the United Kingdom.

Prices:—4 gallons, sufficient to make 100 gallons when mixed, 7*s.* 6*d.*; 16 gallons, to make 400 gallons, 28*s.*; 40 gallons, to make 1000 gallons, £3 5*s.* Carriage paid to all stations. Iron drums allowed full price on return. Address MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6*d.* and 1*s.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

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G. ELAM AND SON, 43, Wellington Street, Strand, London, W.C.
Manufacturers of ROPES, TWINES, SACKS, TARPAULINGS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1*s.* each; 15 sacks, 12*s.*; 30 sacks, 20*s.*; truck-load, delivered to any station in London, 25*s.* Try our HEMP SASH-LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.
Chief Office: 25, Commercial Road, E.
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For COVERING, TYING and PACKING.
RAFFIA FIBRE for Tying.
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MAT MERCHANTS and IMPORTERS.
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J. BACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 2*d.* per yard; 100 yards, 16*s.* 4 yards wide, 4*d.* per yard; 50 yards, 16*s.*
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard.
TIFFANY, 5*s.* and 6*s.* per piece of 20 yards.
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VASES, PEDESTALS, FOUNTAINS, GARDEN EDGINGS, &c.,
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THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
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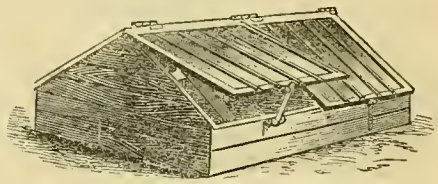

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	£ s. d.
6 feet long, 4 feet wide	2 15 0
12 feet long, 4 feet wide	4 15 0
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12 feet long, 5 feet wide	6 10 0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.
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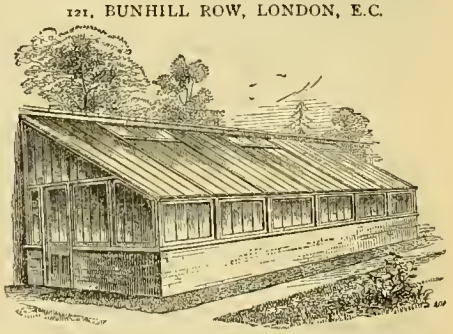

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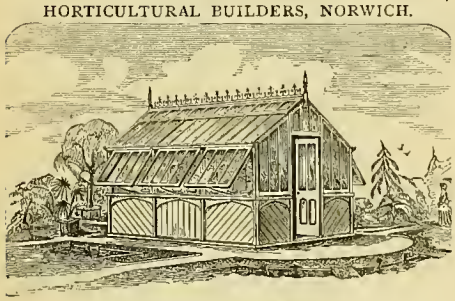

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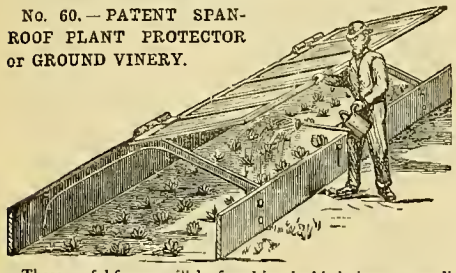

These useful frames will be found invaluable in large or small gardens for protecting plants in the open ground, or storing the same when turned out of the conservatory.

CASH PRICES—Carriage paid—including Packing Cases. Ends per pair extra.

	£ s. d.		s. d.
6 feet long, 3 feet wide	1 17 6		7 0
12 feet long, 3 feet wide	3 8 6		
6 feet long, 4 feet wide	2 9 6		8 6
12 feet long, 4 feet wide	4 8 6		
12 feet long, 5 feet wide	5 15 6		10 6
12 feet long, 6 feet wide	7 6 6		12 0

Several may be placed together, and only one pair of ends required. Descriptive LISTS post-free.

Orders amounting to over 40s. Carriage paid to any Railway Station in England and Wales; also to Edinburgh, Glasgow, Dublin and Belfast.

Any damage in transit made good if advised immediately.

PORTABLE POULTRY HOUSES,

Movable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON AND PAUL, Norwich. Illustrated Catalogue sent free by post.

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This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

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Lawn Mowers. — Lawn Mowers.

ROYAL HORTICULTURAL SOCIETY'S SHOW, South Kensington, London, June 3 *to* 7, 1881.

A SILVER MEDAL, the FIRST and HIGHEST PRIZE of the above Society, was awarded to

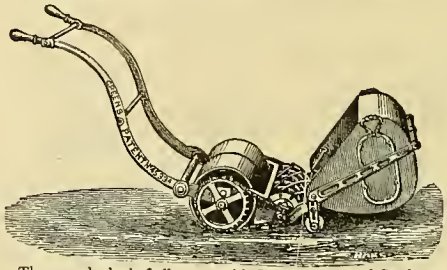
GREEN'S

Patent "Silens Messor" Lawn Mowers,

AT THE ABOVE EXHIBITION.

The *Journal of Horticulture* of June 9 says: "MOWING MACHINES.—The judges' work in this class of eight exhibitors, each having a number of machines, was no sinecure, for special advantages in some form or other were claimed for each kind of mower; and it may be safely said that all were good and did their work well. After a critical examination the Silver Medal was granted to the old firm, of world-wide fame, Messrs. T. Green & Sons, of Leeds and London. As the machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

The Garden of June 11 says: "Messrs. Green took the Silver Medal for their mowing machines, which were represented by their 'Silens Messor' and the horse-power machines with new patent side delivery grass boxes."



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And every description of Ironwork for Horticultural an Building Purposes.

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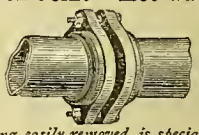
Elbows (No. 12)— ,,	1 1 ..	,,	1 8 ..	,,	2 0 ,,
Tees (No. 33)— ,,	1 5 ..	,,	2 4 ..	,,	3 3 ,,
Syphons (No. 23)— ,,	1 3 ..	,,	2 0 ..	,,	3 0 ,,

"Expansion Joint" Hot-water Pipes.

The "Expansion Joint."



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Elbows (No. 3)— ,,	0 8 ..	,,	0 10 ..	,,	1 0 ,,
Tees (No. 13)— ,,	0 11 ..	,,	1 2 ..	,,	1 4 ,,
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Joint complete, with Rubbers and Pins, 2-in., 10d. each 3-in., 1s. 2d.; 4-in., 1s. 4d.

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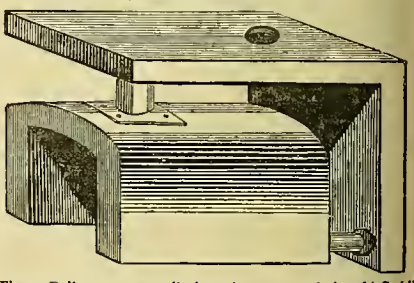

These Boilers possess all the advantages of the old Saddl Boiler, with the following improvements—viz., the water-spac at back and over top of saddle increases the heating surface t such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the sam quantity of fuel; the cost of setting is also considerably reduced and likewise the space occupied; at the same time these Boiler are simple in construction, and being made of wrought-iron ar not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.
High.	Wide.	Long.	Feet.	£ s. d.
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20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1000	16 0 0
24 ,,	24 ,,	48 ,,	1400	20 0 0
28 ,,	28 ,,	60 ,,	1800	25 0 0

Larger sizes if required.

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"Having given your Patent 'Double L' Boilers a fair tri at my Nurseries, I beg to say that they are most satisfactor I consider them the best in use, and without doubt the mos economical of all boilers; they will burn the refuse of othe tubular boilers I have in work."

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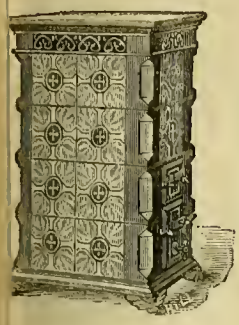

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NEED NO CLEANING.
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MADE IN ALL COLOURS AND SIZES.
ARE VERY DECORATIVE, AND BLEND WELL WITH THE SURROUNDING FOLIAGE.

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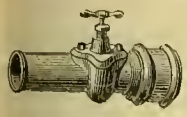

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3-in.	..	.. 12s. 6d.
4-in.	..	.. 15s. 0d.

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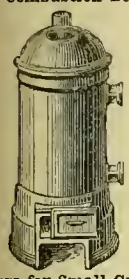

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Cash Prices, Carriage Paid, of Boiler complete, as shown on Illustration.

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3	80 ft.	4 10 0
4	100 ft.	5 0 0

Sockets on either Side or Back.

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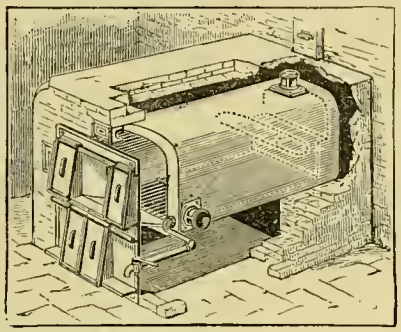
Manufacturers of Boilers, Valves, and every requisite for all kinds of Heating Apparatus.



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3	42 in.	22 in.	18 in.	750 ft.	13 0 0
4	48 in.	24 in.	20 in.	1000 ft.	16 0 0
5	54 in.	27 in.	20 in.	1250 ft.	20 0 0
6	60 in.	27 in.	22 in.	1500 ft.	23 0 0
7	66 in.	30 in.	22 in.	1750 ft.	26 0 0
8	72 in.	30 in.	24 in.	2000 ft.	30 0 0

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TESTIMONIAL.

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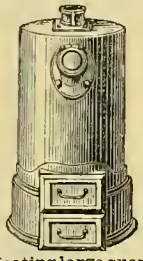

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To Heat 250 ft. 4-in. Piping	£10
" 500 ft. "	18
" 750 ft. "	26
" 1000 ft. "	34

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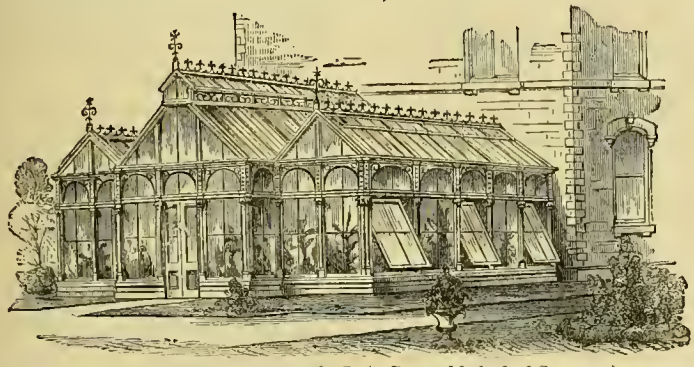

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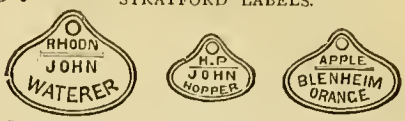

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THE

GARDENERS' CHRONICLE

FOR

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APPLICATIONS FOR SPACE MUST BE SENT IN NOT LATER THAN AUGUST 23.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

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Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

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THE

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STRAWBERRY RUNNERS.—Strong, healthy, and well-rooted, from twenty of the best varieties in cultivation. Price LIST, &c., on application.
Manual on Strawberry Culture, with Sample Box of Plants, post-free 6d.
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To the Trade.
RAPE SEED and WHITE MUSTARD.
H. AND F. SHARPE will be pleased to submit SAMPLES of the abovenamed SEEDS, of the finest quality, and at very moderate prices.
Seed Growing Establishment, Wisbech.

WANTED, CUTTINGS of Tricolor, Variegated and other Bedding PELARGONIUMS.—Please send price and varieties, to G. JARRETT, Pelargonium Nursery, Wickham, Newbury, Berks.

WANTED, 6 or 9 large Scarlet GERANIUMS in pots, 6 or 8 feet high, suitable to train on a wall (they must be hardy enough to stand outdoors), at once. State price and particulars. Also 2 AGAVE AMERICANA, 2 feet over.
RODGER McCLELLAND AND CO., 64, Hill Street, Newry.

WANTED, CONSIGNMENTS of PEACHES, NECTARINES, APRICOTS and other FRUITS, CHOICE CUT FLOWERS, TOMATOS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

FLORAL COMMISSION AGENCY.—Nurserymen and Gentlemen having a surplus quantity of choice FLOWERS and FRUIT, are requested to communicate with W. CALE, Commission Agent, 4, Tavistock Row, W.C.

Double-flowered Bouvardia, Alfred Neuner.
MR. WILLIAM BULL can now supply this pretty and desirable novelty, as announced by him last January, by the dozen or 100, at 10s. 6d. each.
Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

To the Trade Only.
E. H. KRELAGE AND SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland. The Wholesale CATALOGUE (No. 353A) of Dutch Flower Roots, and miscellaneous Bulbous and Tuberous-rooted Plants for 1881-82 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

ORANGE TREE, 8 to 9 feet high, in perfect health, good shape, about 40 years old; also PANDANUS JAVANICUS VARIEGATUS, perfect specimen, 6 feet through, and 6 feet high from bottom of pot. Getting too large for house. Shall be glad of offers for the above. Apply,
WILLIAM IRELAND, Pilton Nurseries, Barnstaple.

LILY OF THE VALLEY (Convalaria majalis), hardy roots, of best quality, 36s. per 1000; 10,000 at 35s. 6d. per 1000; delivered free on board Hamburg or Bremen (packing included).
OSKAR KNOPFF AND CO., Erfurt, Prussia.

Berlin Lily of the Valley, &c.
O. RIEMSCHNEIDER, Brandenburg on Havel, by Berlin.
PRICE LIST of the above and other Roots may be had free of Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, London, E.C.

CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS, 1s. 4d. per dozen, 8s. per 100.
CYCLAMEN, 1s. 6d. per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

SPECIAL OFFER TO THE TRADE.
50,000 ERICA HYMEMALIS, in 60-pots, at 20s. per 100.
30,000 " GRACILIS AUTUMNALIS, at 15s. per 100.
10,000 " WILMOREANA, at 15s. per 100.
The above are all fine healthy plants.
GREGORY AND EVANS, Effingham Nursery, Lee, S.E.

ATHYRIUM f.-f. ACROCLADON (described by Lowe as "at once the rarest and most remarkable of British filices") will be exhibited, along with other rarities and novelties, at the forthcoming International Show at Manchester, by F. W. AND H. STANSFIELD, Sale, near Manchester.

FOR SALE, EUCHARIS AMAZONICA, about 20 pots (24 size); also 20 pots of GARDENIAS, in 32-pots. All healthy plants. Sold for want of room. Apply,
W. NICOLL, Lower Merton, Surrey.

Gardenia Intermedia.
MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent Free on application
Lion Walk, Colchester.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens Crutched Friars, London, E.C.

FOR CASH WITH ORDER.—PRIMULAS, Double White, fine healthy stuff, in 48's 60s. per 100.
BEGONIA FŒBELLI, in 48's, 40s. per 100.
ADIANTUM CUNEATUM, really good plants, in 48's, 100s. per 100.
C. YOUNG, Florist, Balham Hill, London, S.W.

Dutch Bulbs.
To SUPPLY the TRADE.
SEGERS AND CO., Bulb Growers, Lisse, near Haarlem, Holland, beg to announce that their Crops of HYACINTHS, TULIPS, &c., look very fine.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
☞ Please observe Name and Address.

Mangel Wurzel Seed.
JOHN SHARPE is now prepared to supply samples and special quotations to the Trade.
Bardney Manor, Lincoln.

MUSHROOM SPAWN.—Now ready for delivery, in excellent condition, and of our usual good quality, a fine stock of new Spawn, price 5s. per bushel (exclusive of package) The Trade supplied. Price on application.
OSBORN AND SONS, The Fulham Nurseries, London, S.W.

SALES BY AUCTION.

Preliminary Notice.
WEEKLY SALES of DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, E.C., on MONDAY, August 29, and every Monday throughout the season, at half-past 11 o'Clock each day, an excellent and varied assortment of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, &c., from well known Bulb Farms in Holland.
Catalogues in due course at the Mart, and of the Auctioneers, &c., 8, New Broad Street, E.C.

High Cross, Tottenham.

MR. J. C. STEVENS will SELL by AUCTION, on the Premises, High Cross, Tottenham, on WEDNESDAY, August 17, at half-past 12 o'Clock precisely, the GREENHOUSES, consisting of Hot-water Boilers, Pipes, Staging, Slates, Flags, Bricks, Tanks, &c., without reserve, belonging to J. Day, Esq. Sold in consequence of giving up the culture of Orchids.
On view the day prior and morning of Sale, and Catalogues had.

Thursday Next.
IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, August 18, at half-past 12 o'Clock precisely, 12 Cases ORCHIDS, just arrived from Bogota, containing a large lot of Odontoglossum crispum, in fair condition, many fine pieces amongst them; a great variety of ESTABLISHED ORCHIDS, comprising many rare and valuable sorts; and 10 barrels of BULBS, *ex Neptune*, from Nassau.
On view the morning of Sale, and Catalogues had.

TO BE DISPOSED OF, the Old-established NURSERY and SEED TRADE of the late Mr. Henry Baker, Atherstone. The Nursery (about 8 Acres) is in an excellent neighbourhood, and close to a Market Town, in full working order, and every facility for doing a large trade. Liberal terms to an immediate purchaser. For particulars apply to
Mrs. BAKER, The Nurseries, Atherstone.

Corn and Seed Trade.

TO BE DISPOSED OF, a first-class BUSINESS, in Dorsetshire. Established 35 years. Profits good. Proprietor retiring altogether from business. A good opening for an energetic young man with moderate capital.
Apply to Mr. S. SAMWAYS, Corn and Seed Merchant, Piddletrentide, Dorchester.

Rural Life.

TO BE SOLD, a charming little property, in Jersey, well worthy the attention of Gentlemen retiring from business, but desiring pleasurable yet profitable occupation. It comprises about 1½ acre of rich LAND, COTTAGE ORNÉ, GARDENS, COTTAGE, STABLES and COACH HOUSE, several OUT-BUILDINGS; Two large newly erected VINERIES, planted with young Vines of the choicest growth, calculated to produce between 2000 and 3000 lb. of Grapes per season; CUCUMBER HOUSE, 80 feet long, yielding in from January to the present time 9 dozen per week. The whole is heated with hot water, and constructed with all modern improvements. Horse, 4 years old; Carriage, Furniture and extensive Plant, &c. The situation is most healthy, the surrounding country remarkably beautiful, and winters delightfully mild.
For particulars, apply to A. J. IRETON, Esq., Messrs. Ireton & Ward, Covent Garden, W.C.

To the Trade.—Roses, &c.

CHARLES WILSON, of Summerbow Nurseries, Kendal, begs to offer to the Trade and large Buyers generally, Tea, Noisette, and China ROSES, in 4½-inch pots, at £3 3s. per 100, or £28 per 1000, purchaser's selection. C. W. having many thousands in stock, they cannot fail to give satisfaction. Also Scarlet, White, and Pink BOUVARDIAS, mixed, at 6s. per dozen, now ready for shifting into 4½-inch pots, being in 3-inch pots for convenience of carriage. ADIANTUM CUNEATUM, at 25s. per 100, or £10 10s. per 1000. Orders booked for Double White PRIMULAS, to be delivered in August. Price on application. An inspection of his large Stock and extensive Nursery is respectfully solicited. Plants given to compensate for carriage. CATALOGUE on application. Please note the address—SUMMERHOW NURSERIES, KENDAL.

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PEACHES, NECTARINES, APRICOTS and GRAPE VINES.—A large and fine stock now offered for sale.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.
GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d.
ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs.
Descriptive Price LIST for 1d. stamp.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Hyacinths, Tulips, &c.

BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

Dutch Bulbs direct from the Growers.

ANT. ROOZEN AND SON. HYACINTHS, TULIPS, CROCUS, GLADIOLI, &c., at Growers' Prices, delivered entirely free to the Railway Stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent, carriage paid, to destination. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.
Collections B, C, E, and F, can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10s. 6d. each, against cash payment.
ANT. ROOZEN AND SON, Nurserymen, Overveen, near Haarlem, Holland.

Primulas, Cinerarias, and Calceolarias.

H. CANNELL AND SONS beg to announce that SEEDLINGS of the above are now in their best possible condition for potting and posting to all parts of Europe.
SWANLEY RED, PURPLE, KERMESINA } Splendid additions, 3s. per dozen.
The best old Rubra and White, 1s. 6d. per doz., 10s. per 100.
CINERARIA, 1s. 6d. per dozen, 9s. per 100.
CALCEOLARIAS, ditto.
Established in pots 1s. per dozen extra.
All our Strains are unquestionably the best, and have received the highest honours from the Royal Horticultural Society.
The Home for Flowers, Swanley, Kent.

Strawberry Plants.

H. CANNELL AND SONS being located in the midst of hundreds of acres of the above, enables them to offer the best Covent Garden kinds in any quantities, either Runners or established in small pots, just ready for shifting, 12s. per 100. Swanley, Kent.

EARLY FLOWERING BULBS.—We beg to draw attention to our large and varied stock of the above, just imported in fine condition, comprising:—
HYACINTHS, Early White Roman.
NARCISSUS, Double Roman Polyanthus.
" Paper White.
SNOWDROPS, Double and Single, extra large.
JONQUILS (sweet scented), Double and Single.
Orders over 5s. value carriage paid to nearest station.
Price LISTS free on application.
LITTLE AND BALLANTYNE, The Queen's Seedsmen, Carlisle.

CAULIFLOWER—Erfurt Early Dwarf (true), my own growth, the finest variety for forcing, 10s per ounce, 1s. per packet.
PANSIES.—Assortment of 16 splendid varieties, containing each one packet, 3s.; splendid mixed quality, 3s. per ounce. Gained the First Prize, Magdeburg, 1880.
Orders accompanied by Post-office Orders, or Stamps, will be forwarded post-free by
FREDER. ROEMER, Seed Grower, Quedlinburg, Germany.

MR. H. VAN GEERT begs to inform his numerous Friends and Correspondents that he has, as usual, a fine Stock of Budded CAMELLIAS and Indian AZALEAS—Azalea mollis and Ghent varieties, KALMIAS, FICUS ELASTICUS, CHOISYA TERNATA, Otahite ORANGES, CENTROPOGON LUCYANUS, DRACÆNA INDIVISA and TERMINALIS, Tuberous BEGONIAS, GLOXINIAS, PALMS and FERNS for Table and General Decoration, DIELYTRA SPECTABILIS, LILY of the VALLEY in Clumps and Pips, &c.
FERNS in small pots—PTERIS, LOMARIA, BLECHNUM, &c., at £15 per 1000, or 35s. per 100.
CATALOGUES free.
The Continental Nurseries, Ghent, Belgium.

SPECIAL OFFER.—Large ORNAMENTAL and EXHIBITION PLANTS of the following:—Phormium Colensoi and Veitchii, Latania borbonica, Seaforthia elegans, Cocos Weddelliana, Corypha australis; 6 Heaths in bloom, 2 to 2½ feet through; a Yucca variegata; Dicksonia antarctica, Crotons, Dracænas, Lomaria gibba, Geraniums (double), large, in bloom; Valotta purpurea, Epiphyllum of sorts.
Would take PART EXCHANGE for Double White and Pink CAMELLIAS. Further particulars on application to
R. W. PROCTOR, Ashgate Road Nurseries, Chesterfield.

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COCOA-NUT FIBRE REFUSE,
3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order.
CHUBB, ROUND AND CO.,
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COCOA-NUT FIBRE REFUSE, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; or vanload of loose, about 100 bushels, delivered free within 4 miles of London Bridge, 15s.; truckload of about 250 bushels, £1 3s. (truckload free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

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BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload.
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SMITH'S WEED KILLER.—The only way to keep your carriage drives and gravel walks free from weeds is to use Smith's Weed Killer, a liquid preparation which when mixed with cold water and applied with an ordinary watering-can, will prove thoroughly destructive to all vegetable growth. Testimonials from all parts of the United Kingdom.
Prices:—4 gallons, sufficient to make 100 gallons when mixed, 7s. 6d.; 16 gallons, to make 400 gallons, 28s.; 40 gallons, to make 1000 gallons, £3 5s. Carriage paid to all stations. Iron drums allowed full price on return. Address
MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

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TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 2d. per yard; 100 yards, 16s. 4 yards wide, 4d. per yard; 50 yards, 16s.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.
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All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description. RAFFIA FIBRE, NETTING, and TIFFANY, TARPAULINGS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to
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For COVERING, TYING and PACKING.
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TANNED GARDEN NETTING, SCRIM CANVAS, and TIFFANY, SEED BAGS and SACKS, TARPAULINS and HORSE CLOTHS. Descriptive Catalogue post-free on application.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London.

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MARQUEES and TENTS, SECOND HAND GOVERNMENT TENTS, 45 feet round, complete, 35s., suitable for the Garden, Cricket Clubs, &c.
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Manufacturers of ROPES, TWINES, SACKS, TARPAULINGS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1s. each, 15 sacks, 12s.; 30 sacks, 20s.; truck-load, delivered to any station in London, 25s. Try our HEMP SASH-LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.
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TILES FOR LINING WALLS OF Conservatories.
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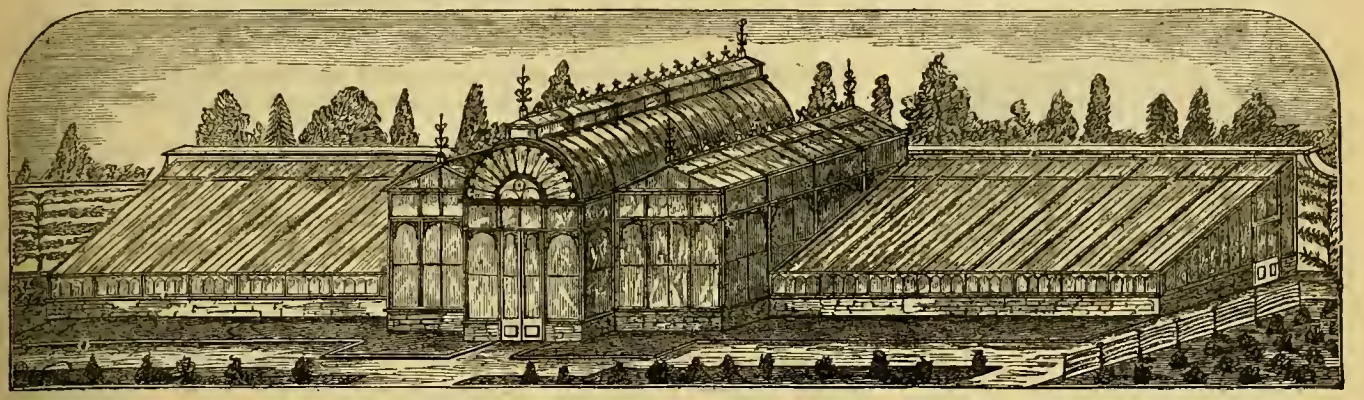

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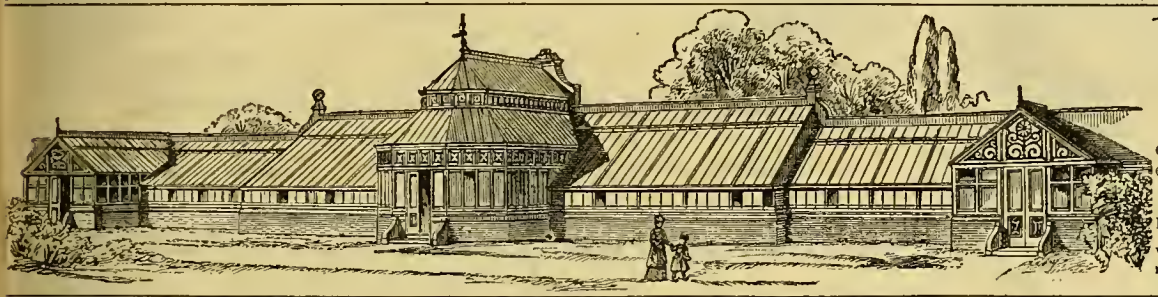

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GREEN'S PATENT TUBULAR SADDLE BOILER

Had the First and Highest Prize, a Silver Medal,

Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.

FRONT ELEVATION LONGITUDINAL SECTION CROSS SECTION

The "Journal of Horticulture" of June 9 says:—

"Heating Apparatus.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The "Garden" of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

Descriptive Illustrated Price LIST free on application to

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Now Ready, a Revised Edition of the

COTTAGER'S CALENDAR OF GARDEN OPERATIONS.

ORIGINALLY COMPILED BY THE LATE SIR JOSEPH PAXTON, M.P.

Price 3d., Post Free 3½d.

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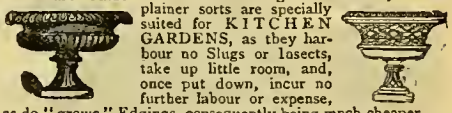
Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.



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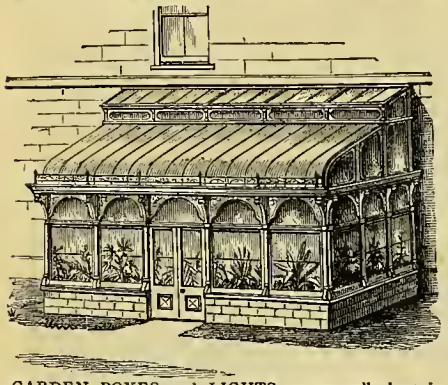

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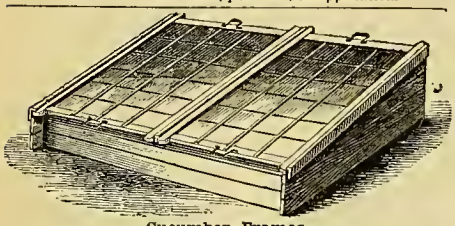

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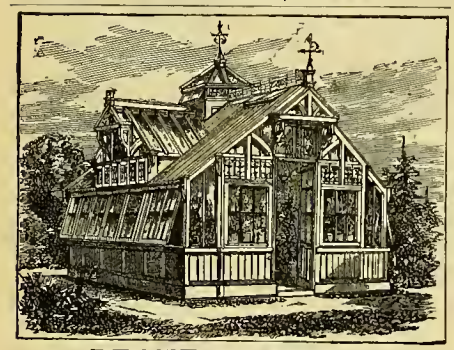

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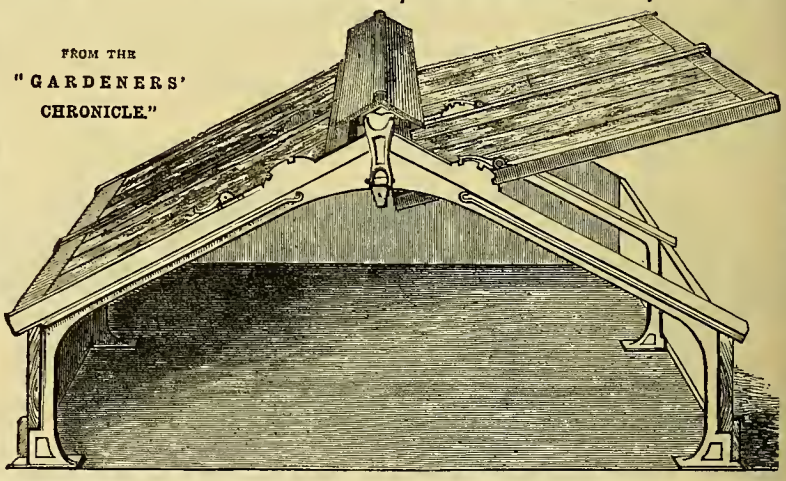
FROM THE "GARDENERS' CHRONICLE."



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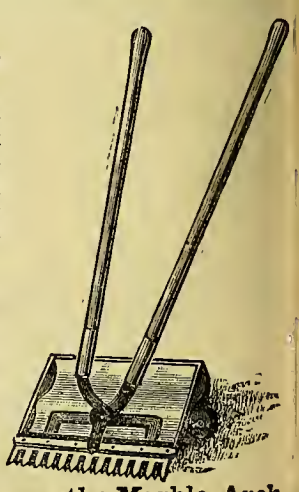

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MESSRS. EWING & CO.

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100 in 20 sorts, our selection, 5s.
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The undersigned can now offer a few good plants of this magnificent rarity, at 10s. 6d. each; extra strong specimens, One Guinea each. We believe this most beautiful of all Crested Ferns is now offered to the public for the first time.
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The Annual SALE by AUCTION will be held in September.
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A B C Bulb Guide for 1881.

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THE
Gardeners' Chronicle.
SATURDAY, AUGUST 13, 1881.

THE ISLE OF WIGHT.

TO a gardener from the midland or northern counties a visit to the Isle of Wight may afford as great a change as if he traversed that wider channel that separates the Continent from us. Indeed, he would have to go far before he met with a district so full of interest as that possessed by the little lozenge-shaped isle off the Hampshire coast. Not to mention the beauty and variety of its scenery, the enjoyment of which is not confined to the gardener, and which, therefore, may be dismissed with mere mention, there is much—very much—in the physical features of the country, its downs, its meadows, its seaboard, its extraordinarily varied surface and soil, to attract the attention of the cultivator. Camellias vie there with Rhododendrons in hardihood, Fan Palms display their leaves unhurt by the winter's frost, Myrtles and Fuchsias reach the roof-tops, "greenhouse plants" in numbers take their place among the hardy shrubs, natives of Australia, New Zealand, and Japan jostle in the open with indigenous Oaks and Ash. It is clear, then, that the interest of the "garden-isle" is great and manifold; and if the gardener have a smattering of botany and geology, so as to be able to appreciate, however faintly, the wonderfully interesting physical and geological features, his pleasure in the visit will be vastly enhanced. A ridge of noble chalk downs runs across the island from east to west. On the north side of these downs are layer after layer of sand and clay and stone in wonderful variety, but all belonging to those more recent deposits which geologists class as "tertiary" in point of relative age. On the southern side of the downs are similar layers of sand and clay and stone, ranging from the Gault, through the Greensand to the Wealden. Theoretically, perhaps once actually, all these several layers (as some still are) were piled in order regularly one over the other, as leaves in a book that lies flat on a table. Set the book up on edge with its back uppermost, and its covers and pages widely spread open, and some rough notion of the skeleton of the island may be obtained. The back of the book so placed corresponds to the ridge of chalk, the diverging leaves to the strata on either side, each leaf separate from its fellow, the product and outcome of a different—often widely different—epoch in the world's history.

Let the winds and the waves, the air and the floods, the frost and the drought, each in turn or in varied combination, scoop out great basins in the downs, wear away some portions of the strata so as to expose others—let the pressure of the upper layers upon the soft unctuous clays beneath exert its inevitable force, and either slowly and by degrees, or by more sudden toppling over, down must come the more solid rocks above. To some such causes as these may be attributed the wonderfully diverse aspects and elevations of the little island and the equally varied cha-

racter of its soil. Its well-known climatal characteristics can easily be understood by a glance at the map.

It was a matter of some interest to the writer of these notes to see what had been the effects of the last two winters on the garden vegetation of this favoured spot. Accordingly, bearing in mind the general state of things near London, and especially at Kew, as narrated by Mr. Nicholson lately in these pages, visits—necessarily hurried visits—were paid to several garden establishments in the island, and the outcome of these visits it is proposed to lay before the readers of the *Gardeners' Chronicle*, not in any exhaustive fashion (circumstances were not propitious for anything like scientific accuracy of observation, or fulness of detail), but incidentally, and, it may be hoped, suggestively. A beginning may appropriately be made with the domain of Her Majesty at Osborne.

Osborne.

Readers of this journal who recall the full and illustrated account given of the Royal Gardens at Frogmore in the "Windsor Supplement," 1874, vol. ii., will experience no surprise at learning that the establishment at Osborne is a pleasure garden only, maintained for the sake of securing much needed privacy and recreation to the members of the Royal family. Visitors privileged to gain access will therefore not find extensive ranges of glass, nor provision for all the manifold garden requirements of a large household: these are supplied at Frogmore. What they will find is a well managed farm, a model indeed, but on which we have nothing to say in this place, and a pleasure ground remarkable for the variety and interest attaching to its plantations. The mansion, in the Italian style, with two slender campanile-like towers, stands on an eminence overlooking the Solent and at a short distance from it. The estate is on the whole well sheltered by adjacent woods and by belts of protecting trees, but here and there in particular aspects traces of exposure to the winter's blast are obvious. Entering by way of Barton Farm, the visitor passes along an avenue in which Austrian Pines and Cornish Elms alternate, the latter of pyramidal habit and with small nearly glabrous leaves. It is curious to observe the trunks of the Elm thickly encrusted with grey lichens, while those of the Pines are, by comparison, nearly destitute of these hangers on. Passing to the terrace near the house it may be seen that the beds are filled with gaily-coloured bedding plants, the successors to the Wallflowers, Silenes and Pansies of spring; a more unusual feature, however, is a shady arcade or "pergola," over which the Vine is trained, as in Italy, and which forms a delicious promenade on a sunny day. On the terrace, too, is a handsome plant of Chamærops Fortunei, which has survived the last winter, and is unhurt. It is a fine plant, in better condition than those at Kew, but, if our memory serves us right, not so fine a specimen as the two in that sheltered corner at Heckfield. One bed on the terrace is filled with Camellias, which look as though neither a salt-laden atmosphere nor the frosts of winter had any ill-effects on them.

From the terrace a fine grassy slope hollowed by art into the semblance of a "combe," such as may be seen on the chalk downs, trends away to the sea, and allows of a delightful peep over the Solent, dotted with yachts which, with their white sails, simulate some huge sea-birds; while on the other side of the mansion, is that sloping bank in which the interest of Osborne, as an experimental station, mainly centres. Planted out here are numerous fine and rare shrubs, which by their size and condition testify to the mildness of the climate. Escallonia macrantha, killed to the ground near London, is here a splendid bush, its deep green glossy leaves setting off its rosy-pink flowers to the best advantage. Throughout the island, moreover, this fine shrub appears to be unhurt. The Loquat, Eriobotrya japonica, stretches out its bold leaves in a manner which shows that it, too, like its neighbour, the Buddleia globosa, was unhurt. It was not surprising to see Griselinia littoralis in such a spot, but to see a big bush of it is another matter. Eucalyptus globulus is unscathed, a fact that suggests the expediency of making trial of other species of this interesting genus. Arbutus procera, with its handsome bark, is unhurt, but the much less common A. tomentosa is slightly injured. Cerasus ilicifolius is in perfect health. Garrya Fadyeni, a species with hoary leaves, very distinct from the common one, but very rarely met with, is quite unhurt, as is also Cleyera japonica, a near relative of the Camellia. Chamærops Fortunei and Aralia Sieboldi, with their striking foliage, add variety to this bank.

It may here be mentioned that neither Cork Oaks, Catalpas, nor Paulownias appear to have suffered in any degree, and that on a wall in a small kitchen garden near a forcing house is an Orange tree trained against the wall, and which, though only receiving the protection of a few boards in winter, yields some dozens of fruit in most years, and several were hanging on the tree when we saw it.

The lawns are thickly dotted with memorial trees—this to commemorate the birth of a prince, that to recal the marriage of a princess; this to mark the confirmation of one member of the Royal family, that to recal the twenty-first birthday of another, or to indicate the visit of some Royal guest. This Cedar of Lebanon was brought as a seedling from Lebanon by the Prince of Wales. Elsewhere is a Myrtle—a good-sized bush now, once a spray in the wedding bouquet of the Princess Royal, the Crown Princess of Germany. This bush, grown as a standard, without protection, has suffered somewhat from the winter. To look at these little trees is like looking at the record in the family Bible, or glancing at the contents of a diary. One feels that they are sacred memorials, the privacy of which, but for their future national and historical interest, should not be violated. If, however, we look upon them as specimens without reference to their associations, the sense of intrusion is lessened, and it becomes interesting to note that a specimen of Picea polita, planted in 1871, is now nearly 7 feet in height. Prumnopitys elegans, planted in 1873, bids fair also to make a fine specimen. Abies firma, planted in 1871, has reached a height of 15 feet. So numerous are these memorial trees that, in consideration of the fact that labels will get astray and inscriptions will become obliterated, a list is kept indicating the whereabouts, the name of the tree, and the occasion on which it was planted. What a chapter for the future narrator of the "curiosities of gardening." It must suffice here to say that the trees in question are chiefly coniferous, including the finest Retinosporas, Pinus bracteata, Thuia japonica (the Thuiopsis Standishii of gardens), Sciadopitys verticillata, planted by the Queen herself; Picea Pinsapo, planted by Lord Beaconsfield; Juniperus drupacea, Libocedrus chilensis, Athrotaxis Gunniana and selaginoides, the lovely Picea Engelmanni, Thuia (Thuiopsis) dolabrata, which does remarkably well here; Thuia Vervæneana, and very many others. These, of course, are all small specimens, and in view of future contingencies Mr. McPherson has a reserve of such choice trees in a secluded nursery, whence they may be drafted as occasion may demand. Among the larger specimens, several of which are near the fine Tudor manor-house, the residence of Mr. McPherson, may be mentioned several grand trees of Pinus insignis and Cupressus macrocarpa. Londoners have no idea of the noble beauty of these trees, both of which suffer in their climate. Hollies, too, do well, and are represented by several of their finer varieties.

Another feature at Osborne, to which we can only allude in passing—for it, too, is of a private character—is the children's garden—the little flower-beds and kitchen garden quarters still kept in the condition in which they were when the Heir-Apparent trundled his tiny wheelbarrow, marked "P. W.," and the other princes and princesses handled their tools, each marked with the initials of the owner, and kept in the tool-shed, brightly polished, and neatly arranged—an example to the spectator, whoever he may be. In this garden, too, is a museum, in the form of a Swiss châlet, of natural history and other curiosities, while the martial proclivities of boy-life are provided for by a tiny redoubt furnished with real cannon! *The Rambler.*

(To be continued.)

Eremurus Olgæ.—The *Gartenflora* for June contains a coloured figure of this fine Liliacea, originally discovered in the mountains of Taschkent and Kokan by Olga Fedtschenko, and subsequently introduced alive in the Petersburg Botanic Garden by A. Regel. It is one of the showiest of the genus, the crowded scapes of large white flowers rising high above the rosette of recurved leaves. Respecting its cultivation, Dr. Regel states that the Dahlia-like tubers are best wintered in a cellar, and planted out in spring in a warm, dry locality in a sandy loam or other light soil.

New Garden Plants.

Thrixspermum muriculatum, *nov. sp.**

A curious plant, with the habit of some Angræcum, having fleshy, coriaceous, ligulate, unequally bilobed, very shining leaves, which turn their surface towards the light. They are a span long. The blackish-brown muricate peduncle bears whitish ochre flowers with purple bars, and a white nearly conical lip with some brown and purple spots. The flowers equal those of Thrixspermum falcatum in size. It comes from East India, and was kindly sent by Mr. W. Bull. *H. G. Rchb. f.*

Saccolabium littorale (*nov. var.? species?*).

Dr. Lindley alluded to a specimen gathered by Thomas Lobb, combining the short inflorescence of Saccolabium Blumei with a præmorse leaf. This leaf proves to be rather narrow. Since it is detached from the stem, and the inflorescence also separate, one might be doubtful, indeed, whether some accidental confusion might not have happened before the things came under Dr. Lindley's observation. I have, however, in my collection, just the same thing from Java and from Ceylon, and now Mr. H. Low sends from Upper Clapton the same from the Malacca forests. I notice that the exterior emarginate part of lip is cucullate, and always turned in an oblique manner, with a keel running underneath in the middle lines. The leaf is unusually long. Dr. Lindley concluded that Saccolabium guttatum, Blumei and macrostachyum might be one species. This may be our final opinion, but I do not think it would be wise to advocate such views to those who are in the trade and who are generally advocates for the multiplication of species. But to speak in a serious tone, I think our actual knowledge does not give us a right to combine those plants, as it is to be hoped we shall obtain, by-and-bye, from such observers as Mr. Gustav Mann, such statements as will enable us to learn whether these plants are subject to many variations as to length of inflorescence, nature of lip, breadth, length, and apex of leaves. Such information, so much wanted in many cases, would be a far greater boon than the discovery of new species. *H. G. Rchb. f.*

Masdevallia Winniana, *sp. nov.*†

This is much in the way of Masdevallia Roezlii, but the flower is much larger; the sepals taper much more gradually into the tail; the colour is much lighter; and last, not least, the peduncle is erect, while that of M. Roezlii sends its flowers down through the basket in which it grows. (I am doubtful whether this last character holds good in the wild plant.) It appears to have a good claim to receive a proper name, so far as I can tell from our actual knowledge of its affinity. I received it from Mr. Charles Winn, The Uplands, Selly Hill, near Birmingham, to whom the plant is dedicated, as he is virtually the author of the species, whose identity as such he maintains. *H. G. Rchb. f.*

THE POTATO DISEASE.

Every one who is taking up Potatos states that he finds a few diseased tubers, and is therefore fearful of an inroad of the Peronospora, which is too probable, but not justified by present appearances except in those cases where the now well-known resting-spores have been found. Our own experience is that all these diseased tubers are cases of the disease first recorded under the name of "nape faule," or wet-rot, which is characterised by the presence of the Fusisporium solani of Martius. Besides this we find a pale grey slimy mucus oozing out in parts, consisting of millions of extremely minute bodies, which we consider some form of Micrococcus, especially as these are accompanied by numerous Bacteria, but whether they are a development or not of the Micrococcus we are unable to determine. Under these circumstances it would be probably dangerous to throw such specimens in the way of pigs, in which it is possible they might generate some unlooked-for form of disease. They should at once be burned. *M. J. B.*

Phloxes. — Have any of your correspondents noticed that it is almost impossible this year to get well-developed flowers of Phlox?—as even before the buds are expanded they are attacked by myriads of thrips, so that, instead of having beautiful trusses, nothing is left but a mass of shrivelled flowers. *M. J. B.*

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* *Thrixspermum muriculatum.*—Subacaule; foliis carnoso-coriaceis cuneato-ligulatis apice inæqualiter bilobis, vulgo curvatis, paucis; pedunculo basilari crassiusculo (atroviolaceo-purpureo) muriculato, racemoso; sepalis oblongis acutis; tepalis ligulatis acutis; labello rotundato extinctoriiformi cum apiculo calcaris obtusato, laciniis labelli triangulis assurgentibus parvis carina emarginata serrulata conjunctis, laciniis antica transversa brevi retusa interposita, labello intus inornato. — Sarcochilus muriculatus. India orientalis. *H. G Rchb. f.*

† *Masdevallia Winniana*, n. sp.—Omnino aff. Masdevalliæ Roezlii: pedunculo erecto; sepalis lateralibus deorsum versis perigonio multo pallidiori. *H. G. Rchb. f.*

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS, AUGUST, 1881.]

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND.										
BERDEEN	Under	Average	Average	....	Under	Under	Average	Average	....	George Donaldson, Keith Hall
	....	Average; good	Under average	....	Over average	Average	Over average	Average	....	John Forrest, The Gardens, Haddo House
	....	....	Over; very good	....	Over; good	Over; good	Over; good	Over; good	....	John Proctor, Slains Castle Gardens
	....	Under	Average	....	Over	Average	Over average	Much under average	....	George H. Smythe, The Gardens, Aboyne Castle
RGYLL	....	Average	Average	....	Average	Average	Over average	Average	....	A. Brown, Kilmorey
	Average; bad	Average; good	Average; good	....	Average; bad	Under; bad	Average; good	Under; bad	....	G. Taylor, Castle Gardens, Inverary
YR	....	Average; good	Average	....	Bad	Bad	Very good	Very good	....	N. McKinnon, Dumfries House
ERWICK	....	Under; good	Under; very good	....	Average; good	Under; good	Over; very good	Under; very good	....	W. Fowler, Mertoun House, St. Boswell's
	....	Above average	Under average	....	Under average	Under average	Over average	Under average	....	James Whitton, Thirlestane Castle
	Average; very good	Under; good	Average; good	Under	Average; very good	Under	Over; very good	Average; very good	....	William Richardson, Ayton Castle Gardens
AITHNESS	Average; bad; very late	Average; bad; very late	Average; good, but late	....	Average; bad; very late	Average; bad; very late	Average; good, but very late	Average; good, but very late	Under; bad; very late	John Sutherland, Langwell, Berriedale
LACKMANNAN	Under average; bad	Average; good	Average; good	Under average; bad	Over average; very good	Average; good	Over average; good	Under average; bad	....	Thomas Ormiston, Alloa Park
ROMARTY	Average; good	Average; good	Under average	Average	Over an average; good	Average; good	Average; good	Under average	....	James Laing, New Tarbat Gardens, Parkhill
UMBARTON	Average; good	Over; good	Average; bad	....	Over; good	Over; good	Over; good	Under; bad, from rain	....	Alex. Scott, Auchendenan
	....	Average; Orleans over	Under	....	Average	Average	Over; very good	Average; very good	....	Jas. Mitchell, Camis Estean
UMFRIES	....	Under; good	Under; good	Average; good	Average; good	Under; bad	Average; good	Over; very good	....	James Dickson, Arkleton, Langholm
	....	Average	Over; good	....	Over	Over	Over; good	Under; good	....	James Smart, Raehills, Lockerbie
	....	Average; good	Under; good	Under	Average; very good	Under; good	Average; very good	Under; good	Under	John Shannon, Jardine Hall, Lockerbie
AST LOTHIAN	Over average; very good	Over average; very good	Over average; very good	Over average; very good	Over average; very good	Average; good	Over average; very good	Under average; good	Over average; good	Lawrence Dow, Newbyth Gardens, Prestonkirk
	Average; good	Under; good	Over; very good	Average	Average; good	Over; good	Over; very good	Under; good	....	T. Gellatly, Gosford
	Over; very good	Under; good	Average; good	....	Over; very good	Under; good	Over, very good	Under; good	Walnuts over average; very good	Wm. McKelvie, Broxmouth Park, Dunbar
FE	....	Under average	Over average	....	Under an average	Very few	Abundant	Average	....	W. Henderson, Balbirnie
	Average	Under; Damsons over	Average	....	Average	Under	Over; very good	Average	....	George Ramsay, Fordell Gardens, Inverkeithing
ORFAR	Over average	Average	Average	Average	Over average	Average	Very good	Under average	Good	Geo. Johnston, Glamis Castle
	....	Average	Average; very good	....	Over; good	Average; good	Average; good	Under; bad	....	J. Mitchell, Panmure Gardens, Carnoustie
INCARDINE	....	Average	Average	....	Average; very late	Under	Average; good	Under	....	George Wighton, Fasque
INROSS	....	Under; good	Over; very good	....	Over; good	Average; good	Over; very good	Under; good	....	John Fortune, Blair Gardens, Blair Adam
ANARK	....	Average	Average; good	Under; bad	Average; good	Over; small	Over; very good	Over; very good	....	Francis Davidson, Palace Gardens, Hamilton
	Under; few grown	Under	Under	Under	Average	Under	Over; very good	Over; very good	....	Andrew Turnbull, Bothwell Castle
IDLOTHIAN	Average; good	Average; good	Average; Morellos over; very good	Average; good	Over average; very good	Average; very good	Over average; very good	Under average; small; good	Under average; good	Malcolm Dunn, Dalkeith Gardens
	Under; good	Under; good	Under; very bad	Under; bad	Over; very good	Average; good	Over; very good	Under; very good	....	Charles Johnston, Dalhousie Castle Gardens, Bonyrigg
ORAY	Under	Average	Under	Over	Over	Over	Average	Under	....	D. Cunningham, Darnaway Castle, Forres
AIRN	Under	Under	Average	Average	Over	Under	Over	Under	....	James Manson, Kilravock Castle
RKNEY	....	....	Abundant; very good	Under average	Over average	Average; good	Abundant; very good	Average	....	Thos. McDonald, Balfour Castle, Kirkwall
EEBLES	....	Over; good	Average; good	....	Average; good	....	Over; very good	Average; good	....	Malcolm McIntyre, The Glen, Innerleithen
ERTH	Over; very good	Over; very good	Over; very good	....	Average; good	Under	Over; very good	Under	Good	Donald Matheson, Meikleour, Perth
	Fine fruit and large crop	Best for ten years on standards	Fine crop	Good crop	Very large crop	Thin; fine sorts not swelling well	Splendid crops	Not up to average	....	P. W. Fairgrieve, Dunkeld Gardens
	....	Under average	Over average	....	Over average	Average	Over average	Under average	....	George Croucher, Ochtertyre, Crieff
	Average	Average	Average	Over average	Over average	Average	Over average	Under average	Under average	D. Doig, The Gardens, Rossie Priory
	Under	Under	Average	Under	Average	Average	Very good	Good	....	John Methven, The Gardens, Blythswood
OSS-SHIRE	Under	Average	Average	Under	Over	Under	Average	Under	....	D. Harvey, Gardener, Invergordon Castle
OXBURGH	Under	Under	Over	....	Over	Under	Over	Under	....	Henry Knight, Floors Gardens, Kelso
	Under average; good	Average; very good	Under, except Morellos	Average; good; no Nectarines	Over; very good	Under; bad	Over; good	Under; bad	....	John Galloway, Minto House, Hawick
EST LOTHIAN	Under; good	Average; very good	Average; good	Under good	Average good	Under; bad	Over; very good	Early under, good; late average; good	....	John Moyes, Dalmeny Park Gardens, Edinburgh
ITHERLAND	....	Average; good	Average; good	....	Over; good	Average	Over; very good	Under	Average	D. Melville, Dunrobin Castle Gardens
IRLING	Average; good quality	Average; good	Average; very good	Under average	Over average; good	Over average; good	Over average; very good	Average; good	....	M. Fitzgerald, Dunmore Gardens
IGTOWN	....	Average	Average	....	Over	Average	Over	Under	....	Archibald Fowler, Castle Kennedy
ENGLAND—NORTHERN COUNTIES.										
ORTHUMBERLAND	....	Under average	Over average; good	....	Over average	Average	Over average; good	Average	Average	Thomas Bowie, Chillingham Castle Gardens
MBERLAND	....	Under	Average	....	Average	Average	Over	Over	....	J. Hammond, Brayton, Carlisle
	Average; good	Average; good	Over; very good	....	Average; very good	Average; good	Over; very good	Average; good	Average; good	F. Blackwood, The Gardens, Eden Hall
ESTMORELAND	Under average; good	Average; good	Over average; very good	....	Over average; good	Average; good	Over average; very good	Average; good	....	William Shand, Lowther
	Average	Average	Average; good	....	Average	Average	Average; very good	Under average; good	Average	S. Sarple, The Gardens, Dallam Tower
	....	Under	Morellos good	....	Under	Under	Average; good	Average	Under	Wm A. Miller, Underley Gardens
URHAM	Average; very good	Under; good	Over; very good	Over; very good	Average; good	Average; good	Over; very good	Average; good	....	James Lyall, Wynyard Park, Stockton-on-Tees

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
NORTHERN COUNTIES.										
DURHAM	Trees killed	Under; bad	Average; very good	Trees killed	Average; good	Under; bad	Over; very good	Over; very good	Under; bad	J. Hunter, Lambton, Fence Houses
	Under average; good	Under average; medium	Above average; very good	Under average; look well	Under average	Under average	Over average	Average	Average	James Dale, Brancepeth Castle
YORKSHIRE	Under average; bad	Under average	Average	Average; Peaches good	Average	Under average	Average	Average	Over average	Michael Saul, The Gardens Stourton Castle
	Under; bad	Under	Average; very good	Under	Average	Under; bad	Over; very good	Over; good	Under	James Fowler, Harewood House, Leeds
	Under average	Under average	Average	Under average	Over average	Under average	Over average	Over average	Average	Joseph Shaw, Nunappleton, Bolton Percy
	Under; bad	Under; bad	Under; bad	Under; bad	Over; good	Under; bad	Over; good	Over; good	....	W. Lewin, Aske Gardens, Richmond
	Under average	Under average	Over average; good	Over average; good	Over average; good	Much under average	Over average; good	Average; good	....	William Wallis, Kirby Hall, York
	....	Average crop	Plentiful	....	Plentiful	Moderate	Abundant	Abundant	....	William Stephens, Endcliffe Hall Gardens, Sheffield
	Average	Under average	Over average; good	Average	Under average	Average	Over average; very good	Average; very good	Under average	Edward Hall, Bolton Hall, Bedale
LANCASHIRE	....	Poor	Fair	....	Average	Earlies good; later sorts thin	Very heavy crop	Fair crop, good quality	Good	W. B. Upjohn, Worsley Hall Gardens
	....	Under average	Average; good	Over average; good	Over average; very good	Over average; on standards good	Average; very good	Average; good	Walnuts average	William P. Roberts, Cuerden Hall, Preston
	Average; good	Under	Average; fruit small	Average; good	Under; good as far as they go	Partial; good as far as they go	Over; good	Average; good	....	F. Harrison, Knowsley Gardens
	....	Average; good	Over; very good	....	Over; good	Average; good	Over; very good	Over; good	....	Andrew Jamieson, The Gardens, Haigh Hall
	....	Average	Morellos good	....	Average	Under	Over	Under; good	....	H. Lindsay, Huntroyde Park Gardens
MIDLAND COUNTIES.										
CHESHIRE	....	Under	Average	Under; bad	Average	Under	Abundant	Average	....	Alfred Jas. Grant, Withington Hall, Chelford
	Not much grown	Under; Damsons good	Under	Not much grown outside	Under	Under	Average; good	Average; good	Not much grown	Robt. Mackellar, Abney Hall Cheadle
DERBYSHIRE	Under	Under	Average	Under	Average	Average	Over average; very good	Average; good	Under	J. H. Goodacre, Elvaston Castle Gardens
	....	Very thin nut-of-doors	Fine crop	....	Good; splendid crop	Middling; half a crop	Very fine indeed	Most abundant	Plentiful	Thos. Speed, The Gardens Chatsworth
	Under average	Average; good	Average; very good	....	Average; good	Under average	Average; very good	Average; very good	Under average	Thos. Keetley, The Gardens Darley Abbey
	Failure	Over average	Average	Failure	Over average	Average	Average; very good	Average	Average	William Brown, Bretby Park
NOTTINGHAM	Under average	Under average	Over average; good	Under average	Under average	Under average	Average; good	Over average; very good	Under average	S. A. Woods, Osberton Hall Gardens, Worksop
	Under; bad	Under	Average	Under	Average	Under	Over average; good	Over average; very good	Average	Thos. H. Sutton, The Gardens, Worksop Manor
	Average, where any trees are living	Under; good	Over; very good	Under; three-parts of trees killed	Over; very good	Average	Abundant and good	Over; very fine quality	....	John Edmonds, Bestwood Lodge, Arnold
	Very good; all protected by glass	Total failure	Morellos a heavy crop	Under average	Average	Under average	Abundant	Very fine	....	Richard Carr, Welbeck Gardens, Worksop
SALOP	Under average; bad	Average; good	Over average; very good	Over average; good	Under average; good	Average; good	Over average; very good	Average; very good	Over average	A. S. Kemp, Haughton, Home Farm, Shifnal
	Bad	Over; very good	Good; average	Under average	Over; very good	Over; very good	Over; very good	Over; very good	Over; very good	John McLean, Pitchford Hall Gardens
	Under; good	Under; good	Under; good	Average; good	Under; very good	Under; very good	Over; very good	Average; very good	Over	James Loudon, The Quinta, Chirk
STAFFORD	Under average	Under average	Average	Much under average	Average	Average	Over average	Average	....	Wm. Davidson, Sandon, Stone
	Under	Under	Under, except Morellos	Under	Average	Under	Over	Over	Over	E. Simpson, Wrottesley
	Under average	Average; good	Average; good	....	Over average; very good	Under average; good	Average; good	Average; good	Over average; good	Wm. Bennett, Rangemore Gardens, Burton-on-Trent
	Bad crop	Under; not good	Over; very good	....	Under	Under average	Over average; good	Average; very good	Plentiful	W. Ward, Little Aston Hall Gardens
	Under average	Average	Average	Under average	Average	Average	Average; very good	Average; good	Under average	W. Chapman, Hawkesyard Park
	Thin	Abundance	....	Fairly good	Great crop	Fairly good	Abundance	....	....	T. H. Rabone, Alton Towers, Stoke-on-Trent
LEICESTER	Poor	Very good	Very good	Under average	Nearly average	Under average	Really good	Very good	Average	J. Maclean, Beaumanor Park
	Under average; bad	Average; good	Average; good	Average	Average; very good	Average; good	Average; good	Average; good	Under average	J. Hatfield, The Gardens, Calthorpe Towers
	Under; good	Under	Over; good	Under	Over; good	Average; good	Over; good	Over; good	Under	William Ingram, Belvoir Castle Gardens
	Average	Under average	Average	Average	Under average	Over average	Over average	Over average	Over average	John Maclean, Landscape Gardener, Donington Park
RUTLAND	Under	Under	Average; good	Under	Average; good	Under	Average; good	Average; very good	Walnuts plentiful	John Grey, Normanton Park, Stamford
	Average	Under	Abundant; good	Average	Average; good	Under	Abundant; good	Abundant; very good	Abundant	M. Aherne, The Gardens, Exton Park, Oakham
WARWICK	Failure	Partial	Partial	Very few	Moderate	Thin	Plentiful	Plentiful	Plentiful	Wm. Miller, Combe Abbey Gardens, Coventry
	Under average	Under average; Damsons average	Average, and good	Under average; good	Under average; good	Over average, and good	Abundant, and extra good	Abundant, and fine quality	Over average	Robert Greenfield, The Priory Gardens, Warwick
	Average; very good	....	Average; good	Under	Average	Average	Average	Average	Under	Jno Masterson, Weston House Gardens
NORTHAMPTON	Under; good	Under	Under	Average; good	Average; good	Under	Over; very good	Average; good	Over	J. Trigger, Milton Gardens
	Under average	Under average	Over average	Average	Average; good	Average; good	Average	Average; good	Over average	Edmund Cole, Althorp Park, Northampton
HUNTINGDON	Average; very good	Under average	Average; very good	Under average	Over average; good	Over average; good	Over average; very good	Over average; very good	Walnuts over average	J. J. Bowie, The Gardens, Hinchingbrook
	Under average; good	Under average; good	Average; very good	Under average; good	Over average; good	Average; good	Average; good	Over average; very good	Over average; very good	Wm. Kennedy, Kimbolton Castle, St. Neott's
BEDS	Under average; very good	Under average; good	Under average; good	Under average; good	Under average; good	Under average; good	Over average; very good	Average; very good	Under average; good	Geo. Ford, Wrest Park, Ampthill
	Under	Average	Average; good	Under	Average	Under	Average; good	Average; good	Average; very good	Charles Turner, Cranfield Court, Newport Pagnell
	Under average	Average; good	Over average; good	Under average; bad	Early sorts over; late sorts under	Average; good	Average; very good	Average; very good	Abundant	C. Butters, Luton Hoo Park
	Under; very good	Total failure	Under; good	Plentiful and good	Average, but small	Average crop, but small	Abundant; very good	Abundant; very good	Average; good	H. Landers, Southill Park
OXFORD	....	Under average	Average; Morellos abundant	Under average	Average	Full average	Full average; good	Under average	Under average	Isaac Watson, Nuneham Park Gardens
	....	Average	....	....	Average	Average	Over average; good	Over average; good	Average	John Greenshields, Sarsden House, Chipping Norton
	Under	Average	Good	Very good	Over	Under	Very plentiful	Very good	Under; Walnuts average	T. Buckerfield, Shirburn Castle
	Under	Under on standards and busbes; average on walls	Average	....	Average	Average	Over; very good	Under unless where well watered; good	....	W. Finlay, Wroxton Abbey, Banbury
	Average; very good	Over; good	Over; very good	Average; good	Average; very good	Average; good	Over; very good	Over; good	Over; very good	William Crump, Blenheim Palace Gardens

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.										
BUCKS	Under average	Average	Average	Over average	Average	Over average	Over average	Average	Over average	Thomas Bailey, Shardeloes Gardens
	Medium	Good	Above an average	Above an average	Above	....	Above an average	Above an average	Above an average	J. F., Cliveden
	Under average; good	Average; good	Over average; very good	Over average; good	Over average; very good	Over average; very good	Over average; very good	Average; good	Average; good	G. T. Miles, Wycombe Abbey
	....	Under	Over; very good	Under	Average	Under	Over; good	Over; good	Over	James Smith, Mentmore
	Over average; very good	Average; good	Under average; good	Under average; bad	Average; very good	Average; good	Over average; very good	Under average; good	Over average; very good	A. Donaldson, Latimers, Chesham
HERTS	Under average	Average	Over average; good	Over average	Over average	Over average	Average	Average	Filberts average, Walnuts under average	George Norman, The Gardens, Hatfield House
	Over average; very good	Under average; good	Over average; very good	Average; good	Over average; good	Average	Over average; very good	Average; good	Over average; very good	J. C. Mundell, Moor Park Gardens
	Average; very good	Average; good	Over; splendid	....	Average; very good	Average; good	Over; very good	Over; short duration	Average; good	J. Thompson, Gorhambury, St. Albans
	Under; small but good	Plums under; Damsons over	Average; Morellos good	Over; good	Average; small	Under; small	Over; good	Over; good	Filberts average, Walnuts over	R. Ruffet, Panshanger
	Average; good	Under; good	Average; good	Average; good	Average; good	Over; very good	Over; very good	Over; very good	Average; good	Geo. Merritt, Kimpton Hoo Gardens, Welwyn
EASTERN COUNTIES.										
LINCOLN	Average	Under average	Average	....	Over average	Under average	Over average and good	Average	Over average	Isaac Dell, Stoke Rochford
	Not half a crop	A failure in this district	Morellos above; others moderate	A bad crop	Early kinds thin	Good on walls, half crop on standards	Abundant of all kinds	Great crop and very fine	All kinds a great crop	George B. Tillyard, Brocklesby Park
	Under average; good	Under average	Average; good	Under average	Average; good	Under average	Over average; very good	Over average; very good	Under average	David Lumsden, Bloxholm Hall Gardens
	Under average	Under	Over; very good	Average	Average	Average	Over; good	Average; good	Not many grown, Walnuts average	Thomas Vinden, Harlaxton Manor, Grantham
	Under; good	Under; good	....	Under; fair	Over; good	Under; bad	Over; very good	Over; good	Under; bad	James Taylor, Lea Hall, Gainsborough
NORFOLK	Average; good	Almost a failure	Over average; very good	Under average; bad	Over average; good	Average; good	Average, but small	Average; very good	Over average; good	Henry Batchelor, Catton Park, Norwich
	Average	Thin crop	Average	Good crop	Abundant; swelling off finely	Average	Abundance of all kinds	Very good crop	Very good crops	Thomas Wynne, Wroxham Hall, Norwich
	Average; very good	Few on walls; standards good	Average; good	Over average	Over average; good	Over average; good	Average	Average	Average	A. Lancaster, Holkham Gardens
	Average; good	Under	Average; good	Average; very good	Over in some localities; good	Average; good	Over; very good	Over; very good	Under; good	Joseph Clarke, Melton Constable, East Dereham
SUFFOLK	Under	Under	Average	Very good	Average	Good	Of all kinds very good	Very good	Average	Geo. Bethell, Sudbourn Hall, Wickham Market
	Under average; very good	Under average; good	Average; good	Average; good	Over average; good	Average; good	Average; very good	Under average; good	Average; very good	John Wallis, Orwell Park, Ipswich
	Average	Under	Average	Under	Average	Over	Over	Average	Over	J. Sheppard, Woolverstone Park
	Under; good	Under; good	Average; good	Over; very good	Over; very good	Under; good	Average; very good	Average; very good	Over; good	Robert Squibbs, Ickworth, Bury St. Edmunds
	....	Under average; good	Average; good	Under average; good	Over average; very good	Over average; very good	Over average; very good	Average; good	Over average; very good	J. Mill, Rendlesham Hall Gardens
	Under; good	Under	Average; very good	Over; very good	Under; good	Under; too early to say	Over; very good	Under; good	Average	D. T. Fish, Hardwicke
ESSEX	Average	Average	Under	Average	Average	Average	Average	Under	Under	D. Donald, Knott's Green, Leyton
	Under average; good	Under average; good	Over average; very good	Average; very good	Average; good	Under average, bad	Over average; very good	Average; good	Walnuts bad; under average	James Douglas, Loxford Hall, Ilford
	Average	Under	Average	Over; very small	Average	Average	Very good	Good, but soon over	Average	W. Bones, Havering Park, Romford
	Under; good	Under; good	Average; very good	Average	Over; good	Average; good	Over; very good	Under; bad	Average	William Smith, Birch Hall, Colchester
	Average; good	Average	Average; very good	Average; very good	Average; under	Average; under	Average	Average; very good	....	Wm. Bowman, Hylands, Chelmsford
SOUTHERN COUNTIES.										
BERKS	Under	Under	Average	....	Under	Under	Over; very good	Average; good	Walnuts over; Filberts average	Alexander Galt, Aldermaston Court, Reading
	Thin	Average crop on walls	Poor	Good	Good	Average	Good	Average; suffered from heat	Immense crops	James Tegg, Bearwood
	Under; good	Under; good	Average; good	Under; good	Under	Average; good	Over; very good	Average; bad	Average; good	Joshua Atkins, Lockinge Garden, Wantage
	Under	Under	Average	Average	Average	Average	Over	Average	Average	Robt. Fenn, Sulhamstead, Reading
MIDDLESEX	Under	Under	Average	Average	Under	Under	Over; very good	Over; very good	Under	A. F. Barron, Royal Horticultural Gardens, Chiswick
	Under	Under	Under	Average	Under	Under	Average	Average	....	Chas. Lee, Croxby House, Hounslow
	Much under	Under	Average; good	Fair average	Under; likely to be fine	Under	Plentiful; very good	Under average; good	Under	T. Baines, Fern Cottage, Palmers' Green
	Under average	Under average	Almost entire failure	Under average	Under average	Average on walls	Average; good	Average; good	Under average	T. P., Stanmore
	Under	Under	Average; good	Average; good	Average; good	Under	Average	Average	Average	R. Henderson, Fulham Palace, S.W.
	Under	Under	Average	Average	Average	Under	Average	Average	....	John Woodbridge, The Gardens, Syon House
SURREY	Average	Average	Average	Average	Average	Average	Over average	Average	Over average	J. Beesley, Denbies, Dorking
	Average; small	Much under average	Average; good	Over average; likely to be good	Over average; very good	Average; likely to be good	Average; good	Under average; good	Very few	W. Denning, The Gardens, Coombe Lane, Kingston-on-Thames
	Under average	Average	Average	Under average	Over average	Very scarce	Over average	Average; soon over	Under average	Jas. Child, Garbrand Hall, Ewell
	Over average; good	Plentiful and good	Over average	Over average	Plentiful and good	Average; some sorts plentiful	Plentiful; very good	Plentiful and good	Over average	Alfred Evans, Lythe Hill Gardens, Haslemere
	Under average	Average	Under average	Under average	Over average; good	Average; good	Over average; very good	Average; very good	Under average; bad	F. Corbould, Tandridge Court, Godstone
	Under average	Average	Over average	Under	Over average	Under average	Average	Under average	Over average	Charles Green, Pendell Court, Bletchingley
	Under	Under	Average	Average	Average, but small	Average; good	Average	Under	Under	Thos. Foote, Leigham Court, Streatham
	Under	Under	Under	Average	Average	Under	Average	Under	....	R. Miller, Horsley Towers, Leatherhead
KENT	Average; good	Under average	Average; good	Average; good	Average; good	Under average; good	Average; very good	Average; good	Average	John Cox, Redleaf, Penshurst
	Under; very good	Average; good	Average; good	Average; good	Over average; small	Average; small	Average; very good	Over average; very good	Average; good	R. Gray, Chevening, Sevenoaks
	A fair crop	About an average	A good average	Better than for past three seasons	On the whole a fair quantity	Slight generally	Good crop generally	Under average	Under average	Charles Whitehead, Barming House, Maidstone
	....	Above average	Average	Average	Average	Under average	Over average	Average, and very good	Over average	Henry Cannell, Swanley

CONDITION OF THE FRUIT CROPS—(*Continued.*)

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.										
KENT	Under	Average, and good	Average; good	Average	Average; good	Average	Average, and good	Average	Average	F. Deuxberry, Cobham Hall, Gravesend
	Under	Average; bush Plums	Average; good	Under	Average	Average	Average; good	Average: very good	Under	J. Butt, Torry Hill, Sittingbourne
	Under average	Under average	Under average	Under average	Under average; good	Under average; good	Average; good	Average; good	Average	——, Canterbury
	Under average	Under average	Average	Peaches under; Nectarines average	Average	Under average	Over average; very good	Over average; very good	Under average	D. Buchanan, Sherwood Park, Tunbridge Wells
	Under; small	Under; very partial	Average; good	Under average; fruit small	Under average	Under average	Over average; good	Average; fruit small	Under average	John Charlton, Summer Vale Nursery, Tunbridge Wells
SUSSEX	Average	Average	Average	Very good	Very good	Very good	Very good	Very good	Average	John Wilson, Castle Gardens, Arundel
	....	Average; good	Under; bad	Average; good	Average; good	Under; good	Over; very good	Over; very good	Walnuts over, Hazels average	B. Coombe, Wiston Park Gardens, Steyning
	Average	Average	Over average; very good	Average	Over average; good	Over average; excellent	Over average; very fine	Average; good	Average	Joseph Rust, Eridge Castle
	Average	Under	Under	Average	Average	Average	Average	Average	Average	F. Rutland, Goodwood
	Over; very good	Under	Over; very good	Over	Average	Over	Over; very good	Under	Average	Geo. M. Breese, The Gardens, Petworth
	Bad	Very good	Very good	Bad	Under average	Good	Very good	Very good	Good	Sidney Ford, Leonardslee, Horsham
	Average; good	Under average	Morellos good	Over average	Over average	Average; good	Plentiful; good	Average; under	Over average	W. Allen, The Gardens, Normanhurst, Battle
	....	Average; good	Average; good	Average; good	Over average; good	Under average; good	Over average; good	Average; good	Average; good	John Halsey, Cowdray Park, Midhurst
HANTS	Under average	Under average	Average	Average	Average	Under average	Average	Average	Nuts good, Walnuts bad	George Jones, Mottisfont Abbey, Romsey
	Bad	Bad	Under average	Under average	Very good	Under average	Very good	Very good	Abundant	Philip Edwards, Fowley Gardens, Liphook
	Average; bad	Average; bad	Average; good	Under average	Under average	Under average	Average; good	Average; good	Under average	Wm. Symthe, Basing Park Gardens, Alton
	Under average; good	Under average	Average; good	Over average; very good	Under average	Average; good	Over average; very good	Over average; good	Over average; good	W. Wildsmith, Heckfield Place, Winchfield
WILTS	Average	Very good	Very good	Average	Under average	Average	Very good	Very good	Bad	Wm. Phipps, Bowood Gardens, Calne.
	Average	Average; good	Average	Over; good	Average	Under	Over; good	Average	Under	Wm. Taylor, Longleat, Warminster
	Under average; very good	Average; good	Morellos over average; very good	Over average	Average	Average	Over average; very good	Average; good	Average	H. W. Ward, Longford Castle, Salisbury
	Average	Under average	Average; good	Over average	Under average	Under average	Over average; good	Over average; good	....	J. Horsefield, The Gardens, Heytesbury
	Under	Average	Under	....	Under	Average	Under	Under	Under	Thos. King, Devizes Castle
DORSET	Under average; good	Under average; good	Average; good	Under average; good	Over average; good	Over average; good	Over average; good	Over average; good	Over average	J. Beck, Crichel House, Wimborne
	Average	Average	Good	....	Average	Very good on walls	Very good	Very good and large	Bad	J. Saltford, Ilsington, Dorchester
	Good	Average	Good	A good average	Very good	Average	Very good indeed	Very fine and good	Average	C. Hazel, The Gardens, Leweston House
	Average; good	Average; under	Good	Average; good	Under average	Very good	Good	Average; good	Good	W. P. Leach, Bryanston, Blandford
WESTERN COUNTIES.										
HEREFORD	Under average	Under average	Average	Average; good	Under average	Under average	Average; very good	Average; very good	Under average	Alfred Bye, Hampton Court Gardens, Leominster
	Average; very good	Average; good	Average; good	Under average	Under average	Under average	Abundance; very good	Average; very good	....	Wm. Ward, Stoke Edith Park
	Under	Average	Over; good	Over; good	Under; good	Under; good	Over; good	Average	Average	A. Young, Holme Lacy
	Under	Average generally, but partial	Average; good	Under	Under, but partial; very good	Under; partial	Full crop; good	Abundant; good	Wood nuts in quantity, Walnuts scarce	Edward Jones, Perrystone Ross
WORCESTER	Under average; good	Under; good	Average; good	Average; good	Under; fair	Average; very good	Over; very good	Average; good	Average; Walnuts abundant	Arthur Barker, The Gardens, Hindlip
	Bad	Under average	Good	Under average	Good	Average	Over average	Average; good	Over average	Robert Palmer, Hagley Hall Gardens, Stourbridge
	Under average; good	Average; Damsons over	Average; Morellos over	Over	Average	Under	Over	Average	Under	Walter Child, Croome Court, Severn Stoke
	Generally thin	Partial; abundant on walls	Very good; average	Excellent, and trees healthy	Hardy kinds are plentiful	[Under average; very good	Over average; good	Average; good	Under average	M. Temple, Impney, Droitwich
GLOUCESTER	Over average; very good	Under average; good	Average; good	Over average; very good	Under average; good	Over average; very good	Average; good	Average; good	Average; good	Alexander Scott, Sherborn Park, Northleach
	Under average	Average	Average; good	Average	Average	Average	Very good	Very good	....	Samuel Wathen, Kingscote Park
	Very bad	Average	Average	Very bad	Very bad	Good sorts very bad	Average	Very good	Average; Walnuts passable	G. Turner, Tretherne Court, Stonehouse
	Average; very good	Under average; good	Average: very good	Over average; likely to be good	Average; good	Under average	Above average and good	Average; good	Very abundant	William Loader, Blaize Castle, near Bristol
MONMOUTH	Under; very good	Under; good	Average; good	....	Under; good	Under; very good	Over; very good	Over; very good	Average	Thomas Coomber, Hendre Gardens
	Over average; very good	Average; good	Average; good except Morellos	Over average; very good	Over average; very good	Average; good	Over average; very fine	Over average; very fine	Over average	C. Raffill, Tredegar Park, Newport
SOMERSET	Average; good	Under average; good	Under average; good	Average: good	Average; good	Under average; good	Over average; very good	Average; good	Average; good	John Austen, Ashton Court Gardens, Bristol
	Average; good	Very good	Very good	Very good	Very good	Average; good	Very good	Very good	Very good	E. Miller, Old Sneyd Park, near Bristol
	Under	Under	Average	Under	Under average	Average	Average	Good	Average	W. Hallett, Cossington Farm, Bridgewater
	Average; good	Very good	Average; good	Under average	Over average	Average; good	Over, and good	Over average; good	Average; good	W. A. Beale, Cricket St. Thomas, Chard
DEVON	Average; good	Average	Over; good	Under	Under	Average	Over; very good	Average; good	Over	Alexander Ayson, Oxton House, Kenton
	Average; very good	Over average; very good	Over average, and good; Morellos under	Average; good	Over average; very good	Average; very good	Over average; very good	Average; good	Average; good	D. C. Powell, Powderham Castle, Exeter
	Average	Average; very good	Over average	Under	Over average	Over average	Over average	Average	....	F. Geary, Eggesford Gardens
	....	Average	Average	Over	Over	Over	Very good	Very good	Over	Edward Salway, The Gardens, Membland
	....	Under	Over	....	Average	Average	Over	Average	....	D. Wilson, Castle Hill Gardens, Devon
CORNWALL	....	Average; good	Average; good	Under	Average; good	Full average; good	Abundant, and good	Over, and good	Average	Chas. Lee, Boconnoc, Lostwithiel
	But few grown	Under	Over; good	Average	Over; good	Under	Over; good	Under; good	Over	James Murton, Tredrea, Perranarworthal
	....	Under	Average	Over	Over	Average	Over	Average	Average	George Knox, Port Eliot
WALES.										
ANGLESEY	Under	Under	Average	Under	Under average	Average	Over	Over	Filberts over	Robert Webster, Glyn Garth
	....	Average; good	Average; good	....	Under; quality good	Under; moderately good	Average; good	Under; quality good	....	J. Ellam, Bodorgan Gardens
BRECON	Average; very good	Under; good	Average; good	Average; good	Under; very good	Average; good	Over average; good	Average; very good	....	Albert Ballard, Glanusk Park, Crickhowell

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
WALES.										
CARMARTHEN	Very few trees grown	Under ; bad	Good	Under ; bad	Average ; good	Under average	Very good and plentiful	Average ; good	Very plentiful	Lewis Bowen, Edwinsford, Llandilo
CARNARVON	....	Under	Under	Under	Under	Under	Average	Average	Under	Allan Calder, Vaynol Gardens, Bangor
DENBIGH	Average and good	Average and good	Average and good	Average	Average and good	Average and good	Over average and good	Average ; but small	Average	P. Middleton, The Gardens, Wynnstay
GLAMORGAN	Under ; good in favoured places	Average ; good	Average ; good where grown	Over ; good	Average	Under	Over ; good	Average ; good	Average	James Harris, Singleton Gardens, Swansea
MERIONETH	Failure	Under	Average ; good	Under ; bad	Average ; very good	Under	Over average ; good	Average ; very good	Average ; good	James Bennett, Rhug Gardens, Corwen
MONTGOMERY	Very few	Under	Very good	Under	Average	Under	Abundant	Very good	Average	William Lee, Powis Castle Gardens
PEMBROKE	....	Average	Average	Under	Average ; good	Average	Over average	Good	Plentiful	Geo. Griffin, Slebech Park
IRELAND.										
ANTRIM	....	....	Average ; good	....	Under ; bad	Under ; bad	Average ; good	Average ; very good	Over ; good	Geo. Porteous, Garron Tower
ARMAGH	Under ; good	Average ; good	Over ; very good	Average	Over Average	Average	Over average ; very good	Over average ; very good	....	W. Allan, Brownlow Gardens
CARLOW	Under	Under	Under	Under	Average	Average	Average	Average	Average	Thomas Turner, Oak Park, Carlow
CAVAN	....	Under average	Average	Under an average	Under average	Average	Under average	Under average	....	W. J.
CLARE	....	Average ; good	Average ; good	Under ; bad	Average ; good	Average ; good	Average ; very good	Under ; good	Average ; good	Wm. Wilson, The Gardens, Dromoland Castle
CORK	....	Average	Over	Average	Average ; good	Over	Average ; good	Average ; very good	Over	W. Osborne, Fota Island
	Average ; good	Under average ; good	Average ; very good	....	Under average ; good	Under average ; good	Over average ; very good	Over average ; good	Average ; good	J. Ellam, Brenanstown House, Cahinteely
	Under	Average ; good	Under average	Average ; good	Average ; good	Average ; good	Average ; good	Under average	....	David Pressly, Knockmaroon Lodge
FERMANAGH	....	Average ; good	Average ; very good	Over ; very good	Over ; very good	Under ; good	Over ; very good	Average ; good	Over ; very good	William Hardy, Florence Court
KERRY	....	Average	Average	Over ; very good	Over ; very good	Average	Over ; very good	Under ; bad	....	William Howard, Dromore Castle, Kenmare
KILDARE	Average	Average	Average	Under average	Over average	Over average	Over average	Average	Average	Philip Wadds, The Gardens, Moore Abbey
KILKENNY	....	Under ; very good	Average ; good	Almost a failure	Scarcely an average ; good	Under average	Over average ; good	Average ; good	Average	William Gray, The Gardens, Woodstock Park
LIMERICK	Good	Average	Good	Under	Very good	Very good	Very good	Very good	Average	George Butley, Adare Manor
LOUTH	....	Average ; good	Over average ; good	....	Over average ; very good	Average ; good	Over average ; good	Average ; good	Average ; good	Frank Fowler, Ravensdale Park, Newry
MEATH	Average	Average	Average	Under	Over	Average	Over	Over	....	John Clews, Headfort, Kells.
QUEEN'S CO.	Under	Average	Average ; very good	Under	Average ; very good	Under	Average ; very good	Average ; very good	Average	J. Ennis, Emo Park
TIPPERARY	....	Under ; good	Average ; very good	....	Over ; very good	Under ; good	Average ; good	Under ; bad	Over	Jesse Wilsher, Shanbally, Clogheen
WATERFORD	Under ; indifferent	Over ; very good	Over ; very good	Average	Over ; very good	Over ; very good	Over ; very good	Over ; very good	....	R. J. Fairbairn, Curraghmore, Portlaw
WESTMEATH	Average ; good	Over ; good	Under	Under	Over ; good	Under	Very good	Under	Average	John Igo, Moydrum, Athlone
CHANNEL ISLANDS.										
GUERNSEY	Under	Average ; good	Average ; good	Under	Average ; good	Under ; good	Average ; very good	Average ; very good	....	Chas. Smith & Son, Caledonia Nursery
JERSEY	Under	Over ; good	Average ; good	Under	Over ; very good	Average ; very good	Average ; good	Average ; good	....	Charles B. Saunders, St. Saviour's
	Under ; bad	Under ; fruit small	Under ; good	Under ; bad	Under ; good	Average ; good	Average ; good	Under ; good	....	Edward Pond, The Vineries, Jersey
SCILLY ISLES	....	Average	....	....	Average ; good	Average	Average ; good	Under average	....	George D. Vallance, Tresco Abbey Gardens

NOTES FROM CHATSWORTH.

However long one's acquaintance may last with a good garden, there is always some change in appearance that keeps unflagging the interest thereto attached. Vegetable life in some or other of its forms is ever presenting something different that is interesting. At no place is this more apparent than at Chatsworth, even the grey-barked old Oaks, scattered as they are in thousands over the park, with their gnarled limbs and stag heads, teem with interest to the lovers of trees. The huge masses of rockwork, the construction of which caused such a stir in the gardening world, are fast disappearing from actual sight, covered with a dense clothing of Ivy and kindred plants; the altered condition will not fail to be more in accord with the tastes of many than the bare unmantled stone.

It is doubtful if the conservatory ever looked so well as it now does; there is a vigour and freshness about the plants collectively that shows less of artificial cultivation than I recollect to have seen before. The Musas that at one time used to occupy a considerable space are confined to the walk across the centre, where, ranged on each side, they form quite an avenue with their tall stems and massive foliage. One of the great Agaves is now in full flower; its bloom-stem, some 30 feet high, looks like a miniature scaffold-pole; the shrunken condition of the leaves of the plant betraying the important part they have acted in nurturing the rapid-growing flower-shoot. That shyest of shy-flowering Orchids, Renanthera coccinea, which defies the coaxing of so many cultivators of these plants to induce it to bloom, is here as much under command as in its hot, sunny, Chinese home: one plant, confined to a single stem, is now bearing a glorious spike of its deep red flowers, with thirteen other old bloom-stalks. Begonia fuchsioides, forming a tall straight pyramid 12 or 15 feet in height, is literally covered with coral-like drooping flowers, and is only matched in colour by Bougainvillea glabra, the wreaths of mauve blossom of which would fill an ordinary sized waggon. Combretum purpureum, grown in the same way as the Begonia, was covered with its bright sprays of flower. The huge baskets of Achimenes hung over the side-walks were surely never in finer condition than at present. It is worth mention that none of the newer kinds are found equal to the old sorts for these baskets, and it may with confidence be said that there are no flowering plants in cultivation that will give such an effect by the dense sheet of bloom they produce for a considerable time. The baskets, it is needless to say, are of a size proportionate with the structure they do so much at this season to embellish; the sorts grown are the old longiflora, Baumanni, hirsuta, Verschaffelti, and the old coccinea. These are hung alternately with similar baskets of Ferns, each being some 9 feet across; the principal sorts used for this purpose are Adiantum cuneatum, Nephrolepis davallioides, Stenochlæna scandens, Cibotium Barometz, and others of a like distinct and spreading habit.

In the Lily-house the hanging baskets of Achimenes are used with a like telling effect. The various Nymphæas and other water plants were beautifully in flower, the dark crimson and pink shades contrasting with the white and blue flowered species. Mr. Speed uses a good many medium-sized Palms and similar habited plants for standing on the margins of the tanks in which are grown the water plants, in the centre one of which is the Victoria Lily, now associated with quantities of small-growing aquatics. In this way the house not only looks much better, but is at the same time more interesting. In the Orchid-houses the Vandas especially look well, along with such winter-blooming species as the Calanthes, which are grown in quantity, and are so strong that they cannot fail to bloom well. The same holds good with Pleiones, thousands of which are in fine condition. Dendrobium Wardianum and D. crassinode, hung up in long rows of baskets, have made stout, strong growth, indicative of a profusion of their delicate tinted blooms when their time of flowering comes round. Of that most useful of all the species, D. nobile, there are enough to keep up a long succession. Many of the plants are of unusual size; one of them produced, last spring, 1740 flowers. Within the last few years cool Orchids, in the shape of Odontoglossums, Masdevallias, Epidendrum vitellinum, and others of like character, have been grown, and have done very well; the thick plump bulbs, which Odontoglossum crispum, O. Pescatorei, O. Hallii, O. Rossii, O. cirrosum, &c., have made, prove that they like their treatment. Many were carrying very large spikes of bloom, as likewise was Epidendrum vitellinum majus, one example of which was one of the finest I have met with, in the strength of its spikes, and size of the individual flowers.

Amongst cool greenhouse plants cultivated in quantity for cut flowers and general decoration is the old Francoa ramosa, one of the most elegant and easily managed subjects that can be grown. Done as it is here it produces a profusion of lateral flower shoots, individually as strong as the leading bloom-stems usually are. Simple as are the individual flowers their pure white colour and general character give them a chaste appearance equalled by few plants in cultivation. Though the usually met with soft-wooded plants are here grown in quantity, as elsewhere, for decorative purposes, Mr. Speed does not lose sight of the best hard-wooded species that give such an agreeable contrast to the others; of these are Cape Heaths, of which a good collection, comprising most of the best kinds, are very well managed, as they should be. The plants are not subjected to further training than is necessary to support them in their natural form without giving them a stiff appearance.

In the fruit department under glass, including Pines, Grapes, Peaches, Figs, and Plums, each are in the best condition—Pines particularly; both those that are in fruit and others to come in during the autumn and winter, are in excellent order. The earliest Grapes are furnished by pot Vines—two large span-roofed houses are annually devoted to forcing them; the crop of these was finished, and that from permanent Vines ready to succeed them; these, as well as the numerous late houses, were carrying good even crops, alike satisfactory in the finish of the fruit in such as were ripe and promising in those to come in later. The last of the two old Peaches that so many who have visited Chatsworth during the last thirty years and more cannot fail to be acquainted with was removed last winter, after having attained a very much larger size and greater age than trees of this fruit usually do. In the several houses devoted to Peaches there are beautiful crops, the trees strong, clean, and healthy. Plums are very successfully grown, the large house filled with a double row of trees planted in the bed occupying the body of the structure, and others on the back wall are bearing an excellent even crop. Early and late kinds are grown, so as to give as long a succession as possible.

There are several young thriving trees near the mansion, to which there is already much interest attached, and doubtless as time wears on there will be still more—I allude to those planted by different members of the Royal family. The Oak planted by the Queen in 1832 has grown well, and at 4 feet above the ground is near upon 6 feet in circumference, whilst its branches have extended so as to give a diameter of 17 yards. The Sweet Chestnut, planted by the Duchess of Kent at the same time, is 7 feet round the trunk; and Prince Albert's Sycamore, planted in 1843, measures 4½ feet round its stem. Both the last trees have made correspondingly less top-growth than the Oak. There is also a thriving young Oak planted by the Prince of Wales, which was raised from an acorn borne by the tree above-mentioned planted by the Queen. *T. B.*

BAUHINIA CORYMBOSA.

From Sir George Macleay's rich garden at Pendell Court, through the courtesy of Mr. Green, we have received a spray of this fine Chinese climber, which is so beautiful that it is surprising it should be so little known (figs. 38, 39). The leaf consists of two oblique, oblong-obtuse leaflets, covered with reddish down on the under-surface. These twin leaflets suggested to Linnæus the propriety of dedicating the genus to the memory of the two botanist brothers, John and Casper Bauhin. The flowers are in loose racemes, the long flower-tube resembling the spur of a Pelargonium, and encircling the long slender stalk surrounding the ovary. The five petals are regular, pinkish, crenulate at the edge, and only three out of the five stamens are perfectly developed. Mr. Smith represents the pollen grain as globose, granular, with three bands and three pores. Both on account of its beauty and its botanical interest this plant is well worth the attention of those who appreciate beautiful and interesting plants.

New Hops.—The first pocket of this year's growth arrived in the Borough on Tuesday morning, consigned to Messrs. W. H. & H. Le May, and was reported to be of excellent quality. It had been grown by Mr. Amos Luck, Paddock Wood, Brenchley, Kent. The price realised was £15 per cwt.

THE WINTER OF 1880-81 AT KEW.

(*Concluded from p. 168.*)

The Hollies, of which there is a very fine collection at Kew, have not suffered much as a rule. The common Holly and its host of forms, the little Japanese I. crenata and its varieties, as well as I. opaca, from the United States, are untouched; but the Himalayan I. dipyrena, the Chinese I. cornuta, and I. Azevinho from Madeira, exhibit very decided traces of the ordeal through which they have passed. Of the three last-named species the first and third have escaped well in comparison with the second, which has lost nearly every leaf and presents even now a very woe-begone aspect. Perhaps the only other Madeiran shrub which has stood in the open at Kew is Vaccinium maderense.

The Escallonias in the open have fared very badly, all being either quite killed or killed to the level of ground, and this in spite of each plant being separately and carefully matted; those on the walls have also been much injured, except those which were matted during the frost—these have, as might be expected, weathered fairly well. All the Azaras at Kew are killed in the open, and in nearly every instance badly cut against the wall, although in both positions the plants are separately protected with mats. A relation of the Azaras, though—Idesia polycarpa, a recently introduced small tree, with large heart-shaped leaves, has proved itself a valuable addition to our list of hardy shrubs: under the same conditions as the Azaras which have perished, this received no injury. Lardizabala biternata and Akebia quinata (in open), matted during frost, were killed, but the latter plant, with but slight protection against a wall, received no injury, and flowered freely before spring had passed. The Colletias have been all more or less damaged in all positions, with the exception of C. serratifolia, the old plant of which is untouched in the open. The Chilian Discaria longispina against a wall will soon recover from its injuries, but the "Wild Irishman" of the New Zealand colonists, Discaria Toumatou, under similar conditions, and not covered in any way, is perfectly untouched.

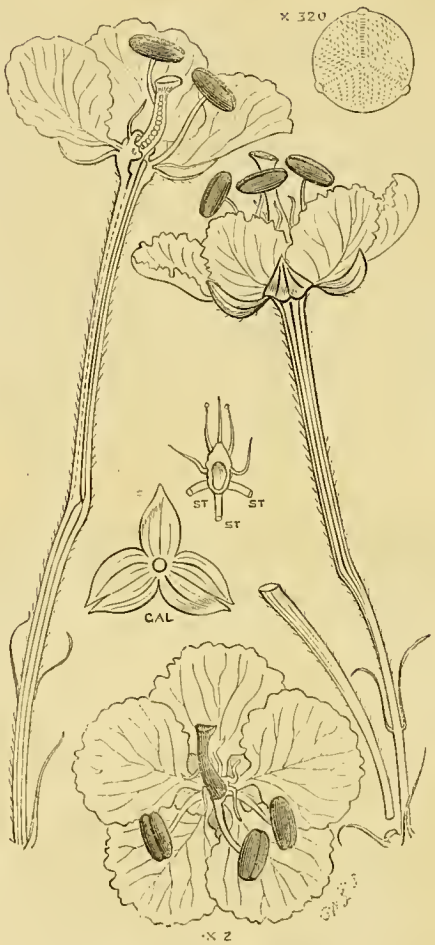

Fig. 38.—Bauhinia corymbosa.

The Star-Anise, Illicium Anisatum, from China, and its near allies, the Japanese I. religiosum, and the North American I. floridanum, have found 1880-81 too much for them. They had, however, fairly passed the ordeal of the winter of 1879-80. Piptanthus nepalensis, Benthamia fragifera, Stranvæsia glaucescens, Holboellia latifolia, and others against walls have suffered severely, or been killed outright; the Japanese representative of the last-named genus, H. hexaphylla, has proved itself a valuable climber—plants, though not large ones, have passed safely through the same trial under the same conditions that have proved fatal to H. latifolia. Cercidiphyllum japonicum in well-sheltered nursery plots has been nearly killed, against a wall it has been practically uninjured. Schizandra hydrangeoides under all conditions has shown itself to be thoroughly hardy; if this turn out a free flowerer it will prove a valuable plant for walls, arbours, &c.; it is a recently introduced creeper, and comes with strong recommendations from its native country, Japan. Abelia triflora in the open is killed, but against a wall both this Himalayan species and the Japanese one, A. rupestris, have merely had their younger twigs killed.

The Privets, with the exception perhaps of our native Ligustrum vulgare, L. ovalifolium, and in most spots L. sinense, show marks of suffering; the species with leathery leaves, like L. coriaceum, lucidum, and japonicum have fared unmistakably the worst, in some cases being quite killed. The whole of the Jasmines, too, in the open have either been killed or badly cut, but on walls the same species at present exhibit but faint traces of having suffered.

Amongst Roses—species and not garden hybrids—the Macartney Rose, R. bracteata and the Banksian, R. Banksiæ, have come off badly, the first being killed to below ground even on a sheltered wall. In the open R. Brunoniana, a strong growing Himalayan species of rambling habit, had all its shoots killed to the main stems near ground, but in among shrubs, where its very long arching shoots were sheltered by the bushes, amongst which they struggled for place and light, it came off well; this species is an excellent one for the wild garden—it bears enormous clusters of scented white blossoms. Some other Himalayan species, viz., R. macrocarpa and R. microphylla, together with the Japanese R. rugosa, have proved themselves worthy to rank among the hardiest of flowering shrubs.

In a large and tolerably complete collection of Ivies the ones that need special mention are H. rhombea, minor, maculata, himalaica, and algeriensis—these stand in order and represent the degrees of variation exhibited by them, the first being comparatively little touched, the next more so, and the last considerably damaged.

The Heathworts, on the whole, have suffered a good deal, though some genera, such as Rhododendron, &c., have behaved wonderfully well. Of the Himalayan species in the open at Kew R. lepidotum has suffered worst, and R. virgatum next, the rest being about untouched. Erica mediterranea and its varieties have all been much injured, and E. codonodes, multiflora, scoparia, &c., quite killed. The Arbutuses, particularly A. Unedo and its numerous varieties, have been sadly damaged or killed outright; A. Andrachne, and A. hybrida, a cross between Unedo and Andrachne, are the only two species that relieve the monotony of Arbutus failure. Other plants of this natural order that have suffered much are Gaultheria nummularia and Menziesia globularis, whilst Bryanthus erectus, Pernettya pilosa, and Photinia serrulata are quite killed. Enkyanthus nivalis against wall has escaped scot-free.

To cut short a very long list, the following are mentioned in no particular order; all were in open collections except where stated to be against walls:—Nandina domestica, killed in open and cut a good deal by wall; Xanthoxylon Bungei, Rhamnus Clusii, R. lanceolatus, and R. utilis, are dead, the latter being just spared against a wall. Amongst total failuras may be placed Buddlea intermedia, B. Lindleyana, B. curviflora, and B. globosa, Daphne Cneorum, D. Van Houttei, and D. Mazelii, Grabowskia boerhaavifolia, and Aralia Sieboldii. Amongst the badly injured Euonymus japonicus and all its varieties are very prominent, E. glaber and E. pungens and their variegated forms being also conspicuous at Kew. Aralia spinosa is damaged; but A. pentaphylla, both against a wall and in the open, is absolutely untouched.

The beautiful Ribes speciosum is killed in the collection and badly cut against the wall.

As might be expected, a winter which has proved too much for Gorse on many an English common has treated the Garryas badly—the old Californian G. elliptica being apparently the hardiest of the genus. The Japanese Quercus glaber had not a leaf injured, but the Mexican Q. crassifolia, a remarkable species, which stood for many years in a sheltered spot at the corner of a belt of large trees, has quite gone. The South European Q. coccifera and Q. pseudo-coccifera, neat, small growing Oaks with evergreen leaves, are practically uninjured, whilst Q. Gramuntia, Q. Ilex agrifolia, and other Ilex forms, had their foliage killed.

The following against walls are killed to ground :—Elsholtzia polystachya, Desmodium podocarpum, Liquidambar chinensis, Symplocos serrulata, Amicia Zygomeris, Solanum jasminoides, Habrothamnus Newelli (quite killed, in spite of careful covering), Pterocarya stenophylla, and Olearia myrsinoides.

Amongst those badly hit may be placed Ilex Cassine, South United States ; Fabiana imbricata, which is killed in open and only just saved against wall by careful sheltering during frost ; Ercilla spicata, and Osmanthus Aquifolius, which in spite of mats has suffered a good deal, whilst the small leaved form, O.

Fig. 39.—Bauhinia corymbosa : flowers pink. (see p. 204.)

Aquifolius var. ilicifolius, a few steps away, not covered at all, did not lose a leaf.

Bignonia capreolata, from the United States, has escaped, and so has the Syrian Marsdenia erecta. Cratægus crenulata seems to have suffered much more than the common C. Pyracantha. In drawing up the preceding list of plants the Curator of the Royal Gardens, Mr. J. Smith, has kindly rendered valuable assistance, as also has the foreman of the Arboretum, Mr. W. Truelove. *Geo. Nicholson, Kew.*

JOLDWYNDS, SURREY.

It would scarcely have been possible ten or even five years ago to have visited a garden of any sort, much more one of considerable size and with suitable sites in abundance, without coming upon flower-beds and ribbon-borders. These decorations were almost invariably overdone, and very generally badly done. Glare and sensation instead of harmony and pleasure were aimed at, and the peaceful delights of a garden were sacrificed to vulgar show. Now-a-days a reaction has set in, and there is some fear that, as usual, we shall go to the other extreme, and banish those little spots of bright colour which lighten up a garden as much as a well chosen bow of ribbon brightens up an otherwise ineffective costume. In some cases, the abandonment of bedding-out is an immense gain, and that is where the proprietor is a real plant lover, a collector, loving them individually for their own sakes, interested in their history, a student of their peculiarities, and an admirer of their infinite variety and beauty. Who can conceive a "collector" of bedding plants? Joldwynds is a collector's garden in the best sense, and unlike some collectors' gardens, which are confused aggregations of ill-selected and ill-grown miscellaneous plants, this, though not pretending to be a show place, is well ordered and well managed. Joldwynds, the residence of W. Bowman, Esq., lies on the slope of a hill overlooking the broad wooded expanse of the Weald with the South Downs in the extreme distance, and the bold bluff of Leith Hill nearer at hand. The panorama is a noble one, and one which would be the despair of an artist fitly to represent. The approach to the house—a fine red-brick structure in the Dutch style—is so contrived that the house itself is scarcely seen till the hall-door is reached. The carriage-drive is made to curve amid Pines till within a few yards of the house, where it passes in a shallow cutting, the banks on the one hand clothed with Mahonias rich with purple berries, and on the other radiant with the brilliant flowers of Hypericum calycinum. The grounds themselves are undulating, with great variety of surface and aspect, well sheltered by hills and trees. The soil, derived from the wearing down of the Greensand, must needs contain a large proportion of lime, but with an admixture of clay. Water, too, is abundant. The diversity of surface and aspect, and other favourable conditions, render this an excellent spot for experimental culture. It is, therefore, not surprising to find that these advantages have been turned to account, and that Conifers, herbaceous plants, Heaths, alpine plants, bog plants, rock plants, Lilies, all have their appropriate nooks, while bedding plants are conspicuous by their absence. The two past winters seem to have treated this spot with tenderness, at any rate their destructive effects are less obvious here even than in some places in the Isle of Wight. A few illustrations will suffice. Desfontainea spinosa, Olearia Haastii, Salvia patens, Akebia quinata, Embothrium coccineum, Cupressus macrocarpa, Pinus insignis, Abies Kæmpferi, were all unhurt. Lilies have been tried in various aspects in sun and shade, but they seem to do best under the shelter of the Rhododendrons in some bays contrived for the purpose. The herbaceous beds at the time of our visit were gay with Aquilegias, Flaxes and Malopes, and a host of other plants, among the most striking of which Veronica japonica must be mentioned. It is in the way of V. subsessilis, if it be not the same, with verticillate lanceolate leaves, and whorls of long spikes thickly set with blue flowers, and surrounding a central larger spike, as the subordinate pinnacles surround a central spire. Campanula grandiflora is one of the noblest of the Platycodon section, with very large, flat, saucer-shaped flowers of a slaty-blue colour. Spiræa palmata, with its deep green palmate leaves and foam-like panicles of crimson flowers, is very striking; while Lysimachia clethroides, with its tapering spikes densely set with white flowers, is so elegant that no collection should be without it. Potentilla nepalensis is, as it deserves to be, a favourite here. Hyacinthus or Galtonia candicans is grown here of a size and vigour rarely seen. Some are planted out, others are grown under glass for house decoration. Among the Conifers that do well are the rare Abies Kæmpferi (the Golden Larch), Abies Pinsapo, Pinus insignis, Cupressus macrocarpa, Araucaria imbricata, one of which was bearing a number of cones, and the Wellingtonia laden with cones so profusely as to call to mind the clusters of Hops in a Kentish Hop-garden, rather than a Californian Conifer. It remains to be seen whether this precocious and profuse production of cones in a comparatively young tree will be prejudicial or no. The summit of a rockery was covered with Portulacas and Mesembryanthemums, while the crannies were filled in with a rich assortment of succulent and rock-plants. Some of the Opuntias and Echinocereus would doubtless be hardy in this favoured spot. Aquatics and bog plants are well provided for in various places, some of which occasion a feeling of pleasant surprise from the unexpected manner in which the visitor comes upon them. The fragrance of Myrica Gale, the great broad leaves of the Iris, the massive spikes of the Bulrush, upspringing from a tangle of Forget-me-Not, Creeping Jenny and Alisma, produce a charming sense of freedom, and yet so well ordered is the planting that no sense of inappropriateness nor untidyness is experienced.

The houses are in various parts of the grounds, some destined for fruit growing, others for the supply of flowers for house decoration. A small well-managed collection of cool Orchids, a similar group of Ferns, including Todeas, may be cited, as also some good plants of Eucharis, so managed as to secure three successions of bloom with a few weeks intervals of rest. The contents of these houses are thus of the usual mixed character, and do not call for special comment further than to remark that in spite of the great variety of plants grown, everything is evenly and well managed. The same remark may be made of the vegetable department, which is well cropped, and like the rest of the garden reflects credit on Mr. Cornish, the gardener. *Alemon.*

Orchid Notes.

Work in the Houses.—One of the most admired of the dense compact forms of Lælia is the autumn-flowering L. anceps. Like another of the earlier of the introductions from Central America—Cattleya Mossiæ—some of the finest varieties seem to have been included in the masses that were sent to this country when it was first discovered. Much as we may admire some of the pale rose or light-coloured varieties that are now occasionally to be met with amongst the latest importations of this desirable species, I venture to say that there are already in many private collections in the country fine plants of dark varieties, flowers of large size and good substance, and withal of free blooming habit, that, as L. anceps, pure and simple, are much to be preferred to many that to the owner represent a money value of many guineas, whilst the older forms have not been estimated beyond the value of many shillings. All the plants, I admit, have not been the darkest varieties, but many are exceptionally good and far better worth keeping than some of later purchase. Doubtless many have been recently bought in the hope that one gem, at least, would appear among the dozen or more that were purchased; but remember that gems are still rare, and the expected jewels may turn out to be but very ordinary varieties, and dear at any price. The fine form of Dawsoni, because of its thorough distinctness, will always be admired, and justly so—its pure white sepals and petals, and lip of white, purple, and yellow, making it an object of singular beauty and attractiveness. The whole of the varieties must be grown in the Cattleya-house, and can be fairly well done on blocks or in baskets, as it throws out its white roots a foot or more in length. Where the houses are dark and shady, as even yet is sometimes the case, it is better if they are managed thus; being suspended near the glass, the growth and spikes will push away with vigour. As the latter continue growing they must be watched that they do not at any time touch the glass, for the spikes are easily damaged, and a loss of bloom ensues. Where, however, good light houses, such as have so constantly been recommended, are devoted to the Orchids, these Lælias should be grown in pots and stood on the stages. The pots should be well crocked, large open pieces being used, and some charcoal placed in amongst them. The plants should be well raised in the centre of the pot, and very loose material worked among the running rhizomes. It will be found that rather more peat than moss will be most suitable for them; with such a loose open-soil plenty of water must be given. Whilst growth is active and the spikes are forming let the plants be stood where they can enjoy a good share of light; in fact, just now the afternoon sun, with plenty of air given, is just the condition for getting good bulbs and spikes, and the developing of fine flowers of good colour. The fear of raising the temperature under such conditions need not cause much trouble, for whilst they are growing the thermometer may with perfect safety be allowed to run up to 80° or 85°, and if plenty of ventilation is given there will be no danger whatever. The plant may come to us from Mexico, and during the winter be exposed to a very low range of temperature, but during its growing season, in common with many that are designated cool-growing species, it is subject for a time to a good share of strong sunlight and heat. This period may in its native habitat probably be only of brief duration; we, too, should endeavour so to imitate this that a short, quick growing season is given, followed by a period of less heat whilst blooming, this again to be succeeded by a considerable period of rest. *W. Swan, Fallowfield.*

Garden Operations.

PLANT HOUSES.

Stoves.—Among stove fine-foliaged plants Croton Weismanni makes one of the very best of decorative plants, and is seen to better advantage perhaps as a half specimen than in any other stage. Healthy young plants of this or any other well tried kind may receive a shift if pot-bound. They will yet have time to become well established before winter. Continue to strike tops of any kinds with good colour in the foliage; these will come in serviceable for the dinner-table. For this purpose C. angustifolius is one of the best. Good coloured offsets of Pandanus Veitchii should be watched for and taken off very small, as soon, in fact, as there is the possibility of striking them. By this means an earlier development of the graceful character of the plant will be obtained. Plants of Dracæna Cooperi, D. terminalis, and the host of newer kinds should be cut down if becoming leggy. The more robust sorts may be rooted off by fixing a smaller pot at the required height filled with good sandy soil and sphagnum moss, previously having cut the stem about half through at the junction with the small pot. The smaller-growing sorts will strike readily where bottom-heat can be had without the trouble of this operation. Gardenias that flowered early, and afterwards made a free growth, should now be giving another good supply of flowers. These, with Stephanotus and Eucharis, are always acceptable, and a little extra attention will bring its reward. Pancratium fragrans, if about to expand its flowers, may be removed to a cooler house free from damp; by this means the blossoms of this somewhat fugacious plant will retain their beauty much longer. Among the batch of seedling Gloxinias of this year's growth some distinct kinds may be observed; where such is the case they should be marked while in flower. This easily grown bulbous plant seems to be coming more and more into favour, and a packet of seed from a select strain will soon give a stock, and be of far greater service than plants from old exhausted tubers. I strongly recommend them to be grown extensively for conservatory decoration during the summer months. Gesneras of the late autumn and winter blooming section should be growing freely now. They will derive great benefit by being plunged in a slight bottom-heat in a pit or frame where they are near the glass.

Ferns and Ferneries.—Keep the fronds of all kinds picked off when showing signs of decay, thus giving room for the development of those made later on, which will have to withstand the winter. Where a large stock of Adiantum cuneatum is wanted for cutting, it will be well to grow a good number in a somewhat airy house with less moisture; this will give a good stock of hard fronds, which are more durable for this work than those grown in a stove during the summer. Onychium japonicum is a Fern well worth growing extensively for the conservatory, being very hardy, thriving well under adverse circumstances. If any young stock of Lomaria gibba, Dicksonia antarctica, or any such-like Ferns (which always require an abundance of water) should be pot-bound, it will be well to give them a shift at once, for if by chance they should get overlooked in watering, later on, when the pots are crammed with roots, they would be disfigured for months to come.

Greenhouse.—Seeds of Grevillea robusta sown last February having now grown into nice plants in 6-inch pots will render good service for the dinner-table and otherwise. Seeds also of the tuberous Begonias sown early will now have made good useful stuff for autumn decoration; keep them just protected in a cool frame till they are required in a more prominent position. Browallias are now flowering freely in the open air; take in a few at the time for the conservatory, and pinch some for a later crop. Globe Amaranthus will now come in useful; when in flower be careful not to over-water this plant, or it will oftentimes die off prematurely. Keep the young seedlings of herbaceous Calceolarias in a cool moist position, but beware of slugs. A batch of cuttings inserted now (five or six in a pot) of Eupatoriums will give nice plants in the spring for the conservatory. They can be struck readily in a cold frame. Some Asters taken up now from the open border with a fair ball and potted three in a pot will come in very serviceable where a large quantity of pot plants in flower are wanted during this and next month. If Roman Hyacinths are required very early it will be well to get the first instalment potted up as soon as they can be obtained. When potted stand them in the open on a bed of coal-ashes; cover the pots but slightly with cocoa-fibre if to be had. The warmth from the sun's rays that will penetrate this will soon start them into growth, when they can be removed to a shelf near the glass in the greenhouse, or be placed in a close frame; thus treated an early stock of flowers can be had without much hard forcing. These remarks should also apply to the Roman Narcissus and the Paper White variety. *James Hudson, Gunnersbury House Gardens, Acton, W.*

FRUIT HOUSES.

Pines.—Attend carefully to the watering of succession plants; the first batch will now be making good roots, therefore more water will be required than was given in the early part of the season. The strength of the liquid manure may also be gradually increased, but always keep on the safe side. The principal stock of suckers should be taken off and potted this month, which gives time for them to make a good lot of roots before winter; low temperatures, an excess of water, or excessive dryness at the roots, will readily tend to promote a state of things unnatural and unsuitable. There are two varieties of Charlotte Rothschild in cultivation, one of which is much inferior to the other. The best variety has broader leaves, with a larger fruit, its form is more erect and conical; the inferior variety grows more like a Queen, and the form of fruit is exactly the same. There are also two varieties of Smooth Cayenne; one is almost worthless in comparison with the other. The poor variety has very narrow leaves, without any spines, and the colour is browner and the fruit also like the old Queen. The best variety has broader leaves with a greener tint, and the tips of the leaves have spines on each side for a length of about 6 inches; sometimes only a few spines are observable. The fruit is very erect and conical with proportionate crowns, and the pips develope to a larger size. In both cases the two good varieties are easily distinguished, and the poor kinds may be gradually discarded. The Smooth Cayenne is a grand Pine, and when its merits are judged from all points it has no rival. The surface of beds, walls, and paths ought to be kept well damped, so that the atmospheric conditions are genial and equable. Any plants that are not making sturdy growths should have free ventilation; this will give substance to the leaves and promote a healthy growth. Syringing even in summer should be done with judgment. A good rule is, when any water is to be seen in the axils of the leaves, to discontinue syringing until the water is absorbed; more injury is done by the injudicious use of the syringe than by many other causes. *D. Wilson, Castle Hill, Devon.*

Vines.

Keep the earliest vineries as advised in my last Calendar, and where both inside and outside borders are used now is a good time to top-dress them, or if in a bad state to remake the borders, doing either the inside or outside border only this year. Before disturbing the roots have a good supply of soil, composed of good loam, bones, old mortar and charcoal, and a good supply of clean brick-bats for drainage; then take the roots out of the old soil as carefully as possible with a fork, laying them together and keeping them covered with a damp mat. Next, clean out all the old soil and drainage, and then put in a good layer of drainage in the bottom with a turf upside down over it, making the border about 8 feet wide according to the state of the roots; if any are damaged cut them clean back with a sharp knife, lay them carefully in the new soil, and fill up the border to the required height, the roots to be about 9 inches below the surface; tread the soil well so that it may be firm, then mulch the surface with 6 inches of short manure, and give a good watering to settle the whole. Keep the house a little closer for a short time till the Vines commence to make new roots, then treat them in the usual way. To houses in which Grapes are ripe give abundance of air, and water with clear water when necessary. In succession-houses, where Grapes are colouring, keep a little air on day and night, and if the nights are cold put on a little fire-heat to keep the temperature up to 67°, giving a liberal supply of air in the daytime as the temperature rises, taking care to avoid cold draughts; water when the borders are dry with clear water, choosing a fine warm day, and watering early in the morning. Muscats that are ripe and ripening should be kept as advised in my last Calendar; those that are still swelling require a brisk moist heat, closing early in the afternoon, and thoroughly damping down paths, walls, and borders; examine the borders both inside and out, and if dry, water thoroughly with clear water, giving enough to go all through the border. If red-spider is troublesome, apply sulphur to the pipes as previously advised. Thin out the laterals where they are growing freely, to allow the light access to the bunches without full exposure to the sun, for if fully exposed to the sun before the skin is hard enough to bear it, they will have a brown appearance, and will not keep so well. Late varieties of thick-skinned Grapes will now require plenty of air, with a little fire-heat to keep up the temperature to 67° at night, with a rise of 10° by day. Late houses of Hamburghs will require plenty of water; those on the point of colouring will take tepid manure-water for the last time, afterwards use clear water. When the first berries begin to change leave a little air on the back ventilators all night, increasing it daily as they ripen; those not yet near changing colour close early in the afternoon, damping paths, walls, and borders with tepid water. Newly planted vineries will take liberal supplies of water, giving plenty of air in the early part of the day, and closing early in the afternoon. The earliest pot Vines require plenty of room, full exposure to sun and light, abundance of air and liberal supplies of water; do not attempt early ripening by withholding water. Those for planting require liberal supplies of water and abundance of air. *Joshua Atkins, Lockinge Gardens, Wantage.*

Orchard-house.—We are now gathering the fruits of the earliest varieties of Peaches, indeed the very earliest was gathered in the second week of July, the first to ripen being Alexander, a few days before Amsden June—both American raised varieties of great value. The fruit of Alexander is the largest, and quite as good in flavour. Early Beatrice was three or four days behind these two, but the flavour of that variety was also good this year, although it is not so large as Alexander. Rivers' Early York is a week later than Early Beatrice, and that variety this season will be followed by the American raised Early York; so we have now a succession, as Early Grosse Mignonne, a grand early Peach, comes in just before the mid-season varieties, such as Royal George, which is still one of the hardiest and best Peaches. If red-spider has been kept down well by syringing, it will be better to discontinue wetting the leaves now, else the fruit will not be extra good as regards flavour. In a treatise on the orchard-house now before me, it is recommended to destroy red-spider by sprinkling sulphur on hot lime; but I got into a terrible mess once by doing this, and would strongly advise others not to attempt it. Still pinch out the points of the strong growing shoots; do not pinch the weakly ones at all. Give the trees plenty of space, and expose the yound wood as much as possible to the sun after the fruit is gathered. Trees on which the fruit is ripening should be watered very carefully, as the fruit will not be of the best flavour if they receive either too much or too little. Where the ripening process has been accelerated by a little artificial heat, the fruit will all have been gathered by this time. In that case the leaves should be well washed with the garden engine, applying the water with some force, but not so as to lacerate the leaves, as is sometimes done. If any trees in the house require to be repotted, it may be done while the leaves are on the trees; the slight check caused by repotting is useful to check the over-luxuriant growth of some trees, and no harm is done to those that are not growing too strongly. Now is the time to see to the preparation of Strawberry plants to place on the shelves; the young plants ought to be ready for repotting out of the small pots fnto which they were layered. We are still old-fashioned enough to prefer Black Prince for the earliest. The plants of these are potted very firmly in 4½-inch or 5-inch pots. Keens' Seedling is next to it in our estimation, followed by President, British Queen, and Loxford Hall Seedling: all these latter varieties are potted in 6-inch pots, using four parts of good fibrous loam to one of rotten stable manure. *J. Douglas.*

Orange Trees in Pots.

We have still a few fruits hanging on the St. Michael's Orange and the Maltese Blood; the fruit is still juicy and very good. The Tangierine variety is the earliest to ripen in the autumn, and it comes in before any good Oranges can be obtained in the market. If the trees are now healthy and loaded with fruit they should be surface-dressed with some rich compost, which will cause them to swell to a good size and to ripen off with an excellent flavour about the end of September or in October. Much stress is laid upon a system of plunging the pots in heated beds or placing them on a heated surface, but recent experience has shown me that this is unnecessary; what is very essential is that the trees should be in a sufficiently high temperature to ripen the fruit well. It requires the temperature of a Pine-house or Cucumber-house, and will not be of good flavour in a low temperature. The routine of daily operations is much the same as that given in previous Calendars. Syringe freely all trees except those on which the fruit is ripe or ripening. Effectual syringing does much to keep down insect pests. Water freely at the roots up to the time the fruit begin to change colour; if too much is given when the fruit is ripening off a large proportion of it will crack and be quite spoiled. When the pots are well filled with roots the trees can stand occasional doses of weak manure-water in addition to the surface-dressings. *J. Douglas.*

HARDY FRUIT GARDEN.

Fruit walls will require constant attention in order to have the present crop perfected in appearance and flavour, and growth regulated and matured. Apricots will require to be gone over three or four times a-week to gather the ripening fruits, removing any second growths that will now be starting again, and searching for and destroying snails, earwigs or wood-lice. Peaches and Nectarines will also require to be attended to frequently. See that all growths required for extension and for next year's fruitbearers are kept closely nailed in, and their laterals pinched beyond the first leaf. Inspect closely all nails that are in close proximity to swelling fruits, and remove such as require it. As the fruits ripen let them be gathered at once, laying them carefully into padded baskets, and from thence on to fruit shelves also covered with wadding and tissue-paper, where they will remain good for several days longer if required than on the trees, and where the flavour will develope itself to the fullest extent if they have been gathered at the proper time, viz., when just ripening, but not over-ripe. Continue to push aside or partially remove any overhanging foliage as the advancing crops may require. Unless we have more rain soon than has yet fallen watering must again be resorted to, or the heavy crops will certainly be deficient in size, and the chances of a good crop next year seriously diminished. Healthy young trees may, in order to furnish the wall quickly, have a few of the best placed laterals retained on the upper sides of leading shoots, and nailed in at about 16 inches apart in the required direction as permanent furnishing branches. Tomatos, although principally used as a vegetable, generally come under cultivation on the fruit walls to fill blank spaces where such occur; remove all laterals as soon as visible, train to one stem in any direction in which there may be space, and do not pinch the leader until the limit of that space is reached; assist with liquid manure when the fruits are swelling. From August to October more and finer fruits can be gathered from walls than from plants in houses; but the plants must have the attention they so well merit, and which they too seldom get. The earliest Pears will require to be gathered with some judgment; for if gathered a day or two too early the full development of the flavour will be effectually prevented, while a little too long on the trees is equivalent to a total loss of the quickly maturing varieties. The earliest Apples will now be much assisted in colouring by being fully exposed to the sun, and this removal of shading foliage will also hasten their ripening. Any Gooseberries and Currants that are to be kept longer, must be at once matted. Recently planted batches of Strawberries will require to be attended to with water, also those pricked off into beds for spring plants. Where autumnal-bearing Raspberries are grown attention will now be required in keeping the canes firmly tied-in, to prevent injury from wind. As the other Raspberries cease bearing the old canes may be cut out, and the young ones thinned to five or six of the strongest and best placed to a stool, where they are trained to stakes; and where trellises are used, sufficient may be left to furnish the trellis at about 6 inches apart. Figs on walls will require the young growths to be pinched, any extensions closely tied-in, and the swelling fruits exposed to the ripening influences of the sun. Continue to pinch-in all sublaterals on Vines, and avoid crowding the foliage generally. The bunches will have been reduced to one on each spur, and if it is thought advisable to thin the berries it may be done in the ordinary way; or, if done while the berries are yet very small, the operation may be more speedily accomplished by holding the bunch in one hand, and pulling out the supernumeraries with the finger and thumb of the other. *R. Crossling, St. Fagan's Castle.*

APPOINTMENTS FOR THE ENSUING WEEK.

Wednesday,	Aug. 17	Shropshire Horticultural Society's Exhibition at Shrewsbury (two days).
Thursday,	Aug. 18	Maidenhead Horticultural Society's Show.
Friday,	Aug. 19	Cheadle Horticultural Society's Show (two days).

Our Fruit Report for the present year, though not so uniformly favourable as was that on the Potato given in our last number, is yet far in advance of that for the last few years. Although making no pretence to rigid accuracy the report may be looked on as expressing the general condition of the fruit crops as gauged by experienced observers in every part of Great Britain and Ireland. In interpreting the words "average," and so on, it is necessary to make some allowances for the last two extremely unfavourable seasons, which very materially lowered the general average, else it is possible that the results for this year may be taken too favourably. Last autumn was, on the whole, favourable to the ripening of the wood, and this spring was not so destructive in its effects as in several preceding years.

Passing into matters of detail it may be said in general terms that—

Apricots are greatly under average, more especially in the Midland and Southern Counties, though the quality is noted as good.

Plums are about an average crop, the unfavourable reports only slightly exceeding those of a better character. Scotland and Ireland appear to have been relatively the most favoured parts of the kingdom, the Eastern Counties of England much the least so.

Cherries have been extraordinarily plentiful in almost every county. The Scottish, Midland, and Southern districts yielded the best crops, and Kent has maintained its pre-eminence.

Peaches and Nectarines are, of course, not grown out-of-doors in the northern parts of Scotland, but the proportion of favourable reports for the whole kingdom is at least a third greater than those of an opposite character. The Southern Counties, as might have been expected, have supplied the largest and best crops; but even in the Eastern Counties the proportion is very favourable.

Apples, which on many accounts are the most important of our hardy fruits, are almost uniformly abundant—in Scotland, it would seem, remarkably so, but in the Western Counties much less so, and from the noted Apple counties the report is by no means good.

Pears have not yielded quite so well as Apples; Scotland and the Eastern Counties show good results, but the Western Counties have not been so highly favoured as in the case of Apples.

Small fruits, such as Currants, Raspberries, and Gooseberries, have been very abundant everywhere. A deficient crop seems to have been a rarity.

Strawberries, on the whole, have been very productive, except in the Eastern Counties of England and in Scotland. In the Midland, Western, and Southern districts they have been very plentiful.

Nuts, too, which are usually fickle, show good crops, especially in the Midland and Western districts and in Ireland.

Although, therefore, we cannot look on this as a typically good fruit year, it is so vastly superior to the last two years that we cannot fail to be thankful. It is the more a matter of satisfaction that Ireland shares with the rest of the kingdom not only in an unusually fine Potato crop, but also in a good supply of fruit.

It only remains now to thank those correspondents who have kindly answered our inquiries. Many of these gentlemen have rendered us a like service for very many years, some from the first year when we published these reports, so that their experience renders their opinion specially valuable.

The more detailed notes with which some of these gentlemen have favoured us will be given in subsequent issues, the space demanded by the tabular statement precluding our devoting more space to the subject in this issue.

—— Batemania meleagris. — This Brazilian Orchid was first described by Dr. Lindley under the name of Huntleya meleagris in 1838, and has always been a scarce plant in gardens. It is a plant of remarkably distinct character, as the accompanying woodcut (fig. 40), which was prepared from a plant in Mr. Bull's collection at Chelsea, will show. It is epiphytal, with a short root-stock, whence spring the alternate closely-set leaves which stand in two opposite rows, and are a foot or more in length, and about an inch in breadth, bright green and smooth above, and of a bluish-green beneath. From the axils of the leaves rise up the peduncles, each bearing two opposite bracts, and each carrying a solitary flower of large size and handsome appearance. The three sepals and two petals are ovate acuminate, spreading, white at the base, the rest of the surface being tessellated with rich purplish-brown on a yellow ground. The lip is similar in form and colouring, but smaller and more distinctly clawed, while at the origin of the claw is a very prominent crescent-shaped crest, which is fringed with stiff white hairs. The flowers, which appear in June and July, are scentless, but last a long time in beauty. The plant, as already stated, comes from Brazil, where it is "found in gloomy, damp woods on the banks of the Rio de Pirapitinga, in the district of Bananal." For its cultivation Mr. Williams recommends the cool end of the Cattleya-house, with plenty of water all the year round, and pot-culture with peat and moss and good drainage.

—— A Colossal Todea.—Recently a huge Stump-Fern was, writes Baron von Mueller, brought away from its seclusion in the Dandenong Ranges, near Port Philip. After the removal of its hundreds of fronds, the stump-like trunk weighed 2900 pounds. It required to be dragged by a train of oxen out of its recess, where it may have grown for more than a century to accumulate the substance of its massive stem. This monster Fern is to be placed in the conservatory of the city, where the mycologist, Rev. Heinrich Tode, so long laboured for the Church and for science also, and where his mortal remains are buried. A brisk trade in large Todeas ought to arise, as the marvellous specimen at Kew must have attracted the attention of professional and amateur horticulturists for many years after its removal thence from the Melbourne Botanic Garden. Giant Todeas may be obtained from South Australia (Mount Lofty Ranges), various places in Victoria, Tasmania, New South Wales and Queensland, but specimens weighing over half a ton (without fronds) are rare. This colossal Fern has also the recommendation of bearing a considerable amount of frost, so that in temperatures like that of Arran it could be grown in the open air. In South Africa it seems never to attain to the enormous weight of extra large Australian specimens.

—— Royal Botanic Garden, Glasgow. — The directors of the Royal Botanic Institution of Glasgow having been enabled to reconstruct the "Kibble Palace" within their garden as a temperate plant house or winter garden, and to commence the erection of a new range of plant-houses to replace the existing ones, have resolved, in view of the furnishing of these houses, that the practice of selling plants and flowers, and of supplying plants for decorative purposes from the garden shall, after August 1, 1881, be discontinued. By the system at present carried on the garden is continuously deprived of its choicest flowers and finest plants to meet the demands of purchasers, and the hiring out of decorative plants leads to very serious injury to the specimens. The directors believe that the announcement of this resolution will materially benefit the garden, and they anticipate that it will lead to increased liberality in the way of donations of plants and seeds from those interested in the Institution. Moreover, as the Institution will now cease to compete in the market with nurserymen and florists, the directors trust that the characteristic generosity of these gentlemen towards public gardens will be extended to this institution, and that it will receive from them specimens not only of known and familiar plants, but also of novelties, as they are from time to time introduced. Contributions of plants and seeds are at all times gratefully acknowledged by the directors, but at the present juncture will be especially welcomed, and the directors earnestly solicit donations from those who have it in their power to give. So far as practicable, the directors are prepared to make exchanges of plants and seeds.

—— Messrs. Lawes and Gilbert. — The Emperor of Germany has, by Imperial decree, dated June 1, 1881, awarded the Gold Medal of Merit for Agriculture, to Mr. Lawes and Dr. Gilbert jointly, in recognition of their services for the development of scientific and practical agriculture.

—— New Pelargoniums. — The two Pelargoniums which received First-class Certificates at Chiswick, and which were described as Nos. 9 and 62 in our last issue, p. 182, have been named:—No. 9, Demi national, and No. 62, J. P. Stahl.

—— Bath Token.—A correspondent sends a rubbing of a copper tôken, about the size of a penny, with a gateway (?) on the obverse, surrounded by the inscription: "He spake of trees, from the Cedar tree that is in Lebanon—Botanic Gardens.—Bath Token, 1794;" and on the reverse a Cedar tree with the continuation of the legend: "Even unto the Hyssop that springeth out of the wall. 1 Kings, ch. iv., v. 33." Can any correspondent oblige us with the history of this token?

—— Lilium auratum.—There are some beds of this grand Lily in fine vigorous health in the York nurseries. The bulbs are planted in 4 feet beds, and so thick as to form a complete forest of stems and mass of flowers. The ground had, previous to planting, been trenched 2 feet or more in depth. The dry weather experienced here of late has evidently suited the Lilies: the flowers are large and well expanded. Amongst them was noticed considerable variation in form and markings.

—— International Potato Exhibition. — Now that lifting is in progress it will be well for growers to consider how they stand in respect of the exhibitions, for samples selected on the ground usually show better than when afterwards selected from the store, and the saving of labour is a matter of very great importance. The International Potato Exhibition will be held at the Crystal Palace, Sydenham, September 20 and 21. The schedule contains some novel features, but in general plan does not greatly differ from what may now be regarded as the international model. The Secretary is Mr. J. McKenzie, Tower Chambers, Moorgate Street; and the Honorary Treasurer is Mr. Shirley Hibberd, 15, Brownswood Park, London, N.

—— National Carnation and Picotee Society.— The annual exhibition of the Northern Division of this Society will be held on Wednesday, August 24, in connection with the great International Exhibition, in the Botanical Gardens, Old Trafford, Manchester. Intending competitors should communicate with the Rev. F. D. Horner, Kirkby Malzeard, Ripon, the Hon. Secretary and Treasurer.

—— York Horticultural Exhibition.—The committee here have a quick and praiseworthy way of settling up matters at once, and the balance-sheet of their last exhibition has been issued, showing the takings at the gates at their June exhibition to have amounted to £1263. This, however, was a falling off from last year, when the admission money amounted to £1538, owing to the unsettled weather on the occasion of their last exhibition. The committee, however, have a balance in hand of £285, and have a reserve fund of £1550, which is invested. Taking time by the forelock, an advertisement in last Saturday's *Gardeners' Chronicle* already announces the dates fixed for the exhibition of 1882.

—— Market Peas.—A large grower of Peas for market in the Midland districts recommends the following as the best varieties that can be cultivated for the purpose:—Kentish Invicta, the earliest of all, a good hardy variety, and a sure bearer; American Wonder, a very dwarf variety in the way of Little Gem, but rather taller and more robust in growth, bearing profusely large, well-filled pods; William I., Day's Sunrise, a very useful but not early variety; Advancer, Fillbasket, Dr. Maclean, and Payne's

Conqueror. All the foregoing are reliable bearers, and yield good pods. It is said there are several spurious stocks of William I. extant, and therefore it is very necessary to have that which is true. Unquestionably this is one of the most useful of early Peas, and the bright, fresh appearance of the pods makes it a very acceptable variety for market. Its usefulness is seen in the fact that market growers are cultivating it largely.

—— Distribution of the Coniferæ.—There are some facts connected with the distribution of the Coniferæ that have not yet got into general horticultural literature. Of this circumstance we were recently reminded on glancing over the pages of Veitch's new *Manual of Coniferæ*, and we therefore propose remedying, to some extent, this state of things. As the book named is the most recent, and in many respects the most complete, extant, we shall be excused for pointing out more particularly the incompleteness of its information respecting the distribution of the Coniferæ. The observation that the Coniferæ are represented in nearly all parts of the world where arboreous vegetation exists is too general, and liable to convey an erroneous impression, because in tropical countries the coniferous element is almost entirely montane. It is true that stragglers descend, even in the tropics, down nearly, or quite, to the sea-level, just as some species of Oak do in Mexico; but these are exceptions, and only bring out more prominently the fact that there are immense tracts of country covered with vegetation destitute of a coniferous element. This little inaccuracy must not, however, permit us to lose sight of the interesting fact that the Coniferæ are represented in nearly all parts of the world where trees exist, including montane regions within the tropics. The exceptions, indeed, are fewer than the writer of the work mentioned supposes. Thus, on the authority of Sir Joseph Hooker, writing more than a quarter of a century ago, it is stated that no gymnospermous tree inhabits the Indian peninsula. But independently of two common Cycads, the widely dispersed Podocarpus latifolius grows plentifully in some localities in the hills of the peninsula. Colonel Beddome, the author of the *Flora Sylvatica* for Southern India, made this interesting discovery in 1859, when he sent fruiting specimens to Kew, collected in the Tinnevelly mountains at 3000 to 5000 feet elevation. In 1861 he was able to send both male and female specimens in flower; and in his *Flora Sylvatica* he states that the tree was most abundant on the hills above Calcad, and that a Mr. Hayne of the Forest Department had since discovered it further north in the hills north of Courtallum. Hitherto, we believe, no Conifer has been detected in Ceylon. With regard to Central Africa also being a probable exception to the general dispersion of Coniferæ, we may say that species of Podocarpus having been collected in Southern Central Africa, in Abyssinia, and in the mountains of the western side close under the equator, seems to indicate rather the probability of the presence than otherwise of the genus in the intervening mountains. The statement at p. 43, that no Northern genus, except Libocedrus, has a representative in the South, likewise requires some modification, whatever sense we attach to the words "Northern genus." We should prefer calling Libocedrus a Southern genus, inasmuch as it is represented by a larger number of species in the South, where it is also apparently a more characteristic type. On the other hand it might be added that the Southern genera, Podocarpus and Callitris, both extend into the northern hemisphere in the Old World.

—— Squirrels and Conifers.—On this subject the *Bulletin de la Société d'Acclimatation de Paris* contains an article condemning the active and elegant though mischievous rodent to utter extirpation. It relates especially to the damage caused by squirrels in the forest of Rambouillet and in adjoining estates. Previous to 1874, it is stated, on the authority of the inhabitants of the country, not a squirrel existed in the forest of Rambouillet, but about that time some escaped from a neighbouring château, and became naturalised. The writer of the article from which we are quoting is a proprietor on the border of the forest, and he states that the squirrels came down from the forest in strong marauding parties, destroying the leaders of thousands of Scotch Pine, Spruce Fir, &c., in a few days. The paucity of Acorns and of cones likewise seems to have driven the squirrels to the bark of trees for their sole sustenance, and they have destroyed or damaged not only large numbers of Pine and Fir trees, but also fruit trees. It is estimated that at least half of the Pines are so much

Fig. 40.—Batemania meleagris. (see p. 208.)

injured that they should be cut down. If it be true that no squirrels existed in the forest before 1874, they must have multiplied like rabbits since their introduction, for it is stated that the damage has increased from year to year, particularly since the severe winter of 1879, and this notwithstanding an uninterrupted warfare against them. The administrators of the forest now offer half a franc each for dead squirrels.

—— A New Aquilegia.—Last year Dr. Edward Palmer spent several months in Nuevo Leon and Coahuila, the north-eastern States of Mexico, where he made a collection of about a thousand species of flowering plants, thereby considerably supplementing the collection made by him the previous year in conjunction with Dr. C. C. Parry, in the more southern State of San Luis Potosi. A full set of Dr. Palmer's plants has been acquired for the national herbarium at Kew. As was to be expected, from our knowledge of the vegetation of the countries north and south of the region explored by Dr. Palmer, the collection contains few absolute novelties, yet it is very interesting. The most interesting plant from a horticultural stand-point is a species of Aquilegia closely allied to A. leptoceras and A. chrysantha. The flowers are described as lake-white and straw-yellow; but their most remarkable feature is the exceedingly long slender spurs, which are in the dried specimens as much as 5 inches long. Judging from the condition of the dried specimens we should think Dr. Palmer was able to secure ripe seed, but on this point we have no information.

—— Variegated Plants.—It is noteworthy that sometimes the variegated varieties prove more hardy than the ordinary forms. Thus at Osborne, in the Isle of Wight, lately, we were assured that the variegated form of the New Zealand Flax, Phormium tenax, had been less injured than the green one; and at Ryde we were told the same thing with reference to Trachelospermum jasminoides (Rhynchospermum).

—— Vegetation of North-west Australia.—Baron von Mueller has published an enumeration of the plants collected by Alex. Forrest in his geographical exploration of the country in 1879, from King's Sound to Port Darwin. Although the collection contained very few new species, Baron Mueller thinks it well deserves publication, and concludes his introductory note with the following remarks:—"This contribution to the phytography of North-west Australia may also tend to draw additional attention to the cultural resources of the vast region recently explored in so able a manner by Mr. A. Forrest. When we contemplate that many millions of acres of open, richly grassed, and well watered pastoral country were discovered in addition to what was disclosed already by the expedition of 1855-6—when we consider that the North-west of Australia is blessed by a salubrious climate, mitigated in its heat by the prevailing westerly and northerly sea breezes; when we recognise that the tropical rains keep the pastures verdant also during the hot season, and that in the cool season grasses and herbage remain also fresh; when we learn that only a most sparse and unresisting aboriginal population occupies this large territory; when we remember that these fine tracts of country, on which the light of geography has so recently been shed, are adjacent to many safe and spacious harbours; and when we reflect how short a distance this new country is separated from India, and how easily the products of North-west Australia can be rendered also accessible through the Suez Canal not only to the countries on the Mediterranean Sea but also to Britain, then we may point to this newly opened part of the fifth continent as one of the most promising of any fields for immigration, for the safe and lucrative investment of monetary capital, and for the display of skill and assiduity of intelligent colonists."

—— Messrs. Sutton & Sons' Gloxinias, &c.—At the first exhibition of the newly-formed Earley Horticultural Society, held last week, the Messrs. Sutton & Sons, of Reading, exhibited a beautiful and interesting group of cut flowers and plants in pots that secured much admiration. Among them were boxes of self and fancy Carnations, of good double form, and many hues and markings, all raised from seed, and representing the product of seed samples. Verbenas, too, were richly coloured and singularly beautiful, gathered from plants growing in the open ground, and raised from seed treated as ordinary annuals: the blues and scarlets were rich and striking. Petunias in variety, and of all sizes and shapes, double and single, self, striped, blotched, and margined. Hollyhocks from seed; fine double flowers, of capital quality and rich colours. Brilliant-coloured self, flaked, white, and many other hues, of Phlox Drummondii; curiously marked double and single Dianthus, and many other representative open-air flowers. From under glass came boxes of beautiful Begonias in varied hues of colour, showing a first-rate seed-strain, these plants being with the Messrs. Sutton a speciality. Even more attractive than these, however, were the superb Gloxinias in pots, of which a fine lot was staged. The firm grow these from seed every year by thousands; and the plants showo, with others in luxuriant bloom, were from seed sown so recently as January last, thus getting into bloom in six months, and producing at one time from ten to sixteen flowers. In the cultivation of these Mr. Martin—the Messrs. Suttons' intelligent plantsman—exhibits much ability, but gives not less attention to the important matter of cross-fertilisation, every flower being set, not with its own pollen, but with that of some other kind of superior form. By so doing a more active rate of improvement is ensured than can be the case when the fertilisation is haphazard, or left to Nature. So rapid has been the improvement in the Gloxinia during the past few years that we may well ask to what will it eventually be brought? The Messrs. Sutton are doing their best to solve that problem.

—— Payne's Conqueror Pea.—Of late years this fine Pea has come to be considered identical with Ne Plus Ultra, but a glance at its origin would lead to the belief that the latter has in the course of time resolved itself into the former. It is said that the original Ne Plus Ultra was an inferior variety, with a smaller pod and less pronounced quality than the form now grown. Payne's Conqueror Pea originated with a Mr. Payne who lived at the Manor House, Gayton, Northamptonshire, and who selected it from Knight's Tall Green Marrow, among which it appeared as a sport. Some of it was given by Mr. Payne to a man engaged on the railway, who grew and exhibited it, and eventually it was purchased by Messrs. Jeyes, seedsmen, of Northampton, who sent it out as Jeyes' Conqueror. Under this name it is largely grown in Northamptonshire, Buckinghamshire, and places adjacent, and at the horticultural shows it invariably takes the leading prizes in the Pea classes. It has a larger pod, and fills up better at the end of the pod than does the true Ne Plus Ultra. On the other hand the original Ne Plus Ultra is smaller in the pod, does not fill so well, and is less vigorous in growth. It would be interesting to know how many times the true form of Payne's Conqueror has been renamed, and sent out as a new variety.

—— Apples for Market.—In that district of the country stretching from Northampton away to the east coast, where Apples are largely grown for market purposes, a variety named Perkins' Seedling finds great favour. It is one of the earliest in cultivation, is in the style of White Juneating, but flatter, and a very free bearer. Other varieties that have already, and are still being planted largely, are the red and white Juneating, Keswick Codlin, Lord Suffield, Lord Grosvenor, or Jolly Beggar, of the type of Lord Suffield, but a more robust grower and a very free bearer—a first-rate early cooking Apple, and a variety that is being very largely planted in the more extensive market gardens; New Hawthornden, Court pendu-plat, a dessert Apple highly esteemed in this part of the country; Cellini Pippin, Blenheim Orange, Normanton Wonder, King of the Pippins, and Wyken Pippin. Those who propagate Apples largely for market planting are found asserting that the planting of Apple trees in the particular district named is being so extensively followed that the supply fails to keep pace with the demand; it would, therefore, seem that English grown Apples will largely increase during the next few years.

—— Ascot Citronelle Grape.—This excellent Grape well deserves to be better known. Mr. Barron has this season had it in an early vinery at the Chiswick Garden, where it ripened some days before the Black Hamburgh. It has a tender flesh, an exquisite flavour, and the white berries are covered with a thin bloom. Judging from the bunches at Chiswick, we should think it sets well. The Grape in question was raised by the late Mr. John Standish, from Blanc de Saumur crossed with Muscat Citronelle.

—— Mr. John Duncan, the Alford botanist, died on Tuesday, at Droughsbourne, near Alford, Aberdeenshire. The deceased some time ago presented an unique collection of botanical specimens to the Aberdeen University, and a public subscription was recently raised on his behalf. He was self-taught, and acquired his vast botanical knowledge unassisted.

—— The Pensions of the Gardeners' Benevolent Institution.—One of the objections raised in certain quarters to this excellent Institution is the small amount of the annual pension. The amount is small, but it is as large as is consistent with the financial stability of the Institution, and it rests with the gardeners themselves to make it greater. Another objection is, that out of the thousands of gardeners so few contribute even as little as a shilling a-year. A strenuous effort is now being made to meet both these objections, and to collect from every garden and nursery establishment in the kingdom sixpences and shillings (pounds will not be declined) towards the establishment of a fund to be devoted expressly to the augmentation of the pensions. The sum required to permanently augment the pensions of nearly a hundred pensioners is necessarily large, and its accumulation must be a work of time: all the more necessity for the gardeners to bestir themselves in the matter. A shilling only from every garden in the kingdom, or sixpence from every gardener and garden labourer, which might be saved out of the price of a pint or two of beer would produce a very large sum. Now is the time to collect these shillings, and sixpences, and pounds. Mr. Cutler, of 14, Tavistock Row, Covent Garden, London, W.C., will send collecting cards to anyone who applies to him; and we shall be pleased to hand over to him for the Institution any sums that may be sent to us for the general purposes of the Institution or for the Special Pension Augmentation Fund.

—— The Manchester Show.—In addition to the hotels mentioned in our last number, the City Hotel, a temperance establishment, should have been cited.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine for agricultural and sanitary purposes, during the week ending August 8, issued by the Meteorological Office, London:—The weather has been moderately fine except in Ireland and the West of Scotland. Very frequent showers occurred at our western and north-western stations, and heavy rain set in at our central, eastern, and southern stations at the close of the period, in some places accompanied by thunder. Temperature has been equal to the mean in "England, E." and "Ireland, S.," a little below it in "Scotland, W.," "England, S., S.W., and N.W., but slightly above it elsewhere. The maxima were registered on the 5th, when the thermometer rose to 86° at Bawtry, and to between 80° and 85° at nearly all our other inland stations. The minima for the week occurred generally on the 2d, and were as low as 38° at Churchstoke and Strathfield Turgiss, and 39° or 40° at some other stations. Rainfall was slightly more than the mean in "England, E.," the Midland Counties, and "Ireland, S.," but rather less in most other districts. Bright sunshine was rather more prevalent than during last week, but the percentages were nowhere high, ranging from 45 in "England, E." to 27 in Ireland. Depressions observed:—The readings of the barometer have been highest over France, forming an anticyclone during the greater part of the week, and lowest to the westward and northward of our islands. Several depressions, generally small, have travelled in a northerly direction over or outside our western and northern coasts, causing the wind to vary between S. and W., and to blow freshly at all our western stations, and occasionally to reach the force of a gale on our extreme north-western and western coasts. At the close of the period the barometer was falling quickly in the south.

—— Gardening Appointments.—Mr. Frederick Everson, for the last fourteen years Gardener to the late C. Fison, Esq., Ford Place, Thetford, has been appointed Gardener to Mrs. Lyne Stephens, Upper Grove House, Roehampton.

NOTES FROM SOUTH DEVON:

Botanical, Horticultural, and Fanciful.

Lynton, Ilfracombe, Clovelly, Teignmouth, Dawlish, and Torquay!—how provokingly suggestive to he jaded Metropolitan! Devonshire!—

"What a soft, lazy, musical, sequence of sound:
It savours of summer-time all the year round."

He that cares for breezy, Heath-covered moors, grand liffs, clear swift streams, hedgerows and banks lothed in the beauty and variety of an indigenous lora, and the cool greenery of flowery goyles, let him isit Devonshire. If the reader will glance for a noment at a map of Devonshire he will see marked n the extreme south, by the Kingsbridge Estuary, Bolt Head, and between 7 and 8 miles west of it the Bolt Tail. Under the shelter of this latter rocky and recipitous headland lies the little fishing village of Hope. The nearest towns are Salcombe and Kingsridge, distant respectively 7 and 9 miles; the nearest railway is the South Devon, 16 miles from Hope. There is one small but respectable inn, usually monoolised by artists, and two comfortable little cottages where the weary tourist may rest and be thankful. Stretching so far south one would naturally expect to see evidence of the genial temperature in garden produce, but, beyond a tall Fuchsia or two hanging its crimson tassels by some white-walled cottage, there is little to indicate a climate where the Orange and Lemon might ripen without the help of glass, and very sheltered nook rejoice in the beauty of an most tropical luxuriance. But the all-absorbing nature of a fisherman's occupation seems to leave no margin for gardening: his "bread is on the waters," s garden is the sea. It is much to be regretted, however, that a few out of the many hours spent in atching the ever-changing moods of sea and sky, nd speculating upon the various craft that glide past in the silence of a dream, could not be profitably nployed in cultivating allotments or beautifying the rroundings of their cottages. The fishermen of Hope Cove, as it is mostly called, are a hardy nd independent race, but civil and obliging, nd not accustomed to supplement their little vilities by allusion to "dry work." Some of heir honest faces are familiar, perhaps, to sitors to the Royal Academy through the inimitable ctures of Hook; his "crabbers" and "seaside acks" were painted at Hope. Although gardening this part of Devonshire is of the poorest and most rimitive description, the lanes and hedgerows are a ever-failing source of interest to the botanist and ern-hunter. The cliff scenery, too, is magnificent. Hewn and chiselled by the keen fingers of the storm, raped and fringed and tasselled with wild flowers, erns, and dwarf shrubs, the rocky ledges garnished ith the spotted eggs of countless seabirds, every few eps reveal some fresh object of interest and delight the naturalist and the artist. Of the many species wild flowers which abound in the hedgerows a rge proportion possess fragrance, and the short soft ass along the cliff walks abound with elegant little ral gems. Among them is a curious little Orchid, out 6 inches high, having a spiral wreath of lavendernk flowers surrounding the stem (Neottia spiralis). Shakespeare's man, "He who gathers samphire—rful trade," need not have endangered his neck at ope. The cliffs (which belong to the chlorite and ica schist system) are in many places completely vered with its dull Mesembryanthemum-like leaves, d greenish yellow blossoms. The Bolt Head itself, e noble pile of rocks at the mouth of the estuary, is h in wild flowers and lichens, some of the latter ry rare and beautiful. The Burnet Rose, with its grant cream-coloured blooms; the yellow-horned ppy, the climbing Corydalis, the Birds'-nest Orchis, e vernal and autumnal Squill, are among the rarer the wild flowers. A brilliant and so-called luminous" moss also is to be found in Splat Cove, in e mouth of an abandoned mine. But Devonshire is e land, too, of Ferns. Perhaps no county produces eater variety, though the number of species may not ual those of, say, Perthshire or Inverness. There is, course, abundance of Filix-mas and Filix-fœmina, atata, Polystichum, Polypody, Adiantum-nigrum, munda (on Bolborrow Dowo), lanceolatum, and rinum (at Saw Mill Cove, a mile and a-half along cliff). What a pretty Fern this is when growing home by the sea! Along the Cornish coast there caverns completely draped with it, roof and all. thing could be more charming than the contrast of its stiff, glossy, dark green fronds and the rich amber of the rocks.

Near the mouth of the estuary, which runs up as far as Kingsbridge, stands the quaint little town of Salcombe. It is situated on the west of the inlet of ground sloping at a steep incline to the water's edge. The surroundings are finely picturesque, but the town itself is dull and uninteresting; there is a depressing "Ichabodish" air about it which is unpleasant to holiday nerves. Mike and the pony and trap are therefore sent on a-head, while I stroll leisurely under some iron trellised bridges festooned with fragrant Clematis. These bridges connect the terraced gardens which lie on opposite sides of the road. A garden gate is open. I look in and forget all about the dull unsavoury town. On a wall before me, in a setting of dark green leaves, Oranges and Lemons are ripening (the average temperature of Salcombe is only 2°.4 below Montpellier and Florence). The courteous resident happens to be standing with his children on the bridge, and, noticing my evident surprise, invites me to look round. I avail myself of his kind invitation, and accompany him through the gardens. Beyond the usual occupants of a south Devonshire garden there was little to notice: some fine tufts of Pampas-grass, two remarkably fine American Aloes (there is generally a plant in bloom about this time at Salcombe), and the inevitable Hydrangeas and Veronicas. A little further on is heard the familiar tap of the gardener's hammer. It is a sound pleasantly suggestive of Peach and Nectarine and Jargonelle. "May I look round?" "With Lady A.'s permission, sir." "Well, ask my Lady A. if stranger B. may see her delightful garden." "With pleasure," was my Lady A.'s reply; and then, tucking up a corner of his blue apron, the gardener leads briskly along a cool and shady walk to the lawn. The house is finely situated—the windows shaded by a colonnade covered with climbing Roses and Clematis, great purple masses of C. Jackmanni contrasting grandly with Gloire de Dijon. The roof of the conservatory, which adjoins the drawing-room, was furnished with that finest of climbers, Tacsonia van Volxemi, and the back and side walls with Plumbago capensis, Hoya carnosa, and Fuchsia corymbiflora. There were the usual vineries and cool-houses, but the outside fruit crop, except the Noblesse Peaches, Pineapple Nectarines, and Purple Gage Plums, was but meagre. Frost is seldom severe enough to injure vegetation at Salcombe, but violent spring gales whip the tender foliage into shreds. Retracing our steps over the trellised bridge with its fragrant festoons of Clematis, we came to what I thought the most interesting feature of the grounds—a quaint, oblong, walled garden, about 40 yards by 20, facing the estuary: just such a place as Drake and Frobisher and Hawkins might have smoked their long pipes in while watching the vessels that passed in and out of the harbour. Below—the garden is terraced—in a setting of Sycamore, Cork, and Acacia, are the sparkling waters of the estuary, here, perhaps, 70 or 80 yards wide. On the opposite side green hills of picturesque outline, streaked and chequered with patches of gorse and bracken, and terminating abruptly in rich amber coloured cliffs. On the right, towering nearly 500 feet above the sea-level, the Bolt Head, its rugged outline cutting the sky. Then away to the horizon the glorious sea, and just as I look a fine steamship cuts the cliff line and embosses the blue waves with long trains of silvery foam. Then for the sky—well, think it "blue above, like the blue below," some soft white cumuli on the left, and towards the horizon a grey purple haze blends sky and sea. The east and west walls were covered with climbing Roses, among which were Cloth of Gold, which was said to bloom regularly but sparely. The back wall, which faced south, and was about 12 feet high, was covered entirely with Orange, Lemon, Lime, and Citron trees. On one of the latter was a fruit 8½ by 7 inches in diameter, supported, of course, in a net. The Lemon trees, from which two dozen had just been gathered for marmalade, still bore a capital crop. The dark green, healthy-looking foliage formed a beautiful setting to the fruit, ranging in colour according to ripeness from pale green and primrose-yellow to deep orange, and the snow-white, fragrant blossoms altogether formed a charming *coup d'œil*. The prunings of the trees were strewn thickly beneath—some of the shoots measuring 3 feet in length. It must be mentioned, however, that although the fruit ripens, and the actual growth of the trees takes place in the open air, there are fixings for glass screens to protect the trees in stormy or severe weather.

After spending an hour very pleasantly at Woodcot, and complimenting Mr. Gardner upon the picturesque and well-kept grounds, we drove past the Moult, the residence of Froude, the historian, embowered in choice shrubberies, and sheltered from "all the dirt," on our way to Hope Cove again.

With all the advantages of a genial climate and mostly fertile land, gardening in this part of Devonshire is generally but poorly done. The plots of kitchen garden that were occasionally to be seen from the road were in slovenly condition and badly cropped, there was scarcely any winter stuff in, although it was August, and but few Scarlet Runners even. Such half-hearted efforts could only result, to use an expressive Irish phrase, in "very small Potatos." Surely this would be the very district for a well managed horticultural society, not a grand patronage affair of marquees and elephants, big prizes and military bands, wet days and financial collapse, but a broad-based economically managed institution whose sole aim and effort should be to engender and promote a genuine love of gardening—regarding the annual show as merely an imperfect exponent of the work done and not as its sole aim and purpose. [Hear, hear! Eds.] Successful horticultural societies do not depend so much upon the length of the subscription list as upon the *bonâ fides* of the officers and committee. Permanent success is not to be gained by the spasmodic efforts of people whose only motive is glory or fourpenny bits.

As we drove gently down the hill into Hope—

"The strange unearthly radiance"

of the Eddystone light gleamed on the distant horizon, the sun was setting in a stormy sky over the Lizard, while a pathway of molten gold led straight up to the great orb's centre as if he had again walked the troubled waters leaving behind him footprints on the sea. *T. W., Harrow.*

POTATOS.

We are just now at a critical period for the Potato crop, for whilst rain has come to moisten the dried and exhausted soil, that all the late growing sorts may be enabled to hold out, there is good reason to fear that it may promote disease, and an evil hardly less—and that is, growing out. Indeed, there is ample evidence that the latter result is already happening, for there are now to be found plenty of roots where the half-developed tubers have pushed spears of varying lengths, and I have found some on Magnum Bonum 2 inches long. All the first early kinds are safe, and fast ripening. Only a glut of cold rains could do these harm, but there is no immediate probability that such will come, and in the meantime these early sorts may be lifted and got out of harm's way. Second early kinds will most probably be small, but it is hoped clean, and will perhaps not push new growth. All the later ones growing out seems to be inevitable in any case; it is therefore utterly impossible to forecast the probable nature of the Potato crop as far as concerns all kinds that are yet in the rude vigour of luxuriant growth.

Generally the first early sorts are of moderate size, and the crop light. Upon really good heavily manured lands there are exceptional crops; indeed, the season differs so much from the previous ones that whilst then on rich soils the plants produced far too much top and a moderate crop of tubers, now this season the top is moderate and the tuber crop exceedingly good. I saw good evidence of this but the other day in the kitchen garden at Heckfield, where in very deep rich soil the Potatos were a first-class crop; probably they were never better, tops and bottoms well-proportioned and good; whereas last year the top-growth was beyond all experience, and anything but profitable. I anticipate that Mr. Wildsmith will have some very superior samples if he courts competition. The great feature of the present season in relation to the Potato as compared with others that have gone before, is that we are now at August 1, and not a fungus spot has been seen. A stem has gone off here and there, or there has been some rust on the leaves, both things most likely produced by wireworm; but of the genuine disease I have not yet heard of, or seen a single spot, and there is a luxuriant healthiness about the leaves and haulm that is for the time of year as remarkable as it is unwonted.

Whatsoever benefit may now be accruing to the Potato crop is due to sunshine. That is Mr. Hibberd's panacea for the ills to which the Potato is heir, and a capital one it is, but unfortunately it is rarely at our disposal just as we could desire. In some previous years, when it was scarce, we got only diseased, watery crops. This year we and the Potatos could have done with a little less; still, it is such a good thing that it would be ungrateful to grumble. With reference to the non-appearance of the disease, however, it is well to remember that the general Potato crop is, owing to the exceeding dryness and coldness of the spring, quite a fortnight later, so that we are far from being out of the wood. If we could but get through one summer without a visitation from the fungus, or rather, if the heat and drought should hold it fully in check for the year, even if the Potato crop was smaller in consequence, it would be something to thank the sunshine for. The one season's check upon the fungus might be productive of important benefits in the ordinary seasons that may be expected to follow.

The season promises to be an excellent one for all the early American sorts, and Early Rose, Beauty of Hebron, Early Ohio, Climax, and similar sorts are, for their kind, exceptionally good. Still, as the song says, "We are not happy" in their possession, for whilst some will freely aver that the "Roses are splendid," others—and these the great mass of the Potato-eating public—will not have them, and swear by Ashleafs and Regents. If we want evidence of this, it is found in the prevailing prices of Potatos in the London market, for whilst the "Roses" are obtaining about 1*s.* 6*d.* per bushel, good Ashleafs will fetch from 3*s.* 6*d.* to 4*s.* per bushel. Last year, when Potatos were a much heavier crop than they promise now, Ashleafs fetched 4*s.* 6*d.*, whilst Roses could only fetch 1*s.* 3*d.* I have but just seen probably one of the best pieces of Ashleaf market kidneys to be found in Middlesex. The grower, Mr. Woodward, of Hounslow, was, some ten or twelve years since, but a working mechanic at the village of Ankerton, near Malmsbury, Wilts, and even then grew fine Potatos. In that district working men have large allotment gardens, and the old Ashleaf is largely grown, and has been from long before the names of Myatt, Veitch, and Rivers, and others were associated with it. When Mr. Woodward came to Hounslow and commenced market gardening he brought with him some of the old Ashleaf strain, and this he has grown ever since, but generally having from his old home a fresh supply of seed every year, to the extent now of about 100 bushels. These are bought at a moderate price, and are very true. He planted this spring about 4 acres, giving the rows a width of 3 feet, and planting the last week in April and the first week in May. The Potato ground is an old meadow broken up some few years, and now in capital condition. It is well manured and deeply worked. This year the crop has been but little affected by the drought, as the soil is fairly holding, and is lifting on the average 450 bushels per acre. As Mr. Woodward puts it so laconically, "I get this crop ready in eleven or twelve weeks, and what else would give me such a profitable one in so short a time?" With 3 feet spaces between the rows there is ample room to get out Brussels Sprouts and Autumn Giant Cauliflowers before the Potatos are lifted. Regents will follow these, but the tubers are yet small, though the tops are very fresh and robust. Magnums here are spearing already, and so are Champions, so that it is beyond all knowledge to prognosticate the condition of these kinds two months hence, when they should in the ordinary course be ready for lifting.

Scab is somewhat common this year, indeed in some places exceedingly so; even Mr. McKinlay, whose samples this year promise to be exceptionally good, finds much more scab than is desirable. Scab is always most prominent in dry seasons and is found in all kinds of soils, and with all kinds of manures or without them. Many people have a strong *penchant* for scabbed Potatos, believing that they are of superior quality to those not scabbed. Probably they come into the same category with specked Apples and Cherries, but that is because the birds are such connoisseurs in fruit and always peck the sweetest. If the scab is the product of similar attentions on the part of the earthworms, perhaps they too can select the most mealy tubers. The origin of scab in the Potato, however, still remains an unsolved problem, but I still incline to the opinion that, driven by drought in search of moisture, the earthworms to obtain it excavate the tender skins of the young tubers. The real cause of the improved quality of scabbed Potatos arises solely from the fact that they have been grown in a dry soil, though it is not impossible that, owing to the broken condition of the skin, the tubers may, in swelling, lose some moisture. Should the late Potatos produce now a fresh crop of tubers we may rest assured that in the now well moistened soil there will be no scab seen on them.

Potatos have not flowered so abundantly this year as last over the general crop. The attempt to do so has been universal, but drought provoked an almost universal failing on the later kinds ere it could expand. On the other hand, some kinds, such as Grampian, Garibaldi, and Woodstock Kidney have now, and always do carry far too much fruit—the latter specially needing that it should be cut off or else the root crop would suffer. I have found the Rose, Beauty of Hebron, and some other early American kinds, as also some of our English early sorts, to have bloomed freely, but of all the first none set a bloom unless artificially fertilised, and few of the latter. On the piece of market Ashleafs to which reference has been previously made fruit was most abundant, and many of unusual size. Mr. Woodward remarked that he had rarely ever seen the Ashleaf bloom so freely as it had done this year. What is worthy of remark is that this particular kind has been known for at least fifty years, and here it is under good culture and in a favourable season showing signs of recuperative vigour as prominent as may be found in any variety not more than five years old. *A. D.*

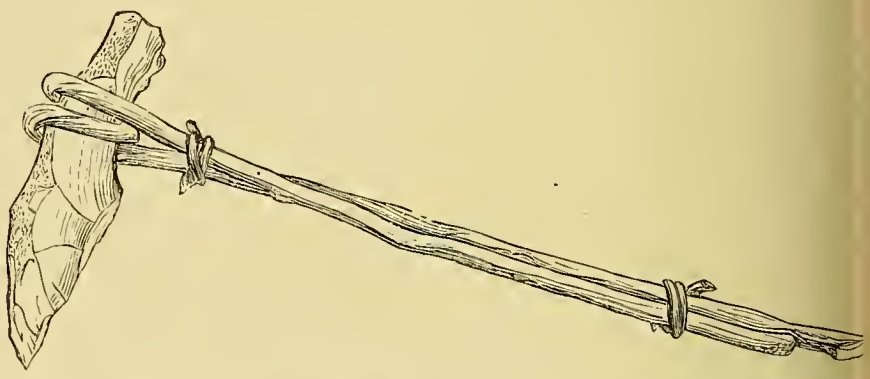

FIG. 41.—ANCIENT BRITISH HOE OF WORKED FLINT: QUARTER REAL SIZE.

A HOLIDAY IN SHROPSHIRE.

THE Cambrian Archæological Association held its thirty-sixth annual meeting at Church Stretton on Monday, August 1, and four following days, under the presidency of Professor C. C. Babington, of St. John's College, Cambridge.

The first public meeting was held in the Town Hall at 9 P.M. on Monday, when Professor Babington delivered his inaugural address. A more excellent President than Professor Babington it would be impossible to have, especially in such a county as Shropshire, where the Professor was born, and in which, as he said, he was so deeply interested both as a naturalist and an archæologist. Professor Babington described at length the different camps and earthworks of Wales and the Border counties; he referred to the different tribes who made them, and showed that although we have no written history of the different races yet their works speak for them. He showed that each succeeding tribe was more advanced in civilisation than its predecessor; he then referred to the weapons and implements used by the people, and their fictile vessels. He described the ancient people of the south of England as successful agriculturists before the first Roman invasion. Professor Babington then marked out in great detail and at considerable length the different earthworks, dykes, and ancient uncemented walls found in Wales. Mr. Ralph Benson, in a pleasant and humorous speech, welcomed the Cambrians to Shropshire, and this was seconded in an equally pleasant and humorous manner by Sir Charles Rouse Boughton. The vo was taken by general acclamation. The Secreta read the report and gave the arrangements for t next day, and the meeting was closed.

Church Stretton has but one hotel, and one or tw small inns. When the later members arrived (i cluding the writer) on Monday afternoon all the places were quite full, and lodgings were at a discour The pretty clean village or town is very small, and night the single narrow street is very dark. O gentleman was in the street at 11.30 P.M., witho quarters, but the writer fortunately got located at picturesque cottage a quarter of a mile out of t village. Very clean and comfortable, very pictu esque, plenty of roof, plenty of ceiling inside (thou very low down) and very slanting, very picturesq fireplace, very small, with the flue carefully stopp up. One must open the small and picturesq window for ventilation; it could only be opened the top, so that when one got fairly into bed on feet peeped out of the top of the window. In h weather this is only a slight inconvenience, and d cidedly picturesque, if not truly æsthetic, for t indispensable Sunflowers were below, the magnifice mountainous hill named Caer Caradoc in front, a the Long Mynd mountain behind. About midnig the moths come in rather plentifully, and I could n help thinking of what a harvest my friend Profess Westwood had lost by his absence. Had he be in the cottage with me instead of the two clergyme he might have netted moths all night long. So after 5 A.M. a hen came in through the open wind (amidst a gallinaceous and porcine chorus outsid and began pecking the pattern of the counterpan at this incursion I rose, dressed, and made direct the Long Mynd mountain close by.

AGRICULTURE IN ANCIENT BRITISH TIMES.

The Long Mynd mountain is about 10 miles lo and 3 or 4 miles broad; its greatest height is nea 1700 feet above sea level. On one of the heig overlooking the south is the circular earthwork kno as Bodbury Ring, an ancient British camp, place refuge for men and cattle in time of danger or possi a fortified residence of a British chief: the earthwo is of small size and was no doubt originally stockade The local guide-book says that Bodbury Ring " known to be Roman from the fact that it is circul whereas those in other situations which are suppos to be the encampments of the Britons are, in shap oblong." Few readers of the *Gardeners' Chroni* need to be told that this statement in the guide-bo to Church Stretton is the exact opposite of the fact, British camps are round and it is the Roman cam that are square or oblong. It is, however, just wor mentioning that during the Church Stretton meeti the local guide-book was several times quoted by no archæological visitors as an unimpeachable author compiled from the best sources. The ancient peo of the hills near Church Stretton probably lived more or less sheltered places on the hillsid and here they kept their herds and flocks. the top of the hill the Britons cultivated co and the traces of ancient ploughing on the large f expanses of the Long Mynd mountain are very f quent and perfect. In north-western Radnorsh many thousands of acres, always on elevated positic

arly show these curious traces of pre-historic oughing. As an example of the nature of this work liagram is here engraved (fig. 42) of twenty con-utive furrows, close to and north of Bodbury Ring: diagram is carefully drawn to scale, and the furrows butts were measured on the spot by myself. Each tt measured (reading from left to right) in feet—7, 8, 7½, 8, 8, 10, 8, 9, 9½, 9½, 11, 11, 12, 9, 9, 9, 9, 10; the average of each butt therefore is a trifle er 9 feet. In Welsh and border districts the space tween furrow and furrow is termed the butt, *selion*, *grwn* (pronounced "groon"), whilst the top of the tt is termed the cop: a "selion" of land is a space of lefinite length between furrow and furrow (fig. 46). e Long Mynd mountain runs north and south, and furrows here illustrated run east and west, and they erywhere show great skill on the part of the ancient riculturists, for the furrows are always so disposed to give perfect drainage to the cultivated ground; minor or secondary furrows on these butts in ich the grain was sown in rows are, of course, literated. In a more favourable position the old oughmen could have done still better, as the slight egularities of the furrows can often be traced to an tcrop of rock or to some other natural impediment. esar, writing of the Britons, says "the inland ople for the most part do not sow corn," but he obably referred to the people immediately north of Thames, and his information was, of course, nty. That corn was abundantly cultivated Kent is proved by the fact of the man soldiers cutting and using the corn nted by the Britons, and still more so the fact t Julian, in his campaigns against the Germans, (originally derived from Eastern nations) had made considerable advance in construction before Cæsar landed here. But there was a long anterior time when the Britons grew corn, and were unacquainted with metals. Now, although agricultural implements of wood and stone may have been used at and after Cæsar's time, yet there clearly was a far distant period when the primitive people of Britain used trimmed branches of trees either unmounted or mounted with

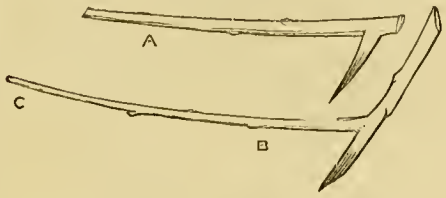

Fig. 43.—Primitive hoe and plough of wood.

stone. The hoe is generally believed to have foreshadowed the plough, and the most primitive form of hoe was (and still is in some places) nothing but a natural stick or branch trimmed to the shape shown at A (fig. 43), with the digging-point hardened by fire; this wooden hoe was used in front in the style of an adze, but when the man turned round, and first *dragged* the crooked stick in the earth, a plough was foreshadowed. A more suitable branch for dragging was then probably sought for, as at B, and to be used by two men instead of one, one man dragging in man used this implement for digging, he had thoroughly good hoe; if he pulled it along after him, he had a rude plough; if he attached two withies to it instead of one, in the style of fig. 45; he certainly had a fairly good plough to be used by two men, the man who followed behind in all probability manipulated and guided the stone share with his foot. At last, the thought dawned on some one (probably in the East at first), that some other animal than a man might be made to draw the primitive plough along. In Britain it was probably tied to the horns of the ox of the time (Bos longifrons). It was not until historic times that the coulter was thought of to cut the sod in advance of the share.

The corn of the period is well known, as I have shown at the beginning of this article. How and with what instruments, then, did these old fellows make the bread? After the corn had been harvested the women and children crushed or ground the corn with prepared roundish blocks of flint on slabs of stone named querns. The querns are seldom found now, for the simple reason that for many centuries all flat stones have been systematically removed from fields and smashed for road making. However, one is here illustrated (fig. 44) found in Norfolk (from my own collection). It is made from a large split boulder, the top surface is concave and covered with fine longitudinal striæ from the contact of the grain-rubber in ancient times. The grain-rubbers themselves are by no means uncommon about British camps, and I have found many. One is shown in the illustration placed on the quern. This rubber was originally rudely spherical, but its constant use as a grain-rubber or muller some thousands of years

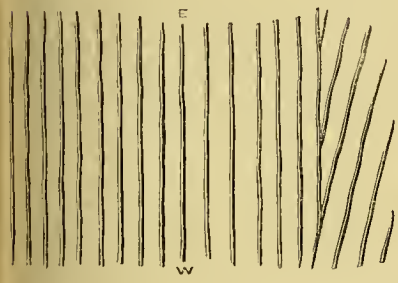

Fig. 42.—Ancient British plough furrows.

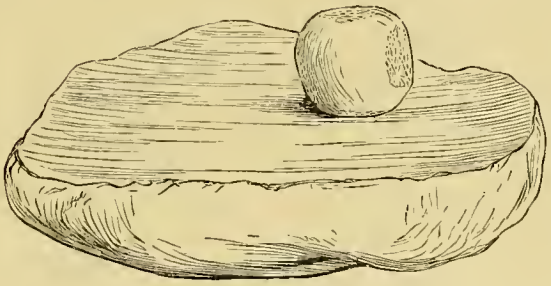

Fig. 44.—Small saddle-quern or mill and corn-rubber: ¼ actual size.

Fig. 46.—Section of ancient British plough butt

plied his soldiery with corn grown in Britain, ilst he freed Gaul from the barbarians, and pur-d them across the Rhine. Ancient British Wheat s several times been found in Britain; Dr. Black-re, of Salisbury, found a cast of Wheat in clay, m a portion of an ancient British pit at Fisherton, gether with two concave querns, or mills. Dr. ackmore, in writing on this subject, says, the grain was very small, so that a farmer who was h me when it was found asked me if it were wild heat." Mr. G. E. Robinson, architect, of Cardiff, also found Wheat in a tumulus at Bournemouth, ne in an ancient pot, other Wheat carefully wrapped a portion of rude fabric; the grains at Bournemouth re numerous, round, and very small, not half the e of the Wheat of to-day. At Uriconium (near ellington, Shropshire) wheat was found in the cavations, and two bottles of this grain are exhibited the Shrewsbury museum together with crania of s longifrons (showing pole-axe marks), and other ics. The grains found at Uriconium are oval, but two-thirds (or less) of the size of Wheat grains the present day. The variety is probably the iticum vulgare antiquorum of Heer. In the Swiss e-dwellings three other species of Wheat have been nd, together with two species of Barley, a Millet-ss (Panicum miliaceum, L.), and one of the nick-grasses (Setaria italica, L.). The know-ge of agriculture was no doubt brought from ia Minor through the continent of Europe many turies before the Roman occupation.

The question is often asked—With what imple-nts did these ancient races of men so skilfully till ground? As the Britons were acquainted with tals at the time of Cæsar's occupation, notably such tals as iron, copper, bronze, gold, and tin, it may ly be assumed that the primitive field implements ront, at C, the other man guiding behind. A time next came when men thought that a large sharp stone, instead of the fire-hardened prong, would act as an improved tool for preparing the ground for corn.

It is obvious that if certain ancient men formed their hoe-blades and plough-shares of such an almost imperishable stone as flint, that some of these objects must be still preserved in ancient British positions:—and such is indeed the fact. In my own collection I have several, nearly all found by myself. In fig. 41,

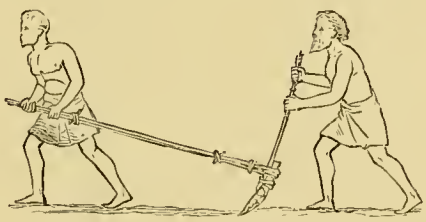

Fig. 45.—Probable mode of primitive ploughing, with sticks and a large trimmed flint.

one of these flint blades, found in Kent (in my own collection), is shown mounted on a withy. The withy itself I bought with other things from a Welsh blacksmith in north Carmarthenshire: with the blacksmith it held a hammer-head of iron. I took the modern hammer-head out and slipped in the ancient stone hoe-head, and doubtless, as illustrated here, the object is in much the same condition as when originally used by the ancient Briton himself. One could not only easily dig furrows with this tool, but quite as easily fell a large animal. Now, if the ago has more or less worn it away, and flattened it in five or six places.

I will give an account of the places visited and the things seen by the Association in a subsequent number. *W. G. Smith.*

Florists' Flowers.

Seasonable Notes: Auriculas.—We are now (August 8) in the midst of our repotting. We would much rather have done this earlier, but time did not permit of it. The plants had started to make their autumn growth before we began to repot them, and of course the shaking all, or nearly all, the soil from the roots will give them a serious check. All the growers that I know of had repotted their plants many weeks ago. Small offsets put in during the month of February have now formed nice plants, which will flower well next year; they have been potted on carefully as they required it. The seeds have all ripened, and have been sown at once, using 4-inch pots or pans. Some persons keep the seeds until the spring, but nearly all the best growers sow at once; a portion of the young plants will appear in three weeks, but the largest proportion of the seeds will not vegetate until February. A small green maggot is very troublesome this year, eating the leaves on the undersides. Destroy them by hand-picking. Expose the plants as much as possible to the air, and do not give them more water than they really require.

Carnations and Picotees.

We finished the layering of all but a few selfs before beginning to repot the Auriculas. The old-fashioned florists were safe guides in the culture of

these and other flowers of this class, and they did not care if they could get in all the layers by August 20. A small knife, with a thin two-edged blade, thrust through the stem above a joint, and drawn down through it with a cut outward, is much the speediest way. Peg the layers firmly at the cut part into a compost of loam, sand, and leaf-mould in equal parts. Tree Carnations should be potted on as they require it; if they are not generously and carefully attended to now they will not produce good blooms when wanted in the late autumn and winter months. The cuttings or pipings put in during January and February will be strong enough to require 8-inch pots; plants propagated later require 5 and 6-inch pots.

Dahlias.

These now require a good deal of attention; unremitting it must be if the blooms are to carry off 1st prizes at a great flower show. Not a superfluous growth should be left on the plants, and they ought to be removed in a very small state with the finger and thumb. Secure each growth in good time to a stout stick firmly fixed in the ground. Earwigs are remarkably lively this season, and should be trapped by means of hollow beanstalks placed near the top of the plants, or a small pot with a little dry moss in it inverted on the top of a stick. Water freely, as previously advised. Put in cuttings of choice varieties in hand-lights or frames; they strike roots best in a little bottom-heat.

Hollyhocks.

These will now be coming into bloom, and will reward the owners of them for all the care and pains they have taken. If single blooms are required for exhibition it is very desirable to cut off the top of the spike, and to thin the blooms out. If spikes are required entire for the same purpose it is also the rule to cut the top off. This operation requires some judgment, as the blooms should just close over the top part of the spikes about the time they are to be exhibited; the earliest flowers to open are those at the base of the spike, and these should be preserved, as they are always best. Continue to take cuttings, and treat as advised at p. 73.

Pansies.

Continue to put in cuttings of all the varieties, in the coolest part of the garden. The hot dry weather we experience in the South of England does not suit the Pansy at all. The only way to get a decent bloom now is to mulch the beds, and water freely. Seeds may be saved now, and if sown at once will produce strong plants to bloom next spring. A large bed of seedlings from carefully saved seeds is a most beautiful sight, and a striking ornament to the flower-garden in April and May. They can be removed, if necessary, for summer bedding plants.

Pinks.

The seed-pods will now be ripening, and as soon as they slightly open at the tip they should be gathered and laid out in a dry place where mice cannot reach them. I lost a grand lot of seeds in that way once. If the pipings are well rooted they should be planted out at once, in a sheltered piece of ground, about 3 or 4 inches apart. If there is nothing growing on the bed where they are to be planted the ground should be dug up well, and be enriched with good manure. The forcing varieties have been planted out in beds some time ago, and are now forming strong bushy specimens, as we give them plenty of space to develope themselves. In the dry hot weather they were well watered.

Polyanthuses.

It is now quite time that these were potted up from the open ground, and it is the more necessary to do this as the plants are sadly infested with red-spider. Carefully lift the plants and divide them into single crowns, then dip the leaves into a mixture of tobacco-water and soft-soap. Four ounces of soft-soap and a pint of tobacco-liquor is enough for a gallon of water. Four-and-a-half and 5-inch pots are sufficiently large to pot them in. Place the plants in a frame behind a north wall for a little while after they are potted; when established they are quite as well in the open air. Place the plants well into the soil, and pot rather firmly.

Ranunculi.

The tubers which were lifted some time ago have now been thoroughly dried, and will be stored in bags until planting time. The old florists used to make great preparation of the beds about this time, but this is not necessary. They like rich deep soil, and it may be prepared by trenching and manuring any time that may be most convenient between now and Christmas. It cannot be denied, though, that if the ground is trenched early, and occasionally forked over in dry weather, that it will be in much better condition than if it had not been trenched at all until after the autumn rains had set in.

Roses.

It is very difficult to keep these clear of mildew and greenfly at this season, not to mention the orange fungus, which is also a very troublesome pest just now in some gardens. We had it introduced to our garden on some young Roses in pots from one of the large nurseries; this rather frightened us, as it had never been seen here before; but by carefully picking off every infested leaf, and burning them as fast as any of the fungus appeared, we managed to destroy it. The mildew-fungus is easily destroyed by flowers of sulphur, and if the leaves are dusted with it the pest disappears; or greenfly and mildew can be destroyed together by using soapy water in which a good proportion of sulphur has been dissolved. No time should be lost now in getting all the buds in. If a choice can be made, the operation of budding is best performed in the evening. Tie the buds in moderately firm, and loosen the tying material in three weeks. Cuttings may still be put in of Tea Roses under hand-glasses. Pot Roses should now be fully exposed to light and air, in order that the wood may be well ripened. Keep the leaves clean, and attend to watering the roots well. *J. Douglas, Ilford.*

Home Correspondence.

A Gardener's Holiday.—Something might surely be done to make the Great International Show at Manchester a general holiday for the gardeners throughout the country. Manchester, from its commanding position, unusually good railway service, and almost unlimited accommodation for visitors, offers the best possible facilities for the purpose, and the show is not only the greatest event of the season, but promises to be one of the most important that has ever been held in this country. The sympathy with and for gardeners of the able Curator of the Botanic Gardens, and organiser of this Great International Show, Mr. Bruce Findlay, is also well known; it is therefore certain that nothing that could be done by him would be wanting to make a gardener's holiday a success. Probably no class of society makes such a good use of a holiday as gardeners. As a rule, they seem bent, even in their holidays, on profit rather than pleasure. The mere sight of such an exhibition as that which opens at Manchester on the 24th would prove a school of horticulture of the highest class to gardeners, and it is almost painful to witness the eager anxiety that gardeners manifest to learn the lessons taught at such great shows, and illustrated by such matchless examples of finished products, and the illustrations appealing so sensibly to the sight and other senses of gardeners—that most abiding effect for good. They exalt and expand our ideas of the resources and forces of Nature and the power of Art to improve and develope them to the uttermost. Often gardeners fail more perhaps for lack of standard models of perfection than aught else; these exhibitions provide the standards, and set forth the highest models hitherto possible to the combined forces of Nature and Art. In this way they render possible of achievement possibilities of culture and excellency unknown and consequently impossible before. Very few gardeners, relatively to the whole, have any adequate idea of the enormous latent power of the plants they are called upon to control and manage. One sight of such a grand show as the forthcoming one at Manchester would throw floods of light on this subject. It would ennoble Nature and humble most cultivators; and it would be difficult to say which of the two feelings would prove most fruitful in grand results to horticulture. Certain it is we cannot think too highly of the plants we cultivate, nor hardly too lowly of ourselves. Our mastery over Nature in the past has been to a great extent a history of mistakes, and it is only those who understand her most that can compel her to yield up such perfect finished products as we shall see at Manchester. Not that every visitor must expect to reach to such perfection, but should the visit to Manchester beget the desire to improve as well as furnish a series of standards at which to aim, it will have served one of the highest purposes of a school of horticulture. Apart, too, from its educational effects, surely no one will grudge gardeners a holiday after such a severe winter as we have had recently. What with our encounters with zero, droughts, and floods, a good many of us are somewhat like wounded soldiers on the field of conflict. Foot and heartsore and uneasy, a complete change of scene and place would prove a new life, and bring fresh gladness to many gardeners' hearts. Perhaps no class of society has fewer holidays than gardeners, and when they do have one they must never carry half their cares with them. It is all very well to say, "Lock the doors of your garden before you go, and leave them locked till you return." It is impossible thus to shuffle off the cares of losing growing plants, as all gardeners know to their cost; but at Manchester at least home cares would be for a time forgotten amid the grandeur and beauty that excelleth. Gardeners would also forget their weakness and isolation, often so painfully felt in the provinces, in friendly converse with their fellows, and in sharing and thus helping to swell the triumphs of the more fortunate amongst them. No praise can be more sweet or more highly prized to the successful exhibitors than that of their friends and neighbours of the craft, who are the best able to appreciate the cost, and therefore the value, of their victories and honours. You have already pointed out how much of interest and instruction abounds for gardeners in and around Manchester, and could a tour be arranged by Mr. Leo Grindon or some one on the spot, so as to enable those with little time at their disposal to see most or all these in the shortest time and at the least cost, such an arrangement might add much to the pleasure and profit of the gardeners' holiday. *D. T. Fish.*

Cos Lettuce.—In reference to your note on Cos Lettuce, at p. 177, allow me to suggest that the name "Cos" may have been given to it from the island of that name, lying to the north-west of Rhodes, on the coast of the modern province of Anadolia, in Asiatic Turkey. It is spelled "Cos," "Kos," and "Coos" on various maps. *J. Murison.*

The Grounds at Oak Lodge.—To a stranger sauntering along the Addison Road, Kensington, there is nothing particular about the frontage of the edifice with the above address printed on its entrance gates to indicate the fact of there being charming grounds in its rear; such, however, is the case, and of such dimensions, too, that one would not expect to find in the West-end district. The grounds are nicely laid out, beautifully undulated, and judiciously planted with an assortment of choice trees and shrubs, and in which, on a slight eminence, is an artificial rockery—a miniature island, with trees, &c., growing amongst the huge blocks of stone with which this characteristic and picturesque feature of the grounds is formed, and which have been so skilfully placed as to look quite natural. This rockery has at once a romantic and pleasing effect, with the water washing against and receding from the rough edges of the massive pieces of rock, from whence a stream winds its way through the grounds. The latter are dotted with flower-beds, including the carpet patterns, which are neatly designed and the colours tastefully arranged, and which as early as the first week in June were well furnished with flowering and foliage plants, and which when viewed from the terrace, which is also embellished with well and suitably filled vases, &c., had a very pleasing effect, and together with the good order of the grounds and numerous glasshouses, were highly creditable to Mr. A. Holloway, Mr. McHenry's gardener. *Tourist.*

Pettigrew's Cardiff Castle Cucumber.—Every year sees fresh additions to the seed catalogues in the way of new vegetables. Some of these are undoubtedly superior to older varieties, as is evidenced by the steady onward progress that has been made in vegetables during the last quarter of a century. But now when so many new ones are distributed to the public, it cannot be supposed that all are of equal merit, or that they can all be advances on those already sent out. It is frequently of advantage to many to have any really good novelty brought under notice, as Mr. Hinds has done with Cardiff Castle Cucumber in the last number of the *Gardeners' Chronicle*, p. 175, where he speaks in unqualified praise of it. Mr. Hinds has not said more in its favour than it deserves; for it certainly is, without doubt, a decided acquisition, and likely to be very largely grown when better known, and to hold a high position for many years to come in the estimation of those who have to supply an employer's table, or who grow for market. Its appearance, flavour, and cropping properties, combined with a good constitution, are such that I shall grow no other so long as this variety can be procured in its present form. *R. Crossling, St. Fagan's.*

Water Lilies of the Lower Mississippi.—The Wampapin Lily is no doubt not Nuphar advena, but Nelumbium luteum. The question, "Why do we not see it in some of our hothouses?" is one to which it would be very interesting to obtain an answer. It has been introduced into the Delaware below Philadelphia, and yet though the seeds have germinated at Kew and elsewhere, the plants never advance beyond an inch or two in height. Even at Oxford, where a speciality is made of water plants, this is Professor Lawson's experience. *W. T. Thiselton Dyer.*

—— The "Wampapin Lily," alluded to by the author of *Four Months in a Sneak-box*, and by Mr. Nesbitt in your last issue (see *Gard. Chron.*, August 6, p. 183) is no doubt Nelumbium luteum, a stately American plant, first-cousin to the "Sacred Lotus," Nelumbium speciosum of the East. This plant, Nelumbium luteum, has several times been introduced to our gardens—I fancy Mr. Baxter, of Oxford, flowers it; but its wants do not appear to have been thoroughly well supplied in any garden, so far as I can learn, hence it has never become strongly established. Mr. W. Thompson, of Ipswich, generally has fresh seeds of it to offer, and several firms of American plant hunters, including Woolson & Co., of Passaic, New Jersey, offer rhizomes of the plant at a cheap rate. From the allusion to the flowers and leaves being borne aloft on a stem a yard or more above the

water, and to the "pestle-shaped ovary," in which are "planted a number of large seeds," the "pins of Wampapin," I have no doubt whatever but that the yellow-blossomed Nelumbium is alluded to, and not any species of Nuphar or Nymphæa. Anent this selfsame Nelumbium, a friend in Texas wrote me some years ago that it was quite plentiful in swamps and streams, an hour's ride from his house. One night he rode off to gather ripe seeds of it. On his return at dusk he was a little disconcerted by his horse—a fiery young Mexican—pricking its silky ears and starting suddenly; at the same moment a flash and ringing crack followed. A horseman burst through some scrub beside the track. My friend reined up his steed, and levelled his revolver at the man's head in a moment, consoling himself meanwhile that a revolver bullet had only grazed his cheek a moment before. "Ah, it's all right!" said the strange horseman, motioning my friend to lower his pistol, "it's all right, my friend; but I really thought that yew hed stole my 'oss!" It turned out to be a neighbour, who, having lost a good many horses, and not expecting to find his friend so far from home, concluded that at last he had caught a horse-stealer in the act. So much for the Golden Swamp Lily of Texas and the Mississippi. *F. W. B.*

Helonias erythrosperma.—Observing a lot of this delicate-looking North American plant in the nurseries of Mr. James Dickson, of Chester, last year, I obtained one and planted it in a well-drained shady border where it passed the winter, and is now flowering well. The spike is about 18 inches high, with flowers like those of the smaller Anthericums, of a pale green, with red anthers. It is an elegant little plant, well worth the attention of those who grow choice hardy perennials. *C. Wolley Dod, Edge Hall, Malpas.*

Wistaria chinensis.—I have just received from a friend the dimensions of a plant at Douro, which was planted in 1853. The stem near the ground is 1.43 mètres in circumference and the length of the branches 72 mètres. The plant is in the open air, and the climate is rather severe in winter. *Julio A. Henriquez, Botanic Garden, Coimbra, Portugal.*

Nicotiana affinis.—I am disposed to think that this plant, of which we have heard so much lately, is nothing on earth but the old Nicotiana longiflora *alias* undulata, *alias* odorata, *alias* fragrans, which I might almost say our grandmothers grew, and which was figured in the *Botanical Magazine* long ago. It certainly cannot be the N. acutifolia distributed by M. Max Leichtlin. I grew this plant for two years, and found it perfectly scentless at all times of the day and night. Under the name of Balsamita grandiflora another old friend has come to the fore in print, *e.g.*, Plagius grandiflorus. I used to grow it well here, but it was killed the winter before last. *H. Harpur Crewe, Drayton-Beauchamp Rectory, Tring, August 8.* [It is certainly not the N. undulata of the *Bot. Mag.*; nor is that the same as N. longiflora, if Sweet's figure of the latter, referred to at p. 141, is to be trusted; but the latter figure, as we have said, comes nearest to N. affinis of any we have been able to consult. Eds.]

Gardeners' Royal Benevolent Institution.—I beg to inform you that up to and including this morning, the number of responses to the appeal on behalf of the Pension Augmentation Fund is 301, and the amount contributed is £364 9*s.* 4*d.*, being an average of a trifle over £1 4*s.* for each response. I take this opportunity of stating that I purpose attending the Great Show at Manchester, on the 24th inst., and through the kindness of the managers of the *Gardeners' Chronicle* I shall have an office there, and I shall be happy to receive subscriptions, collecting cards, &c., to enrol new members, and to afford any information that may be required. *Edw. R. Cutler, Secretary, 14, Tavistock Row, Covent Garden, London, W.C.*

Philesia buxifolia.—This is quite hardy in Dublin, and flowers freely. By far the finest plants of it I have ever seen are in the fine collection of plants at Mr. Crawford's, Lakelands, Cork. At each side of the front door are two large tubs, about 4 feet in diameter, completely filled with Philesia. It has grown so vigorously that it hangs over the edges, hiding the upper part of the tub, and every season each tub has hundreds of fully expanded blooms. In the same locality Desfontainea spinosa attains the proportions of a shrub 6 feet high and 4 feet through, clothed with foliage to the ground, and just now blooming profusely. In the nice collection of rare shrubs and trees got together by Mr. Gumbleton, also at Cork, is a grand plant of Embothrium coccineum, growing in the open air, entirely unprotected. This unique specimen is quite 20 feet high, and despite the ordeal it passed through last winter, flowered profusely in the spring. *F. W. M., Dublin.*

—— With regard to the hardiness of Philesia buxifolia, I may say that there is a plant at Glasnevin planted in a shady border against one of the houses—a spot where the sun never shines; this has been extended at least 12 feet, and blossoms freely every season. There is no doubt as to the perfect hardiness of this shrub if it is planted in damp peat and perfect shade. *W. Smith, Newry.*

—— I send herewith some blooms of Philesia buxifolia, grown in the open air here; the plants from which they were taken have been growing in their present position (an open border) for about fifteen years. They make but very little growth, and are only 15 inches high, but appear to be perfectly hardy. *R. Gill, Gr., Tremough, Cornwall.* [In the Isle of Wight this plant is also hardy. Eds.]

Frost in July.—It appears strange to read of frost occurring in the month of July, more particularly during the month of July last, when the maximum temperatures in the shade very considerably exceeded that of the same month during many years past. Nothing less, however, than several degrees of frost could possibly have injured the Alternantheras, Dahlias, and Potatos, mentioned by your correspondent at p. 183—who, by-the-bye, must mean the temperature in the full sunshine, when he speaks of "a difference in temperature of something like 100° in the same month;" and certainly, if the highest temperature of the month in the sun be contrasted with that of its greatest depression, something approaching this great difference will be shown to be the actual result. The maximum temperature in the shade during last month was in most parts of the country exceptionally high, but the temperature was at the same time exceedingly variable, and during the last week it may be considered to have fallen under the average. At this station the maximum was 94° in the shade on the 5th and the 15th days, and it may be worth mentioning, as an instance of sudden change, that on the 5th day the maximum was 94°, and the minimum 64°, while on the following day they were 74° and 46°, showing a difference of 19°. So it follows, that although higher maximum temperatures occurred during last July than were experienced during any of the preceding months of July for at least twenty-two years, still the mean or average temperature of that month falls very considerably under that of several of the same months which preceded it, notably that of the year 1859. But in case you should consider the matter in any degree interesting to some of your many readers, appended is a list of the mean temperatures of the months of July from 1859 to 1881 inclusive, as recorded at Culford, 4 miles north from Bury St. Edmunds.

Mean Temperatures of the Months of July during the last 22 years.

		°			°			°
1859	..	68.5	1867	..	60.7	1875	..	59.3
1860	..	59.5	1868	..	62.6	1876	..	64.7
1861	..	62.9	1869	..	66.1	1877	..	60.8
1862	..	60.3	1870	..	64.0	1878	..	61.4
1863	..	59.5	1871	..	61.1	1879	..	58.2
1864	..	61.7	1872	..	64.0	1880	..	61.5
1865	..	64.7	1873	..	62.8	1881	..	63.5
1866	..	61.2	1874	..	64.0			

P. Grieve, Orchard Street, Bury St. Edmunds.

Veratrum nigrum.—At this time of the year, when mixed herbaceous borders are beginning to lapse into the possession of monotonous Composite flowers, it is a relief to find anything so distinct and handsome as Veratrum nigrum. Cultivated in English gardens in the days of Shakespeare, it perhaps fell into discredit, on account of its poisonous qualities, and is now little known. A plant of it in my garden bears a flower-stem 5 feet high, with many upright lateral spikes, and a profusion of neat flowers of a dark chocolate colour, with golden anthers. It seems to like a deep peaty soil, but is easily grown and perfectly hardy. It is a proof how much old-fashioned plants have been neglected, that this Veratrum is now rarely seen except in country cottage gardens, and that it is better known as producing a homœopathic medicine than as an ornamental flower. *C. Wolley Dod, Edge Hall, Malpas.*

Keston Common.—The interesting remarks lately made in reference to this charming spot remind me that it is an exceptionally rich locality for a certain class of botanical objects beloved of the microscopically inclined. No visitor to Keston Common should go unprovided with a phial or two, and a small net of fine material, not forgetting an old spoon, a most useful implement to the fisher of minute aquatic plants or animals. A diligent use of these tools for a short time will amply reward one's trouble, and a rich gathering will be forthcoming over the examination of which many pleasant hours might be passed. The chief objects of remark will be the many beautful forms of Desmidieacea which are here found in profusion, the lovely Closterium being one of the most remarkable forms. Nothing could well exceed the beauty of these little plants—the wonderful forms, the vivid green colouring of the chlorophyll of the cells, and the movements of the cell-contents, strikingly displayed in some of the species, all combine to form objects of surpassing interest and beauty. Many other interesting microscopical objects will also be found here, several species of Diatoms, &c.; but it is chiefly the Desmids for which the locality is celebrated, there being probably few other spots which abound in them to such a large extent, although, like the Diatoms, they are widely distributed and turn up almost everywhere. In pond gatherings it is seldom we find them in such numbers and variety. *G. E. Cox.*

Nelumbium speciosum.—In a recent number of the *Gardeners' Chronicle* mention is made of the Nelumbium speciosum at Kew, I take the liberty of giving you the dimensions of a Nelumbium that is now in flower in the open air in the Botanic Garden here. Height of the leaf above the water, 0.87 mètres; diameter of leaf, 0.60 mètres; diameter of flowers, 0.18 mètres. *J. A. Henriquez, Coimbra, Portugal.*

Herbaceous Calceolarias.—Of all soft-wooded greenhouse plants none are more showy and useful than herbaceous Calceolarias, which have been so much improved of late years that the flowers have not only increased in size but are very remarkable for their rich colouring, which, among the best strains is as varied as it is beautiful, and although a large collection may be grown it is very rare that two plants among the whole will be found to yield flowers alike. This great diversity adds much to their value, and renders them doubly interesting, as one never tires of looking them over, and examining their peculiar markings, which take so many forms and shapes, and are so fantastic in character as to attract the eye of the most casual observer. Were it not for the difficulty many experience in raising the plants no doubt herbaceous Calceolarias would be much more grown than they are, and it is with a view of assisting those that have failed with them that I am about to pen a few remarks on the best way of making a start, as it is the seed sowing and the attention for a short time after that require the principal skill. One of the chief things towards securing success is the preparation of the soil, and the filling of the pan or pot in which the seed is to be sown, which should first of all be well drained with crocks, and over these some moss placed to keep them free and open, when the final filling may be carried out and the surface of the soil made perfectly smooth and firm. The next thing is to water the soil through a fine-rosed pot, when after having stood to drain for a few hours, all will be ready for sowing the seed. This should be done by opening the packet at one end, and gently shaking it so as to make the distribution regular and equal, that the young plants when they come up may all have room to grow without any crowding. To get the seed to germinate is the next consideration, and the best situation to induce it to do this is a damp, shady part of a cool-house or border close under a north wall, where the pan or pot should be placed under the protection of a handlight and kept close and covered with a sheet of paper for a few days, as the great point is to prevent the drying of the soil, for, the seed being exceedingly fine, it does not do to water, for unless great care be taken the seed becomes washed away and lost. To save the necessity for watering at all till the seed germinates, many cover the pot or pan in which it is sown with damp moss, which is a good plan, the only danger being that of leaving it on too long, and thereby causing the plants to be drawn. When moss is not used, and it becomes needful to water, the safest way to apply it is to sprinkle by means of a syringe, so as to pass it on as fine as dew; and if this is done daily when the young plants are up their progress will be most rapid. In the raising of herbaceous Calceolarias it should be borne in mind that slugs are exceedingly fond of them, and seem to scent them from afar, which being the case it is always advisable to take precautionary measures to keep them at bay, for should they get at them in the small stage they would eat them all up in a night. To prevent this a good way is to stand the pot containing the young plants on a brick in a shallow pan of water, which will not only keep off the slugs but maintain a genial moist atmosphere around them—a condition of the air highly conducive to the health of the plants. As soon as these are large enough to handle it will be time to prick them out or pot them off singly, which should be done in light rich soil, taking care when doing it not to bruise the leaves, which are exceedingly tender. When pricked out or potted they will at once require water to settle the soil about them, and the best place to stand them to give them a start is a nice shaded cold frame, where they can be kept a little close and sprinkled with water every afternoon, just before shutting them up. If all goes well they will be ready for repotting in a few weeks, when they may have their final shift, and

may then be gently grown on during the winter, at which season they will require the protection of a house or pit, where they can have a temperature ranging between 40° and 50°, as in a less degree of heat they seldom do well. Besides slugs, greenfly are very partial to Calceolarias, but as their foliage is of an exceedingly delicate nature, great caution is requisite in fumigating, which, to be safe, must be done lightly with tobacco, as paper is more dangerous to use. The proper time to sow Calceolaria seed is at the end of July or early in August, which is quite soon enough, unless the plants are wanted in unusually early. *J. S.*

An African Fruit.—Can any of your correspondents furnish any facts about an African fruit called by the natives Masuku, which seems to have a considerable value as food, and has proved a great resource to the missionaries as well as the natives in the neighbourhood of Livingstonia? It is described as a round Pear-like fruit, but the chief point of interest is in its seeds, or, rather, stones, of which each fruit produces three, "grooved and containing each a small plant fully formed and with deep green leaves. The shell bursts almost immediately the fruit falls, which it always does as soon as it is ripe." I gather this account from the *Proceedings of the Royal Geographical Society* for July. Perhaps they may interest some of your readers. *J. F. C.*

Primulas in the Edinburgh Botanic Gardens.—The true Primula purpurea is now in blossom in the Edinburgh Botanic Gardens. The flower is bright purple, with a white eye, the outline of which is very distinct; it rather resembles the flowers of the villosa section, from which, however, it differs entirely in leaf. The leaves are long, lanceolate, dark green, and not serrate, the under-side being densely covered with pure white meal. In Primula Stuartii the meal is yellowish, the leaves broader and serrate; its yellow flowers are now out of blossom. It is never found at a lower elevation than 11,000 feet. Mr. Goalen, a correspondent of Mr. Lindsay's, writing from Kidar Kante, Himalayas, says it is found by the side of streams, and even on turf in the middle of a stream. He recommends silver-sand and old leaf-mould as a soil likely to suit it. P. purpurea of Royle, on the contrary, though growing at the same elevation, is found in dry, black turfy soil at the foot of rocky ridges. The same correspondent gives a somewhat tantalising account of the number of Primulas, named and unnamed (including the now well-known P. rosea), which grow in this district, sometimes even within an area of a few square yards. Besides the above kinds, Mr. Lindsay has raised from seed, also sent by Mr. Goalen, the beautiful little golden Primula floribunda, which flowered lately for the first time in these Botanic Gardens. *C. M. Owen.*

Gooseberry Caterpillars: Quassia Chips and Gishurst Compound.—As the person complaining under this head, and as no comment is made on the fruit I forwarded, which after heavy natural and artificial waterings still remains uneatable, whilst that receiving an extra 5 lb. dose of Quassia is declared to have "no trace of unpleasant flavour," I can only imagine that my Quassia chips were genuine and the others spurious. I admit the mixture destroys the caterpillars and does no injury to the bushes, and preserves the fruit from both birds and boys (schoolboys even declining to eat them), but I much prefer the old-fashioned way of preserving with sugar and not with quassia. *A. S. Z.*

Robert Fenn Pea.—Although somewhat surprised, I have been none the less gratified, to learn that this most delicious dwarf Pea has at length received the well merited honour of a First-class Certificate at Chiswick. Some six years since it was sent there and was then awarded a Certificate, but it was revoked when it was found that the Pea had not been sufficiently selected. This I then set about doing, finding, what I had not before observed, that there are two distinct types. The earliest somewhat resembled Advancer, though both a little dwarfer and earlier, and, farther, a better cropper; the pods of medium size and when filled tight. This was called Dean's Dwarf Marrow. The other, and perhaps best selection, is a little later in maturing, and has large green pods that are free to open, and crops heavily. Both are wrinkled marrows, and of that deliciously sugary flavour that we all so much like. It is this last one that was named Robert Fenn, and has received the Certificate. The stocks of each kind passed into the hands of Messrs. Hurst & Sons, who now have two of the best dwarf marrow Peas ever offered. The parentage was a good one—Multum in Parvo, a little marrow, now nearly forgotten, crossed with Maclean's Premier, and the growth is exactly intermediate between the two. Few crossed plants are more difficult to purify eventually than Peas. The stocks break and run out for a long time, and it is only by the most continuous care in rogueing and picking that purity is at length obtained. A cross made a few years since between Laxton's Unique and Dean's Dwarf Marrow, has given me from one original plant blue-and-white wrinkled and blue-and-white round Peas; and though selected with all possible care, still it does not come true, although 70 per cent. does. I hope a couple of years may fix each one, as I venture to think these offer a race of very early dwarf Peas of superior quality. *A. Dean.*

Plants which Survived the Winter in Cornwall.—Lately I have visited some of the gardens in this neighbourhood, and have found that the trees and plants of which I send you a list below have survived the past winter in the open ground, and are now growing freely; with a few exceptions none appear to have suffered from the exposure; some had the protection of a wall, but no further care had been taken. In the list there may be included some hardy plants, but the majority, I think, are usually looked upon as being half-hardy. Escallonia macrantha flourishes rampantly in this district, and was in no way affected by the inclemency of the past season. Eucalyptus globulus was very much cut, but seems to be quickly recovering, judging from the quantity of new wood, &c., it is now making. Fuchsias rarely die here from the severity of the weather; in many places Ricartoni and other varieties are planted to form hedges, and sometimes you may see bushes of them 6 or 7 feet, or even more in height, and covering a large space of ground. Myrtles thrive as well as Fuchsias; there are specimens here of communis, and of a narrow-leaved variety, which have attained a height of about 16 or 17 feet, and covered the fronts of the houses against which they are growing; as bushes they get to a large size, even without any protection. Veronicas suffered badly—the worst of all, in fact, but there are still a great number living and uninjured, and some are now blooming profusely. Phormium tenax in a few instances was cut to the ground, but is now starting with renewed vigour. Benthamia fragifera has flowered well this summer, the trees in some places being almost a sheet of yellow.

Aralia Sieboldii
Agapanthus umbellatus
Abelia floribunda
Aloysia citriodora
Aster argophyllus
Arundo Donax
,, couspicua
Araucaria Cunninghami
Acacia dealbata
,, longifolia
Abutilon Boule de Neige
Azalea indica and varieties
Benthamia fragifera
Bignonia grandiflora
Bambusa Metake
,, gracilis
,, viridi glaucescens
Buddleia globosa
Brugmansia sanguinea
Begonias (tuberous)
Cyrtomium falcatum
Camellias
Ceanothus rigidus
,, Veitchii
,, Gloire de Versailles
Chamærops humilis
,, Fortunei
,, excelsa
Chionthus puniceus
Coronilla glauca
Cytisus racemosus fragrans
Colletia cruciata
Citrus Aurantium
,, Limonum
,, medica
Clematis balearica, and others
Cordyline australis
Dracæna indivisa
,, erythrorachis
Daphne indica
Desfontainea spinosa
Diplacus glutinosus
Dahlias
Erica codonodes
Eugenia Ugni
,, apiculata
Escallonia macrantha
,, pterocladon, and other species
Echeveria secunda glauca
Eurybia Gunnii
,, undulata
Embothrium coccineum
Erythrina crista-galli
Eucalyptus globulus
Eriobotrya japonica
Euonymuses
Edwardsia microphylla
Eurya latifolia variegata
Fabiana imbricata
Fuchsia microphylla, serratifolia, splendens, and about 200 other species and varieties
Grevillea rosmarinifolia
Habrothamnus Hugellii
,, fascicularis
,, elegans
Hedychium clavum
,, Gardnerianum
,, var. with white flowers
Hydrangea japonica
,, ,, variegata
Jasminums
Indigofera floribunda
Lupinus arboreus
Leycesteria formosa
Libonia floribunda
Leptospermum ambiguum
Myrtus communis
,, narrow-leaved and other species
Magnolia conspicua
,, grandiflora
,, tripetala
,, Lenné
,, purpurea
Mandevilla suaveolens
Metrosideros floridus
Olea ilicifolia
Philesia buxifolia
Phormium tenax
,, ,, Veitchii
Pittosporum Tobira
,, Mayii
Phygelius capensis
Passiflora cœrulea
,, Impératrice Eugénie
Richardia æthiopica
Rhynchospermum jasminoides
Rhododendron barbatum
,, Thomsoni
,, Falconeri
,, Dalhousiæ
,, ciliatum
,, Aucklandii
,, arboreum
,, Nobleanum
,, cinnamoneum, and many other species and varieties
Solanum crispum
,, Capsicastrum
,, jasminoides
Salvia patens
Skimmia japonica
Tritoma Uvaria
,, intermedia
,, Burchellii
,, Rooperi
Veronica Andersoni
,, decussata
,, salicifolia
,, Lindleyana, and other species and varieties
Woodwardia radicans
Yucca aloifolia variegata
,, recurva, and others

Ernest Bullmore, Falmouth, Aug. 1.

Potato Disease: a Challenge.—This subject is again to the front in your pages. Like the writer at p. 147, I see the beginning of a political job in the Seed Act of Mr. Forster. The farmers of Ireland have no more claim for seed raised from imperial taxation than the car drivers there and the cabbies of other towns of the United Kingdom have for Government stud-bred horses to replace their old screws. The Potato and the horse are analogous in the sense that they are both living organisms, and their health and continuance depend upon their food containing certain elements. It is notorious that in the greater part of Ireland the chemical food or elements the Potatos require are not added to the soil where Potatos are grown, with the result that the plant was starved till it almost stopped reproducing, or they had—disgraceful figures—2 tons produce per acre from 1½ ton seed. Under the same cultural treatment, it may be safely predicted that the grand vitality of the Champion they were so liberally supplied with last year will soon be reduced to the same level. You are right: private enterprise will beat them (the Government Potato farms) in the end. As a beginning to this desirable end I am open to cultivate, at my own expense, any part of the most disease-infected locality of Ireland that the Government may set apart for that purpose (such soil not being waterlogged). I would plant the tender yet unrivalled Regent, and, frost apart, will guarantee freedom from disease and a produce of not less than 8 tons per acre. And, further, as I am nothing if not practical, to settle the question of the power of zoospores, or resting-spores, to impregnate healthy plants growing from sound and uncut seed, in land where the subsoil has been turned up in autumn, and limed to the extent of 4 cwt. per acre, and manured with chemical, not organic manure, I will forfeit £100 to Government if any agent they appoint can infect one of my plants by watering them with a fluid containing zoospores and resting-spores, or by immersing the leaves for twenty-four hours in any such mixture. The leaves so immersed would, if the atmosphere continued damp, become putrefactive and fungus-covered, but this putrefaction, which is the disease, will not in my plants travel beyond these leaves. I have tried it for six weeks without any effect. *W. A. Thoms, Alyth.*

Vitality of Lily Bulbs.—On Saturday I had a good illustration of the vitality of Lily bulbs. In making a pathway connecting our field garden with the wood garden two old Lily bulbs were in the way; they had been planted September 16, 1878, one with twenty-five imported bulbs of L. Humboldti, the other with ten L. Martagon flore-pleno. Neither had any sign above-ground. We feared the bulbs had rotted or been eaten by rats or mice; however, on carefully forking over the ground we found the original number of bulbs in each bed and some small ones; one bulb of L. Humboldti apparently had rotted, but another had divided into two. The soil was black vegetable mould, too wet through defective drainage. Some of the L. Humboldti had rotted outside scales, but the rest of the bulb was all right, and the L. Martagon were in perfect condition. I have no doubt that they will bloom well next year where they are now planted. *George F. Wilson.*

Foreign Correspondence.

Antibes.—It may be interesting to you to receive some information concerning the Villa Thuret and the neighbouring localities. The first thing to mention, and which will certainly not surprise you, is that for nearly two months we have experienced an absolutely tropical temperature. In June the Centigrade thermometer registered a temperature of 32° to 35° (89°—95° F.). Since July 2 it has risen nearly every day to 35°, 36°, and 37° (95°—98°), and on one occasion to 39°.5, but the heat has been much more excessive at Cannes, Nice, and Mentone, which are situated at the foot of the Maritime Alps, which arrest the course of the north wind, and there the heat has been hardly bearable. This would not be a misfortune for horticulture if it were possible to give water in proportion to this Saharan temperature, or if the storms would bring us rain; unhappily, since June 8, that is, for forty-seven days, not a drop of rain has fallen. You will have no difficulty in imagining the melancholy appearance of all the small plants and the young insufficiently-rooted shrubs under this implacable sun. Where watering cannot be effected all vegetation is arrested, it sleeps as in winter, but only awaits the first rains to awaken energetically. Meanwhile, many Agaves of different species have flowered, and are still in flower. The most notable is an enormous specimen of Agave applanata, the candelabra-shaped inflorescence of which is as thick as a man's thigh, and nearly 10 mètres in height. The flowers are innumerable, and of a greenish-yellow colour. Some of them will certainly yield seeds.

Another interesting plant in flower is a gigantic Yucca filifera, twenty years old, the drooping panicle of which is not less than 1.50 mètres in length, and certainly contains more than 1000 flowers. Unfortunately, and for a reason that I am not aware of

only one of these flowers has produced a fruit, which is like a small Banana, and which fell before it reached its full development. Probably the flowers had not been fertilised.

Germination of Welwitschia mirabilis.—I have obtained many seedlings from seeds which I sowed last spring, in pots and in the open air. The seeds germinate easily, and sometimes they contain two fertilised embryos. I have profited by the opportunity to study the stages of germination to which the *Gardeners' Chronicle* has devoted several articles (October 30, 1880, p. 565; November 27, 1880, p. 690; March 26, 1881, p. 402). My observations do not entirely agree with those made in the *Gardeners' Chronicle*. In the three aforesaid notes the huge leaves of the adult plant are considered to be the primary leaves, which succeed the cotyledons at right angles with them. I find (1) the cotyledons of lanceolate shape, at first glaucous, slightly rose-tinted, subsequently quite green, and rather leathery. (2.) Two very small, petiolate, oval, or oval-cordiform, fleshy thick leaves, terminated by a brownish, as it were, withered point, growth being arrested. These two small leaves are at right angles to the cotyledons. (3.) A stem (*tigelle*) about 2 lines in length, which proceeds from between the two primary leaves, and which produces, first, an almost imperceptible bracteole; second, a true, green, oval, shining, finely scaly leaf, with a midrib and oblique transverse secondary nerves; third, two new leaves, alternate, but very close together, so that they appear opposite, and which seem to terminate the tigellum. These leaves are lanceolate, green, entire, minutely scaly, 5 to 6 lines long. The whole plant has thus some resemblance to a seedling Olive. This is the state of things at present. If my plants live we may be able to explain the origin of the two large persistent leaves of the adult plant. Is it quite certain that these so-called leaves, which have been taken for cotyledons, are really foliar? It is not impossible that they may be flattened branches, of axile rather than of appendicular nature. Their division into longitudinal segments renders this the more probable, inasmuch as the true leaves, which I have observed, have transverse nerves, which would be inconsistent with a division into longitudinal parallel nerves. *Charles Naudin, Villa Thuret, Antibes.*

Forestry.

State of the Forest.—The present is undoubtedly, of all others, the best time of the year for ascertaining, not only the outward growth and development of the trees, but of knowing their constitution and state of health. By means of comparing the external aspects of one tree with another, and taking into account the various conditions by which their growth is influenced, we are thereby greatly assisted in arriving at true and just conclusions as to their real condition. The practised eye has now before it the means whereby it can know to all but a certainty which is the healthy and which the unhealthy subject, and be able to detect blemishes, flaws, and defects that would otherwise escape observation at any other period of the season. At this time of the year the trees should resemble a perfect engine, or machine, in full operation, with every vessel and organ doing its proper work; and by the safe and usual mode of comparison we can, by having before us that which is perfect, discover that which is imperfect. The skilful physician knows by examining the surface of the body whether the internal and hidden parts are healthy or diseased; by the appearance of the skin he knows the state of the blood; and he only requires to see the tongue and the eye to know the condition of the stomach and liver. It has to be borne in mind, however, that although there are many analogies between plants and animals, there are also great differences and distinctions. By the appearance of the leaves the general health of the tree is known, but there may be, and often are, incipient diseases at work which have not yet manifested themselves in the leaves. Bark diseases are of that class, and it is very remarkable how many diseases that ultimately prove fatal have their origin in the bark, especially in young and tender trees, as will subsequently be described. The sap is to the vegetable very much what the blood is to the animal, both working within, and producing outward effects; and thus it is that the state of the leaves indicates the condition of the sap and the vessels through which it is conveyed.

It is not, therefore, in early summer, nor yet in autumn, that the leaves should be examined with a view of determining the real health of the tree, because in the former the flow of sap and the flush of growth may be strong and powerful, but not continuous, and in the latter superabundance or scarcity of moisture in the soil are alone sufficient to mislead by the influences they exert upon the sap and consequently upon the leaves, thereby rendering the efforts of the most experienced observer abortive in his labours of research. The growth of the tree is principally influenced either through the roots, bark, buds, or leaves, and if any of these are disordered the health of the tree is thereby impaired, and unless the disease is of a local and circumscribed nature it will eventually influence and destroy the whole structure.

It is often difficult to determine which is the cause and which the effect of certain diseases; we see the leaf grow yellow and assume a sickly aspect, but we cannot tell what the producing cause is. Insects of various kinds make their attacks, and it would be assuming too much to say that they only seize upon disordered and diseased parts of the tree, for we know that leaves of the best and healthiest kind are punctured, and often entirely devoured by various insects, chiefly caterpillars. When the roots are diseased, or in any way incapable of absorbing the moisture requisite for the healthy development of the tree, they do not usually long continue so, for they very soon either regain perfect health or entirely lose their vitality. Root diseases, too, can usually be detected from all others by the manner in which they influence the whole structure of the tree, and the uniform discoloration of the foliage.

Bark diseases, unlike those of the root, are not general, but affect only certain limited parts or spots. It is no uncommon thing to see small patches of the bark quite diseased, and the general surface quite healthy and in its normal state. In young trees, and specially in the Larch, disease in the bark is very common, and has been the subject of much discussion. It can in most, if not every case, be either greatly modified or entirely prevented, but in order to make the subject perfectly clear and intelligible would require greater space and time than is here afforded.

The birds are also a source through which much mischief is frequently inflicted. The top bud, from which the leading shoot emanates, is frequently abortive, and this occasions the loss of the leading shoot, which both retards the growth of the tree and disfigures it, often during its whole existence. The chief cause of abortive buds is frost, although Nature has wisely decreed that the leading shoot be the last to start in growth, and therefore often escaping frost that inflicts much injury upon the latter branches, which in the Picea and Abies family are always in advance at least several days of the leaders. The tree above all others to which this is most applicable is the Silver Fir. The seasons that favour one species of tree are often adverse to others, and in looking at the growths of the different species it is very remarkable how widely they differ. The season 1868, being a very dry one in this part of the country, the growth of many specimens of trees was only about one-third what it was both the year preceding it and the subsequent year. The season 1879 was a cold and wet one, and consequently the most disastrous to the Larch of any since about 1840, when great alarm seized every one for the safety of the tree.

The present is among the best seasons for trees growing in this part of the country (as far as yet gone) that the oldest remembers of. The Scots Fir has completed its growth, and it may justly be termed a magnificent one; the shoots are unusually long, and the pins strong and of a robust character. The Norway Spruce has already made top shoots in some cases five times longer than last year. The Larch is flourishing beautifully, and many trees injured by the cold and wet of 1879 are fast recovering. The Silver Fir, though in some places slightly injured by a frost on the night of June 6, are now, where the top bud escaped, making very fine leading shoots. The foliage of all the deciduous trees is very fine, and they are growing fast. The fruit crop, especially of the Larch and Beech, is very abundant, and the embryo cones on the Scots Pine are very thickly set, thus betokening a grand crop next year. *C. Y. Michie, Cullen House, Banffshire, Aug. 8.*

Reports of Societies.

Royal Horticultural: *Aug. 9.*

Floral Committee.—James McIntosh, Esq., in the chair. At this meeting, which was of the usual character for the season—small and quiet—First-class Certificates were awarded to Mr. William Bull for Bouvardia Alfred Neuner, the charming white double-flowered variety introduced this season from America; for Adiantum aneitense, a neat growing evergreen species from Aneiteum; and for Actiniopteris australis, a variety of radiata, with similar pretty diminutive Palm-like fronds. To Messrs. James Veitch & Sons for Cattleya Chamberlainiana ×, a hybrid between C. Leopoldii and C. Dowiana, with the sepals and petals dull rosy-purple, the lip bright purple, and the side wings rosy-lilac. To Messrs. Cannell & Son for Malva moschata alba, a pure satiny-white flowered variety, with large blossoms, freely produced, a capital plant to grow for cutting from. To Mr. Anthony Waterer, Knap Hill, for Abies canadensis variegata, a silver variegated form of the Canadian Spruce, the white tips of which look as if the branches were decorated with bells of Lily of the Valley in the early spring. To Mr. Croucher, gr. to J. T. Peacock, Esq., Hammersmith, for Echinocactus Witlizenii, Cereus giganteus, and Cereus pectinatus. To Mr. Green, gr. to Sir George Macleay, for Asplenium pteridoides, from Lord Howe's Island, a coriaceous evergreen Fern with recurving fronds cut into narrow segments, so as to become pectinate. To Messrs. Kelway & Son, Langport, for Gladiolus Pelargo, a rich salmon-scarlet, feathered with pure scarlet, and a flower of the most correct form. And to the authorities at Chiswick, for Canna iridiflora hybrida, a large-flowered variety, of a remarkably rich crimson shade of colour. Mr. Anthony Waterer also received a Cultural Commendation for flowering plants of the splendid Lilium Parkmanni, and a vote of thanks for Lilium Mrs. Waterer. A similar vote was also accorded to Messrs. Veitch & Sons, for a small but interesting group of new plants; to Mr. Bull, under similar circumstances; to Messrs. Kelway & Son a Cultural Commendation, for a fine stand of Gladioli; and a vote of thanks to Messrs. Cannell & Son, for a collection of over 150 blooms of double Petunias, comprising some forty sorts; to Messrs. F. & A. Smith, Dulwich, for a fine group of Balsams; and to Messrs. C. Lee & Son, for a most interesting display of cut branches of ornamental trees and shrubs. Mr. W. J. Cross, florist, Salisbury, showed a white-flowered Carnation called The Governor, a useful variety for cutting, but not pure enough in colour, nor shown at its best.

Fruit Committee.—H. J. Veitch, Esq., in the chair. The only objects of special interest that came under the notice of this committee were a collection of cherries from Messrs. Thos. Rivers & Sons, Sawbridgeworth; a collection of early Apples, from Chiswick; a first-rate sample of black Currants—a very fine, free bearing variety, with large, richly-flavoured berries, named Black Champion, and which was shown by W. H. Dunnett, Esq., Stour House, Dedham, and was awarded a First-class Certificate. Mr. J. Walker, Thame, again showed his Perpetual Bearer Pea, a very fine selection from Veitch's Perfection, and which having been proved at Chiswick was also awarded a First-class Certificate. Mr. Record, gr. to C. Hanbury, Esq., Belmont House, East Barnet, received a Cultural Commendation for three evenly matched and handsome Queen Pines; and a similar award was made to Mr. Phillips, gr. to Captain Jackson, Meopham, Kent, for an excellent sample of the Duke of Buccleuch Grape. Mr. Fleming, Cliveden, sent a dish of Dr. Hogg Fig, a variety which the committee would like to see grown at Chiswick; as also some very promising varieties of Peas sent by Mr. Culverwell from Thorpe Perrow.

Cottagers' and Artizans' Flower Show: *Aug. 1.*—As in previous years, on the people's great autumn holiday in August, the Royal Horticultural Society offered for competition amongst the working classes a number of substantial prizes, and it is very gratifying to note the great interest which this exhibition excites, and the increasing extent and improved quality of the productions. Many of the exhibits on this occasion would have made it very difficult for my lord's gardener, with all his appliances, to excel. The competitors were very properly arranged in two sections; firstly, those residing within a radius of 3 miles of the General Post Office; and secondly, those residing within a radius of 8 miles of Charing Cross. In the first section, for the best group of plants, the prizes being respectively the Silver Medal of the Society and 25s., and the Bronze Medal and 20s.: the prize lots came from Sun Street, Finsbury. For the best specimen plant some very fine Fuchsias were exhibited, but were disqualified as coming from Chelsea, which was beyond the prescribed distance. For the group of plants grown within 8 miles of Charing Cross, there was a remarkably keen competition, nine groups being staged, the 1st prize, Silver Medal and 30s., being worthily awarded to G. Trenchard, a coachman living in Princes Mews, South Kensington: a more

worthy lot of plants it would be difficult to find. There were some nine Fuchsias with heads 2 feet in diameter and laden with flowers, nine Pelargoniums, and a corresponding quantity of Harrison's Musk, blue Lobelia, Creeping Jenny, &c. These had had no protection or coddling further than that provided by the stable windows. For the best specimen window plant, some remarkably fine Fuchsias were exhibited—the three prize plants being trained on flat trellises, some 3 to 4 feet in diameter; they were laden with flowers to the very bottom. In the class for general garden products, which included vegetables, there were some very fair productions, Onions and Lettuces being very meritorious. The prizes for flower stand and cut flowers were very poorly contested, but the taste is improving even in that respect. Messrs. Sutton & Sons, Reading, very generously offered prizes for vegetables to the extent of £6, which brought together a very good competition indeed.

The exhibition was visited by the Baroness Burdett Coutts and party, and many others of the Upper Ten paid their modest 2*d.* admission, amongst the 12,500 that visited the gardens.

Devizes Horticultural: *Aug.* 1.—Bank Holiday in August has now become the recognised day on which to hold flower shows in some parts of the country, because the day in all parts is recognised as a general holiday, and it is deemed advisable on social grounds to give the masses of the people some healthy source of recreation. The flower show, in association with some harmless amusements, seems to be the best provision that can be made, and in addition it gives the gardening fraternity opportunity for meeting together. Unfortunately, Bank Holiday in August has come to be associated with wet weather, and the Devizes people have had to experience this calamity for two years past. Unhappily, Monday last proved no exception to this rule, and though the show was a very attractive one, and held in the midst of some park scenery of the highest order, down came the pitiless rain soon after mid-day, to the great concern of the managers of the show and the manifest discomfort of visitors.

The exhibition took place in Roundhay Park, the residence of C. E. Colston, Esq. From the front of the mansion there are splendid views of a lovely country stretching away to the lines of Dorset hills that flank the sea coast on the south-west. In one large tent the whole of the plants were arranged, with great taste, by Mr. Thomas King, the head gardener at Devizes Castle. The leading class was for twelve stove and greenhouse plants, six for foliage and six in bloom. Here Mr. James Cypher, nurseryman, Cheltenham, was 1st, with an excellent lot, consisting of Latania rubra, very fine; Geonoma pumila, Areca Verschaffelti, Croton Sunset, a brilliantly coloured variety, that makes one of the best of exhibition plants; and C. Williamsii, a very handsome large-leaved variety that takes on a fine variegation; Allamanda nobilis, A. grandiflora, Erica obbata, Anthurium Scherzerianum, Statice profusa, and an excellent piece of Gloriosa superba. 2d, C. N. May, Esq., Elm Lodge, Devizes (Mr. W. Sharp, gr.), whose best plants were Latania borbonica, Stephanotis floribunda, Croton pictus, C. Veitchii, Dipladenia Brearleyana, Alsophila excelsa, Statice profusa, &c. In the class for six stove and greenhouse plants in flower Mr. G. Tucker, Hilperton Marsh, was 1st, with good examples of Allamanda Hendersoni, Dipladenia amabilis, Stephanotis floribunda, Statice profusa, Kalosanthes coccinea, and Anthurium Scherzerianum. We unfortunately failed to obtain the name of the taker of the 2d prize in this class.

Fuchsias were a remarkably fine feature, and they were shown as large specimens, with all that splendid growth and plenty and richness of flower peculiar to the west of England. The best nine came from the Hon. Mrs. Hay, Clythe Hall, Market Lavington (Mr. J. Lye, gr.), who had Charming, Doel's Favourite, Beauty of Trowbridge, Miss Lye, the Hon. Mrs. Hay, Miss Welsh, Lye's Favourite, Arabella, and a new dark variety of Mr. Lye's raising that appears to be perfect in every way as an exhibition and decorative plant. 2d, W. Brown, Esq.; 3d, C. E. Colston, Esq. (Mr. Clack, gr.), both lots good, but below the quality of Mr. Lye's, the varieties being generally similar. The best six varieties came from E. B. Anstie, Esq., Devizes (Mr. W. Plank, gr.), and consisted of well-grown and bloomed plants of Charming, Marginata, Doel's Favourite, Arabella, Pauline, and Schiller. Mr. T. Chandler, Devizes, had the best four, staging Elegans, Charming, Mrs. Marshall, and Rose of Castile; 2d, C. N. May, Esq., whose best plants were Charming and James Lye.

Petunias were very fine, and a surprise for those who saw the type of plant for the first time. Mr. Lye had an excellent six, as well flowered and grown as one could well desire, the varieties being Purity, Zulu, Charming, The Bride, Venus, and Distinction; E. B. Anstie, Esq., was 2d, with good plants of varieties bearing local names. Gloxinias were very fine, grandly grown and flowered. Messrs. Colston and May were 1st and 2d, with collections very near together. Zonal Pelargoniums, tuberous-rooted Begonias, Cockscombs, Verbenas, Achimenes, and Balsams were all good, some specially so—Messrs. May, Colston and Anstie taking the leading prizes.

Turning to the foliage plants the best six came from Mr. James Cypher, who had admirable examples of Kentia Fosteriana, Croton Weismanni, Cocos Weddelliana, Croton Sunset, Phormium tenax variegatum, and Latania borbonica; 2d, W. H. Long, Esq., Rood Ashton, Tunbridge (Mr. A. Miller, gr.), with Areca sapida, Croton variegatus, C. undulatus, Euterpe edulis, Dracæna Veitchii, and Pandanus Veitchii; 3d, C. E. Colston, Esq. In the class for twelve exotic Ferns, Mr. A. Miller staged a very good, fresh, distinct, and even lot, including Dicksonia antarctica, Lomaria gibba, Blechnum corcorvadense, Adiantum farleyense, A. cuneatum, Davallia Mooreana, Gymnogramma peruviana argyrophylla, and Adiantum gracillimum; 2d, A. P. Stancomb, Esq., Tunbridge (Mr. J. Coke, gr.), who had Dicksonia antarctica, Alsophila australis, Microlepia hirta cristata, Platycerium alcicorne, some fine Maidenhairs, &c. In the class for nine varieties, C. E. Colston, Esq., had a very nice group indeed, comprising Alsophila australis, Gymnogramma chrysophylla, Lomaria gibba, Adiantum farleyense, A. cuneatum, A. gracillimum, &c. A 2d prize was awarded in this class to an exhibitor whose name we did not obtain; and an extra prize was awarded to Mr. C. N. May for a neat lot.

In the class for a group of plants arranged for effect, C. E. Colston, Esq., was a good 1st with some excellent plants too much crowded and flat on the surface; T. Chandler, Esq., being 2d.

In the way of cut flowers the Roses were a leading feature—the best four varieties, single blooms, were furnished by Mr. George Prince, nurseryman, Oxford, who had the following in fine condition:—Marie Baumann, Alfred Colomb, Duke of Edinburgh, Charles Lefevre, Baroness Rothschild, Impératrice Eugénie, Fisher Holmes, François Michelon, Dupuy Jamain, Marie Rady, Le Rhône, Sophie Fropot, Comtesse de Sereniye, Madame Victor Verdier, Auguste Rigotard, Pierre Notting, &c. In the class for twenty-four varieties Mr. George Cooling, nurseryman, Bath, was 1st with good blooms of Comtesse d'Oxford, Duke of Wellington, Horace Vernet, Marie Rady, Reine du Midi, Dupuy Jamain, Emille Hausberg, Aoveat Duvivier, Ferdinand de Lesseps, &c. With twenty-four varieties, three trusses of each, Mr. Prince was again 1st, the leading flowers being Duke of Wellington, Dupuy Jamain, Souvenir de Madame Pennel, Pierre Notting, Madame Victor Verdier, Etienne Levet, Maréchal Niel, Reynolds Hole, Marie Baumann, Sophie Fropot, Alfred Colomb, Duke of Edinburgh, Auguste Rigotard, A. K. Williams, Madame Eugenie Verdier, Annie Wood, Comtesse Sereniye, Madame Marie Verdier, Louis Dore, &c. With eighteen varieties, three trusses of each, Mr. George Codling was again 1st, having Louis Van Houtte, Dupuy Jamain, Père Carrot, Madame Victor Verdier, Maréchal Niel, Marie Baumann, Duke of Wellington, Mabel Morrison, &c. In the classes for Roses grown by amateurs there was a fair competition, but the flowers did not call for special remark.

Of Fruit there was a select but very good display. In the class for six distinct kinds (kinds being interpreted as synonymous with varieties in the matter of Grapes), there was a keen fight between Mr. Thos. King, to R. V. Leach, Esq., Devizes Castle, and Mr. A. Miller, of The Gardens, Rood Ashton; and equal 1st prizes were awarded. The former had very finely finished Black Hamburgh and Chasselas Musqué Grapes, Bellegarde Peaches, Lucombe Seedling Nectarine, Queen Pine, and Beauty of Wilts Melon. Mr. Miller had Foster's Seedling and Black Hamburgh Grapes, very fine Violet Hâtive Peaches and Pine-apple Nectarines, and a good Melon. 2d and 3d prizes were awarded to collections that fell much below the high level of quality of the foregoing. Mr. King was 1st with Black Hamburgh Grapes, Mr. Miller 2d, and Mr. Clack 3d. In the class for white Grapes, Mr. King was well ahead with finely finished Chasselas Musqué, of which variety he is a very successful cultivator; Mr. Miller being 2d, with fine bunches of Foster's Seedling from 3-year-old Vines; and J. H. Pott, Esq. (Mr. A. Smith, gr.), 3d with the same variety. Mr. A. Smith had the best Peaches, staging an excellent dish of Noblesse; Mr. W. G. Hitchcock, Devizes, being 2d, with an unnamed variety. Mr. Smith had the best Nectarines, staging very fine Violet Hâtive; Mr. King being 2d, with Lucombe's Seedling. The best scarlet-fleshed Melon was Moonraker, a really superb variety of splendid quality, raised by the exhibitor, Mr. King. In the green-fleshed class a variety named South Hill was the best.

The best collection of nine dishes of vegetables came from Mr. A. Miller, who had Trophy Tomato, Canadian Wonder French Bean, Early Rose Potatos, Stratagem Pea, Intermediate Carrot, Telegraph Cucumber, Globe Artichokes, and Moore's Vegetable Marrow—a very good lot indeed: 2d, Mr. Clack. Potatos were well shown; among kidneys, International, Early Rose, Royal Ashleaf, Snowflake, Mr. Bresee, and Wonderful Red, were the best; and of round varieties, Grampian, Radstock Beauty, and Rector of Woodstock.

All the arrangements were highly satisfactory, but the enjoyment of the show was marred by the unfortunate weather.

Earley Horticultural.—This is quite a new Society, formed at Earley, a growing district in the suburbs of Reading; and its chief object at present is to promote a taste for gardening amongst cottagers and amateurs in the district, which is largely rural. The first show of the Society was held in the fine park of Marden Erlegh, the residence of John Hargreaves, Esq., the President, and who, with kindly generosity, not only threw open the pleasure grounds to visitors, but also the lower rooms of the mansion, that the fine collection of pictures might be viewed. The turf, fresh and green, now recovered from its previous dingy condition, and the grand trees with which the park abounds, was lit up by pleasant sunshine, so that the scene, in combination with fine music and a delightful temperature, was most enjoyable. The cottagers' products, which formed the chief feature of the show, were in great force. Potatos were specially so, not less than 100 dishes being staged in some ten classes of single dishes. Early Rose, dubbed the poor man's Potato, was represented by about fifty dishes, and was considered the best kind amongst coloured kidneys. Schoolmaster was the best white round, Vicar of Laleham the best coloured round, and Magnum Bonum the finest white kidney. Nearly all vegetables were good, and there were some excellent fruits, especially Apples and Currants. Window plants were very numerous, and many very good—indeed, throughout the exhibits were quite remarkable for a first show, and we can but think that many of the cottagers must previously have had some little experience in flower shows. Added to these products was a fine collection of flowers from the Messrs Sutton & Sons, of Reading, alluded to elsewhere, a very fine group of plants sent by Mr. Lees, gr. to Mrs. Marsland, The Wilderness, Earley, and who is also the chief promoter and organiser of the show; also a very showy group sent by Mr. E. Bennett, gr. to M. Lonergan, Esq., Cressingham, who also had a charming box of cut flowers, that included blue Agapanthus, Gloxinias, Begonias, Kalosanthes, Eucharis, &c. Mr. Lees had a very fine Pandanus Veitchii, giant pyramidal Fuchsias, some noble Araucarias, Crotons, Coleus, &c. Mr. Turtin, gr. to Mr. Hargreaves, put up a capital collection of vegetables, including several handsome lots of Potatos, and some superb Black Hamburgh and Foster's Seedling Grapes.

Under the influence of recent genial rains the pleasure grounds were looking exceedingly gay, and though the flower beds, set in a mass of gravel, right in the lawn, as designed by a landscape gardener, are a fearful abortion, yet they looked as well as could be under the deterring conditions. Viola Mulberry, left in the beds where it had been all the previous winter, was most effective, quite full of bloom. The Tropæolum, Bedfont Rival, bright scarlet, and Lobelia, Heckfield Favourite, were amongst the best flowering bedding plants. In the plant-houses Tacsonia exoniensis was in grand bloom, hanging down 8 feet in length. Bougainvillea glabra, upon the back wall of one house, was then, and had been all the summer, a mass of beautiful mauve bracts. Lonicera semperflorens minor is also a capital cool climber here, and flowers profusely and almost perpetually. In the vineries the Vines have made marvellous growth, and though but young have carried some very fine fruit. That the natural soil suits the Vine is evident, and a couple of years hence Mr. Turtin will doubtless have first-class Grapes. In the kitchen garden a large number of dwarf, semi-pyramidal Apple trees, planted three years, are doing well, and mostly fruiting well. One of the finest, and a very handsome kind, is Frogmore Prolific, a large keeping sort that merits a place in every collection. Also remarkably good are Hawthornden, Small's Admirable, Lord Suffield, Stirling Castle, Cockle Pippin, Cellini Pippin, King of the Pippins, Scarlet Nonpariel, Sturmer Pippin, Rosemary Russet, Cox's Pomona, Rymer, and Golden Blenheim; Kerry Pippin and Irish Peach Apple, both on young trees, and an old tree in another garden, have fine crops. The soil suits vegetables well, and the place is evidently in good hands.

Southampton Horticultural: *July* 30 *and August* 1.—The summer show of this flourishing Society took place as usual in Westwood Park, on Bank Holiday and the Saturday previous, and again—barring the weather—proved as great, perhaps a greater success than on previous occasions. There were over 200 entries more than the average of the past few years, and certainly the products of every description were at least equal—some much superior—to anything that has ever been seen at a Southampton show; there was no lack of exhibitors, or of first-class products, both as regards plants, fruits, and vegetables. The Society has done good work, in the last department particularly, for but a very few years back these were not only staged in limited quantities, but were third-rate in quality. Fruit is not yet shown in such quantities as might be expected at Southampton, but improvement is visible, and will no doubt increase as the Society sees its way to be a trifle more liberal in this portion of the schedule. As regards plants it will be seen how well this part of the show was filled by mentioning the names of such exhibitors as Messrs. Jackson, of Kingston, Mr. Tudgey, of Henwick Grange, Mr. Rann, of Handcross Park, Mr. Crawley, and Mr. Cypher, of Cheltenham, together with several local celebrities that have made rapid strides in the cultivation of plants by, and in consequence of the establishment of the Society. When it is said that the schedule contained upwards of 100 classes, it will at once be seen that space could not be afforded even to mention anything like the whole of the exhibits, and therefore nothing further will be attempted than a record of the principal exhibits and prize-takers. Following the order of the schedule prizes of £20, £15, and £10 were offered for twelve stove and greenhoues plants, not less than six to be in bloom. There were three competitors, the whole showing well, and so nearly equal that the judges had some difficulty in making their awards, which were—1st, to Mr. Tudgey, Henwick Grange, whose best plants were Cordyline indivisa, Croton Queen Victoria, Ixora Dixiana, Dipladenia amabilis, Latania borbonica, and Pritchardia pacifica; 2d, to Mr. Cypher, nurseryman, Cheltenham, his best plants being Cordyline indivisa, Croton Disraeli, Encephalartos villosus, and Allamanda nobilis; 3d, to Mr. Rann, Handcross Park, Crawley, his best plants being Cycas revoluta, Areca superba, Allamanda Wardleana, and a magnificent specimen Gleichenia rupestris glaucescens. The next class was a group of miscellaneous plants arranged for effect as a conservatory group in a space of 11 feet by 10, the prizes being £6, £4, £3, £2, and £1. Here there were eight competitors, all showing meritoriously, though with one or two exceptions the plants were far too crowded to be effective. The 1st award was made to Mr. Wills, gr. to Mrs. Pearce, The Firs, Bassett, whose group was a long way ahead of any of the other prize groups, both as to material and arrangement; Mr. Kingsbury, nurseryman, Bevois Valley, Southampton, was 2d

with a group containing more flower than the 1st prize lot, but commercially of much less value [This should never count in groups set up for "effect." Eds.]; the 3d and 4th prizes went to Mr. Philp, gr. to C. A. Day, Esq., The Polygon; and Mr. Amys, gr. to the Hon. Mrs. Eliot Yorke, Netley Fort. The Messrs. Jackson, of Kingston, also showed a fine group, which the judges must have overlooked, it being certainly a good 2d to the 1st prize lot. In the class for a collection of eighteen miscellaneous plants, not less than six of them in flower, three competitors came forward, the 1st prize again going to Mr. Wills, who had a marvellous specimen of Alocasia Lowii, an equally fine specimen of Maranta roseo-picta, and a good Dieffenbachia Bowmanii. The 2d prize was taken by Mr. Blandford, gr. to Mrs. Haselfoot, West End, his best plants being Croton Disraeli, Dipladenia amabilis, Eucharis amazonica, and Dicksonia antarctica; the 3d prize went to Mr. Amys, his most meritorious plants being Cycas revoluta, a well-flowered Vinca rosea, and Lygodium scandens. In the class for fifteen miscellaneous plants all the exhibitors were nurserymen, the Messrs. Jackson, of Kingston, gaining an easy victory, all their plants being superb, but especially so were Kalosanthes Dr. E. Regel, Stevensonia grandiflora, Phyllotænium Lindeni, and Erica Fairrieana. The 2d and 3d prizes went to Mr. Kingsbury, and Messrs. Oakley & Watling, St. Mary's Road, Southampton. The private growers monopolised the next class for nine miscellaneous plants, all being of high merit, and the awards going to Mr. Molyneux, gr. to W. H. Myers, Esq., Swanmore Park, Bishops Waltham; Mr. Barden, gr. to G. Y. Mercer, Esq., Hillfield Bassett; and Mr. Hayes, gr. to A. Barlow, Esq., Oatlands, Shirley. Orchids were represented by two collections only, the 1st award going to Mr. Osborne, gr. to H. J. Buchan, Esq., Wilton House, Southampton, who invariably occupies this position at the Southampton show, his plants bespeaking how well their custodian understands their culture. The Messrs. Jackson had 2d place, several of their plants being past their best. Following these were classes for Begonias, Ferns, Fuchsias, Pelargoniums, Celosias, Gloxinias, and Coleus, the most noteworthy productions in these classes being the Begonias shown by Mr. Wills and Mr. Osborne, the Fuchsias and Gloxinias by Mr. Allen, gr. to J. Bailey, Esq., Elmfield Hill, Southampton; the zonal Pelargoniums by Mr. G. Windebank, and the variegated Pelargoniums by Mr. Wills; the above-named exhibitors taking the 1st prize in their various classes. The classes for single specimen plants and the amateur plant classes were well filled, but space forbids special remark on any of these. The table decorations and cut flowers are always a great feature at this show; in the former class there were six competitors, all of them meritorious, the 1st, 2d, and 3d prize tables being particularly so, the awards going to Mr. F. E. Chamberlain, Rose Villa Avenue; to Mrs. Fuidge, the wife of the Secretary; and to Mr. Wills, The Firs, Bassett, in the order named. The prize-takers for epergne decorations, baskets, and stands of cut flowers, bouquets, and buttonhole bouquets, were Mr. Cypher, who had the 1st prizes for epergne, bridal and ball bouquets; Mr. Hillier, nurseryman, Winchester, for buttonhole bouquets; and Miss Chamberlain, for the best arrangement of cut flowers in baskets and vases. The Messrs. Keynes, of Salisbury, took the 1st prize for twenty-four blooms of Roses; Mr. W. J. Cross, also of Salisbury, being a good 2d. Dahlias were also well shown by Messrs. Keynes, who had in their stand magnificent flowers of Rosy Morn, Percy Wyndham, and Christopher Ridley. Mr. W. J. Cross, nurseryman, of Salisbury, had a large stand of a new seedling Carnation named The Governor, for which he received the First-class Certificate of the Society: the colour is a blush-white, a large flower, with very large flat petals, and of good form.

Fruit.—There was a very good display, some of it very good and some very bad. In the class for eight dishes there were four lots put up, the 1st prize going to Mr. Ollerhead, gr. to Sir Henry Peek, Wimbledon House, his best dishes being a grand Smooth Cayenne Pine, fine Black Hamburgh and Muscat of Alexandria Grapes, and a white seedling Grape somewhat like Buckland Sweetwater, Pitmaston Orange Nectarines, and Brunswick Figs. Mr. Thomson, gr. to W. Baring, Esq., Norman Court, was a good 2d; he had Grosse Mignonne Peaches, Buckland Sweetwater Grapes, and white (unnamed) Figs, in splendid form; the 3d and 4th places were filled by Mr. Budd, gr. to F. C. Dalgely, Esq., Lockerly Hall, Romsey, and Mr. Thirlby, gr. to Lord Mount Temple, Broadlands, Romsey. For six dishes of fruit there were five entries, by far the best coming from Mr. Myers, of Swanmore Park, who had large bunches superbly finished of Madresfield Court Grapes, good Muscat Grapes, and Read's Hybrid Melon. The 2d and 3d awards went to Mr. McMillan, gr. to Sloane Stanley, Esq., President of the Society, and to Mr. Horsefield, gr. to Lord Heytesbury, Heytesbury Park. For three bunches of black Grapes Mr. Molyneux was again to the front with Madresfield Court; Mr. Horsefield 2d, with really fine Hamburghs; and Mr. Hellier, of Winchester, 3d, he also showing good Hamburghs. For three bunches of white Grapes Mr. Molyneux again took the lead with Muscat of Alexandria, only wanting a trifle more colour to make them perfect; Mr. Ollerhead 2d, with good bunches, but rather smaller in berry; and 3d Mr. Hall, gr. to Captain Davison, South Stoneham House, who had also good Muscats. For a single bunch of Black Hamburgh thirteen lots were staged, half of them not fit for an exhibition table at all; the prize lots were about the usual average in quality, the winners being Mr. Sanders, gr. to J. East, Esq., Longstock House, Stockbridge; Mr. Ollerhead, Mr. Hillier, and Mr. Budd. Peaches, Melons, Nectarines, Figs, and small fruits were shown in quantity, and for the most part—Peaches and Nectarines in particular—in excellent form.

Vegetables.—The entries in these classes were numerous, and the quality first-rate throughout. For a collection of twelve varieties Mr. Sanders was 1st, his best dishes being Flanders Carrots, extra fine Stamfordian Tomatos, Telephone Peas, and Tender and True Cucumbers; Mr. Molyneux was an excellent 2d, showing very fine Celery, Tomatos, Telegraph Peas, and Canadian Wonder Beans; Mr. Amys, who came in 3d, had also most creditable produce. For nine varieties Mr. Allen had the best of thirteen lots staged, and yet all were in prime condition.

The amateur classes in this department of the show were equally well filled, the prizes going to Captain Gibbs, Mr. Guillaume, Mr. Bitteridge, and Mr. Chamberlain. The only other exhibits that call for special remark in this part of the show were the autumn-sown Onions, shown by Mr. McMillan and Mr. Webb, and the ½ cwt. of Potatos by Mr. Payne, of Shirley, these products being far above average merit.

The miscellaneous classes were also well filled by cut flowers—Begonias, Verbenas, Zinnias, &c.—from the Messrs. Cannell, of Swanley; cut flowers of Begonias, from Messrs. Laing & Co., of Forest Hill; and a very large collection of Pelargoniums, from Messrs. Elcombe, of Romsey.

The entire arrangement and management of the show was under the superintendence of the Secretary, Mr. Fuidge, his lieutenants being some half dozen of the more energetic members of the committee, who are to be congratulated on the excellent manner in which the whole of the arrangements were carried out, and also on the fact (bad weather notwithstanding) that the financial part of the business ended satisfactorily.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 10, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Aug.	In	In.	°	°	°	°	°	°	°		In.
4	30.11	+0.36	80.1	58.7	21.4	66.3	+ 4.1	59.3	78	S.W.	0.00
5	29.83	+0.08	84.3	54.8	29.5	69.0	+ 6.8	56.9	65	S : SW.	0.00
6	29.97	+0.22	74.0	56.3	17.7	62.8	+ 0.7	52.7	69	W : SW	0.00
7	29.90	+0.15	74.0	52.6	21.4	62.0	0.0	51.9	70	S.W.	0.00
8	29.56	−0.19	74.2	54.7	19.5	63.1	+ 1.1	57.9	83	S.W.	0.42
9	29.53	−0.22	70.5	52.7	17.8	59.8	− 2.3	50.2	71	W.	0.05
10	29.68	−0.08	68.0	50.3	17.7	58.2	− 3.9	46.2	65	S.W.	0.00
Mean	29.78	+0.05	75.0	54.3	20.7	63.0	+ 0.9	53.6	71	S.W.	0.47

Aug. 4.—Dull, still, cloudy morning; fine pleasant day from noon; calm, fine night.
— 5.—A fine warm day and night.
— 6.—A fine pleasant day; a fine clear night.
— 7.—A fine day and night.
— 8.—A fine morning, but dull; heavy rain from 4 P.M. to 9 P.M; overcast at night.
— 9.—A fine and pleasant day; sky generally cloudy: sun shining bright at times.
— 10.—A fine pleasant day and night; strong wind at night.

London: *Atmospheric Pressure.*—During the week ending August 6, the reading of the barometer at the level of the sea decreased from 29.81 inches at the beginning of the week to 29.52 inches by 3 P.M. on July 31; increased to 30.34 inches by 9 A.M. on August 4; then decreased to 29.97 inches by midnight on the 5th, and was 30.21 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.04 inches, being 0.15 inch higher than that of the preceding week, and 0.11 inch above the average for the week.

Temperature.—The highest temperature in the shade in the week was 84.°3 on the 5th; the next in order were 80°.1 on the 4th, and 74° on the 2d and 6th. On July 31 the temperature did not rise above 66°.8. The mean of the seven high day temperatures was 74°.8.

The lowest temperature in the week was 52°, on the 1st and 3d, and on August 4 the lowest temperature was 58°.7. The mean of the seven lowest temperatures was 55°.2.

The greatest range of temperature in one day was 29°.5, on the 5th; the next in order was 21°.4, on the 4th; the smallest was 9°.6, on July 30. The mean of the seven daily ranges was 19°.6.

The mean daily temperatures were, on July 31, 60°; on August 1 was 61°.4; on 2d was 62°.7; on 3d, 60°.7; on 4th, 66°.3; on 5th, 69°; on 6th, 62°.8; of these July 31, August 1 and 3, were below their averages by 2°.3, 0°.9, 1°.5, respectively; and August 2, 4, 5, and 6 were above their averages by 0°.4, 4°.1, 6°.8, and 0°.7 respectively.

The mean temperature for the week was 63°.3, being 3°.9 above that of last week, and 1° above the average of the same week for sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 137°.3, on the 5th, and the highest, on July 31, was 71°. The mean of the seven readings was 117°.6.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 45°.8, and the mean of the seven readings was 50°.1.

Rain fell on two days, to the amount of 0.56 inch in the week, of which 0.48 inch fell on July 31.

England: *Temperature.*—During the week ending Saturday, August 6, the highest temperatures were 88° at Sunderland, 87° at Cambridge,, and 84°.3 at Blackheath. The highest temperature in the week at Plymouth was 71°.7, at Truro and Brighton it was 76°. The mean from all stations was 80°.7.

The lowest temperatures in the week were 41° at Truro, 41°.1 at Nottingham, and 43° at Hull; the lowest temperature at Blackheath was 52°, at Brighton 51°, and at Liverpool 50°.4. The general mean from all stations was 46°.6.

The greatest ranges of temperature in the week were 41°.9 at Nottingham, and 40° at Hull and Sunderland. The smallest ranges were 22°.1 at Plymouth, and 25° at Brighton. The general mean was 34°.2. The mean of the seven highest day temperatures exceeded 74°.5 at Cambridge, Sunderland and Blackheath, and was less than 70° at Plymouth, Bristol, Liverpool, and Bradford. The general mean from all stations was 72°.

The mean of the seven lowest night temperatures exceeded 55° at Plymouth, Brighton, and Blackheath; and was less than 51°.5 at Wolverhampton, Nottingham, and Hull. The general mean was 53°.3.

The mean daily range exceeded 23° at Cambridge and Sunderland, and was less than 14° at Plymouth and Liverpool. The general mean was 18°.7.

The mean temperature for the week exceeded 63° at Blackheath and Cambridge, and was less than 60° at Bristol, Liverpool, and Hull. The general mean was 60°.9.

Rain.—The largest falls were 1.19 inch at Sunderland, 1.11 inch at Hull, and 1.05 inch at Portsmouth; the smallest falls were 0.05 inch at Truro, 0.20 inch at Cambridge, and 0.27 inch at Sheffield. No rain fell at Wrottesley. The general mean fall was 0.58 inch. It fell on an average on two and three days.

Scotland: *Temperature.*—During the week ending Saturday, August 6, the highest temperature was 76° at Edinburgh; at Greenock it was 70°. The general mean was 72°.4.

The lowest temperature was 37° at Glasgow; at Dundee the lowest temperature in the week was 43°. The general mean was 40°.4.

The mean temperature was highest at Leith, 58°.9; and lowest at Greenock, 56°.2. The general mean was 57°.7.

Rain.—The largest fall was 1.71 inch, at Greenock; the smallest fall was 0.24 inch, at Edinburgh and Leith. The general average fall was 0.63 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Shell Creeper of Natal.—Can any reader furnisb the botanical name of this plant, which has scarlet flowers, and which is known to the natives by some such name as Coraculo?

Answers to Correspondents.

"Bot. Mag.:" *G.* As the plates form one continuous series it is more convenient to cite the number of the plate only. Moreover, the risk of error—always great in a periodical necessarily often prepared in haste, and without the possibility of checking references—is by so much diminished.

Brick-kiln: *J. Smith.* Yes, if the vegetable life is in proximity or in the direction of a current from the kiln.

Grape Judging: *C. I.* Judges do not, as a rule, make it a practice of tasting Grapes at exhibitions, unless they are shown in a class where flavour is the first consideration; but in a close competition, where external appearances are equal, they are certainly justified in appealing to the test of flavour: in fact, how otherwise could they better ascertain the relative qualities of each?

Insects on Vine Roots: *J. F.* They are badly infested with the Phylloxera.

LICHEN: *X. P. R.* Usnea barbata. Leighton's *Lichen Flora of Great Britain.*

LIVERPOOL HORTICULTURAL SHOW.—By an oversight our correspondent omitted to mention that Messrs. Foster & Pearson received a Gold Medal, the highest award, for the same house which secured a similar award in London against sixteen competitors.

MAPLES: *J. Stewart & Sons.* So far as we can tell from detached leaves, your varieties do not seem to be better than many already in cultivation.

NAMES OF PLANTS: *T. C.* 1, Syringa Emodi; 2, Pavia macrostachya.—*Chas. L. Teesdale.* A double form of Chrysanthemum carinatum. The Vetch's Vicia sativa. It is certainly not possible for Sweet Peas to turn into Vetches.—*Camjee.* Spiræa arifolia. *W. B.* 1, Lythrum Salicaria; 2, Clematis Vitalba; 3, Artemisia vulgaris; 4, Agrimonia Eupatoria.—*C. U. R.* Next week.—*F. R.* We cannot undertake to name Roses; there are too many of them.—*A. X. D.* Lysimachia ciliata.—*G. C. S.* 1, Saxifraga Andrewsii; 2, Sedum oppositifolium; 3, Saxifraga Aizoon, var.; 4, S. cæspitosa.—*A. G. R.* Epipactis media.—*H. McMillan.* 1, Pyrus domestica; 2, seems to be a large-leaved form of Taxus baccata.—*H. J. C.* Epipactis media, Arundo Phragmitis, Hippurus vulgaris, Sparganum ramosum, Melilotus officinalis.—*James Bayliss.* Odontoglossum Lindleyanum.—*Thos. Herbert.* Pholidota articulata.—*J. Smith.* 1, Brachypodium pinnatum; 2, Artemisia vulgaris; 3, Tamarix Gallica; 4, Ononis arvensis; 5, Erythræa centaurea; 6, Senecio Jacobæa. We cannot undertake to name more than six at a time.—*C. C.* 1, Lycaste Deppei; 2, Physosiphon Loddigesii.

POTATOS: *I. F. B.* 1, By crossing the flowers of different varieties artificially. 2, No. 3, No; there is no such thing as a disease-proof variety, but some sorts are less susceptible than others.

THE ELM: *Correspondent.* Neither the Elm nor the ordinary Lime are truly indigenous. Both have been introduced.

CATALOGUES RECEIVED.

WM. CUTBUSH & SON, Highgate, N.—Hyacinths, Tulips, and other Bulbous Roots.

LITTLE & BALLANTYNE, Carlisle—List of Bulbs, &c.

LAW, SOMNER & CO., Cremorne Nurseries, Richmond, Melbourne—Plants, Trees and Shrubs, Roses, Fruit Trees, &c.

WM. PAUL & SONS, Waltham Cross, N.—Bulb Catalogue.

COMMUNICATIONS RECEIVED:—J. G. B.—A. Milne.—J. M.—D. T. F.—J. B.—R. M'I.—S. J.—P. G.—G. G.—N. E. B.—C. N. R.—J. C. F.—R. P.—E. J.—W. H. F.—W. E. G.—G. M.—B. B.—J. A. H.—C. N.—W. B.

Markets.

COVENT GARDEN, August 11.

Market quieter. Large supplies of Grapes from Channel Islands now reaching us, seriously affecting home-grown fruit. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Herbs, per bunch	0 2– 0 4
Asparagus, English, per bundle	0 9– ..	Horse Radisb, p. bun.	4 0– ..
Aubergines, each	0 4– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
Beans, French, p. lb.	0 6– ..	— Engl. Cos, score	1 6– ..
— Broad, per bush.	4 0– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
— New Fr., bund.	0 9– 1 0	Parsley, per bunch	0 4– ..
Cauliflowers, English, dozen	4 0– 6 0	Peas, per bushel	5 0– 8 0
Celery, per bundle	1 6– 2 0	Radishes, per bun.	0 2– 0 6
Cucumbers, each	0 6– 1 0	Rhubarb, per bund.	0 4– 0 6
Endive, per doz.	2 0– 3 0	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	4 0– ..
		Tomatos, per lb.	0 9– 1 0
		Vegt. Marrows, doz.	3 0– ..

Potatos very plentiful, and prices much lower.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 6– 3 6	Lemons, per 100	4 0– 6 0
Apricots, per doz.	1 6– ..	Melons, each	2 0– 3 0
Currants, red, ½-sieve	3 0– 4 0	Peaches, per dozen	4 0–15 0
— black, ½-sieve	6 0– ..	Pine-apples, Eng., lb.	2 0– 3 0
Figs, per dozen	3 0– ..	Plums, per ½-sieve	4 0– 7 0
Gooseberries, ½-bush.	2 6– 3 6	Raspberries, per lb.	0 4– 0 6
Grapes, per lb.	1 0– 2 6	Strawberries, per lb.	0 6– 1 0
Kent Filberts, per lb.	0 9– ..		

An advance of 20 per cent. on the above prices may be taken as a fair average of the retail value of the articles quoted.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Fuchsias, per dozen	3 0– 9 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ivy Geranium, doz.	4 0– 6 0
— (common), dozen	6 0–12 0	Lilium lancifolium, per doz.	12 0–36 0
Begonias, per doz.	4 0–12 0	— auratum, p. doz	24 0–60 0
Calceolaria, per doz.	4 0– 9 0	Lobelia, per dozen	4 0– 6 0
Cyperus, per dozen	6 0–12 0	Marguerite, white, per dozen	18 0–24 0
Dracæna terminalis	30 0–60 0	— Yellow, per doz.	12 0–30 0
— viridis, per doz.	12 0–24 0	Mignonette, per doz.	3 0– 6 0
Euonymus, various, per dozen	6 0–18 0	Myrtles, per doz.	6 0–12 0
Evergreens, in var., per dozen	6 0–24 0	Palms in variety, each	2 6–21 0
Ferns, in var., p. doz.	4 0–18 0	Pelargoniums, doz.	9 0–18 0
Ficus elastica, each	1 6– 7 6	— scarlet, per doz.	3 0– 6 0
Foliage Plants, various, each	2 0–10 6	Rhodanthe, per doz.	6 0–10 0
		Solanums, per dozen	9 0–12 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 2– 0 4	Pelargoniums, 12 sprays	0 9– 1 0
Bouvardias, per bun.	0 9– 1 6	— zonal, 12 sprays	3 0– 6 0
Calceolaria, 12 bun.	6 0–12 0	Pinks, various, 12 bunches	3 0– 6 0
Carnations, 12 bun.	3 0– 6 0	Primula, double, per bunch	6 0– 1 0
Cornflower, 12 bun.	1 6– 3 0	Rhodanthe, 12 bun.	8 0–12 0
Eucharis, per doz.	4 0– 6 0	Roses (indoor), doz.	1 0– 3 0
Feverfew, 12 bun.	3 0– 6 0	— (outdoor), 12 buo.	4 0– 9 0
Forget-me-not, 12 bunches	3 0– 6 0	Stephanotis, 12 spr.	4 0– 6 0
Gardenias, 12 blms.	3 0– 8 0	Sweet Pea, 12 bun.	3 0– 6 0
Heliotropes, 12 sp.	0 6– 1 0	Sweet Sultan, 12 bun.	4 0– 8 0
Lapageria, white, 12 blooms	4 0– 6 0	Tropæolum, 12 bun.	1 0– 3 0
— red, 12 blooms	1 0– 3 0	Tuberoses, per dozen	0 9– 2 0
Marguerites, 12 bun.	4 0– 6 0		
Mignonette, 12 bun.	1 6– 3 0		

SEEDS.

LONDON: *Aug.* 10.—The seed market to-day was fairly attended, with an average amount of business doing. The recent rains have naturally stimulated the demand for those kinds of seeds required for immediate sowing. Trifolium is in improved request at full rates. For Mustard and Rape seed there is also a better sale. Samples of new Trefoil are realising good prices. Holders of French Italian ask more money. For Canary seed values have lately hardened somewhat. The new winter Tares and Rye show excellent quality. As regards blue Peas the breadth saved this season will be small. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday samples of new Wheat were shown, representing about 300 qr. The quality varied a good deal more than is usual in the earliest samples; 47*s.* to 53*s.* per quarter were the rates obtained. Foreign Wheats were very firm, and in some instances dearer than last week. Flour was not a quick sale, but was firm. Barley supported full value. Beans and Peas tended against buyers, the former more especially. Maize on the spot was fully 1*s.* dearer than on Friday week; flat corn was held for 26*s. ex* ship. This tended to help the Oat trade, and sales were made at rather firmer rates.—On Wednesday business commenced with a decided improvement in the demand for Wheat, which resulted in fully 1*s.* per quarter advance on Monday's rates. At the finish the tone was rather more subdued. Flour met more enquiry, at 6*d.* advance. Barley and Peas were very firm and hardening, and Beans the turn dearer. Maize showed still further improvement, and Oats, with more enquiry, advanced 6*d.*—Average prices of corn for the week ending August 6:—Wheat, 46*s.* 9*d.*; Barley, 30*s.* 1*d.*; Oats, 24*s.* 4*d.* For the corresponding period last year:—Wheat, 43*s.* 9*d.*; Barley, 25*s.* 7*d.*; Oats, 28*s.* 2*d.*

CATTLE.

At the Metropolitan Market on Monday the beast supplies were light, of prime qualities more especially. Sales were closed more readily, at an advance of 2*d.* per stone, and the market was cleared. Sheep also were taken off with a better demand at a similar advance. Lambs brought late rates. Calves' dull not sell readily, but supported late value. Quotations:—Beasts, 4*s.* to 4*s.* 4*d.*, and 4*s.* 8*d.* to 5*s.* 6*d.*; calves, 4*s.* 8*d.* to 5*s.* 6*d.*; sheep, 5*s.* to 5*s.* 8*d.*, and 5*s.* 10*d.* to 6*s.* 6*d.*; lambs, 6*s.* 8*d.* to 7*s.* 2*d.*—Thursday's cattle trade was quiet, and without much change. Beasts and sheep sold slowly at the above prices. Lambs were hardly so firm, but calves were rather better.

HAY.

Tuesday's Whitechapel Market report states that with moderate supplies and a fair demand prices were steady, as follows:—Prime Clover, 100*s.* to 132*s.*; inferior, 60*s.* to 90*s.*; new, 110*s.* to 126*s.*; prime meadow hay, 95*s.* to 130*s.*; inferior, 60*s.* to 85*s.*; new, 100*s.* to 126*s.*; straw, 30*s.* to 52*s.* per load.—On Thursday a fair supply of fodder met with a steady trade at the above rates.—Cumberland Market quotations:—Superior old meadow hay, 110*s.* to 126*s.*; inferior, 84*s.* to 95*s.*; new hay, 100*s.* to 123*s.*; superior old Clover, 118*s.* to 132*s.*; inferior, 90*s.* to 105*s.*; new, 105*s.* to 120*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that with fair supplies the trade is quiet, at the following prices:—English, 5*s.* to 8*s.*; Cherbourg round, 4*s.* to 5*s.*; kidneys, 5*s.* to 9*s.*; Jersey ditto, 7*s.* to 7*s.* 6*d.* per cwt.—Imports into London last week:—105 tons St. Malo, 142 sacks St. Nazaire, 300 cases Cherbourg, 553 cases Barfleur, 262 baskets Rotterdam, and 176 tons Point l'Abbé.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 14*s.* 6*d.*; East Wylam, 15*s.* 6*d.*; Ravensworth West Hartley, 14*s.* 6*d.*; Walls End—Hetton, 16*s.* 6*d.*; Hetton Lyons, 14*s.* 6*d.*; Lambton, 16*s.*; Wear, 14*s.* 6*d.*; Tunstall, 14*s.* 6*d.*; Tees, 16*s.* 3*d.*; Haswell, 16*s.*; Hawthorns, 14*s.* 3*d.*; Original Hartlepool, 16*s.*; South Hetton, 16*s.*; Chilton Tees, 15*s.*; Radford Navigation, 17*s.* 6*d.*; Westminster-Brymbo and Wrexham Navigation, 13*s.* 9*d.*

Government Stock.—The closing prices of Consols on Monday and Tuesday were, for delivery, 100⅜ to 100¼, and 100½ to 100⅜ for the account. No alteration was recorded on Wednesday. The closing quotations on Thursday were, 100⅜ to 100¾, for delivery, and 100 11/16 to 100 13/16 for the account.

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Lawn Mowers. — Lawn Mowers.

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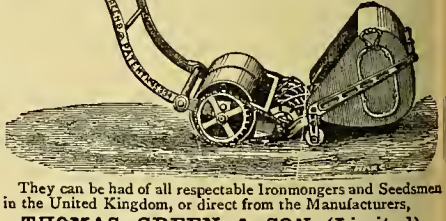
A SILVER MEDAL, the FIRST and HIGHEST PRIZE of the above Society, was awarded to
GREEN'S
Patent "Silens Messor" Lawn Mowers,
AT THE ABOVE EXHIBITION.
The *Journal of Horticulture* of June 9 says: "MOWING MACHINES.—The judges' work in this class of eight exhibitors, each having a number of machines, was no sinecure, for special advantages in some form or other were claimed for each kind of mower; and it may be safely said that all were good and did their work well. After a critical examination the Silver Medal was granted to the old firm, of world-wide fame, Messrs. T. Green & Sons, of Leeds and London. As the machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."
The Garden of June 11 says: "Messrs. Green took the Silver Medal for their mowing machines, which were represented by their 'Silens Messor' and the horse-power machines with new patent side delivery grass boxes."



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11 × 9 to 14 × 10 .. 10*s.* 0*d.*, 11*s.* 6*d.*, 12*s.* 6*d.*, 13*s.* 6*d.*
15 × 10 to 18 × 12 .. 11*s.* 0*d.*, 12*s.* 0*d.*, 13*s.* 0*d.*, 14*s.* 0*d.*
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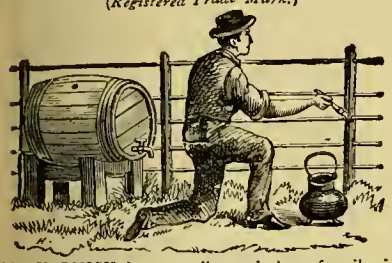

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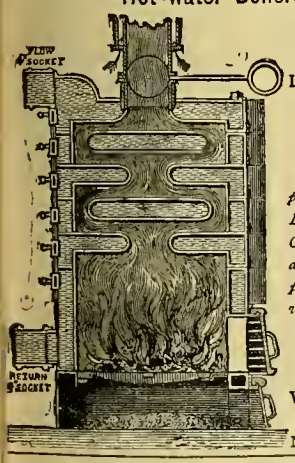

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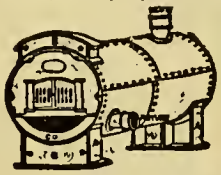

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DR. HOLMAN'S PAD IS NOT A GUESS-WORK REMEDY—IT IS THE **Original and only genuine curative Pad**, THE ONLY REMEDY THAT HAS AN HONESTLY-ACQUIRED RIGHT TO USE THE TITLE-WORD **"Pad"** IN CONNECTION WITH A TREATMENT FOR CHRONIC DISEASES OF THE **Stomach, Liver,** AND **Spleen.** HOLMAN'S PAD HAS SUCH COMPLETE CONTROL OVER THE MOST PERSISTENT FORMS OF **Chronic Disease** OF THE **Stomach** AND **Liver,** AS WELL AS **Malarial Blood-Poisoning,** AS TO AMPLY JUSTIFY THE EMINENT **Prof. Loomis'** HIGH ENCOMIUM: **"It is nearer a Universal Panacea than anything in medicine!"** The HOLMAN PAD, placed over the Stomach and Liver, from which nearly all diseases have their origin, will exert a never-failing beneficial influence over the vital forces—nerves and blood. It contains wonderful properties, consisting of healthy tonics that are sent into the system by ABSORPTION, stimulating the great nerve centres that pervade the digestive organs, without which digestion and good vitalising fluid (blood) is impossible. Pamphlet with description of cases free to any address. The principle is logical and natural, and is universally acknowledged to be correct; the practice is simple, easy, and effectual. Price, regular size, 10s. If not readily obtained of nearest chemist, sent by post, free, on receipt of cheque or P.O. order, payable to order of J. M. RICHARDS, Gt. Russell St. Post Office, London. THE HOLMAN PAD COMPANY, Gt. Russell St. Buildings, London, W.C. (late Argyle Street, Regent Street).

To Gardeners.

R. JOHNSON, The Metropolitan Nurseries, Rondebosch, Cape Town, having on various occasions satisfactorily complied with the requests of many residents in this colony who entrusted him with the selection (from England) of Gardeners in Want of Places, as further applications are still being made in that respect, R. J. has resolved upon establishing a GARDENER'S REGISTRY, where Gardeners who are in want of places in coming to the Cape would find it to their advantage to have their names, qualifications, &c., duly recorded for the inspection of Ladies and Gentleman in want of such. In addition to the foregoing R. J. will not only find employment in these nurseries till suited, but will advertise gratuitously, thus enabling him to further this object considerably with the hope of supplying the wants of both *employé* and employer.—July 18, 1881.

WANTED, a HEAD GARDENER, thoroughly qualified to undertake the Management of an extensive place. Must be well versed in the Forcing and Plant Departments.—Apply, by letter only, stating salary and age, &c., to W. ALLEN, Esq., 28, Wilton Street, Liverpool.

WANTED, an UNDER GARDENER and WIFE, without family—husband for Greenhouses, &c.; wife for Poultry. Wages 20s. with cottage.—ADVERTISER, Windlesham Court, Bagshot, Surrey.

PLANTSMAN WANTED.—A Gentleman having a Head Gardener, whose time is fully occupied in Growing Fruit, wishes to meet with a thoroughly experienced man as above, who has devoted his attention exclusively to Growing Stove Plants, Ferns, Orchids, &c., for Exhibition; also Cut Flowers for Market. Wages 25s., and good Cottage. First-rate testimonials required.—State age, experience, and full particulars, to A. C., *Gardeners' Chronicle* Office, W.C.

WANTED, a good PROPAGATOR and GROWER of Soft-wooded Plants, who has also some knowledge of Rose Growing. Moral character must bear searching investigation.—Apply, stating full particulars and wages expected, to FRANK HILLIER, Gonville Nursery, Cambridge.

WANTED, a good PLANT GROWER for Exhibition—one used to Nursery Business. Wages, £1 5s. per week, house-rent and firing.—Norbury Nursery, Lower Streatham, Surrey, S.W.

WANTED, a young MAN, under the Foreman, in the Fruit Growing Department principally. Wages 18s. per week.—EDWIN HILLIER, The Nurseries, Winchester.

Seed Trade.

WANTED, a MANAGING CLERK and CORRESPONDENT. Thoroughly reliable man, well accustomed to the trade. Will be required to Travel occasionally. State age and experience.—B., *Gardeners' Chronicle* Office, W.C.

Head Shopman.

FRANCIS & ARTHUR DICKSON & SONS, 106, Eastgate Street, Chester, have a VACANCY in their Seed Establishment for a thoroughly experienced and intelligent MAN of good address, who is conversant with all matters relating to the Retail Seed Business, and has also a knowledge of Plants. Applicants are requested to give full particulars of their experience and qualifications, length of service in previous situations, references as to personal character, and salary expected.

WANTED, a SECOND SHOPMAN.—Permanent situation if suited.—Apply, stating wages, and full references, to GEORGE AND WILLIAM YATES, Seedsmen, Manchester.

WANTED, as WAREHOUSEMAN, a thoroughly sober man, accustomed to the trade. Wages, 25s. to commence.—HY. CLARKE AND SONS, 39, King Street, Covent Garden, W.C.

WANT PLACES.

IMPORTANT NOTICE.—Advertisers are cautione against having Letters addressed to INITIALS or to FICTITIOUS NAMES, at Post-offices, a Letters so addressed are not forwarded, but are sen at once to the Returned Letter Office.

B. S. WILLIAMS begs to intimate that h has at present in the Nursery and upon his Registe some excellent Men, competent either to fill the situation c HEAD GARDENER, BAILIFF, FOREMAN, c JOURNEYMAN. Ladies and Gentlemen requiring any of th above will please send full particulars, when the best selection for the different capacities will be made.—Holloway, N.

TO HEAD GARDENERS, NURSERY MEN, &c.—A young German (age 23) seeks a permanen situation. Is a good and intelligent workman. Has receive a high education, and worked in Germany, Holland, Belgium France, and for a time in England. Is a good Designer understands the theory and practice of Garden Architecture also Greenhouse Plant and Tree Nurseries, together with th Seed Business. Best references at disposal.—A. Z., 7, Heat Street, Hampstead, N.W.

GARDENER (HEAD).—Age 28, single respectable and energetic. Good character and test monials.—C. J. BEASLEY, Earls Barton, Northampton.

GARDENER (HEAD); age 38.—ROBER MILLER is desirous of an engagement in the abov capacity, where a practical experienced and trustworthy perso is required.—The Gardens, Rodwell Hall, Trowbridge, Wilts.

GARDENER (HEAD), where two or more ar kept.—Age 26, married; good character; over ten year experience.—T. IRELAND, Orion Cottages, Bath Roa Hounslow, Middlesex.

GARDENER (HEAD), where three or fou are kept.—Age 29, single; fifteen years' experience in a branches. No objection to board in the house. Highly recom mended.—THOMAS JONES, Porter's Park, Shenley, Herts

GARDENER (HEAD).—Age 42; thoroughl practical and energetic. Unquestionable characte Highest reference as to ability.—W. G., T. Woollard, Turner Hill, Cheshunt, Herts.

GARDENER (HEAD), where three or mo are kept.—Sixteen years' experience in Noblemen's an Gentlemen's families. First-class testimonials.—J. G., King cote Road, Harborne, Birmingham.

GARDENER (HEAD).—Age 32, single; open for a re-engagement with any Nobleman or Gentleman requiring the services of a thorough practical Gardener. Good character—J. H. W., 8, The Mount, Shrewsbury.

GARDENER (HEAD), where several are kept.—£10 will be paid to any one assisting Advertiser to obtain a good situation as above. Thoroughly experienced in all branches of the profession. Excellent character.—H. B., 5, Vineyard, Duke Street, Chelmsford, Essex.

GARDENER (HEAD); age 40, married, two children over 12.—EDWARD JONES is open to engage with any one requiring a good general Gardener; in present place as Head Gardener eleven years, the seat of the late Geo. Clive, Esq., M.P., Perrystone, Ross, Herefordshire.

GARDENER (HEAD); age 36, married, no family.—R. MARTIN, Moor Park Gardens, Farnham, Surrey, desires a re-engagement with any Lady or Gentleman requiring the services of a thoroughly practical man in every branch of the profession. Six years in present situation; good character. Please state wages.—Address as above.

GARDENER (HEAD); age 30, married.—Mr. ALEXANDER ANDREW, West Shaw Street Nursery, Kilmarnock, can at present thoroughly recommend the above. Has had twelve years' experience in Growing Vines, Melons, Cucumbers, Orchids, Stove and Greenhouse Plants, Flower and Kitchen Gardening, &c. For particulars address as above.

GARDENER (HEAD), where one or more are kept.—Age 28, married when suited; well up in Stove and Greenhouse Plants, Early and Late Forcing, Fruit, Flower and Kitchen Gardening, Vines, Peaches, Strawberries, Melons, and Cucumbers. Two and a half years' good character.—A. B., Mrs. Gifford, Baddom Road, Chelmsford, Essex.

GARDENER (HEAD).—Age 41, married; thoroughly experienced; competent to manage a large establishment; seven years' character from last situation. Has had great experience in all kinds of Forcing, and the erection and heating of Vineries, &c. Open to engagement October 1.—HORTUS, Mr. R. Veitch's Nurseries, Exeter.

GARDENER (HEAD).—Mr. JAMES DOUGLAS can, with every confidence, recommend his Foreman. Thoroughly practical in all branches. Five and a half years in present situation. Total abstainer.—State wages and particulars to JOHN GILKS, Loxford Hall Gardens, Ilford, E.

GARDENER (HEAD).—Thoroughly experienced in Growing Grapes, Pines, Peaches, Nectarines, and all other Fruits, Orchids, Stove and Greenhouse Plants, Early and Late Forcing of Fruits, Flowers, and Vegetables; good Kitchen and Flower Gardener. Highly recommended; cause of leaving, estate sold.—HEAD GARDENER, Strawberry Vale, Hall Hill Road, Edgbaston, Birmingham.

GARDENER (HEAD, WORKING).—Married; thoroughly experienced in all branches.—M. S., Geo. Sikoner, West Tarring, Worthing.

GARDENER (HEAD, WORKING, where one or two more are kept), or FOREMAN.—Age 29; has had good experience in all branches.—G. GOATMAN, Quedgeley Court, Gloucester.

GARDENER (HEAD, WORKING).—Married; twenty years' practical experience. Also experienced in the Management of Grass Land and Stock. Good references.—GARDENER, Bartley Lodge, Totton, Southampton.

GARDENER (HEAD, WORKING).—Age 40, married, one boy (age 14); understands Gardening in all its branches. Four years' good character. Wife useful.—C. ROBERTS, The Gardens, Clock House, Beckenham, Kent.

GARDENER (HEAD, WORKING), where others are kept.—Age 39, married, no family. Thirteen years in present situation.—GARDENER, Claydon House, Winslow, Bucks.

GARDENER (HEAD, WORKING).—Age 29, married; fourteen years' experience in Vines, Peaches, Cucumbers, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Leaving through death.—W. GREAVES, Hill House, Ifield, Crawley.

GARDENER (HEAD, WORKING).—Age 36, married; twenty years' experience in all branches of the profession; is at liberty to engage with any Lady or Gentleman requiring a good practical Gardener. First-class testimonials as to character and ability. Leaving of own accord.—H. F., 46, Eden Grove, Holloway, N.

GARDENER (HEAD, WORKING).—Age 43, married, no family; is at liberty to engage with any Nobleman, Lady, or Gentleman. Twenty-nine years' constant practical experience in all branches of the profession. First-class testimonials as to character and ability.—J. WILLIS, Hadley, near Droitwich.

GARDENER (HEAD, WORKING, where two or three are kept, or good SINGLE-HANDED).—Age 25, single; understands Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Good character.—F. R., Mrs. Wakelin, near the "Headley Arms," Great Warley Common, near Brentwood, Essex.

GARDENER (HEAD, WORKING).—Married, two children; open to engage with any Lady or Gentleman requiring the services of a thorough practical Fruit and Plant Grower, Flower, Kitchen, and General Gardener; Land, Stock, and Dairy, if required.—A. C., Postman No. 4, Post-office, Epsom.

GARDENER (HEAD, WORKING), where three or more are kept.—Age 45, married, no incumbrance; thoroughly practical in all branches. Good Grower of Stove and Greenhouse Plants, also Forcing Flowers, Grapes, Pines, Peaches, Melons, Cucumbers, &c; no objection to Land and Stock. Good testimonials and character.—R. KNIGHTS, 10, Alpha Road, Slough, Bucks.

GARDENER (HEAD, WORKING).—E. CLARKE, Gardener, Cannon Hall, Barnsley, would be glad to call the attention of any Lady or Gentleman requiring the services of a thorough practical man to his Foreman, George Heasman, who is anxious to meet with an appointment as above. Can be well recommended by past and present employers.

GARDENER (HEAD, WORKING), where more are kept.—Middle-aged, married, no incumbrance; energetic and trustworthy; thoroughly practical in all branches of the profession. Management of Land and Stock if required. Six years' excellent character. Own reason for leaving.—M. REED, Post-office, Tunbridge, Kent.

GARDENER (HEAD, or SINGLE-HANDED).—Age 37, no encumbrance; understands Stove, Greenhouse, and Flower and Kitchen Gardening; also Management of Cows. Twenty-seven years' experience.—E., 14, Waverley Road, Harrow Road, Paddington, W.

GARDENER (HEAD), or GARDENER and FORESTER; age 41, married.—A thoroughly competent man is open to engagement as above. For the past seven years has been engaged in planting and extensive alterations. Accustomed to manage a large staff of men. At liberty at Michaelmas. First-class testimonials as to character and ability.—C. GARDENER, R. Smith & Co.'s Nurseries, Worcester.

GARDENER (WORKING), where two or three are kept.—Age 26, single; highly recommended as to character and ability.—H. G., Royal Botanic Gardens, Regent's Park, London, N.W.

GARDENER (SINGLE-HANDED), or where one or two are kept.—Age 33, married; three and a half years' good character from present situation.—J. H., Cranford, near Hounslow, Middlesex.

GARDENER (SECOND), where three or four are kept.—Age 25, married, one child; two and a half years' character from present employer.—J. C., 4, Bartlett Street, South Croydon.

GARDENER (SECOND), in a Gentleman's establishment.—Age 21; German (speaks English); five years' experience in large Nurseries in Germany, France, and since October last in England. Good references.—O. H. S., *Gardeners' Chronicle* Office, W.C.

GARDENER (SECOND), or JOURNEYMAN in the Houses in a Gentleman's Garden.—R. BARNES, The Node, Welwyn, Herts.

GARDENER (UNDER).—Age 23; seven years' good character. Strong, active and willing. Glass preferred.—R. ALSTON, 13, Oxford Street, Preston, Lancs.

GARDENER (UNDER).—Age 21; strong and willing. Good character.—F. DEBNAM, Much Hadham, Herts.

GARDENER (UNDER), in a Gentleman's Garden or Nursery.—Age 23; can Wait Table.—T. ELLIS, 2, Church Street, Leighton Buzzard, Beds.

GARDENER (UNDER) in a Gentleman's Garden.—Age 20; three years in present situation. Respectable and trustworthy.—Mr. DRIVER, Standish House, Stonehouse, Gloucestershire.

GARDENER (UNDER).—Willing to assist under Glass. Outside generally preferred.—Address, stating full particulars, to F. E., G. W. Gill, Post Office, Wakefield, Yorkshire.

GARDENER (UNDER).—Age 21; accustomed to Lawn, Flower and Kitchen Gardening; also some knowledge of Hothouse Work and Fires. Character will bear strict enquiry.—A. RICKARDS, Crumlin Hall, Newport, Monmouthshire.

FOREMAN, in a good establishment.—Age 27; excellent references as to ability and character.—G. F., The Gardens, Necton Hall, Swaffham, Norfolk.

FOREMAN, in a good establishment.—Young and energetic; has been out before as Foreman. Good references as to character and abilities.—H. B., 56, High Street, Fulham, S.W.

FOREMAN, in a Gentleman's establishment.—RICHARD COX, for the past four years with Mr. Rutland, Goodwood, seeks a situation as above. Ten years' experience in first-class places.—RICHARD COX, Post-office, Chichester.

FOREMAN, in a good establishment; age 24.—The ADVERTISER will be glad to recommend his Second Man as above. He has a good knowledge of Plant and Fruit Growing, very energetic, good workman, not afraid of work and quick. Good character.—J. W., Mr. F. Moore, Masson Terrace, Matlock Bath, Derbyshire.

FOREMAN, in a good establishment.—Thoroughly experienced in Stove and Greenhouse Plants, Vines, Peaches, Melons, Cucumbers, and Early and Late Forcing. First-class reference as to character and abilities.—State full particulars to J. HUGHES, 3, Cromwell Terrace, Birkbeck Road, Upper Holloway, London, N.

To Nurserymen.

FOREMAN (GROUND), or FOREMAN and PROPAGATOR.—Age 33, married; has had experiences in good establishments, where character as to ability, &c., can be had.—JOHN BEATTIE, 24, Hey Green Road, Waverlree, Liverpool.

FOREMAN PLANTSMAN.—Age 29, married; good experience in growing for Exhibition, Market, Cut Flowers; good Propagator and Grafter of Roses, Coniferiæ, &c. District of London preferred.—G. M., Stamford Nurseries, Bowdon, Cheshire.

PROPAGATOR, or FOREMAN.—Thirteen years' experience in some of the leading Nurseries. Well up in Roses, Conifers, and Soft-wooded Plants, &c.—ALPHA, 10, Albert Street, Derby.

JOURNEYMAN, in the Houses, or good SINGLE-HANDED.—Age 22; two years' good character.—R. SUTTON, Sutton, Shipston-on-Stour, Worcestershire.

JOURNEYMAN, in the Houses under a Foreman, where several are kept.—Age 20.—G. SMITH, The Gardens, Berry Hill, Taplow, Bucks.

JOURNEYMAN, where one or two are kept.—Age 21; Scotch. Total abstainer. Good references.—J. EMSLIE, 49, Blantyre Street, Chelsea, S.W.

TO NURSERYMEN and GARDENERS.—Wanted by a young man a situation to work in the Houses. Four years' good character.—W. W., 30A, Hyde Street, Winchester, Hants.

TO NURSERYMEN and FLORISTS.—ADVERTISER (age 28) seeks a situation, near London preferred; twelve years' experience in Plant Growing and Nursery Work. Can make up Bouquets, Wreaths, &c., also attend upon Customers. Good references.—B. F., St. Paul's Nursery, St. Leonard's-on-Sea.

TO NURSERYMEN and MARKET GARDENERS.—A young man seeks work in Nursery or Market Garden. Staffordshire or neighbouring counties preferred. Wages less an object than a good situation. Good recommendations for steadiness and respectability.—T. N. Longton Rectory, Staffordshire.

IMPROVER, under a good Gardener.—Age nearly 18; good references if required.—A. TAYLOR, 141, Linaker Street, Southport.

SHOPMAN, or SECOND.—Fourteen years experience in the Seed Trade; first-class references.—H., C. Sharp, Seedsman, Aberdeen.

SHOPMAN (ASSISTANT).—A young man, who has had nearly eight years' experience in the Seed Trade, wishes a situation as above. Can be well recommended.—T. O., John Perkins & Son, 52, Market Square, Northampton.

TO SEEDSMEN and FLORISTS.—Wanted a situation in a Seedsman and Florist's Establishment. Considerable experience; four years' reference from first-class private gardens.—A. B., Fairfield, West Dulwich, S.E.

ESTATE CARPENTER, or HANDY MAN.—Married when suited; well up in General Repairs, Painting, &c. Good reference from present employer.—W. H. S., 14, Frognal Villas, Chislehurst, Kent.

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Sold only in packets, labelled,
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, London.
Makers of Epps's Chocolate Essence for Afternoon use.

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KINAHAN'S LL WHISKEY. Pure, Mild and Mellow, Delicious and Most Wholesome. Universally recommended by the Profession. The Cream of Old Irish Whiskeys.

KINAHAN'S LL WHISKEY. Dr. Hassall says—"Soft and Mellow, Pure, well Matured, and of very excellent quality."

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The Medical Profession for over Forty Years have approved of this pure solution as the Best Remedy for

ACIDITY OF THE STOMACH, HEARTBURN, HEADACHE, GOUT, AND INDIGESTION,

and as the safest Aperient for Delicate Constitutions, Ladies, Children, and Infants.

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HOLLOWAY'S PILLS are admirably adapted for the Cure of Diseases incidental to females. At different periods of life women are subject to complaints which require a peculiar medicine, and it is now an indisputable fact that there is none so suitable for such complaints as Holloway's Pills. They are invaluable to females of all ages, young or old, married or single. They purify the blood, regulate the secretions, correct all suspended functions, give tone to the stomach, and clear the complexion. The first approach of disordered action should be met with appropriate doses of these Pills; whilst taking them no restriction need be placed over the patient. They contain nothing which can possibly prove injurious to the system. They act by purifying the blood and regulating every organ.

SPECIAL NOTICE.

THE

GARDENERS' CHRONICLE

FOR

SATURDAY, AUGUST 27,

WILL CONTAIN A

FULL REPORT OF THE GREAT INTERNATIONAL HORTICULTURAL EXHIBITION

At MANCHESTER, August 24th—27th.

With the same number will be issued a beautifully-executed

DOUBLE-PAGE COLOURED PLATE

(18 inches by 13 inches),

From a Painting by FITCH, representing

A GROUP OF ORCHIDS.

PRICE, FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY.

OR WITH PLATE ENCLOSED IN CASE, SEVENPENCE-HALFPENNY.

*** PURCHASERS ARE SPECIALLY RECOMMENDED TO ORDER THE PLATE IN A CASE *to prevent injury from folding.*

The cost of the Number, with the Plate so protected, will be 6d., if obtained through a Newsagent.

NOTICE TO ADVERTISERS.

As a large Extra Sale of this Number is guaranteed, it will be a very valuable medium for Advertisements.

APPLICATIONS FOR SPACE MUST BE SENT IN NOT LATER THAN AUGUST 23.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

Editorial Communications should be addressed to "The Editors;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

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Established 1841.

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NOTICE.—Will be published with the "Gardeners' Chronicle" for next Saturday, Aug. 27, a Double-page Coloured Plate of a "GROUP of ORCHIDS."

For further particulars, see page 228.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE!—COMMITTEE MEETINGS, Fruit and Floral, at 11 A.M., on TUESDAY NEXT, August 23.
Prizes offered by Messrs. Ewing & Co., Eaton, Norwich, for Collection of Shoots or Twigs of Twenty-four Varieties of Trees and Shrubs, hardy in British Gardens, the degree of hardiness to be taken into consideration in awarding the Prizes.
1st Prize, £2; 2d Prize, £1.
Admission 1s.

CRYSTAL PALACE. ANNUAL FRUIT SHOW and EXHIBITION of CUT FLOWERS, TABLE DECORATIONS, and BOUQUETS, AUGUST 29, 30, and 31. Entries Close August 22. Schedules on application to
Mr. W. G. HEAD, Crystal Palace.

ISLE of THANET FLORAL and HORTICULTURAL ASSOCIATION and COTTAGERS' GARDENING SOCIETY.
The TWENTY-SIXTH ANNUAL EXHIBITION of this Association will take place on AUGUST 31, at Bromstone Park, St. Peter's.

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The first display of CHRYSANTHEMUMS, POMPONS and TABLE PLANTS, on NOVEMBER 15, 16 and 17. Schedules and List of Prizes on application to
MANAGER, Brighton Aquarium.

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"The City Hotel" affords all the quiet and comforts of home life, with the facilities and conveniences of a high priced hotel, and is the only hotel in Manchester free from the incessant grind of noisy street traffic. Cards on application to
JAMES COWIN, Proprietor.

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We offer, for the Autumn of 1881,
CONVALLARIA MAJALIS (Lily of the Valley), first quality, 1000 for 30s., carriage paid to the frontier. Stock half a million. Three months' credit; two per cent. discount for cash.
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WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

To the Trade.
ERNEST BENARY, SEED GROWER, Erfurt, will receive very shortly a considerable importation of PALM SEEDS, comprising the following choice species:—
KENTIA BELMOREANA, KENTIA FORSTERIANA, KENTIA CANTERBURYANA, and ARECA BAUERI (Seaforthia robusta).
The Seeds will be sold only if they arrive in good condition.
Prices on application.

Dutch Bulbs.
To SUPPLY the TRADE.
SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, beg to announce that their Crops of HYACINTHS, TULIPS, &c., look very fine.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
☞ Please observe Name and Address.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent Free on application.
Lion Walk, Colchester.

Gardenia intermedia.
MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

ATHYRIUM f.-f. ACROCLADON (described by Lowe as "at once the rarest and most remarkable of British filices") will be exhibited, along with other rarities and novelties, at the forthcoming International Show at Manchester, by F. W. AND H. STANSFIELD, Sale, near Manchester.

SPECIAL OFFER TO THE TRADE.
50,000 ERICA HYMEMALIS, in 60-pots, at 20s. per 100.
30,000 ,, GRACILIS AUTUMNALIS, at 15s. per 100.
10,000 ,, WILMOREANA, at 15s. per 100.
The above are all fine healthy plants.
GREGORY AND EVANS, Effingham Nursery, Lee, S.E.

CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS, 1s. 4d. per dozen, 8s. per 100.
CYCLAMEN, 1s. 6d. per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

Berlin Lily of the Valley, &c.
O. RIEMSCHNEIDER, Brandenburg on Havel, by Berlin.
PRICE LIST of the above and other Roots may be had free of Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, London, E.C.

To the Trade Only.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 353A) of Dutch Flower Roots, and miscellaneous Bulbous and Tuberous-rooted Plants for 1881-82 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

WANTED, CUTTINGS of PELARGONIUMS, Mrs. Pollock, Lady Cullum, Vesuvius (Scarlet), and H. Jacoby; CALCEOLARIAS, all kinds; STRAWBERRY RUNNERS, Loxford Hall Seedling, Keens' Seedling, Eliza, Sir Harry (true), Frogmore Late Pine, La Grosse Sucrée, and Early Crimson.
H. CANNELL AND SONS, Swanley, Kent.

WANTED, Old FICUS PLANTS, and Seedling Stove and Greenhouse FERNS, in quantity.
GEORGE GUMMOW, 114, Loughborough Road, Brixton, S.W.

WANTED, AT ONCE, 20,000 Double White Sweet-scented NARCISSUS (true). State price per 1000 for cash to
W. M., 90, Page's Walk, Bermondsey, S.E.

WANTED, SNOWDROPS, Double and Single. Price per 1000 to
FREEMAN AND FREEMAN, Norwich.

WANTED, CONSIGNMENTS of CHOICE and OTHER FRUITS.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, Farmers in the neighbourhood of London, to GROW STRAWBERRIES and RASPBERRIES. Contract will be entered into for a supply at fixed prices, for 2 or 3 years. Plants and Canes of the kinds required will be supplied. All information can be obtained on application to
JOHN MOIR AND SON (Limited), 148, Leadenhall Street, E.C.

SUTTONS' SEEDS for PRESENT SOWING post-free.

CABBAGE.—SUTTONS' IMPERIAL—THE BEST. The finest early variety in cultivation. Heads large, cone-shaped, firm, and mild in flavour. 1s. per ounce, post-free.

LETTUCE.—SUTTONS' BATH COS—THE BEST. Black-seeded. Very large. 2s. per ounce, post-free.

ONION.—GIANT ROCCA—THE BEST. 1s. 6d. per ounce, post-free.

ONION.—NEW QUEEN—THE EARLIEST. 1s. 6d. per packet, post-free.

TURNIP.—SUTTONS' SNOWBALL—THE BEST. 6d. per ounce, post-free.

SUTTONS' SPECIAL AUTUMN LIST of SEEDS for AUTUMN SOWING is now ready, gratis and post-free on application.

IMPROVE LAWNS and TENNIS GROUNDS by sowing during August and September

SUTTONS' SPECIAL MIXTURES of the FINEST GRASSES and CLOVERS. Prices:—
Mixture for Garden Lawns, 1s. 3d. per pound, 25s. per bushel.
,, ,, Tennis Grounds, 1s. per pound, 22s. 6d. per bushel.
Full particulars gratis and post-free on application.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN, and by special warrant SEEDSMEN to H.R.H. THE PRINCE OF WALES, READING, BERKS.

BEAUTIFUL WINTER FLOWERS.

SUTTONS' HYACINTHS for FORCING. See SUTTONS' AUTUMN CATALOGUE. Gratis and post-free on application.

SUTTONS' NARCISSUS for FORCING. See SUTTONS' AUTUMN CATALOGUE. Gratis and post-free on application.

SUTTONS' CROCUS for FORCING. See SUTTONS' AUTUMN CATALOGUE. Gratis and post-free on application.

SUTTONS' TULIPS for FORCING. See SUTTONS' AUTUMN CATALOGUE. Gratis and post-free on application.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN, READING, BERKS.

GERANIUMS.—The best of the New, all that took Prizes or Certificates.—Denny's Romeo, Dudu, &c., eight varieties, post-free, for 6s.; Catlin's (Carter & Co.), five varieties, for 4s.; Cannell's, ten varieties, for 7s. 6d.; Pearson's, ten varieties, for 7s. 6d.; Cuttings half-price. All the best Doubles in Cultivation. Also PELARGONIUMS Regal and others. See CATALOGUE.
RICHARD PANNETT, Nurseryman, Chailey, Sussex.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

LAPAGERIA ALBA, the finest and largest stock in Europe, strong hardy plants which have been wintered in cold frames, from 15s. to £15 15s.
LAPAGERIA ROSEA, good specimen plants, from 21s. to £10 10s. each. The Trade liberally treated, for cash.
W. HOWARD, Southgate, N.

TERRESTRIAL ORCHIDS. See Special Offer in Number of July 23.
DAMMANN AND CO., Portici, Naples.

To the Trade Only.
ROSES, on own roots, extra strong, in 4½-inch pots, £2 5s. per 100, for cash. Now on offer, large quantities of Isabella Sprunt, Gloire de Dijon, and Rêve d'Or.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

To the Trade.
CRESS SEED.—New, just harvested. Sample and Price on application to
FREEMAN AND FREEMAN, Seed Merchants, Norwich.

To the Trade.
RAPE SEED and WHITE MUSTARD.
H. AND F. SHARPE will be pleased to submit SAMPLES of the abovenamed SEEDS, of the finest quality, and at very moderate prices.
Seed Growing Establishment, Wisbech.

GARDEN POTS — GARDEN POTS. — From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

SALES BY AUCTION.

Wednesday Next.
DUTCH BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 24, at half-past 12 o'Clock precisely, a consignment of first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other BULBS, just received from well known Farms in Holland, in lots to suit all buyers.
May be viewed the morning of Sale, and Catalogues had.

Special Trade Sale of Dutch Flower Roots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, August 29, at half-past 11 o'Clock precisely, an extensive consignment of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other Bulbs from Holland, specially lotted to suit the Trade and other large buyers.
Catalogues at the Mart, and 8, New Broad Street, E.C.

Imported and Established Orchids, Palm Seeds, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, City, E.C., on FRIDAY, September 2, an importation of ORCHIDS, received direct from Mexico for unreserved sale, including splendid masses of Cœlia Bauerana, C. macrostachya, Chysis lævis, Lælia majalis, L. furfuracea, Lycaste Deppei, Cattleya citrina, Oncidium tigrinum, &c.; also about 300 lots of various Established ORCHIDS, fifty AGAVE ASSAMENSIS, and fifty DASYLIRION SERRATUM from Mexico, and 5000 PALM SEEDS (Acrocomia aculeata) from Jamaica.
Catalogues at the Mart, and 8, New Broad Street, E.C.

The Shorrolds, North End Road, near Walham Green CHURCH, S.W.
OLD BUILDING MATERIAL, CHOICE SHRUBS, TURF, TIMBER, &c.

MESSRS. MORLEY AND BATE (having recently sold this Estate) will SELL by AUCTION, on the Premises as above, on WEDNESDAY, August 31, at 12 for 1 o'Clock, the TIMBER, comprising Limes, Ash, Elm, Chestnut, Sycamore, Acacia, good sound Walnut, Weeping Ash, Poplar, &c.; some splendid Lawn TURF, bed of young ASPARAGUS, CURRANT BUSHES, GOOSEBERRY BUSHES, RASPBERRY CANES, FRUIT TREES, Standard ROSES, Hardy FERNS, bed of RHODODENDRONS, YEW HEDGE and TREE, BOX TREE, number of good Standard and Dwarf Variegated HOLLIES, about 130 Yards of BOX EDGING, large AUCUBAS, the FITTINGS of STABLES, DOORS, and SASHES and FRAMES, Register STOVES, Marble CHIMNEY-PIECES, Marble SLABS, KITCHENER, YORK PAVING, and a quantity of OLD BUILDING MATERIAL.
On view three days prior to Sale. Catalogues on the Premises, and of the Auctioneers, 185, Earl's Court Road, S.W.

TO BE SOLD, a FLORIST'S, with a large quantity of GREENHOUSES, LAND (FREEHOLD), with DWELLING-HOUSE, facing the best business road out of Manchester. No money required, only security. Address,
E. ATKINSON, The Nurseries, Prestwich Park, Prestwich, near Manchester.

TO BE DISPOSED OF, the Old-established NURSERY and SEED TRADE of the late Mr. Henry Baker, Atherstone. The Nursery (about 8 Acres) is in an excellent neighbourhood, and close to a Market Town, in full working order, and every facility for doing a large trade. Liberal terms to an immediate purchaser. For particulars apply to
Mrs. BAKER, The Nurseries, Atherstone.

To Florists and Others Fond of Gardening.

FOR SALE, on easy terms, a capital 7-roomed HOUSE, Large Garden (with 3 Glasshouses), on Lease. Splendid business position, in rising locality. No stock.
A., 1, Philip Lane, Tottenham, London.

TO BE LET, an Old-established NURSERY, FLORIST, and SEEDSMAN'S BUSINESS, with immediate possession, on account of the death of the late proprietor, who has carried on a successful business for the last thirty years. The Premises comprise a convenient Dwelling-house, Seed Shop and good Storage. There are 8½ Acres of deep rich Soil, and all the necessary Glass-houses, &c., for carrying on a large business. For particulars apply to
J. WATSON, 38, Crown Street, Bury St. Edmund's.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

J. CROUCHER, F.R.H.S. (from Royal Botanic Gardens, Kew), GENERAL HORTICULTURAL AGENT and ADVISER, The Excelsior Nurseries, 64 and 65, Brook Green, Hammersmith, W. The above having had large experience in scientific management of all classes of plants, and general construction of Horticultural Structures, Hot-water Aparatus, &c., is open to give such advice to Gentlemen, which if followed is certain to lead to success. Especial knowledge of Orchids and their growth. I also have a general collection of Natural History Specimens on sale. Terms upon application.—J. CROUCHER.

HURST AND SON have posted their Trade BULB CATALOGUE to all Customers. Any not having received a copy will oblige by informing them, and one shall be sent.
Their samples of SNOWDROPS are this year very fine. Special offers to large buyers.
152, Houndsditch, London, E.

HENDER'S ZONAL PELARGONIUM "CRIMSON VESUVIUS" is now being sent out, 5s. each, trade 3s 6d., 6 for 18s.
HENDER AND SONS, Nursery, Plymouth.

CABBAGE PLANTS.—100,000 Robinson's Drumhead; 100,000 Enfield Market, extra strong plants, 2s. 6d. per 1000. Cash to accompany order.
JOHN TINDALL, Gardener, Heckington, Lincolnshire.

PALMS, YUCCAS, and DRACÆNAS for Sale.
Twenty plants, 3 to 6 feet, to be sold cheap. Apply to
W. JACKSON AND CO., Nurseries, Bedale, Yorkshire.

Camellias and Azaleas.

TO BE SOLD, at Worton Cottage, Isleworth, 7 CAMELLIAS of various colours, 4 or 5 feet high; and 15 AZALEAS grown too large for house.

Early Cabbage Plants.

SHAW'S IMPROVED NONPAREIL.—3s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

SPLENDID DOUBLE TUBEROSES (Crop 1881).—These are of African growth. The few tried last year proved to be unusually vigorous, throwing up in some cases several flowering stems from one bulb. They may be brought into flower in November and December. First consignment just arrived in fine condition. Price per 100 or 1000 on application to,
HOOPER AND CO., Covent Garden, W.C.

CEARA RUBBER SEED (MANIHOT GLAZIOVII).
We have received a small Consignment of this SEED, in splendid order. It can be sent safely to Ceylon by post.
THOS. CHRISTY AND CO., 155, Fenchurch Street, E.C.

SHISMATOGLOTTIS ROBELENI.—This beautiful Dieffenbachia-like plant has been imported by us from Manilla, and named after the collector. It is a plant of easy growth, compact and bushy in habit; leaves 8 to 10 inches long, silvery-grey, variegated. 5s. each, £2 8s. per dozen.
SANDER AND CO., St. Albans.

Forest Tree Seedlings.

MESSRS. PETER S. ROBERTSON AND CO., NURSERYMEN, Edinburgh, are now preparing for their English journey, and they will have much pleasure (on receiving notice) in showing their samples to any Nurserymen in any part of England, who may be requiring the above.

SPECIAL OFFER.—To the TRADE.—For Sale, about twenty large White AZALEAS, clean, well set with buds.—For particulars apply to J. W. HURST, Lordship Nursery, Wood Green, London, N.

30,000 Roses in Pots.

Several thousands of CLEMATISES, Ampelopsis Veitchii, and other CLIMBERS in pots, finely grown plants.

WM. WOOD AND SON beg to solicit attention to their very extensive and superb stock of the above.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPECIAL OFFER of COLLECTIONS of CLEMATISES, in 4-inch pots, and TEA and NOISETTE ROSES in 5-inch pots, fine plants; package free. All orders to be accompanied by Post-office Order or Cheque.

12	CLEMATISES, best old kinds, ...	14s. 0d.
24	" " "	26 0
12	" " new	25 0
12	TEA and NOISETTE ROSES, best kinds..	15 0
24	" " " " " " ..	28 0
50	" " " " " " ..	52 6
100	" " " " " " ..	100 0

Including many newest and rarest kinds.
Sorts must be entirely left to, and Post-office Orders and Cheques made payable to
EWING AND CO., Norwich.

LILIES of the VALLEY.—Why import the above when they can be had at home quite as good and cheap as the imported roots? Being a large grower of the famous large flowering Berlin variety, I can offer them at 37s. per 1000.
Testimonial from Mr. CH. PENNY, *Head Gardener to* H.R.H. the Prince of Wales:—
"ENGLISH-GROWN LILY OF THE VALLEY.—Perhaps to many the above heading may appear ridiculous, but such is not the case. Having tested these the last two years by the side of the best imported roots, I can recommend all growers to try some of the very fine stock of home-grown Lilies for early forcing to Mr. Jannoch, of the Lily Nursery, Dersingham, Norfolk, who makes the above a speciality, and well does he deserve patronage.—CHARLES PENNY."
Early orders are respectfully solicited.
T. JANNOCH, Lily Nursery, Dersingham, Norfolk.

THE A B C BULB GUIDE,

PUBLISHED BY

THOMAS S. WARE,

CONTAINS

Every Bulbous Plant worth growing, with numerous hints as to cultivation, and a short description to each. The prices of many new plants have been reduced as low as possible, especially the lovely Chionodoxa, Giant Snowdrops, and many others. The

COLLECTIONS of LILIES and NARCISSUS

are unique, containing every variety worth growing, and prices generally will be found as low as any Foreign or English House.

DUTCH BULBS

of every description are also treated in a very liberal manner, and great care has been exercised with regard to

FORCING PLANTS,

which are a speciality. Lily of the Valley (both clumps and crowns) are extraordinary fine, being specially grown abroad for me; also Dielytra, Spiræas, Tuberoses, &c. It also contains a

SELECTION of HARDY PERENNIALS,

embracing principally those plants which should be planted in autumn; also an extensive collection of

PRIMULA SIEBOLDI and HELLEBORES,

and numerous other families of good showy, hardy plants.

HARDY CLIMBERS, ROSES in pots, HERBS, &c., will be found at end of Catalogue. Post-free upon application.

HALE FARM NURSERIES,

TOTTENHAM, LONDON.

CABBAGE PLANTS.

STRONG PLANTS OF

GARDEN and OXHEART,

offered in large quantities by

CRANSTON'S NURSERY and SEED CO. (Limited),
KING'S ACRE, HEREFORD

LILY OF THE VALLEY (Convalaria majalis), hardy roots, of best quality, 36s. per 1000; 10,000 at 35s. 6d. per 1000; delivered free on board Hamburg or Bremen (packing included).
OSKAR KNOPFF AND CO., Erfurt, Prussia.

Ficus elastica.

H. B. MAY has to offer 1000 fine Plants, from 24 to 30 inches high, in 6-inch pots, at 24s. per dozen, package free for cash with order.
Dyson's Lane Nursery, Edmonton.

MUSHROOM SPAWN.—Now ready for delivery, in excellent condition, and of our usual good quality, a fine stock of new Spawn, price 5s. per bushel (exclusive of package). The Trade supplied. Price 00 application.
OSBORN AND SONS, The Fulham Nurseries, London, S.W.

SAGE, THYME, MARJORAM, Winter SAVORY, Dark WALLFLOWERS, all at 2s. 6d. per 100. Extra fine Double German WALLFLOWERS, 4s. per 100. All very strong Seedlings, and not less than fifty Plants supplied.
A. GODWIN AND SONS, Ashbourne, Derby.

BOX EDGING, 10,000 Nursery Yards, at £9 10s. per 1000, for delivery in September; also STRAWBERRY RUNNERS, in twelve best sorts, at 12s. 6d. per 1000. POLYSTICHUM LONCHITIS, 40s. per 100. Early orders solicited.
J. B. YOUNG, Bridge of Allan.

FOR SALE.—100 magnificent Pyramid PLUM TREES, in pots, from 5 to 8 feet high, consisting of the Czar, Sultan, Jefferson, Oullin's Golden Gage, and Coe's Golden Drop, now in full bearing.
E. JONES, Nurseryman, Henley-on-Thames.

Farm Seeds for Autumn Sowing.

NEW TRIFOLIUM INCARNATUM, RAPE, Italian RYE-GRASS, Winter TARES, RYE, mixed Pasture GRASSES, &c. Fine samples and quotations on application.
THE LAWSON SEED and NURSERY COMPANY (Limited), 106, Southwark Street, London, and Edinburgh.

STRAWBERRIES.—Strong roots for fruiting next year. 4s. per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d. stamp.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Dutch Flower Roots.—Season 1881.

MESSRS. DICKSON AND ROBINSON beg to announce that their Priced and Descriptive CATALOGUE, containing select Lists of Hyacinths, Polyanthus, Narcissus, Tulips, Crocus, Liliums, and other Bulbous Roots, is now published, and will be forwarded post-free on application.
The Old Established Seed Warehouse, 12, Old Millgate, Manchester.

Autumn Planting.

FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.
THE LAWSON SEED and NURSERY CO. (Limited) 1, George IV. Bridge, Edinburgh, 106, Southwark Street, London.

Winter Blooming Plants.

J. MALLER, Brunswick Nursery, Tottenham, begs to announce that his usual AUTUMN SALE will take place about the MIDDLE of SEPTEMBER. The Plants are in excellent condition, and consist of a very large Stock of ERICA HYEMALIS and other usual varieties. Double PRIMULAS, CYCLAMEN, BOUVARDIAS in variety, SOLANUMS, beautifully berried, Tree CARNATIONS, ACACIAS, GENISTAS, CAMELLIAS, AZALEAS, &c.
An inspection is invited. Close to the White Hart Lane Station, Great Eastern Railway.

WILLIAM GORDON having this year received large importations of the following fine ORCHIDS, offers semi-established but unflowered Plants at following low prices:—

	Each.—s.	d.		Each.—s.	d.
Aerides japonicum ..	2	6	Dendrobium Freemanii	5	0
" Lobbii	3	0	Calanthe vestita ..	2	6
" quinquevulnerum	2	6	Cattleya Acklandiæ ..	5	0
Cœlogyne cristata ..	5	0	" Loddigesii ..	5	0
Cymbidium eburneum..	2	6	" Mendelii	7	6
Cypripedium barbatum	2	0	" Mossiæ	2	6
" Hookeræ	2	0	" Triaeæ	7	6
" insigne	2	0	Epidendrum vitellinum	2	6
" niveum, specially fine pieces of this grand old favourite	2	6	Lælia autumnalis ..	2	6
Dendrobium aggregatum	2	6	" majalis	2	6
" cambridgeanum ..	2	6	Odontoglossum Alexandræ	5	0
" cretaceum.. ..	2	6	" citrosmum roseum	5	0
" crystallinum ..	2	6	Oncidium crispum ..	2	6
" fimbriatum ..	2	6	Saccolabium Blumei ..	2	6
" formosum giganteum	2	6	" retusum	2	6
			Sophronites grandiflora	2	6

And nearly every other Orchid at equally low prices, on application to
WM. GORDON, City Offices, 10, Cullum Street, London, E.C

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper Russia Mats, &c. Write for Free PRICE LIST.

H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

BULBS FOR EARLY FORCING.

B. S. WILLIAMS

Begs to announce the arrival of his first importation of Early Forcing Bulbs,

CONSISTING OF

EARLY ROMAN HYACINTHS,

Double Roman and Paper-white Narcissus, Double and Single Snowdrops,

SCILLA SIBIRICA, &c.

CATALOGUES, containing Select List of BULBS, FRUIT TREES, ROSES, CONIFERÆ, HARDY HERBACEOUS PLANTS, gratis and post-free on application.

N.B.—The Early Forcing Bulbs are this year exceptionally fine, especially Early Roman Hyacinths.

B. S. WILLIAMS,

VICTORIA & PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

THE GENERAL HORTICULTURAL COMPANY

(JOHN WILLS, Limited).

Central Offices: Warwick House, 142 & 144, Regent Street, W.

EARLY ROMAN HYACINTHS, NARCISSUS, &c.

The Company having made large purchases from the leading Bulb Gardens of Holland and France, are now prepared to supply HYACINTHS, TULIPS, NARCISSI, CROCUSES, and all other BULBS for Autumn Planting, at low prices, and with a large discount to Shareholders; Non-shareholders will be treated with on the most liberal terms.

The Company also supplies all kinds of NEW and RARE PLANTS, Ferns, Fine-foliaged, New Holland Plants, Standard and Dwarf Roses, and all kinds of Fruit and Forest Trees, Evergreens, &c., GARDEN SEEDS for Autumn Sowing, FARM SEEDS, HARDY PLANTS for Winter and Spring Gardening, PLANTS for FORCING, &c., MUSHROOM SPAWN, and all kinds of GARDEN IMPLEMENTS and REQUISITES, at the lowest prices.

FRUIT, BOUQUETS, FESTIVE and MEMORIAL WREATHS, FLORAL CROSSES, DRIED FLOWERS, &c., sent to all parts of the country on receipt of letter or telegram.

The General Manager may be consulted as to the re-arrangement of Gardens, Laying-out of Grounds, and General Landscape Work, also for the Erection of Conservatories, Greenhouses, Forcing Houses, &c., and will attend at any part of the country for these purposes.

Catalogues on application. Early Orders are respectfully solicited.

JOHN WILLS, General Manager.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.

Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each. Fresh SPHAGNUM, 10s. 6d. per bag.

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Magnificent Flowers

Produced by using the superior light-weighing

BROWN FIBROUS PEAT, from the South of England Horticultural Peat Lands. Ship or truck-load loose, and small quantities in bags. Also good TURFY LOAM. Apply for Commission Agency.

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COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order.

CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3s., free on to rail.—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

SILVER SAND.—Fine, 10s. per ton; Coarse, 11s. and 9s. per ton, by truck-loads. Kent and Surrey PEATS and LOAMS, at moderate quotations, by truck-loads, &c.—W. SHORT, Horticultural Depôt, Redhill, Surrey.

Wasps and Flies Completely Cleared from Vineries, Greenhouses, Fruit of every description, by using

DAVIS'S WASP DESTROYER: thoroughly effectual, and the best article manufactured for this purpose. See Testimonials. Price 1s. 6d. and 2s. 6d., post-free in a Tin Box 4d. each extra.—Wholesale Agents: HOOPER AND CO., Covent Garden, W.C; CORRY, SOPER, FOWLER AND CO., Finsbury Square, E.; or, of the Manufacturer, B. R. DAVIS, Yeovil Nurseries, Yeovil.

Great Success of

SMITH'S WEED KILLER.—The only way to keep your carriage drives and gravel walks free from weeds is to use Smith's Weed Killer, a liquid preparation which, when mixed with cold water and applied with an ordinary watering-can, will prove thoroughly destructive to all vegetable growth. Testimonials from all parts of the United Kingdom.

Prices:—4 gallons, sufficient to make 100 gallons when mixed, 7s. 6d.; 16 gallons, to make 400 gallons, 28s.; 40 gallons, to make 1000 gallons, £3 5s. Carriage paid to all stations. Iron drums allowed full price on return. Address

MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.

TANNED NETTING for protecting the above from Frost, Blight, Birds, &c, 2 yards wide, 2d. per yard; 100 yards, 16s. 4 yards wide, 4d. per yard; 50 yards, 16s.

NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.

TIFFANY, 5s. and 6s. per piece of 20 yards.

EATON AND DELLER 6 & 7, Crooked Lane London Bridge.

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Manufacturers of ROPES, TWINES, SACKS, TARPAULINGS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1s. each; 15 sacks, 12s.; 30 sacks, 20s.; truck-load, delivered to any station in London, 25s. Try our HEMP SASH-LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.

Chief Office: 25, Commercial Road, E.
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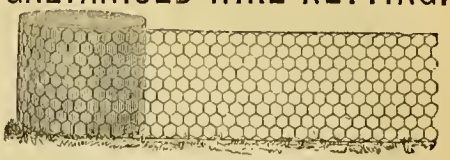
GALVANISED WIRE NETTING.



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Price Lists on application.

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ARCHANGEL and ST. PETERSBURG MATS, RAFFIA, SEED BAGS and SACKS, NETTING and SHADING, &c. Prices on application.

MARQUEES and TENTS, SECOND-HAND GOVERNMENT TENTS, 45 feet round, complete, 35s., suitable for the Garden, Cricket Clubs, &c.

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For COVERING, TYING and PACKING.

RAFFIA FIBRE for Tying.

TANNED GARDEN NETTING, SCRIM CANVAS and TIFFANY, SEED BAGS and SACKS, TARPAULINS and HORSE CLOTHS. Descriptive Catalogue post-free on application.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London.

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MAT MERCHANTS and IMPORTERS.

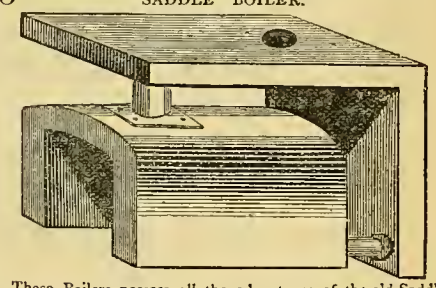
All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description. RAFFIA FIBRE, NETTING, and TIFFANY, TARPAULINGS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to

J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

Wholesale Russia Mat Merchants.

MARENDAZ AND FISHER, James Street, Covent Garden, W.C., have received a special importation of new ARCHANGEL MATS; also a large consignment of PETERSBURG MATS, MAT BAGS and RAFFIA FIBRE.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1000	16	0	0
24 ,,	24 ,,	48 ,,	1400	20	0	0
28 ,,	28 ,,	60 ,,	1800	25	0	0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May 29, 1873.*

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

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When ordering Boilers please refer to the above advertisement.

PIPES and FITTINGS,

FOR HEATING APPARATUSES.

The largest stock in the Kingdom. 4-inch pipes, 1s. 7d. per yard.

SILVESTER & SAINSBURY,

Castle Hill Foundry, Newcastle, Staffordshire.

SPECIAL NOTICE.

THE

GARDENERS' CHRONICLE

FOR

SATURDAY NEXT, AUGUST 27,

WILL CONTAIN A

FULL REPORT OF THE GREAT INTERNATIONAL HORTICULTURAL EXHIBITION

At MANCHESTER, August 24th—27th.

With the same number will be issued a beautifully-executed

DOUBLE-PAGE COLOURED PLATE

(18 inches by 13 inches),

From a Painting by FITCH, representing

A GROUP OF ORCHIDS.

PRICE, FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY.

OR WITH PLATE ENCLOSED IN CASE, SEVENPENCE-HALFPENNY.

*** PURCHASERS ARE SPECIALLY RECOMMENDED TO ORDER THE PLATE IN A CASE *to prevent injury from folding.*

The cost of the Number, with the Plate so protected, will be 6d., if obtained through a Newsagent.

NOTICE TO ADVERTISERS.

As a large Extra Sale of this Number is guaranteed, it will be a very valuable medium for Advertisements.

APPLICATIONS FOR SPACE MUST BE SENT IN NOT LATER THAN AUGUST 23.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

B. MALLER has much pleasure in again offering his usual superior stock of the following:—
ERICA HYEMALIS and other varieties, EPACRIS, GENISTAS, AZALEAS, CYCLAMEN, BOUVARDIAS, SOLANUMS, ADIANTUM CUNEATUM and other Ferns, GREVILLEAS; also a fine lot of VINES in Pots. An inspection invited.
Trade CATALOGUE forwarded on application.
The Annual SALE by AUCTION will be held in September.
Burnt Ash Lane Nurseries, Lee, S.E.

ATHYRIUM f.-f. ACROCLADON (Moore).—See description by E. J. Lowe, Esq., at p. 74, vol. ii., of *Our Native Ferns.*
The undersigned can now offer a few good plants of this magnificent rarity, at 10s. 6d. each; extra strong specimens, One Guinea each. We believe this most beautiful of all Crested Ferns is now offered to the public for the first time.
F. W. AND H. STANSFIELD (Successors to TOM STANSFIELD, formerly of Todmorden), Sale, near Manchester, and Pontefract, Yorkshire.

Wholesale Bulb Catalogue.
WATKINS AND SIMPSON,
Wholesale Seedsmen and Bulb Merchants,
1, SAVOY HILL, STRAND, W.C.
Their Wholesale BULB CATALOGUE is now ready and may be had on application. Special quotations for large quantities of Lily of the Valley crowns and clumps, American Tuberoses, Double and Single Snowdrops, Winter Aconites, many sorts of Narciss, Tulips, Lilies, and Gladioli, &c.
Garden and Flower Seeds, of best quality, for present sowing.

DOUBLE CINERARIAS.
Admirers of the above should order at once
R. H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and Description on application. Price, the Set, £3 3s.; Single Plant, 7s. 6d.; Seedlings, 6s. per dozen. Seed, per packet, 3s. 6d. and 5s. Usual Discount to the Trade.
CHAD VALLEY NURSERIES,
Edgbaston, Birmingham.

MR. H. VAN GEERT begs to inform his numerous Friends and Correspondents that he has, as usual, a fine Stock of Budded CAMELLIAS and Indian AZALEAS—Azalea mollis and Ghent varieties, KALMIAS, FICUS ELASTICUS, CHOISYA TERNATA, Otaheite ORANGES, CENTROPOGON LUCYANUS, DRACÆNA INDIVISA and TERMINALIS, Tuberous BEGONIAS, GLOXINIAS, PALMS and FERNS for Table and General Decoration, DIELYTRA SPECTABILIS, LILY of the VALLEY in Clumps and Pips, &c.
FERNS in small pots—PTERIS, LOMARIA, BLECHNUM, &c., at £15 per 1000, or 35s. per 100.
CATALOGUES free.
The Continental Nurseries, Ghent, Belgium.

EARLY FLOWERING BULBS.—We beg to draw attention to our large and varied stock of the above, just imported in fine condition, comprising:—
HYACINTHS, Early White Roman.
NARCISSUS, Double Roman Polyanthus.
" Paper White.
SNOWDROPS, Double and Single, extra large.
JONQUILS (sweet scented), Double and Single.
Orders over 5s. value carriage paid to nearest station.
Price LISTS free on application.
LITTLE AND BALLANTYNE, The Queen's Seedsmen, Carlisle.

Dutch Bulbs direct from the Growers.
ANT. ROOZEN AND SON, HYACINTHS, TULIPS, CROCUS, GLADIOLI, &c., at Growers' Prices, delivered entirely free to the Railway Stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent, carriage paid, to destination. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents. Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.
Collections B, C, E, and F, can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10s. 6d. each, against cash payment.
ANT. ROOZEN AND SON, Nurserymen, Overveen, near Haarlem, Holland.

MR. LOUIS DE SMET, NURSERYMAN, Ghent, Belgium, has great pleasure in informing his numerous Customers in England that he has, as usual, a splendid stock of budded CAMELLIAS, AZALEA INDICA, GHENT AZALEA, AZALEA MOLLIS, GLOXINIAS, BEGONIAS (the most marvellous strain in Europe), FERNS by the million, PALMS, &c.
BEGONIAS, tuberous-rooted, double-flowering, mixed seedling varieties, nice plants in full bloom, price 15s. per doz.
CATALOGUES free on application.

East Lothian Intermediate Stocks.
THOMAS METHVEN AND SONS beg to offer their choice strain of the above, in five colours, viz., Scarlet, Purple, White, White-wall-leaved, and Crimson, at 1s., 2s. 6d., and 5s each colour.
15, Princes Street, Edinburgh.

Hyacinths, Tulips, &c.
BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

EARLY WHITE ROMAN HYACINTHS.
Our first consignment of the above is to hand, and the bulbs are in excellent condition and very fine.
3s. 6d. per doz.; 25s. per 100.
General Bulb CATALOGUE will be issued in a few days, post-free on application.
OSBORN & SONS
THE FULHAM NURSERIES, LONDON, S.W.

Fruiting Plants of
PEACHES, NECTARINES, APRICOTS and GRAPE VINES.—A large and fine stock now offered for sale.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

JULES DE COCK'S SPECIALITIES.—AZALEA, indica, mollis, and pontica; CAMELLIAS, DEUTZIA GRACILIS, HELLEBORUS NIGER; SPIRÆA, japonica, variegata, and palmata. Many thousands are for disposal at
JULES DE COCK'S Nurseries, Ghent, Belgium.

To all Buyers of Plants,
For Stove, Greenhouse, Conservatory or Garden.
BUY CUTTINGS or ROOTED CUTTINGS of Soft-wooded Plants now, to ensure really fine plants for early bloom next spring. The following collections, all of which are our selection, include fine, new, and good older varieties, all worthy of general cultivation and all named.

	Rooted Cuttings, per dozen.	Cuttings, per doz.
ABUTILONS	3s. 6d.	2s. 0d.
ACHIMENES, Corms	3 0	1 6
AGERATUMS	2 0	1 0
ANTIRRHINUMS	3 6	1 6
BEGONIAS, Ornamental, &c.	4 0	2 0
COLEUS	3 0	1 6
FUCHSIAS	2 6	1 6
GERANIUMS, Zonal, Ivy-leaf or Double	3 0	1 6
PELARGONIUMS	4 6	2 6
MIMULUS	2 6	1 6
SALVIAS	2 0	1 6
PENTSTEMONS or PHLOXES	3 6	1 6

HERBACEOUS and HARDY PLANTS.—Plant at once, and so ensure well established plants capable of passing through the winter safely and blooming well next year. All good sorts for exhibition or garden decoration, and all named.
ANTIRRHINUMS, PENTSTEMONS and PHLOXES, 3s. 6d. per dozen; 12 plants of each, in 12 varieties, for 10s.
PYRETHRUMS, POTENTILLAS and DELPHINIUMS, 7s. 6d. per dozen, or 12 of each for 21s.
ROCK PLANTS, in great variety, 3s. per dozen.
SEDUMS and SAXIFRAGES, 12 sorts 3s.
HERBACEOUS PLANTS, from our large collection of the most showy and finest sorts grown for garden decoration, 12 for 4s.; 25s. per 100, in 50 sorts.
STOVE and GREENHOUSE PLANTS, of all classes, clean, healthy, various sizes and prices. All buyers adding to existing stocks or furnishing new houses, should visit our nursery or have our prices before buying elsewhere. Prices, 15 to 40 per cent under the general London rates.
PRIMULAS and CINERARIAS, of the finest Covent Garden strains, 1s. 6d. per dozen, 10s. per 100.
CALCEOLARIAS, of an equally good strain, 2s. per dozen.
CHRYSANTHEMUMS, good plants, in 5 and 6-inch pots, 6s. per dozen.
ROMAN HYACINTHS, very fine, 3s. per dozen, 21s. per 100.
STRAWBERRY PLANTS, in great variety:—

	Rooted runners.	In 2½-in. pots.	Strong, in 5-in. pots.
Our Selection, per 100,	2s. 6d.	10s. 6d.	30s.
Purchasers' Selection	3 6	15 0	35s.

100 in 20 sorts, our selection, 5s.
WM. CLIBRAN & SON,
OLDFIELD NURSERY, ALTRINCHAM.

NOTICE.—NOTICE.
MESSRS. EWING & CO.
Being about to discontinue their Nurseries at Eaton, near Norwich, beg to thank their numerous Customers in this Country and all over the World for the kind support they have extended to them, and also take the present opportunity of intimating that their very extensive stock of ROSES, HARDY ORNAMENTAL FOLIAGED TREES and SHRUBS, GRAPE VINES and ORCHARD-HOUSE TREES, CLEMATISES and other CLIMBERS, &c., is shortly to be offered at considerably reduced prices, for cash.
Special LISTS are in course of preparation.

Ferns a Speciality.
EXOTIC AND BRITISH FERNS,
IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Fernseries and other purposes.
Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

PRIMULA. CINERARIA. CALCEOLARIA.
Wm. Cutbush & Son's
Strain of these cannot be surpassed. They are sold in Packets, 2s. 6d., 3s. 6d. and 5s. each; but quality is the same.
HIGHGATE, LONDON, N., and BARNET, HERTS.

Tripoli Onion, Lettuce, and Cabbage Seeds for PRESENT SOWING.
BIDDLES AND CO., having a fine stock of the above, offer them at the following low prices:—
ONION, Large Late Flat Red, 6d. per ounce.
" " " " extra, 1s. per ounce.
" " " White, 6d. per ounce.
" " " " extra, 1s. per ounce.
" Giant Rocca, 6d. per ounce.
" White Lisbon, 2s. 6d. per pound.
CABBAGE and LETTUCE, all the leading varieties, at equally low prices.
CATALOGUES, with 300 Illustrations, free.
THE PENNY PACKET SEED CO., Loughborough.

THE
Gardeners' Chronicle.
SATURDAY, AUGUST 20, 1881.

THE OAK.

I SHALL not trouble the reader with a learned dissertation on the varieties of the Oak, intending to confine myself chiefly to the notice of remarkable trees which I have myself seen. The British Oak is indigenous to the country, and there are two distinct varieties—some botanists have called them species—namely, Quercus Robur var. pedunculata, and Q. R. var. sessiliflora. In the former the acorns are on fruit-stalks, in the latter they are sessile. Intermediate forms are common. Mr. Grigor says, in his *Arboriculture*, that the pedunculata is the more common tree both in natural and planted woods throughout Britain. I observed that the acorns of the Royal Oak at Boscobel, of the Cressage Oak near Shrewsbury, and of the Swilcar Lawn Oak in Needwood Forest are stalked.

The leaves of sessiliflora are long, the acorns in clusters of two or three; the timber is less close-grained and durable, and more liable to rot than that of the other sort. The inferior variety was, according to Mr. Rhind, introduced ages ago from the German forests, which consist chiefly of this species. It abounds in the New Forest and other parts of Hampshire, around London, in Norfolk and the Northern Counties. The inferiority of the imported species was unsuspected in English dockyards until the dry rot in our ships revealed it. The tree has the merit of growing more freely than the older British Oak, when young, particularly in poor soils and unfavourable situations.

The most remarkable specimens and plantations of Oaks I have seen are situated in and about Needwood Forest, which, like the Oak-growing Wealden, is not a superior clay for agricultural purposes, but well suited for the Oak. Bagot's Park, enclosed from Needwood at an unknown date, presented, with a little herd of goats, by Richard II. to the "Bagot" of Shakespeare, and now the property of Lord Bagot, his descendant, has a wonderful display of Oak trees. The Squitch Oak is its largest specimen, and was valued in its prime, some years ago, at 1012 cubic feet, or, in money, £240 12s. It measured 21 feet 9 inches round the trunk at 5 feet from the ground, which is very much less than some of the reported measurements of Oaks. Mr. Selby says, in one of the best books on its subject, his *British Forest Trees*, that the Squitch Oak "seems one of the largest, being upwards of 43 feet in circumference at the base." Not having measured the tree himself, Mr. Selby was obliged to say "seems," because these reported measurements are often taken at the ground, where the trunk of the Oak sometimes spreads amazingly. When the Mayor of a town in the Eastern Counties received the Prince of Wales, he made the most of the little town in driving His Royal Highness round. "Mr. Mayor," said the Prince, thinking he had seen one of the streets before, "are you not dodging me to and fro?" That is just what happens when people pretend to 40 feet or 50 feet girth for an Oak

they have not measured fairly. The Oaks at Bagot's Park are not pollards and squats; their noble trunks run up to a great height, and hence their large cubical contents. The King Tree, which I partly measured and partly estimated, standing in the "cliffs," is 20 feet round at 5 feet, runs up without a limb 30 feet, and thence to the top 70 feet. That is a tall Oak. The trunk of the Beggar's Oak measures 33 feet to the crown. This is the most picturesque tree in the park, with a noble trunk 20 feet, and 27 feet in girth, measured fairly, or 68 feet if you measure round the spurs which buttress the tree all round, and project several feet above the surface of the ground which they clutch. The price offered for the King Tree in 1812 was £200 for the first length of the trunk at 12s. per foot, and £93 for the remainder, including bark at £14 per ton.

The Oak trees of this park are all of the best and oldest British breed, with stalked acorns; one among them has variegated leaves. There are 1000 acres of park, and 1300 acres of planted Oak outside the park. When the price was 6s. per foot, £100,000 worth of Oak timber might have been felled, it is said, without touching the ornamental timber; so the noble owners, notwithstanding their residence is several miles distant, have incurred no small sacrifice for the sake of their timber.

I mentioned the poor soil. A wretched patch of lias clay soil overspreads the high ground here, a remnant of a larger area. It is a poor yellow or slate-coloured clay, which could not be farmed profitably just now. Owners of similar soils, as yet unplanted, will, perhaps, take the hint.

I made a special pilgrimage, when staying in the district, to visit that tall and sturdy patriarch of Needwood Forest, the Swilcar Lawn Oak. It stands on the highest ground of the neighbourhood, measuring 27 feet round at 5 feet, and towering to a great height. This old Oak—larger, stronger, and possessing more vitality than its neighbours—reminds me of a constitutionally tough family living on the spot. An old deer stealer, who plied his trade here before the enclosure, lived to the age of a hundred; his son mowed the grass round the Swilcar Lawn Oak at eighty-eight, and died at ninety of his epidemic; and his grandson seems in for a very long innings, too. Mr. Mundy, of Eland Lodge, who rode after his hounds in green through the glades of Needwood, and published a poem, called the *Fall of Needwood*, in 1808, about the time of the enclosure practically, named the Swilcar Lawn Oak the forest's "chief mourner." There was much which a poet might mourn who kept hounds, for the forest in its pristine state was a picturesque maze of great Oaks and other forest trees, of Hollies, Thorns, and underwood. There were 10,000 acres full of deer and other game, with any amount of poaching on the part of the "ancient cottagers" on the spot, and of people from the adjacent villages. Originally the forest had its customary officers—a lieutenant, rangers, axe-bearers, keepers, and woodmote court; it had five wards, including those of Uttoxeter and Tutbury, and four lodges, the residences of the keepers. These are now good country houses, leased from the Crown, and around them are parks which form specimens on a small scale of what the forest once was. One of these was occupied by Mr. Mundy, the poet who rode in green, and the ancestor, I believe, of the owner of the Royal Agricultural Society's 1st prize dairy farm of the present year. Yoxal Lodge was occupied by Mr. Gisborne, author of agricultural articles in the *Quarterly Review*. *A Traveller.*

The Phylloxera.—M. Planchon, in presiding over the Phylloxera Congress at Montbrison, alluding to the unnecessary restrictions placed on the transport of Vines, and stated that cuttings of the young wood without any heel of the old wood might be sent from place to place without danger, and still less danger attended the transport of the seeds.

New Garden Plants.

Masdevallia Reichenbachiana, *Endr., syn. M. Normanni*, hort. Norman.

My English correspondents have asked me often during the last few weeks, What is Masdevallia Normanni? I could give no answer. I did not know the plant. All I knew was that it came from the Whitchurch Rectory, Edgware, appeared as a single specimen at Mr. Stevens' big room, and fetched a very high price.

Now came Herr Schmidliner, my fellow countryman. He having seen the *rara avis*, made me a little pencil sketch in the evening. Next night I remembered the plant, and the morning subsequent I had before me in my herbarium 100 guineas' worth, provided the specimens were living.

Having addressed myself to Sir Trevor Lawrence I first got a bud, and then came a whole plant with one peduncle, five leaves, two breaks—a most acceptable present, which I feel exceedingly grateful for. The nodding flower shows an infundibular tube, purple-brown above, whitish-yellow beneath. The three yellow tails hang downwards. (They are reflexed in the fresh flower. T. L.) My guess was correct. If, most accidentally, you approve of the law of priority, look to our columns, *Gardeners' Chronicle*, 1875, iv. 257. There it is: but in lieu of Normanni it there bears the name of Reichenbachiana, Endr. There is also a flower in my herbarium, kindly sent me at that time by the very same Rev. Mr. Norman, Whitchurch Rectory, Edgware, London, who flowered it the first. The introduction is due to Messrs. Veitch. Nobody but Endres is likely to have collected it, and he stood in connection with a firm that has always regarded it as its first duty to give candid, true statements. The statement that our plant came with Masdevallia Veitchiana was not given by Messrs. Veitch. *H. G. Rchb. f.*

Aerides quinquevulnerum (*Lind.*) purpuratum.

This has the side laciniæ of the lip washed with purple, and very many more small purple spots. It forms a fine contrast to the genuine plant. I had both at once from Sir Trevor Lawrence, Bart., M.P. *H. G. Rchb. f.*

VICTORIA PARK.

Those who imagine that the inhabitants of the East-end of London have not a park worthy the name, and do not enjoy the luxury and pleasure of fragrant trees and flowers, should visit Victoria Park from the advent of the first Snowdrop and Crocus in spring till the last green leaf has faded at the end of the season. Does the visitor like trees — such trees as will live in the recurring fogs and smoke of London? Yes; there are trees bearing handsome leaves and sweet-smelling flowers, trees handsome because of their natural form and shape, and trees handsome because they are under the charge of one who delights to talk of trees, and who is careful to cultivate and understand their individual wants and the different conditions under which each and all succeed best. The general condition of the trees and shrubs, the manner in which they are disposed, the place allotted to each, and their associations and surroundings, all point to superior knowledge and good and discreet management. Mr. McIntyre has achieved an enviable notoriety in the art of carpet-bedding, and well has he sustained his claim to distinction this year in the many chaste designs so neatly executed in the different beds set apart for that particular and, I may add, popular style of bedding. But a speciality man, a man of one idea, would hardly be the right kind of superintendent for a public park. Hence we find Mr. McIntyre devoting all his leisure time to introducing fresh features, and fresh style as well as fresh material, adding to the beauties of the Park and to the gratification of all kinds of visitors year by year so far as it is possible to extend the hand of progress consistently with discretion.

Upon entering the Park by the approach which is opposite to the Hackney Road, and which is easily reached from Cambridge Heath Station, my first steps were directed towards Shore Place Gate, which is a point from which the first and perhaps the finest sight —from a floral point of view—in the Park is obtained. Upon a raised circular-shaped bank stands a fine group of Hollies of different colours, mixed with subtropical plants, and surrounded by a massive flower border, which for simplicity of arrangement and general effect it would be difficult to excel. The principle upon which the border is arranged takes the form of bold panelling with diamonds in the centre of Fuchsia Golden Treasure surrounded by bands of Coleus Verschaffeltii and Centaurea ragusina, at the back of which are rows of variegated Aucubas and Perilla nankinensis. The front of the border is looped with two distinct kinds of Pelargoniums, leaving a series of triangles, which are carpeted with much taste and good effect. The triangles are formed of Echeverias and Golden Feather, and filled in with Alternanthera versicolor grandis, having a central or dot plant of Echeveria metallica glauca and a band of Herniaria glabra, and edged with Echeveria secunda glauca and Alternanthera amœna, a very rich and pleasing combination of colour produced by associating flowering and foliage plants judiciously.

Upon the opposite side of the drive or walk the same design is carried out with a different selection of plants upon a lengthy sloping bank, which is nearly if not quite as attractive, the two front lines or rather bands being composed of a very bright variety of Lobelia, and the common favourite, Golden Feather. In the centre of the border are diamonds of Amaranthus melancholicus ruber, associated with Pelargonium Crystal Palace Gem, and the triangles neatly dressed with Kleinia repens and Alternanthera magnifica aurea.

At this point commences a herbaceous border three-quarters of a mile long, which, strangely enough, I do not remember having seen mentioned before, notwithstanding that the collection was formed in contradistinction to the carpeting and other styles of bedding adopted in the Park. I was curious enough to scrutinise this border minutely, and to compare the effect such plants yielded, occupying as they do an elevated sloping situation where what beauty (and I could discern little) they possess is seen to the best advantage. However, there they are, a huge mass of plants selected with a view to having flowers in season every month in the year, and but for the sprinkling of annuals in flower amongst them the display would not be startling—and this, to say the least of it, is a charitable description.

Proceding eastward, I passed several beds of single Dahlias just budding and coming into flower; these have been retarded owing to so much hot dry weather. The herbaceous border is still on the left as I pass along, and really one gets tired of looking at Sunflowers for ever: what a pity herbaceous plants do not furnish a better display in August. Lilies of the turncap section and the common orange Lily, Mr. McIntyre finds to succeed best, but everything herbaceous has a fair field and a fair trial, and the public are left to judge for themselves of the relative effects of different classes of plants.

From the gates at the entrance from Shore Place are seen some fine groups of Yuccas and Cannas not far from the drinking fountain; and the beds upon either side the drive on my way to the principal group of flower beds are planted so as to afford freshness and variety as the visitor wends his way along. I must not omit to notice some fine beds of mixed Verbenas planted in pairs upon either side the drive, which I regard as a concession to old favourites.

But presently a sight presents itself to the eye, and herbaceous plants and Verbenas are forgotten for the moment as if they had never been seen—I have reached the grand display of mosaic and other bedding! I will first of all give an illustration of one or two carpet beds as best I can without diagrams. In the first place Mr. McIntyre's great aim is to insure distinctness of outline by employing plants distinct enough in shade to secure individuality of colour, and to have figures strictly proportionate to the space upon which the design is laid out.

The first bed I shall describe is an oblong figure with a raised centre, devoid of all formality or abruptness. In the centre is a star formed of small Echeverias, and filled in with three kinds of Alternantheras, having the centre of the star of Pachyphytum bracteosum, and the groundwork Mentha Pulegium gibraltaricum, which is dotted with succulents upon either side the star, and embellished with dainty little scrolls or patches of dwarf foliage plants which shine like brilliants in the carpet of green. The second tier or base of the bed, also in a groundwork of Mentha, is very neatly furnished with chaste designs of Alternanthera magnifica aurea and Alternanthera amœna, and edged with a double row of Echeveria secunda glauca. A circle having a succulent plant of suitable height for a centre, nestling cosily in a group of Coleus Verschaffeltii splendens, surrounded by a single line of Golden Feather, is also a very telling arrangement. Then there are four triangles with a succulent of corresponding height in the centre of each, and a band of Mesembryanthe

mum cordifolium variegatum round it, filled in with Alternanthera paronychioides major in a groundwork of Mentha Pulegium gibraltaricum. I noticed another circle also laid out in the carpet style, having a star of three kinds of Alternanthera, with a succulent plant for centre, and a band of Golden Feather on a groundwork of Mentha Pulegium gibraltaricum, and edged with a double raised line of Echeveria secunda glauca.

There are three pairs of carpet beds planted to match, or rather to balance, the arrangement of the plot, which is semicircular in shape, and enclosed upon one side by a bank of choice trees and shrubs, including several well-coloured examples of golden Alder, which have a very distinct effect. There is also a fine row of Agaves in tubs placed round the garden, which are much admired by visitors.

To describe a display of flowers so artistically grouped as are the ordinary tribe of bedding Pelargoniums and other choice foliage plants, is no easy task where all is so well done, and yet there is not a bed in the garden from which an instructive lesson may not be taken. To my fancy the grandest bed of the group is one which very appropriately occupies a position in or near the centre of the garden. It is planted with a bold mass of Centaurea ragusina, whiter than I have ever seen it before, and mixed with Verbena venosa, with a band of Coleus Verschaffeltii, round the Centaurea, and edged with Pyrethrum aureum. The finishing touch is given to this bed by the purple tips of the Verbena venosa peeping up between the Centaureas, and I cannot help repeating to myself this is the finest bed in the garden. An example of how to plant circular beds will be found well represented in an arrangement of silver Pelargonium Princess Alexandra (the brightest in cultivation), mixed with Viola Blue Perfection, having a deep band of Coleus Verschaffeltii splendens, and edged with Echeveria metallica.

Another striking example is produced by a combination of pink Pelargonium Cleopatra and Creed's Seedling Pelargonium and Blue Lobelia (a very fine variety), and an equal effect is produced by Queen of Queens Pelargonium mixed with Violas, and having a broad band of Amaranthus melancholicus ruber between the Pelargoniums and an edging of succulents.

Nor are old favourites of sufficient merit forgotten. Here is a fine display of Pelargonium Lucius and Pelargonium Queen of Queens, with a suitable edging of foliage of proportionate height and breadth. Being careful to note the most telling plants from an effective point of view, I was much struck by a bed of Pelargonium Vesuvius, having a band of silver Pelargoniums, and edged with a dense, deep band of Lobelia pumila magnifica. These beds, it will be observed, are chiefly arranged and planted with plants of strong contrasting colours.

The next bed I have to describe is one which attracts considerable attention from visitors, and is called by different names, the most common of which is the Prince of Wales' feather, and I believe some call it the butterfly-bed. I will not stop here to inquire which definition is right, but would simply remark in passing, that it is a very pretty feather or a very pretty butterfly, as the reader may wish to take it. The figure has a centre, but, unlike most butterflies, it has three wings. In the centre there is a diamond of Coleus Verschaffeltii splendens having a narrow band of Pelargonium Princess Alexandra round it, and a single line of pink Pelargonium Christine, which line is also extended into the three wings. The middle wing has a centre of Coleus Verschaffeltii splendens, variegated Pelargoniums, pink Pelargonium Christine, Iresine Lindeni, and a band of Pelargonium Robert Fish edged with two rows of Echeverias. The two wings upon the right and left of the central one are planted alike with Queen of Queens Pelargonium for a centre, and a band of Pelargonium Crystal Palace Gem with Pelargonium Christine and Iresine Lindeni, and finished off with an edging of two rows of succulents. I noticed a very useful seedling Ageratum of medium height which comes in well between the old Mexican and Imperial Dwarf, a variety well adapted for centres of beds, back lines, and groups when the colour is suitable.

I next came to a bed which is unquestionably a work of art. It is a succulent bed in three tiers, and rendered conspicuous by distinct shades of groundwork in each tier, and the variety of choice plants with which it is embellished. The central plant of the first tier is a variegated Agave set in a groundwork of Herniaria glabra, which is dotted with a variety of choice succulents of different tints and has a very chaste effect. The second tier has a groundwork of Sedum glaucum, and is planted with Chamæpeuce diacantha and C. Casabonæ and variegated and green Agaves alternately, mixed with Echeveria metallica glauca, Sempervivum arboreum, dots of Alternantheras, and hardy Cacti. The third tier has a groundwork of Mentha, and of course is wider than those already described, in order to give symmetry to the whole figure. There are shields and circles (the latter raised) alternately disposed upon the groundwork, the figures being marked by neat little plants of Echeveria secunda glauca, and worked out with Alternanthera magnifica aurea and other dwarf foliage plants. There are dot plants of Chamæpeuce (varieties) and rare succulents dropped in between the circles and shields, and the latter are composed of Alternanthera versicolor grandis, A. magnifica aurea, and A. amœna. Then there is a double row of splendid plants of Sempervivum arboreum, with a single row of smaller plants of Pachyphytum bracteosum peeping out between and resting on a carpet of Sedum glaucum, which completes the edging of this grand bed. The effect, then, is produced by using distinct shades of groundwork, and adopting neutral tints as far as possible in the plants employed to carry out the arrangement.

Leaving this part of the Park I must take the reader in imagination to fresh fields and pastures new, where there is much variety of scene, composed of sloping banks, nooks of rockwork, and a great variety of noble plants arranged in groups without fault or blemish in the health of a single plant, and without a single defect as regards symmetry of growth or arrangement. By the side of the ornamental lake are some fine subtropical beds composed of the following plants: — Aralia Sieboldii, Dracæna rubra, Abutilon Thomsoni and Boule de Neige, Solanum marginatum, Acacia lophantha, single Neriums, very pretty; the Japan Loquat (Eriobotrya), Zea japonica variegata, the fig-leaved Abutilon, the Indian Ficus (Ficus indica), and many others. I thought a bed of Canna discolor, edged with Amicia Zygomeris, very pretty, as also a bed of Wigandia caracasana, with a band of Fuchsia Golden Treasure. What a fine plant this Golden Treasure is! Fill the centre of a bed with it, and have a broad band of Coleus round it, and edge with Mesembryanthemum cordifolium variegatum, and you have a plain bed that you can see and admire at a long distance. Here also are what are known as the spectacle beds (so called because of their being the shape of a pair of spectacles), beautifully carpeted, and having pretty little circles "raised" upon either side and compactly arranged with choice foliage plants of the brightest colours. To the left of the lake are some good subtropical beds of Cannas, Solanum marginatum, Ficus elastica—the bronze-stipuled kind—and Wigandias, fine plants with immense leaves as equal in size as if all had been moulded in the same mould. One of those interesting nooks of sloping rockwork had the face of the bank carpeted with Antennaria tomentosa, with here and there a natural looking patch of Herniaria glabra, and dotted with hardy Ferns, Sedum Sieboldii, and a variety of other succulent plants. At the Grove Road entrance there is a long border of mixed subtropicals, agreeably and pleasingly varied with beds of scarlet and pink Pelargoniums, and dots (in the grass) of Palms, Agaves, &c. Parallel with this border, and familiarly known as the "Crown flat," is a long strip laid out in serpent-like scrolls in handsome patterns of carpet work, tastefully executed in groundworks of Mentha Pulegium gibraltaricum and Herniaria glabra. Some of the figures take the form of hearts, stars, or diamonds, or a series of one or the other alternated with dots of the brightest colouring, and marvellously neat in conception, and correct in the execution of the work. The plants for this work had evidently been selected with studied care, as the spaces upon which the designs are laid out are rather small in size, requiring great skill as well as patience in the supervision of the work.

Before concluding this notice I must mention one or two striking features at the principal entrance, one of which is a grotesquely-shaped tree of Salisburia adiantifolia, which occupies a nook by itself—a kind of recess cut out of one of the shrubbery borders by the side of the walk, as also a Magnolia conspicua, which occupies a similar situation. And some distance further on a nice bank of rockwork, having two plants of Monstera deliciosa overhanging Agaves, Cacti, Agapanthus (the blue African Lily), and filled in with Sedum acre, and dotted with Amaranthus Huttoni, Portulacas, and other appropriate plants.

Considering the vitiated atmosphere of the East-end of London, this park is certainly a great success, and is growing in public favour year by year—a fact that is clearly demonstrated by the number of West-end visitors who come to admire the elegant designs of the carpet beds, and the rich display generally of seasonable flowers. *Special Reporter.*

A FLOWER SHOW IN JAMAICA.

On July 6 and 7 the first of a proposed annual series of horticultural exhibitions was held in the city of Kingston, Jamaica. As a primary effort the show was a success in every way, many of the exhibits giving evidence that much time, care, and practical skill, had been expended in their production. The classes were as follows:—Class 1, Roses in pots; class 2, flowering plants in pots; class 3, annual flowering plants in pots; class 4, cut flowers; class 5, ornamental foliage plants; class 6, Ferns and Orchids; class 7, fruits and vegetables. Considered as the productions of amateurs exclusively, the exhibits were highly creditable, and in future shows will no doubt be greatly excelled when the methods of culture now being inculcated by the Botanical Department of the island shall become better understood. Large and varied selections were sent from the different establishments under the control of D. Morris, Esq., Director of Public Gardens and Plantations. From King's House, the residence of his Excellency Sir Anthony Musgrave, K.C.M.G., came quantities of large Palms in tubs, Caladiums in pots, Orchids in hanging baskets, and a selection of the best and newest varieties of Crotons, the most admired being Hawkerii and Challenger, which varieties were each represented by a half specimen. Castleton Botanic Gardens supplied a good representation of the Fern flora of the island, with a collection of many rare or recently introduced plants useful for both ornamental and economic purposes. Among the Orchids from this garden was a splendid piece of Oncidium luridum, with a panicle 14 feet in length, and bearing over 400 expanded flowers. From the Cinchona plantations came a collection of the different species of Cinchona in pots, with a small but admirable collection of native Ferns, the most notable among which was the original plant of Gymnogramma schizophylla, the stock of which is now in the hands of Messrs. Veitch for distribution. This Fern will only live on the plains near Kingston for a short time, but grows readily at elevations above 4000 feet, thus making it for home purposes a valuable greenhouse plant, and, from the length reached by its fronds, a useful subject for training Gleichenia-fashion for exhibition. Cyathea Nockii, named after its fortunate discoverer, was also staged, and was especially conspicuous for the deep dark-green shining upper surface of its pinnules. W. B. Espent, Esq., of Buff Bay, sent in a set of three native Orchids, consisting of masses of Phaius grandiflorus, Oncidium triquetrum (a pretty small-growing kind, very variable in colour), and fine pieces of Broughtonia sanguinea.

In the fruit and vegetable tent were productions that would possibly have surprised many Europeans. First and foremost a fine, well coloured and highly flavoured bunch of Buckland Sweetwater Grape; medium and unripe Black Hamburghs; and fine and well flavoured brown Turkey Figs; a pyramidal stand showing excellent Pines of mostly local varieties, though specimens of Charlotte Rothschild and Ripley Queen were among them, the last being, without doubt, the highest flavoured variety grown, the Queen not even excepted. Among the vegetables were good examples of Potatos (here called Irish, to distinguish from the sweet Potato), surpassing by some degrees the models of the same vegetable exhibited by the Institute of Jamaica, lately presented to that body by Messrs. Sutton & Son, of Reading. Cabbage, Radishes, Peans, Beans, and other vegetables of good quality, also made their appearance on the tables, the produce of the higher elevations of the island. *Kingston, July 21.*

Eryngiums.—A few years ago a series of very distinct and interesting species of this genus were brought from the southern part of the South American continent. About London, we fear, they have all succumbed to the rigours of the winter either of this or the preceding year; but at Ryde, a short time since, we saw unhurt E. pandanifolium, in the garden of Mr. Ewbank.

A HOLIDAY IN SHROPSHIRE.

(*Continued from p.* 213.)

THE first excursion of the Cambrian Archæological Association was held at Shrewsbury on August 2, the whole of the day being devoted to an examination of this town. Botany appeared in force in the person of the President, Professor C. C. Babington, of Cambridge, accompanied as he was by several botanical and horticultural friends: the Woolhope Club, of Herefordshire, was strongly represented by the Rev. Prebendary Davies, of Moor Court, and other members, including Mr. W. Phillips, of Shrewsbury, and the Rev. J. E. Vize, of Forden: the latter gentlemen, however, found greater attractions amongst leaf fungi than old churches, and so left the party. At Shrewsbury railway station the company was strongly and nobly reinforced by the presence of the Rev. W. Allport Leighton, the eminent lichenologist, so that taking the excursionists all in all there was quite as much botany (especially cryptogamic botany) as archæology represented in the members. Mr. Leighton, hale and hearty, carried a portfolio (apparently of botanical specimens), and a roll (apparently an illuminated address), so that some one asked him if he proposed dilating on the Schwendenerian hypothesis. Not he; he was one with Dr. Nylander, and did not believe the hypothesis had a leg to stand upon. Had he ever refuted the hypothesis? No, he had better employment for his time, the hypothesis did not disturb him; it had been refuted and turned inside out over and over again. Did Mr. William Phillips give credence to the Schwendenerian hypothesis? No, he did not believe a word of it; he was one with Mr. Leighton, with Dr. Nylander, the Rev. James Crombie, and Dr. Cooke. Among the other crytogamic botanists at Shrewsbury there was not one with a favourable word for the Schwendenerian hypothesis. [Were they familiar with the cultural evidence supplied by Bornet and others? EDS.] What is the Schwendenerian hypothesis? It is that the small plants known as lichens are really small fungi parasitic upon Algæ. Every one who has looked at old wooden rails by damp ditch sides, or at tree trunks in humid woods, must have noticed the bright green stains on the wood and bark; this green colour is caused by the presence of myriads of small green unicellar plants termed Algæ. Lichens grow on old stumps and stones, and frequently resemble small black warts, and when these lichens are cut in two numerous green cells (like Algæ), named *gonidia*, are seen within them. Schwendener says these green cells are really Algæ, and that the lichen which encloses them is a parasitic fungus. Parasites are generally very much smaller than the objects they prey upon, but here is a parasite a thousand times larger than its host: it is like an elephant being a parasite on a fly. Now, if a very big thing is parasitic upon a very little one, one would naturally expect the little one to be speedily extinguished, but in the case of the lichen-Alga hypothesis the little Alga thrives well under the attack of its huge chimæra: it likes its attack, thoroughly enjoys it, and, as Schwendener himself says, the parasite excites the Alga "to more rapid activity and more vigorous increase." The hypothesis is not universally accepted in this country at present; neither, for that matter, is the identity of Æcidium berberidis with the corn mildew. Mr. Leighton is an excellent antiquary, and he brought with him to the railway station plans of ancient British, Roman, Saxon, Norman, and mediæval Shrewsbury. No more able and indefatigable guide than Mr. Leighton could have been secured; he was with the party the whole of the day, traversing and explaining the town and its buildings from end to end. The first place visited was the Castle; of this nothing but mounds of earth indicate the ancient British and Saxon positions, of the Norman work only a gateway and square keep remain. After mounting to the highest point, on to a huge mound of earth, capped by a pretty little garden, an excellent view of Shrewsbury is obtained, and in the distance, on The Mount, Frankwell, may be clearly seen the birthplace of our famous countryman, Charles Darwin. This house was pointed out as one of the sights of Shrewsbury, and in respectful remembrance of the great philosopher's admirable teaching a small sketch of the house was made on the mound with the camera, and is here reproduced (fig. 47). Mr. Leighton, who was a schoolfellow with Charles Darwin, retains many pleasant remembrances of his school companion as a boy, and afterwards as a man. One trifling recollection it may be admissible to print. Darwin and Leighton as lads were fond of plants and gardening. One day Darwin brought a plant to Leighton, and told him that his mother had said if he counted the little threads (pointing to the stamens) inside the flower, he could find out its name. "But how can that be done?" said Leighton. "Ah!" replied his gardening companion, "I cannot remember that."

The school founded by Edward VI. was visited, and then St. Mary's Church, founded by King Edgar: Canon Lloyd described the architecture and glass of this fine building. Architecture and glass, however, not being such specialities of the *Gardeners' Chronicle* as gardeners and gardening, a transcript of an inscription at the east end of the church may here suffice. It is in memory of a Mr. John Gardener, of Sansaw—a former master of Sansaw, a planter of trees, and in all respects an excellent "gardener." The inscription runs—

"Gratia sancta Dei tibi fulsit, care Johannes,
Ex re nomen habes, hoc tua vita probat
Horti cultor eras: tibi cura solo, poloque
Plantas egregias addere summa fuit.
1628."

It does not rhyme—the author was perhaps not quite equal to it; but if a rhyming translation may be ventured upon, the following may answer:—

"Dear John, a gift from God has shone on you;
Your name, and useful life together, show it.
The garden well you tended, choice plants grew,
To earth and heaven's glory.—Now all know it."

FIG. 47.—BIRTHPLACE OF CHARLES DARWIN, SHREWSBURY. (FROM THE CASTLE.)

I cannot answer for the last four words, but if any reader of the *Gardeners' Chronicle* can produce something more satisfactory, let him send it on to 41, Wellington Street for printing.

The abbey of SS. Peter and Paul was next visited, built partly in the eleventh century; here a handsome stone pulpit, belonging to the former refectory, stands dishonoured and overgrown with weeds in a railway coal-yard. An inscription in the building records a curious gift of coats in the following words:—"Methusalem Jones, Esq., left ten Coats, viz., five for Men and five for Women, to be given to ten Paupers of this Parish every fifth Day of November for ever." At the Dissolution a part of the abbey was pulled down and the structure known as Whitehall (because it is altogether brown) was built out of the ruins. The old abbey stonework is chiselled into form to suit the later style of architecture belonging to Whitehall.

At the latter place there is a magnificent Walnut tree, here illustrated (fig. 48); the circumference at 4 feet from the ground is 15 feet 7½ inches; the spread of the branches is over 40 yards. This tree probably dates from about 1550. Walnut trees seldom attain these dimensions; perhaps some readers of the *Gardeners' Chronicle* may, however, be able to refer to other large specimens.

The last place visited was the "George Hotel;" here the members of the Cambrian Archæological Association, the Woolhopeans, the numerous members of the Shropshire Archæological and Natural History Society, together with many visitors, sat down to a good dinner. To the writer of these notes a large dishful of hot Mushrooms was brought (truly an unexpected pleasure): on helping himself somewhat liberally a Shropshire archæologist came hurriedly forward and begged that the artist's valuable life might not be risked before consulting with Mr. William Phillips, a famous fungus authority, who at that time, said the archæologist, was most fortunately in the room. *W. G. Smith.*

(*To be continued.*)

BIRMINGHAM BOTANIC GARDENS.

A FEW days since I visited these attractive and well-kept gardens, where I saw many admirably-grown specimens both in and out-of-doors, together with an almost endless variety of novelties and rarities, with all of which I was much pleased. Having first found Mr. Latham, the energetic Curator, we at once proceeded on our ramble through the numerous plant-houses and stoves. In the first of those I entered Gloriosa superba (Methonica) was the first plant to attract my attention. This grand greenhouse climber is so seldom met with that one is apt to forget it altogether; although it was introduced nearly two centuries ago from the East Indies it still seems little known, and certainly is deserving of more extended cultivation. Here it is, winding its way along some wires fastened to the roof, and producing its lovely orange-coloured blossoms in profusion. This plant is worthy the notice of those who must have exhibition plants on trellises or suchlike, for which purpose it is admirably adapted. Passing on, a fine form of Oncidium Krameri was noteworthy, as was also in close proximity a fine pan of Rhipidopteris (Acrostichum) peltata. Some fine pieces of Phalænopsis were suspended in baskets and thriving admirably. Among these were P. amabilis, P. grandiflora, P. Lüddemanniana, and others. I also noted some good Nepenthes, of which N. Sedeni was producing pitchers freely. Among other objects of interest in this house were fine plants of Dracænas and Crotons, of which latter C. majesticus was most noticeable, being highly-coloured.

Leaving this we entered the Cattleya-house, wherein were a variety of large well grown specimens, which occupied one side of the house, the other being devoted to choice Ferns. There were but few Orchids in flower here, but among those flowering may be mentioned Oncidium intermedium, Lælia purpurata, Stanhopea tigrina, and Odontoglossum Schlieperianum. I also noted Russelia juncea, which was producing abundantly its heads of scarlet tubular flowers, which, springing from amidst its grassy foliage, were quite charming. Some fine plants of Sundews (Droseras) in variety next met my gaze, and closely associated was the New Holland Pitcher-plant, Cephalotus follicularis. To some rare and interesting Ferns I next turned attention, foremost among which was Gymnogramma Pearcei, a neat and attractive plant, somewhat resembling in general structure G. decomposita, but differing from this in its neater fronds, and failing to reproduce itself with the freedom of the latter. A fine plant of Thyrsopteris elegans was a feature in itself, and less may scarcely be said of a fine pan of Niphobolus (Polypodium) Lingua corymbiferum. Some large plants of the giant scaly Fern, Cetarach aureum, concludes a few of the most noteworthy occupants of this house. Next in turn came a small stove, in which Clerodendron fragrans florepleno, was flowering freely; here I also noted a nice batch of an oft-neglected plant—Scutellaria Mociniana, and which, when well managed, is one of the cream of stove-flowering plants; its huge heads on large plants are most conspicuous. The batch in question were young plants, and promising well. Leaving this we came to some large span-roofed pits, in which were fine specimen Gleichenias, G. dicarpa, flabellata, rupestris, and Speluncæ, being represented in large handsome specimens. Here my attention was drawn to some large plants of that most curious of carnivorous plants, viz., Darlingtonia californica, the leaves or pitchers of which are very slender at the base, widening till the apex is reached, where they recurve and form a hood, from which extend two leafy wing-like appendages.

My guide next led the way to the cool-house, which is set apart for a variety of plants either not considered hardy, or deemed too rare to be subjected to the conditions of the weather outside. The first to claim attention was Fragaria indica, from which numbers of its scarlet fruits were hanging; then came Linaria pilosa, a pigmy Snapdragon smothered with flowers; Tulbaghia violacea, producing its delicate shaded flowers on stout stems, which have a most

pleasing effect; Zephyranthes rosea, with large Gladiolus-like flowers of a deep rose, not exceeding 6 inches in height; the ever-welcome Gladiolus Saundersii with a strong spike of flowers, which are of a bright rose flaked with white, and distinctly spotted. The value of this species it is simply impossible to over-estimate, and when seen to good advantage, as in the present case, one only wonders why it is not grown in almost all collections of choice plants. Passing on, a charming display was evident of the flowers of Pratia littoralis, a pigmy alpine, belonging to Lobeliaceæ which showed a mass of its snow-white blossoms. A number of small pans were filled with this lovely little plant and suspended to the roof, thus affording them abundance of light, which treatment suited it admirably. Next I noted other pans of Campanula fragilis flowering freely and overhanging the sides. C. Raineri (true) is here to be met with, and is a lovely species, still very uncommon in gardens, and much more so in nursery collections of alpine plants. Its erect bell-shaped deeply ribbed flowers are of a light blue, and are set on very short footstalks, so much so that when full grown it is scarcely more than 1½ inch in height; in many cases it is a difficult plant to winter, but in the present instance little or no difficulty seems to be experienced, they are simply planted in shallow pans, similar to those so largely used for Phalænopsis at the present time and suspended near to the glass. Under these conditions they seem to thrive admirably. In this way many a little alpine gem is treated with success. To those who love doing alpines justice I would urge their giving this method a trial; here they are, out of the reach of slugs, always under the eye, and in a great degree free from heavy rains which sodden the soil around, and ultimate decay is the result. In this house may also be found a variety of plants, including several varieties of Masdevallias, Oncidium macranthum with many devolped flowers, and many more.

Besides these may be seen many choice, hardy, and other Ferns, of which too many here exist to be enumerated in detail, so it will suffice to say they were healthy and vigorous. Of the more rare I noted Mohria achilleæfolia, a plant seldom seen; Nothochlæna canariensis, and the Violet-scented Fern; Lastrea (Aspidium) fragrans. Passing on we came to the conservatory, a large and spacious building; immediately on entering another well-flowered specimen was dazzling to behold. This was "the flower of the gods," Disa grandiflora, of which a small group was resplendent with their gorgeous flowers; one spike alone had nine flowers upon it, some smaller spikes averaging three to five flowers. In all some twenty flowers were fully expanded, and as many more had still to develope themselves, so that there is good hope of their beauty being admired for some days. The great majority of other terrestrial Orchids were past, such as O. foliosa and many forms of Lady's Slipper, including Cypripedium acaule and C. spectabile, both of which had been very good. Many good specimens were here to be met with, and tree and other large Ferns in specimen form abound. Of these I noted Cyathea medullaris, Dicksonia arborescens, a rare Fern in specimen form, and which I believe does not exist in many collections of Ferns. In general habit it resembles D. antarctica, but the texture of the pinnæ is totally distinct from that species; the plant in question is a gigantic specimen, having fronds from 10 feet and upwards in length, and something over 100 of these form the specimen. Among others may be mentioned D. Youngii and D. fibrosa, Cyathea spinulosa (Moore), and C. Smithii, and Cibotium regale being also fine.

On the terrace outside, from which an extended view of the gardens and surrounding neighbourhood is obtainable, may be seen flowering specimens of the New Zealand Flax, Phormium tenax variegatum, and some beds of double-flowered Pyrethrums, Anemone japonica alba, Chrysanthemum Etoile d'Or, and other useful flowering bedding plants. From this point we wended our way into the herbaceous ground, where were many old associates. Here we paused to look at Tropæolum speciosum, which was endeavouring to regain a position it once held; owing to some diligent weeder it was some time since almost entirely eradicated, he having mistaken it for Bind-weed or some such pest. This pretty plant is shaded during the hottest part of the day by some overhanging limbs from a large Oak in close proximity. Though not over 12 feet girth, this Oak may be termed a large one, considering it is only a little over a mile from the centre of such a town as Birmingham. Continuing our course, a large bed was all aglow with Papaver umbrosum, of which we have read so much of late. Then came a nice mass of Linnæa borealis; then in masses were Primula rosea, P. japonica, and P. cashmiriana, all of which had ceased flowering at the time of my visit. A stately plant was next seen in Buphthalmum cordifolium, with large conspicuous golden-yellow flowers, a good plant for the wild garden. Of Campanulas there are a large number of both species and varieties; C. carpatica, in large tufts, were one mass of flowers; C. nobilis and its white variety are probably among the finest of Campanulas, both of which are in good form. In almost any position here the Edelweiss grows luxuriantly in the ordinary soil of the garden. The double flowers of lilac and white, which are borne in great profusion on plants of Calystegia pubescens flore-pleno, are most telling, and it still may be said to be one of the best hardy climbing herbaceous plants.

A showy border of annuals was very gay, and among them I noted Leptosiphon roseus and Mathiola bicornis, which latter at night is most fragrant. A choice collection of Iris barbata in variety were just giving out its last flowers, and above these, on a large bank, were "Honesty," Lunaria biennis, Œnothera biennis, Foxgloves, &c., all lending their individual charms to beautify their immediate vicinity.

Among other features in the grounds may be mentioned the large collection of Rhododendrons, which annually make a grand display. In common with the neighbourhood around, these gardens may be said to be picturesque, and indeed form themselves into a natural landscape, which with the aid of art may be rendered a still more attractive feature. *J.*

Fig. 48.—Large Walnut Tree at Whitehall, Shrewsbury. (see p. 232.)

NOTES FROM PAULTONS PARK.

The present month is of all others the time for gardeners to fill their note-books with useful memoranda for next season. Flower gardens are now at their best, and many hints which will be valuable next spring may be inserted in every note-book while the display of flowers is present to the eye and defective arrangement can be thoughtfully considered.

In the flower garden at Paultons, the seat of Hans Sloane-Stanley, Esq., in Hampshire, I recently noticed one or two beds very simply arranged, which were none the less effective. The garden is composed of five groups of beds, which admit of considerable variety being introduced in the arrangement of the colours. The central beds, raised in tiers, are very striking, having a healthy Datura for a centre, surrounded by scarlet and white Pelargoniums and a broad band of mixed single Petunias of various colours, very handsome indeed. Two beds of blue Lobelias, rich in colour and grandly flowered, planted alternately with Pelargonium Crystal Palace Gem, are very pleasing, especially towards sunset, and more striking still in the twilight of the evening.

People who can discern nothing but glare in a well-arranged flower garden must see very strangely indeed. Visit a garden in the early morning, and again at mid-day when the sun is brightest, and again later in the evening, and I venture to think that all who desire to see will be able to find fresh beauties at every visit. The reflection of light and shade has a very marked effect upon the look of a flower garden; that is, if you really wish to enjoy the many beauties of flowers and foliage, and know how to look for them.

In the kitchen garden the flower groups are also diversified and pleasing, the arrangement of flowering and foliage plants being very tastefully executed. No one can complain of want of variety. There are herbaceous plants of sorts—Stocks and Asters splendidly grown, the latter pegged down, and Phlox Drummondii with its great attractions of striking colours from brilliant scarlet to pale white, crimson and red. Two borders of mosaic bedding upon either side of the central walk are really attractive, but not so perfect as Mr. Macmillan hopes to have them another year, when his stock of plants is further augmented. The borders are narrow, and are separated from the vegetable quarters by two dense hedges of mixed Sweet Peas; then there is a line of Phloxes, fine sorts, with grand heads of their charming flowers, which, when tastefully blended in their various colours, no one can help admiring. A chain of diamonds formed of narrow bands of Sedum glaucum and another bronze-coloured sort (name not known) composes the centre of each border. There is a central plant in each diamond either of Polemonium cœruleum variegatum or Centaurea ragusina surrounded by Mrs. Pollock Pelargonium or some other suitable colour, such as Iresine Lindeni or Coleus Verschaffeltii. Two rows of Lobelias from cuttings hang over the stone edging of the walks, and the strip (triangles) upon either side the diamonds is filled with Alternantheras of sorts, Mesembryanthemum cordifolium variegatum, and a selection of other dwarf growing plants.

I noticed in a mixed border of some length Marvel of Peru, Chrysanthemum frutescens, Salvia patens, Helichrysums, Lupins from seed, and several patches of Erythronium dens canis, with leaves so brightly marked as to cause me to inquire into the history of its cultivation. It appears the plants were transplanted during the past spring, but whether their removal, together with the exceptional brightness of the weather, has anything to do with the rich markings of the leaves, I would not undertake to say. The situation in which they are growing is a north one. A large group of Solidagos coming into full flower struck me as being an improvement upon the usual plan of planting such plants singly in borders; there is nothing very striking about them, but they afford variety in a large garden.

One of the most pleasing sights that I have to record, however, is that of a sloping bank covered with single Petunias raised from seeds, which are ornamental enough to entitle them to a place in any flower garden in the kingdom. I remember seeing such another sight in the flower garden at Gordon Castle over a dozen years ago—one of the most effective beds in that fine garden.

In the vineries Grapes are finishing well, and the Vines, especially Muscats, are making vigorous short-jointed wood for another season. The plant-houses are stocked with collections of clean, healthy young plants, and many things of this season's growth, such as Coleus, double Petunias, tuberous Begonias, &c., have attained the proportions of specimens. Foliage plants and Orchids are clean, and growing rapidly, as indeed are all plants of whatever species or variety. I took particular notice of the fine collection of young Apple trees grown as standards at Paultons, and the following kinds are those that are bearing most productively, viz., Stirling Castle, which is a free bearer everywhere, Pine-apple Russet, Lord Suffield, Wellington, Sam Young, Pack-horse Pippin, King of the Pippins, Beauty of Kent, and Alfriston. The Box edgings have been all renewed during the past spring, and clean, well-rolled walks, along with healthy crops, render the vegetable and fruit departments not less interesting to a practical person than the more ornamental portion of the grounds. *Albion.*

THE BEGONIAS AT CHISWICK.

These superb summer flowers are, if possible, even more beautiful than when previously noticed. The plants have increased in size and in quantity of flower, and under the now more subdued light exhibit their pleasing colours in greater perfection. All who may contemplate the cultivation of Begonias as exhibition or as ordinary decorative plants, should first pay a visit to Chiswick, and see the superb collection which will probably be for two months longer in beautiful bloom. Not the least interesting feature in relation to Begonias is found in the numerous plants growing on the rockwork, where they thrive finely. One plant having a stiff habit, and producing good-sized round, erect flowers of a deep rich colour, shows well how beautiful a big mass of such plants in the open would be, or perhaps better still, how effective as pot plants upon a suitable carpet. The collection under glass chiefly consists of varieties raised at Chiswick, and which includes a number of very fine sorts. The aim in crossing has been to get compactness of habit and freedom of flowering, rather than to obtain immense size in the flowers, though perhaps in this respect some of the seedlings can hardly be surpassed. Most of the sorts are of the erect-flowered type, in which the flowers are round, of good substance, and stand up well above the foliage. The following is a list of a few of the best, ten of which have gained First-class Certificates :—

Anna Ria *.—Crimson ; flowers large and round ; flower-stalks erect ; dwarf in habit, and possessing fine large foliage.

Anna Wilkie *.—Bright orange scarlet ; flowers very large, and of good substance ; vigorous in habit, and bearing fine bright green foliage.

A. Hemsley *.—Deep rosy-pink ; a very profuse bloomer ; very dwarf and compact.

Chiswick Yellow. — Primrose-yellow, with dark marbled foliage ; dwarf and compact in habit, and throws the flowers well above the foliage.

Chiswick White.—Creamy-white ; a good round flower, and free in habit.

Dr. Denny *.—Soft salmon-pink—a very distinct colour ; flowers large and round, and habit vigorous.

Dr. Hogg *.—Orange-scarlet, with dark shading ; very vigorous in habit, and has fine large dark green foliage.

Gippie.—Bright pink, with good round flowers, produced on erect flower-stalks ; dwarf and compact in habit.

Henry Webb *.—Crimson-scarlet flowers, large and round ; a very profuse bloomer, throwing the flowers well above the foliage ; robust in habit, and very compact.

James Boyd.—Dark crimson, with light centre ; flowers medium in size, but produced in large bunches ; very free.

James McIntosh.—Crimson, shaded magenta, with light centre ; flowers round, and of good substance ; dwarf and compact in habit.

John Garrett.—Crimson ; flowers borne on stout erect stalks ; dwarf and compact in habit.

Lucy Violet *.—Pink, shaded with magenta ; erect flowering, and dwarf in habit.

Major Mason.—Magenta-pink ; flower-stalks erect, and the blossoms borne well above the foliage ; very compact in habit.

Nellie Barron *.—Bright crimson-scarlet, with large round flowers ; a splendid variety, with fine dark green foliage ; dwarf and compact.

Nellie May *.—Soft rosy-pink, with dark veins ; fine large flowers produced on pendent stalks ; vigorous in habit.

Polly Musgrave.—Deep crimson ; good round flowers produced in large clusters on long pendent stalks ; tall habit.

Queenie *.—Bright rosy-pink ; flowers very large ; habit vigorous and very free flowering.

Souvenir de Chiswick. — Deep crimson ; round flowers produced on stout stalks well above the foliage ; very compact in habit, with fine dark green foliage.

Sophie Penny.—Crimson, shaded with magenta ; dwarf and compact in habit, and free flowering.

Tom Musgrave.—Bright pink ; very free flowering, and good in habit.

Walter Dancer.—Crimson ; flowers borne in large bunches well above the foliage ; and vigorous in habit.

Those marked * have been certificated. The collection includes many other very fine seedlings which have not been named, besides several good named sorts, such as rosea grandiflora, Gloire de Nancy, Oriflamme, Incendie, Cleopatra, Bayard, Pearcei superba, &c.

It may be useful to some to know the treatment these plants have received, which is as follows :—About the second week in March the tubers were placed in heat, and in the first week in April most of them were beginning to grow. They were then shaken out of their pots and repotted, the compost used being about equal parts of loam, leaf-mould, and peat, with a good sprinkling of horn shavings, sand, and a little good dry stable manure. Most of the plants were potted in 24-sized pots, and have not been repotted since. They have been fed with a little weak manure-water, and an occasional sprinkling of Clay's Fertiliser.

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

Involucrati—fibro-membranacei *continued* (*from p.* 148.)

4. *ϕ *C. zonatus*, Gay. — Corm oblate, the height in proportion to the width less than in any other species. Corm tunic a very thin fibro-membrane. Sheathing leaves exceeding proper spathe. Proper leaves glabrous, the keel somewhat narrower than the blade. Proper spathe diphyllous, hidden by sheathing leaves. Perianth : throat bearded, orange ; segments rosy-lilac, veined internally with from five to seven clear purple lines, and bearing at the base two semi-circular bright orange spots. Anthers white, two or three times the length of the yellow filaments. Pollen grains cream-coloured ; the style dividing at a little below the summit of the anthers, and produced into shortly branching yellow fringed stigmata, which are darker than the anthers, and exceed the anthers. Seed dull cream coloured, glabrous.

C. zonatus is probably limited to the mountainous district of Cilicia, north of Tarsus, where it was discovered by Balansa in 1855 ; it is possible also that it may extend into Northern Syria. I have had some difficulty in deciding on the prior name applied to this species, respecting which Baker, who in 1873 described the plant as C. zonatus, and in 1878 as C. Kotschyanus, seems also to have been in doubt. I have come to the conclusion that the name Kotschyanus is inadmissible, as in 1846 it had been applied by Herbert to a variety of C. cancellatus from the Taurus, and therefore should not have been given to a later discovered species. K. Koch's name of Kotschyanus, in the Berlin Garden Seed Index of 1853, must have applied to Herbert's cancellate Crocus, as it does not appear that Gay's C. zonatus had ever been collected prior to Balansa's visit to the Taurus in 1855. Baker's adoption of Gay's herbarium name of zonatus in the *Gardeners' Chronicle* of 1873 was the first name applied to the plant in any publication, and must therefore be retained ; and it has the advantage of being descriptive.

C. zonatus is one of the earliest autumnal species to flower, immediately succeeding C. Scharojani and C. vallicola, from the middle to the end of September.

5. **C. karduchorum*, Kotschy.—Corm small, about as broad as high, covered with a delicate fibro-membranous tunic, the cap of which is produced into a bunch of sharp points. Sheathing leaves about equalling the proper spathe. Proper leaves exceptionally small and short, $1\frac{1}{2}$—2 inches long, and $\frac{1}{20}$ inch broad, the previous year's leaves persistent to the autumnal flowering time. Proper spathe monophyllous, about 1 inch high. Perianth : tube rising high out of the sheathing-leaves and proper spathe ; throat apparently unbearded, and uniform in colour with the vinous-lilac segments, which are from 1 to $1\frac{1}{4}$ inch in length. Anthers cream-coloured, about double the length of filaments. The style dividing near the summit of the anthers, and produced into a spreading mass of capillary subdivisions of the cream-coloured stigmata.

C. karduchorum is only known from herbarium specimens distributed by Theodore Kotschy, who discovered it in flower on September 27, 1859, on a mountainous ridge between Müküs and Schirwan in Kurdistan, at an altitude of 6000 feet. It has been erroneously identified with Gay's C. zonatus, from which it differs in all the more important characters, and has no near ally.

6. **C. nudiflorus*, Smith ; C. multifidus, Raymond ; C. pyrenæus, Parkinson ; C. fimbriatus, Lapeyr.—Corm small, globose, or depresso-globose, covered with a fibro-membranous tunic ; the new growths are produced from various parts of the corm as long stolon-like shoots, which form independent corms on the death of the parent. Sheathing leaves foliaceous, falling short of proper spathe. Proper leaves glabrous, about $\frac{1}{8}$ inch broad, and produced in the spring to from 9 to 12 inches in length. Proper spathe monophyllous, foliaceous at extremity, about 6 inches in length, and much exceeding sheathing-leaves. Perianth : tube about 7 inches long ; throat unbearded ; segments rich unstriped bluish-purple, about $2\frac{1}{8}$ inches long, and $\frac{3}{4}$ inch broad, the corm producing a single flower from September to October. Anthers pale orange, $\frac{3}{4}$ inch long, more than twice as long as the white filament, the style dividing at the level of the summit of the anthers, and shortly produced into a compact mass of the capillary divisions of the orange stigmata exceeding the anthers. Seed pale buff.

Naturalised in many localities of the Midland Counties, and indigenous on the Continent within a narrow belt extending from 5° west to 5° east longitude in the Asturias, Pyrenees, the Cevennes, Herault, and Aquitania, ranging from the sea level to an altitude of 6000 feet.

‡ Leaves appearing with the flowers.

7. ‡*C. asturicus*, Herbert.—Corm about $\frac{3}{4}$ inch broad, and somewhat less in height ; tunic of thin parallel fibres intermixed with membrane. Sheathing leaves falling short of the proper spathe, which is monophyllous and foliaceous at the extremity. Proper leaves glabrous, just appearing with the flowers, and produced in the spring to a length of 9 inches. Perianth : throat bearded ; segments varying from purple to white, with darker markings towards the base. Anthers bright yellow, occasionally brown, reaching nearly to the level of the stigmata ; filaments white. The style dividing at the level of the summit of anthers, and shortly produced into a bunch of capillary divisions of the deep orange stigmata. Seed dull buff coloured.

C. asturicus abounds in the meadows of the Asturias at various altitudes up to 4000 feet, and extends as far south as the Sierra de Guadarrama ; flowering in October and November. Many of the records of habitats of C. nudiflorus refer to this plant, which is readily distinguished by its bearded throat, and the appearance of the leaves at the flowering time. The flowers, like those of C. vernus, are essentially variable in colour, ranging from deep purple, through every shade of lilac, to pure white, and with distinctly darker markings towards the base. It is nearly allied to C. serotinus, which is a South Spanish plant.

8. ‡ *C. serotinus*, Salisbury.—Corm nearly spherical, a little broader than high, covered with a fibro-membranous tunic. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, very narrow, $\frac{1}{16}$ inch wide, reaching to the level of the flower at the flowering time in November, and produced in the spring to a length of 9 or 10 inches. Proper spathe monophyllous, exceeding the sheathing leaves, and reaching nearly to the throat. Perianth : throat glabrous, lilac ; segments

bright purple, with from three to five feathered purple lines, about 1½ inch long and ⅜ inch wide. Anthers yellow, reaching to about the level of the stigmata; filaments white. The style dividing below the summit of the anthers, and produced into dark orange subentire spreading stigmata, which are sometimes a little below and sometimes a little above the summit of the anthers.

A native of the south of Spain, flowering late in November. It is stated by Willkomm and Lange to occur in the Sierra Morena and near Jerez. Herbert records its occurrence in the Sierra Nevada, and in Pine forests near Cadiz. From the latter habitat Mr. W. McPherson, H.M. Consul at Seville, has kindly obtained for me a supply of the roots, which I have flowered at Benthall. The throat of the Cadiz plant is unbearded. I am not acquainted with C. granatensis from the south Spanish sierras, which is, I suppose, identical with the plant Herbert refers to as C. serotinus.

Much confusion exists in herbaria with reference to C. nudiflorus, C. asturicus, C. serotinus, and C. Clusii; both C. asturicus and C. serotinus occur frequently under the name of nudiflorus, and the Portuguese C. Clusii under the name of serotinus; and I would here briefly notice their main points of distinction. The throat of C. nudiflorus is glabrous, the leaves never appear with the flowers, the flowers are notably larger than those of the other three species, and the corm is stoloniferous. The throat of C. asturicus and of C. Clusii is always bearded, the leaves appear with the flowers, and the corms of these two species are not stoloniferous, like the corm of C. nudiflorus. C. Clusii has a red seed and a reticulated corm tunic; C. asturicus a buff seed and a corm tunic of parallel fibres. C. serotinus is distinguishable from asturicus and Clusii by its much narrower leaves, its later flowering time, and its beardless throat. The leaves of C. asturicus are less developed at the flowering time than the leaves of C. Clusii and C. serotinus.

9. ‡ *C. Salzmanni*, Gay; C. tingitanus, Herbert; C. Salzmannianus, Herbert.—Corm from 1 to 1¼ inch broad by ¾ inch high; tunic fibro-membranous. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, reaching to the level of the flower, $\frac{3}{16}$ inch broad, produced to 1½ or 2 feet in length in the spring. Proper spathe foliaceous monophyllous, with a second inner valve occasionally present. Perianth: throat bearded, yellowish; segments about 2 inches long by ⅝ inch broad, of various shades of purple and lilac, suffused externally with darker feathered markings. Anthers and filament orange. Stigmata and style orange; the style dividing at the level of the summit of the anthers into a compact bunch of slightly branching stigmata.

C. Salzmanni is abundant in the neighbourhood of Tangiers; flowering in October. I also, in the year 1869, found it sparingly on the flanks of the Lesser Atlas Mountains, south of Tetuan, which appears to be the most south-westerly point at which any species of Crocus is known to occur. In the expedition to Marocco with Sir J. Hooker and Mr. Ball in 1871, I nowhere observed it in the range of the Greater Atlas.

C. Salzmanni is nearly related to C. serotinus and C. asturicus, but is a species of much larger stature.

10. ‡*C. Clusii*, Gay; C. Clusianus, Herbert; C. mounanus, Clusius.—Corm oblate, about ¾ inch broad, and ½ inch high; corm-tunic of obscurely reticulated fibre. Sheathing leaves falling short of proper spathe. Proper leaves $\frac{1}{16}$ inch wide, glabrous, appearing before, and reaching to the level of the flowers at the flowering time. Proper spathe foliaceous monophyllous, reaching nearly to the level of the throat. Perianth: tube short; throat lilac, bearded; segments 1½ inch long, and ⅝ inch broad, vinous purple, darkest towards the throat. Anthers pale orange, falling short of the stigmata; filament yellowish. The style dividing at the level of the summit of the anthers, and produced into a bunch of spreading capillary subdivisions of the dark orange stigmata. Seed scarlet.

Abundant in the neighbourhood of Oporto, Lisbon, Sintra, and in Pine forests south of the Tagus; flowering in October and November. Strictly speaking, C. Clusii should be placed with the Reticulati; but as its affinities are so obviously with the autumnal Spanish and North African species, it is more consistent with natural grouping to place it here.

11. ‡*C. ochroleucus*, Boiss. and Blanche.—Corm oblate, about 1 inch broad and ½ inch high; covered with a very thin fibro-membranous tunic. Sheathing leaves falling short of proper spathe. Proper leaves glabrous, ⅛ inch wide, reaching to the throat at the flowering time, and produced to about 1 foot in length in the spring. Proper spathe of one or two membranous valves. Basal spathe exceptionally long, and exceeding the sheathing leaves. Perianth: tube pale yellow; throat bright orange, slightly bearded; segments about 1½ inch long and ½ inch broad, creamy-white, yellow towards the throat. Anthers and pollen grains creamy-white; filament yellow. The style dividing towards the middle of the anthers into slender, slightly toothed orange stigmata, which are occasionally branched, and sometimes exceed the anthers.

An abundant species on the flanks of the Lebanon, in Northern Palestine, and borders of Syria; flowering from the end of October to the end of December.

12. ‡*C. lazicus*, Boiss.—Corm very small, scarcely ½ inch broad, covered with a thin membranous tunic, and stoloniferous. Sheathing leaves represented by a single short sheath, rising about ½ inch above the summit of the corm, and falling short of the exposed basal spathe. Proper leaves glabrous, appearing with flowers (in August?) and reaching above the throat, three or four to a corm, from 3 to 4 inches long, $\frac{1}{16}$ inch broad. Proper spathe monophyllous, reaching half-way up the tube. Perianth: throat apparently glabrous; tube orange, rising from 2½ to 3 inches from the almost sessile ovary; segments bright orange, about 1½ inch long, rounded at the apex. Anthers orange, about half the height of the yellow filament. The style dividing on the summit of the anthers, and shortly produced into subulate spreading orange stigmata, which are occasionally subdivided.

C. lazicus was discovered by Mons. Balansa in 1866, at an altitude of from 8000 to 8500 feet, in the mountains above the village of Djimel, in Lazistan. Some doubt exists as to its flowering time, which on M. Balansa's labels is stated to be August, about which I have had some misgivings, for no other early autumnal species developes leaves till the spring. In a letter I have received from M. Balansa, he casually mentions June as the month of his visit to Djimel, in which case C. lazicus, which occurs at a great altitude, may be fairly looked upon as a vernal species, delayed in its flowering by the snow covering; in the same way as C. vernus, which at low elevations usually flowers in March, may be found as late as July, in the higher Alps.

C. lazicus is the only species in which the sheathing leaves are so short that the basal spathe is exposed; and with the exception of C. nudiflorus, no other species multiplies by stolon growths from the corm.

13. ‡*C. Cambessedesii*, Gay; C. Cambessedeanus, Herbert; C. magontanus, Rodr.—Corm pyriform, about two-thirds of an inch broad and high; tunic fibro-membranous, splitting up from the base into flat fibre-like divisions. Sheathing leaves falling short of the proper spathe, reaching to the level of the ovary. Proper leaves two or three, reaching to the throat at flowering time, $\frac{1}{16}$ inch broad, slightly glandular. Proper spathe diphyllous. Perianth: throat glabrous; segments very small, ¾ inch long, the outer segments pale buff, with external purple featherings, the inner segments varying from white to lilac. Anthers yellow, shorter than the white filaments, and generally overtopping the stigmata; the style dividing at the throat or a little above the throat, and produced into subentire unbranched orange-scarlet stigmata. Seed buff.

A native of Majorca and Minorca; flowering in October and November. In cultivation, the flowering time is very variable, from September to April.

(*To be continued.*)

THE ISLE OF WIGHT.

(*Continued from p. 198.*)

Brook.—The secluded village of Brook is an ideal village as far as retirement, beauty of situation, and the comfort and general well-being of its inhabitants are concerned. Abundant provision seems made for the welfare of the residents, and there seems little chance of its becoming over-populated. It is not, however, a good place for a hungry tourist without friends in the village to alight in, for there is no inn in the place, and the butcher's visits are made at weekly intervals only. It will not do, therefore, for the visitor to drop in unawares upon his friends (if he have them) in this little Eden. On the other hand, should he experience the misfortune of being wrecked in the neighbouring bay a life-boat is at hand, and the hospitality of the residents would then doubtless go far towards supplying the want of accommodation of a more public nature. In this charming spot, as beautiful in its natural features as it is interesting from a geological and natural history point of view, is Brook House, the residence of C. Seely, Esq., M.P., and the centre around which the peaceful pleasant life of Brook revolves. How "Judd of Hawkestone" ever got transposed to Brook is a mystery not for us to unravel. It was, however, a pleasure to meet with him unexpectedly there, and to find a friend where one only expected to see a strange face. The garden establishment is not extensive, but it is in excellent order, and the rich colour of the foliage of the Coleus and of the flowers of the Pelargoniums, Begonias, and such-like, says much for the good effects of sea air on some plants, at any rate. The Peach-house, a light span-roofed structure, was well filled with trees, bearing good crops or showing traces of having done so. The Grapes, too, all with the roots inside the houses, were doing well according to their several natures, especially the Muscats, planted about four years, and grown on the one-rod system. Greenhouse plants, Heaths, Chrysanthemums, Vallotas were turned out for the summer for change of air. How well the latter especially had done was evidenced by the fact that on one plant sixty flowers were produced.

On a lawn near the house, a plain substantial stone structure, is an Oak planted by Garibaldi on the occasion of his visit to Mr. Seely. The bedding-out is relatively rather extensive, and occupies in particular two terraces—an upper and a lower one. The upper terrace, of an architectural character, as befits its proximity to the mansion, is perhaps open to the remark that its adornment is too exclusively red in tone and fatiguing rather than reposeful to the eye. The lower terrace, however, affords a novel, ingenious, and, to our thinking, very agreeable combination of planting of different styles. It consists of a sunk oblong rectangular space of considerable dimensions, with sloping banks and a central raised bed or plateau, separated from the slopes by wide grass paths; the shelter of a hedge protects the whole on the seaward side. The sloping banks are used as herbaceous borders, with excellent effect, the plants well selected as to height and colour so as to be bright, gay, and varied, but well balanced and symmetrical. Carnations, Clove Pinks, and Sedums, with shrubby Veronicas were the most prominent plants in bloom at the time of our visit. The central mound is also marked out by a sloping bank, but of lower elevation than the outer banks, and in this case planted with a narrow ribbon border of Pelargoniums and yellow Calceolarias, &c. The mound itself is flat at the top, with beds of low growing American plants and flowering shrubs tastefully disposed upon its grassy surface. We expect the reader to come to the conclusion that this combination or juxtaposition of herbaceous borders, formal ribbon-borders, and shrub-beds must be incongruous. It is very far from being so, however, and the reason would seem to be that the herbaceous plants are well chosen as to symmetry and variety; the ribbon-border, not of too great width nor too obtrusive in colour, forms a not inappropriate boundary to a rectangular mound; while the wide interspaces of grass and the flowing outlines of the shrub-beds gradually link together outlines and masses of colour which less skilfully managed would be objectionable. It was a bold conception, but the risk was justified by success—at least, that was the impression conveyed to us during a very hurried "look round."

Dimmick's Nursery, Ryde.

A visit to a provincial nursery ground affords an excellent opportunity for gauging some of the climatal features of the district and for arriving at some conclusions as to the horticultural requirements of its inhabitants. It is quite clear, for instance, that the Ryde folk love to make their greenhouses and their windows gay, else why should the nursery at the back of one of the streets in the town of Ryde be replete with such a profusion of nice saleable stuff in the way of Begonias, Bouvardias, Coleus, Fuchsias, Cyclamens (at rest), Primulas, Pelargoniums, Poinsettias, Gloxinias, Caladiums, Ferns, Chrysanthemums, Azaleas, and the like? These are growing in a series of span and half-span houses, and their appearance is such as to betoken a brisk demand, skilful propagation and good management, while, as we have said, their numbers give one an idea of the floral proclivities of the people of Ryde. A little way out of the town is the nursery for trees, shrubs, and fruit trees. The Ryde people clearly like Roses, and they have "an eye" for nicely trained fruit trees, and for Apples, like the Hawthornden, that will bear, but the winters even here have

not spared the Rose trees or Briers. Still some idea of the general climate may be gleaned from the presence of nursery rows of Benthamia fragifera, Griselinia littoralis, Leycesteria formosa, Veronica Andersoni in full flower, V. Girdwoodiana, Paulownias, Catalpas, and Sweet Bays—the latter, however, somewhat injured. Euonymus japonicus, too, seems to have been as much cut as further inland; but Hollies, of which there is a nice stock, have weathered the storm. Speaking of the reason for the little taste shown for flowering shrubs Mr. Dimmick remarked that one reason was that purchasers chiefly visited nurseries at planting time when the flowers were not to be seen, and this may be the case, else there would not be many Weigela nivea, Leycesteria formosa, or Althæa frutex left in the nursery, and the same remark may be made as to the choicer deciduous trees, of which a variety are here grown. Conifers make a show at all seasons, and most of the best kinds, such as Deodars, Douglas Firs, Abies Lowiana, A. Pinsapo, Retinosporas, Thuyopsis dolabrata—all seemed to be uninjured. Mr. Dimmick has one or two specialities in the way of Victoria Cos Lettuce promising for seed, and Nonpareil Green-top Beet—a small, neat-growing, richly coloured variety. Our visit was a very hurried one, but it was long enough to make us wish to go again, and so short as to induce us to recommend others with better opportunities to make a more leisurely survey than we could do. *The Rambler.*

LIST OF GARDEN ORCHIDS.

(*Continued from p. 172.*)

7. MASDEVALLIA.—Sepals connate at the base, in a tube or free and spreading to the base, with acuminate or tailed tips. Petals usually small. Pollinia 2, often 2-partite. Petiole of the leaf enclosed in a sheath with the scape or peduncle. Stems clustered, scarcely developed below the sheath.—Upwards of a hundred species have been published. They all inhabit tropical America, from Peru and Brazil to Mexico, and chiefly the mountains of Peru to New Grenada. It is noteworthy that no true Masdevallia has hitherto been discovered in the West Indies—M. fenestrata, from Jamaica, is now referred to Pleurothallis (P. atropurpurea). Several of the finer species have already been figured in these columns, and a few will be repeated for the purpose of illustration. With such an embarrassing wealth of variety it is difficult to choose, still the following are certainly some of the most ornamental species:—M. chimæra, Davisii, Harryana, ignea, polysticta, Shuttleworthii, tovarensis, Veitchiana, triaristella, and elephanticeps.

1. M. ABBREVIATA, Rchb. f., *Gard. Chron.*, n.s., x., p. 106.—Native country unrecorded. Intermediate between M. polysticta and M. melanopus, and perhaps a hybrid. I am not sure that this has actually been in cultivation.
2. M. ÆQUILOBA, Regel, *Gartenfl.*, ix., p. 82, t. 285.—Peru, Warscewicz. Related to M. civilis, and perhaps the same.
3. M. AMABILIS, Rchb. f., *Bonplandia*, ii., p. 116; var. *lineata*, Lind. and André, *Ill. Hort.*, série 3, t. 196.—Peru, Warscewicz, Roezl. Cultivated by Linden in 1875. Hort. Kew.
4. M. AMANDA, Rchb. f., *Bonplandia*, ii., p. 115; Walp. *Ann.* vi., p. 190; *Gard. Chron.* 1871, p. 1421.—New Grenada. I am not sure that this has been in cultivation, though the name is quoted in an enumeration in *Gard. Chron. loc. cit.*
5. M. ARMINII, Lind. et Rchb. f., *Bonplandia*, ii., p. 283; Walp. *Ann.* vi., p. 189; *Gard. Chron.* 1871, p. 1421, [name only. New Grenada, Wagener. "Closely allied to M. Wageneriana."
6. M. ATTENUATA, Rchb. f., *Gard. Chron.* 1871, p. 834; *Bot. Mag.*, t. 6273.—Costa Rica. Cultivated by Messrs. Veitch. Flowers small, greenish-white, with orange-yellow tails. Hort. Kew.
7. M. BACKHOUSIANA, Rchb. f., *Gard. Chron.*, n.s., xi., p. 716; xii., p. 114.—New Grenada. A fine species or variety, near M. chimæra. Cultivated by Messrs. Backhouse, of York, in 1879.
8. M. BARLÆANA, Rchb. f., *Gard. Chron.*, n.s., v., p. 170.—Peru, Davis. Introduced for Messrs. Veitch. A scarlet-flowered, free-growing species.
9. M. BELLA, Rchb. f., *Gard. Chron.*, n.s., ix., 725; xiii., p. 756, figs. 131, 132; *Fl. Mag.*, n.s., t. 433.—New Grenada, at 8000 feet, Wallis. Introduced for Messrs. Veitch. One of the handsomest species of the genus. Hort. Kew.
10. M. BENEDICTI, Rchb. f., *Xenia*, ii., p. 197, t. 186; *Linnæa*, xli., p. 9.—New Grenada, Roezl. A handsome species of the same group as M. chimæra, now offered by several nurserymen. Hort. Kew.
11. M. BONPLANDI, Rchb. f., *Bonplandia*, iii., p. 609; Walp. *Ann.*, vi., p. 191; *M. uniflora*, H. B. K., *Nov. Gen. et. Sp.*, i., p. 361, t. 89, *non* Ruiz and Pavon.—Ecuador, Columbia. Linden's Catalogue for 1881; Bull's Catalogue for 1880. Hort. Kew.
12. M. BRUCHMÜLLERI.—This name is in some of the catalogues, and it is in the list of the species now growing in the Royal Gardens, Kew; but if it be published, I have overlooked the description.
13. M. CALOPTERA, Rchb. f., *Gard. Chron.*, n.s., i., p. 338; ii., p. 322; iv., p. 290; ix., p. 104.—North Peru, Roezl, 1874. In Linden's Catalogue for 1881.
14. M. CAMPYLOGLOSSA, Rchb. f., *Gard. Chron.*, n.s., x., p. 588.—Native country unknown. Cultivated by Messrs. Veitch in 1878. A small-flowered species.
15. M. CAUDATA, Lindl., *Gen. et Sp. Orch.*, p. 193; Walp. *Ann.* vi., p. 189; *Gard. Chron.*, n.s., iii., p. 170; Karst., *Fl. Colomb.* ii., t. 153.—New Grenada. This is included in Linden's Catalogue for 1881, but Dr. Reichenbach states (*Gard. Chron. loc. cit.*) that he believes the plant in English gardens under this name is M. coriacea.
16. M. CAYENNENSIS, Rchb. f., Otto and Dietr., *Allg. Gartenz.* 1855, p. 242; Walp. *Ann.* vi., p. 190.—Cayenne. Allied to M. coriacea, but much smaller. I have assumed that this has been cultivated, because it was first published in a horticultural periodical.
17. M. CHELSONI (Veitchiana × amabilis), Rchb. f., *Gard. Chron.*, n.s., xiii., p. 554.—Intermediate between its parents; raised in Messrs. Veitch's establishment.
18. M. CHIMÆRA, Rchb. f., *Linnæa*, xli., p. 8; *Gard. Chron.* 1872, p. 463; *Flor. and Pomol.* 1873, p. 3, with a figure; *Gard. Chron.*, n.s., ii., p. 804; iii., p. 41, fig. 5; iv., p. 258; *Bot. Mag.*, t. 6152; *Xenia*, ii., p. 195, t. 185; *Rev. Hort.* 1881, p. 130, with a coloured fig.; *Floral Mag.*, n.s., t. 149; *M. Wallisii*, Hort.—New Grenada, Wallis, Roezl. I have not ascertained who first introduced this handsome species alive. Hort. Kew.

FIG. 49.—MASDEVALLIA COCCINEA.

19. M. CIVILIS, Rchb. f. and Warscew., *Bonplandia*, ii., p. 115; *Bot. Mag.*, t. 5476.—Peru, Warscewicz. Cultivated by Consul Schiller, Hamburgh, who sent it to Kew. Flowers greenish-yellow, with a purple base. Hort. Kew.
20. M. COCCINEA, Lind. ex Lindl. *Orch. Lind.*, p. 5; *Gard. Chron.* 1868, p. 75, with a woodcut of a single flower; *Xenia* i., p. 197, t. 74; *Gartenfl.*, t. 870.—New Grenada, 8000 to 10,000 feet; Linden, Schlim, &c. One of the handsomest of those species having a very narrow upper sepal.
21. M. CORIACEA, Lindl., *Ann. Nat. Hist.* xv., p. 357; *Orch. Lind.*, p. 4; *Gard. Chron.* 1872, p. 1067; Karst., *Fl. Colomb.* ii., t. 153.—New Grenada, Hartweg, &c. Cultivated by Messrs. Veitch in 1872.
22. M. CORNICULATA, Rchb. f., *Gard. Chron.*, n.s., ix., p. 72.—New Grenada. Introduced for Messrs. Backhouse, of York, who flowered it in 1878.
23. M. CUCULLATA, Lindl., *Orch. Lind.*, p. 4.—New Grenada. Linden's catalogue for 1881. [M. CUPREA.—This name appeared in Linden's catalogue for 1871, according to Morren in *Belg. Hort.* 1873, p. 356.]
24. M. DAYANA, Rchb. f., *Gard. Chron.*, n.s., xiv., p. 295.—New Grenada, Linden, 1872. Resembles Restrepia antennifera.
25. M. DAVISII, Rchb. f., *Gard. Chron.* 1874, p. 710; n.s., v., p. 366; *Xenia*, iii., p. 3, t. 203; *Bot. Mag.*, t. 6190.—Peru, Davis. Introduced for Messrs. Veitch. Handsome orange or lemon-coloured flowers. Very showy and distinct. Hort. Kew.
26. M. DENISONI, Hort., *Fl. Mag.* 1873, t. 79; *Gard. Chron.*, n.s., ii., p. 488.—New Grenada. A variety of M. Harryana, having dark crimson flowers flushed with magenta.
27. M. EDUARDI, Rchb. f., *Gard. Chron.*, n.s., xiv., p. 778.—Colombia. Ed. Klaboch.
28. M. ELEPHANTICEPS, Rchb. f., Warscew. *Xenia*, i., p. 6, t. 3; reproduced in the *Fl. des Serres*, x., t. 997.—New Grenada, at 6000 to 10,000 feet; Warscewicz. This magnificent species is now offered by several of the leading nurserymen, but I have seen no account of its having produced flowers in Europe. Upper sepal yellow without; laterals purple without, crimson within.

   Var. PACHYSEPALA, Rchb. f., *Xenia*, i., p. 198, t. 74.—Comparatively dull coloured, chocolate and yellow.
29. M. EPHIPPIUM, Rchb. f., *Bot. Zeit.* 1873, p. 390; *Xenia*, ii., t. 195; *Gard. Chron.*, n.s., i., p. 372; *Bot. Mag.*, t. 6208; *M. Trochilus*, Lind. and André, *Ill. Hort.*, série 3, t. 180; *Fl. Mag.*, n.s., t. 443; *M. Colibri*, Hort.—Peru. Dr. Kraus introduced it for Messrs. Backhouse. Flowers with long tails, rather dull brown and yellow.
30. M. ERINACEA, Rchb. f., *Linnæa*, xli., p. 11; *Gard. Chron.*, n.s., xv., p. 104.—New Grenada. Cultivated by Mr. Bull in 1881.
31. M. ESTRADÆ, Rchb. f., *Gard. Chron.*, n.s., i., p. 435; *Bot. Mag.*, t. 6171.—New Grenada; Wallis, Patin. Flowered with Mr. Williams in 1874. A pretty species, with medium size flowers in which the lower half and tails of the sepals are yellow and the upper half violet-purple. Hort. Kew. *W. B. H.*

(*To be continued.*)

Apiary.

THE ANNUAL SHOW OF THE HERTFORDSHIRE BEEKEEPERS' ASSOCIATION was held in the grounds at Verulam Lodge, St. Alban's, on August 10 and 11 by kind permission of the Earl of Verulam. The display of honey this year is exceedingly good in quality though considerably less in quantity than last year. This falling off in quantity may be accounted for several ways. Honey growers are producing the honey in a better, more portable, and saleable form—thanks to the efforts of the Association—and it commands a ready sale without bringing it to the show. Again, the honey season in Herts came on very early and in many cases beekeepers had not their stock forward enough in strength of bees when this early harvest came. This early harvest did not continue owing to the very dry weather scorching up the honey plants, notably the white Clover, and the Lime trees had not a large crop of flowers this year, therefore the average weight per hive has been only moderate. The packing of some of the honey, both in the extracted and in the sectional forms, was very tasteful. That it is necessary to glaze all sectional honey, just one glance at the honey-tent would have convinced the most sceptical, for a complete host of bees had taken possession of unglazed sections in spite of the muslins covered over them, and the owners of the hives having thus bought their experience by the loss of their honey, will probably be wiser another year, and glaze their sections.

The show of honey in large supers was grand, one exhibited by Mr. Moule, of Stevenage, weighing about 60 lb. Other large glass supers, exceeding good, but not quite so well finished, were shown by the Rev. — Jenyns and Mr. Humphrey. The best exhibit of run or extracted honey was by Mr. Gayton, of Hadham, and a finer sample we never saw. The beeswax exhibited was not of a high standard, in part owing to the carelessness of the owners in omitting to strain out the impurities. In the hive class nothing novel was exhibited, the hives shown, however, were thoroughly useful articles. In the section class some sets of 1 lb. section, especially made for use with straw skeps, certainly deserved a prize, but the maker had omitted to put dividers, therefore the prize was withheld. The sections attracted a deal of attention, and were certainly a step in the right direction. A large number of observatory hives were shown, the 1st prize going to Mr. E. N. Martin, of St. Alban's. Messrs. Neighbour & Sons, of London, had a very complete collection of bee appliances.

The driving competition took place on Wednesday and excited much interest. The times occupied in driving were unusually long. Mr. Childs, who took the 1st prize, has been the 1st prize-taker at all the annual shows of the Association. Considerable amusement [!] was caused by the bees attacking the door-keeper of the tent. He fled from his post pursued by a small swarm, and sought the assistance of a policeman, who, however, declined to interfere in the unequal combat, and recommended him to run his head in the nearest hedge, which he did, and got rid of his assailants, not, however, without a severe stinging. Mr. T. B. Blow, of the British and Hertfordshire Associations, lectured on both days,

Orchid Notes.

The Cultivation of Cattleyas. — Mr. Lindlay's article on this subject has called forth some response, and it would be well if a few other good growers would give us their opinion. Mr. McDonald, at p. 142, with his practical experience, decides positively for potting them in peat and sphagnum. Mr. Anderson, at p. 174, seems halting between two opinions. He says they can be grown "upon the purely epiphytal principle" as well as if they were potted in peat and sphagnum. I do not think they can be grown either as well or as easily on what we may call the block system. How does Mr. Anderson grow his own?—or how do all the principal growers of Cattleyas grow them? When I visited the late Mr. Dawson's collection, when they were under Mr. Anderson's care, I found the largest proportion of the Cattleyas in pots. About the same time I inspected the collection of Provost Russell at Falkirk, under the care of Mr. Sorley, and found some of the finest Cattleyas and Lælias I ever saw growing in pots. How do you find the best collections in the South—that of Sir Trevor Lawrence as a private collection, of Messrs. Veitch, of Chelsea, of Mr. B. S. Williams, of Holloway, and others? They are nearly all growing in pots. All these gentlemen have had long practical experience in the culture of Orchids, and know well what are the cultural requirements of each genus. Mr. Anderson does not say why he referred to the Constable-Burton Orchids, or whether he ever saw the plants to which he alludes. I did see them, and thought the Cattleyas very much over-potted. I mentioned the large specimens of Cattleya Skinneri in the *Gardeners' Chronicle* some time ago; they were certainly very large specimens, but, with all due deference to the gardener who grew the Orchids so well, I think those same Cattleyas would have done even better if they had been placed in smaller pots, and had a much smaller quantity of organic matter about their roots. Many Orchid growers overpot their plants, especially the Cattleyas. Mr. Dominy, late of the Exotic Nursery, Chelsea, who has spent the best part of a lifetime amongst them, insists, above all things, upon using small pots for the size of the plants, and draining the pots well. If the peat and sphagnum is thoroughly permeated with roots the material would not get sour, but if there is too much organic matter it will decay and become sour before the roots have ramified into every part of it, and as the roots run into it they will decay.

Mistakes are often made, not only by placing the plants in pots that are too large, but by potting at the wrong time. Cattleyas should be potted just before the young roots emerge from the base of the last formed pseudobulbs, and if the plant to be potted is in good condition the compost and the drainage will be quite full of roots, and a large, very large portion of them will be firmly attached to the inner surface of the pot. It would be most disastrous to turn the plants out of the pots by tapping the rim on the edge of the potting bench, as the plant is held inverted in the hands; most of the roots would be torn off and broken that way. I take a hammer and carefully break the pot to pieces, and where the roots are firmly attached to the broken portions they are not removed from them at all. They help to keep the compost more open. The potting material should be placed very carefully amongst the roots, the greatest care being taken not to break them more than is necessary. The plants should also stand well up in the pots. *J. Douglas.*

Fig. 50.—Masdevallia bella. (see p. 236.)

Agricultural Returns of Great Britain for 1881.—The Statistical and Commercial Department of the Board of Trade have issued a summary of the returns collected on the 4th of June last, which shows the extent of land in Great Britain under Wheat to be 2,806,057 acres, or 103,381 acres less than in 1880; Barley, 2,442,405 acres, or 25,036 acres less than in 1880; Oats, 2,901,135 acres, or an increase of 104,230 acres; Potatos, 579,431 acres, an increase of 28,499 acres over 1880; and Hops, 64,128 acres, or a decrease of 1577 acres. The total number of live stock in Great Britain on the same day is given as, cattle, 5,911,524; sheep and lambs, 24,582,154; pigs, 2,048,034.

ALPINE PLANTS.

(*Continued from p.* 180.)

Chemical Nature of the Soil.—The chemical properties of the soil exercise a great influence on alpine vegetation. Some plants grow on limestone, others on a soil completely free from lime, and on schists of various composition. In the plains the alluvial soil has been deposited by water at various times. They are, consequently, of a very mixed character, whence the possibility of growing so many plants of different nature in the same soil. On the mountains, where the nature of the rock varies, we may have calcareous or schistose soils. Each of these soils has its own particular flora. In former times the alpine flora was specially divided into a limestone and into a granitic flora, but now it is recognised that it is lime alone which exerts an influence. The lime is noxious to some plants and favourable to others. Sometimes species are so nearly allied that the differences between them are very slight—so slight, indeed, that we may take them to be varieties induced by the lime; thus, in the case of Anemone alpina and its variety sulphurea, while the first occurs over large areas of limestone soil, the second is never found except on schistose or granitic soils destitute of lime. The difference between these two plants is but slight, the corolla being white in the one plant and yellow in the other, and yet the demarcation is so marked that one can often tell with certainty the nature of the soil by the plant which is growing upon it. Moreover, I have seen in the charming Valley of Fully, in the Valais, at the foot of the Dent de Morcle, immense patches of Anemone alpina, where the transition from a calcareous to a granitic soil was marked by insensible gradations in the colour of the flower. The soil being very mixed in that locality, the further one advanced toward the foot of the Dent de Morcle the deeper the colour of the flower became. The graduation ceases above the Lake of Fully, where there is an immense area of Anemone sulphurea of the deepest possible yellow. On the Chasseron in the Jura I found, six years ago, a small plot of A. sulphurea in the midst of a large mass of A. alpina. On examining the soil I found it stiff—"lehmig," as the Germans say, and quite different from the surrounding soil. It was probably due to the disaggregation of a mass of schistose rocks brought to the Jura by the same causes which have served for the transport of the erratic blocks.

Viola calcarata, L., and V. cenisia, L., are two very distinct species, but which are never found on the same soil. The first occurs on calcareous soils, the other on the schist of Mont Cenis. The same remark applies to the Rhododendrons. R. ferrugineum, L., is never found except on the granitic slopes, while R. hirsutum prefers a limestone soil. Nevertheless, R. ferrugineum in the Western Jura is found on a soil clearly calcareous. For my part, I doubt its being truly wild in this locality, and suppose that it must have been transported by some means or other. It is very limited in range and does not grow freely. Moreover, there is between the subjacent rock and the surface soil a covering of humus intervening between the roots of the plants and the limestone rock.

I add a list of certain species of the same genera remarkable for their liking for a limestone soil, or the reverse:—

Limestone Plants.	*Calcifuge Plants.*
Achillea atrata, L.	A. moschata, Wulf.
Alyssum montanum, L.	A. Wulfenianum, Bernh.
Androsace lactea, L.	A. carnea, L.
Anemone alpina, L.	A. sulfurea, L.
Arenaria ciliata, L.	A. multicaulis, L.
Aretia helvetica, Gaud.	A. glacialis, Hoppe
Artemisia glacialis, L.	A. mutellina, Vil.
Astrantia major, L.	A. minor, L.
Betula alba, L.	B. pubescens, Ehr.
Dianthus alpinus, L.	D. glacialis, Haenk.
Draba aizoides, L.	D. frigida, Saut.
Epilobium Dodonai, Vill.	E. Fleischeri, Hochst.
Erigeron alpinus, L.	E. uniflorus, L.
Gentiana Pneumonanthe, L.	G. excisa, Presl
Hieracium villosum, L.	H. alpinum, L.
Hutchinsia alpina, R. Br.	H. brevicaulis, Hoppe
Juncus Hostii, Tausch	J. trifidus, L.
Pedicularis Jacquinii, Koch	P. rostrata, L.
Primula Auricula, L.	P. villosa, Jacq.
,, Clusiana, Tausch	P. integrifolia, L.
Ranunculus alpestris, L.	R. rutæfolius, L.
Rhododendron hirsutum, L.	R. ferrugineum, L.
Salix retusa, L.	S. serpyllifolia, Scop.
Saxifraga muscoides, Wulf.	S. moschata, Wulf.
Sempervivum hirtum, L.	S. arenarium, Koch
Silene alpestris, Jacq.	S. rupestris, L.
Veronica saxatilis, Jacq.	V. fruticulosa, L.

Any one acquainted with alpine plants will readily see that there is very little difference between some of the species here mentioned. For my part I believe that the chemical composition of the soil may modify the appearance of species. I have seen, for instance, plants of Rhododendron, the characteristics of which were so ill-marked that I could not at first sight tell whether I had before me R. ferrugineum or R. hirsutum. R. intermedium of Tausch is only one of the intermediate forms between these two species. The importance of attending to the chemical nature of the soil will be appreciated by the cultivator, for if he attempt to grow a plant to which lime is objectionable on a calcareous soil, or *vice versâ*, he must be prepared for disappointment.

As to the physical nature of the soil and its influence on vegetation, that also is very important. The soil of the Alps is rarely stiff clay, almost always it is light and open, and readily absorbs moisture and heat; nevertheless, it is often mixed with stones, gravel, and fragments of rocks. In the lofty stations, beneath the icy ridges, the soil in which the alpine species exists is nothing but fine gravel, containing very little humus, but constantly moist. The water which percolates through such soil appears to furnish to the plant the nourishment which so arid a soil itself cannot give.

In less elevated spots, in the moraines and landslips, for instance, plants are found which grow only in a soil composed of pounded rock, and which contains absolutely no humus. Viola cenisia, L.; Campanula cenisia, L.; Linaria alpina, L.; Lepidium alpinum, L.; Thlaspi rotundifolium, Gaud.; Ranunculus parnassiifolius, L., &c., are generally found in soil which is produced from the wearing down of schistose and slate rocks. *Henry Correvon, Geneva.*

(*To be continued.*)

Florists' Flowers.

Greenhouse Flowers: Azaleas.—The plants that have been placed out-of-doors may remain there for some time yet. See that they do not suffer for want of water at the roots. The latest flowering varieties will speedily have to be removed from the forcing-house. Air must be admitted more freely to the forcing-house for a few days before they are removed to the greenhouse. Cuttings put in now will form roots well if they are carefully removed from the plant with a heel, and the bark must not be injured when cutting off the leaves. See p. 142 for further information.

Calceolarias.

Seeds may still be sown as previously advised, and if the young plants produced from seeds sown earlier are large enough, they ought to be pricked out. If this is not done in an early stage of the plants' growth many of them will be likely to damp off. The plants will succeed best at this season of the year if they are placed in a frame on the north side of a wall or hedge.

Chrysanthemums.

The plants of all the sections should be now in their blooming pots; the plants that are intended to produce large specimens should now be trained into shape, while the growths are pliable. The growers about London tie them down very close to make dwarf specimens, but they are often trained down so very close as to be quite deformed when blooming time arrives. It is best to study the natural habit of the plant, and to tie and train the growths as near as possible to that, and not in the form of an old-fashioned watch-face or a molehill. The pompons form a dwarf spreading bush, and the large-flowered section grow 3 or 4 feet high when well managed; but if they suffer for want of water, or are placed too close together, the lower leaves fall off, and the whole plant is rendered unsightly. There must be no stopping of the growths after this, and in a week or two the blooms must be "set"—that is, as soon as the flower-bud can be discovered. The growths that start just under it must be pinched out with the finger and thumb. This remark applies specially to the plants intended to produce exhibition blooms.

Cinerarias.

The early flowering plants have been potted into their blooming pots. Those raised from later sown seeds will be potted on as they require it. There are no special instructions required at present. Fumigate for thrips and greenfly; dust the leaves with flowers of sulphur on the first appearance of mildew.

Chinese Primulas.

The plants sown in April have been potted into 4 and 5-inch pots, and are now growing freely in a cold frame, under the same conditions as Cinerarias, Calceolarias, and other soft-wooded plants that dislike too much sunshine. The later plants must now be pricked out of the seed-pots, and also be carefully attended to. We raised a number of plants from cuttings early in the year of Gilbert's double varieties. These are now good-sized plants in 5-inch pots. A few flowers have appeared on some of them; these have been removed, and the plants will be potted into 7-inch pots. They will make large specimens, to bloom at Christmas, but they must be aided with a little heat when the weather is cold.

Cyclamens.

These have now started to make their growth, and have been repotted into the pots in which they are to flower. Our plants have been exposed to the open air all through the summer months, and have required very little attention up till now. The plants have been placed on a shelf in the greenhouse. Young seedlings raised early in the year should now be repotted into their blooming pots. The crown of the corms should just be above the surface of the soil in the pots.

Gloxinias.

I do not know whether this beautiful hothouse plant has, or has not, been classed with florists' flowers; if it has not, then it ought to be—it is so easily grown, and gives such good results from a small amount of labour. The plants that flowered early in the year should be placed in a position where they do not receive much water; in fact, they should be gradually dried off. To produce a good display in the autumn, seedlings are the best. I sowed a packet of seeds early in February, which speedily vegetated; they were pricked out when ready, and potted on as they required it. Most of the plants are now in 4½-inch pots. Some of them are in flower, and others are coming on. I measured two of the largest plants, and found they were 19 inches across. If the seeds are saved from good varieties most of them will be as good as the parents.

Large-flowered Pelargoniums.

These are now all starting freely into growth. Those who wish to have their plants bloom early will have shaken them out and repotted them by this time. We do not bloom ours very early, but they are now ready, and will be repotted as soon as we can find time to attend to them. See p. 142 for further cultural instructions. As soon as the plants start to grow the house they are in ought to be fumigated, to prevent greenfly from spreading.

Petunias and Verbenas.

These may come in very useful, along with Fuchsias and zonal Pelargoniums, to make a good display in the greenhouse now and later in the year. They do best out-of-doors up to the time they have to be placed in the greenhouse. If the pots in which the plants are growing are full of roots, weak manure-water will help very much to strengthen the bloom; this should be given at each alternate watering. *J. Douglas, Ilford.*

Herbaceous Phloxes.—These have been very beautiful at Chiswick, but are now a little past their best. What deep rich hues many possess, and what perfection of form! The trusses, too, are large, and, when fully expanded, are singularly showy and effective. The following make a fine selection from those found in the gardens:—Gloire de Neuilly, deep rich carmine; Chas. Boulliard, purplish-crimson; Hugh Gardiner, white-flushed arrayed with purple; Lothair, rosy-carmine; Baron Rigaut, rosy-crimson; Mdlle. Marie Saison, rosy-red; Foudroyant, rosy-pink; Coccinea, crimson-scarlet; Mons. Gustave Doré, rosy-puce; Countess of Breadalbane, purplish-lilac; Ovid, white, crimson eye; Countess of Rosslyn, white, purple eye.

Double Chinese Primroses.—Even though there may be nothing new in the method of propagating these adopted with so much success at Chiswick, yet it is an excellent one beyond question. Early in June the large plants that need division are thickly surfaced with sandy soil, the stems of the crowns being first well cleansed of all decayed leaf-

stalks. One of these turned out the other day and divided for our edification showed seven fine young plants, all having good clumps of roots, and fit to pot into 48's at once.

COLONIAL NOTES.

Seychelles.—We have received, through the courtesy of a correspondent, a photograph of a plant of Liberian Coffee, apparently about 7 feet in height, the branches of which are laden with fruit. The plant was sent from Kew in 1877.

South Australia.—Dr. Schomburgk's report on the Adelaide Botanic Garden for 1881 gives the details of various experiments with Wheat and various forage plants. Dhoura, Sorghum vulgare, Egyptian Millet, Penicillaria spicata, Cytisus proliferus, Reana luxurians are all mentioned as valuable forage plants; and the cultivation of Wattles (Acacia pycnantha, &c.) for tanning, of flowers for perfumery purposes, of Olives, Almonds, Castor-oil, Flax, Mustard, Sesamum, Raisins, Tobacco, Hops, Capers, Opium, and of Esparto-grass, is recommended as both suitable and desirable. The Economic Museum is completed, and is likely to be of great service in developing the resources of the colony. Great complaints are made of wanton mischief on the part of thoughtless boys or mischievous roughs.

Garden Operations.

KITCHEN GARDEN.

Onions.—In the majority of places these will now be fit for taking up, as evinced by the bending and colour of the tops, as well as the general appearance of the bulbs. Therefore the first opportunity of dry weather should be taken to pull them up, but this should not be done after heavy rains — a few fine days should first be allowed to elapse, in order to give the bulbs time to evaporate the water they may have imbibed, otherwise they cannot be expected to keep so well as when their tissues are filled with the properly elaborated and thicker juices of the stem. In any case the bulbs should be pulled up before a second growth commences, and laid on the ground with their roots to the south, so that the sun's rays may assist in withering them. They should be spread out in widths of about 5 feet, with a space of a couple of feet between, in order that they may be turned more readily, and this should be done every fine day until the roots and tops are completely withered, when the greater part of the latter can be cut off and the bulbs stored away in a dry loft where they can be spread out, or strung together by the remaining portion of the top and suspended from nails driven into the joists or rafters of a dry shed, and one from which frost can be excluded. In the event of the weather being showery at the time it is necessary to have the Onions taken up, it will be advisable to spread them on hurdles or shutters to dry, which, owing to their being free from exhalation and having a current of air passing underneath and amongst the bulbs, they will do quicker and more effectually than if placed on the ground or gravel walks, which are sometimes had recourse to for that purpose. When storing the bulbs put all the small ones by themselves for pickling or culinary purposes, for which they are frequently asked in preference to larger ones. The ground thus cleared of the Onion crop should be got ready for the reception of Cabbage plants next month. For this crop we manure heavily and trench deeply.

Ordinary Work. — See to the landing-up of Celery when the plants are throughly dry, and take care that no earth is allowed to get into the heart of them while the work is being performed. Where not already done lose no time in getting the planting of Broccolis, Savoys, and winter Greens completed. Late plantings, when the plants have previously had plenty of room in the nursery-beds to develope themselves, and are let down to the collar when being planted, I find withstand the effects of severe winters better than those planted much earlier. Draw some soil to the ranks of Broccolis, Cauliflowers, Savoys, and Borecoles as they require it; also Leeks will require attention in the same direction. As crops of Peas and Beans become exhausted clear them off, and set the ground apart for other crops—such, for instance, as Lettuce and Endive plants, which will come off in time this autumn to allow of the ground being trenched for early crops of Cauliflowers, Peas, &c.; and for this purpose it will be necessary, now that the exhausted crops are being removed from the ground, to determine upon the space or spaces to be reserved, and in such positions as are best calculated to bring forward the respective kinds of early vegetables. Another sowing of Radishes, and Mustard and Cress can be made out-of-doors, after which it will be advisable to have recourse to a cold pit, where the sashes can be placed over the seed and seedlings when necessary. This will be a good time to cut a few bunches of the respective kinds of herbs when dry, and hang them up in a dry airy shed, or loft for future use. If Cauliflower and Lettuce seed have not yet been sown—as advised to be done on the 18th or 20th inst. in our last Calendar—no time should now be lost in doing so. A constant warfare must now be kept up against weeds, with a view to their speedy destruction, and to attain this end during the present weather hand-weeding must be persisted in, as also a vigorous use of the Dutch hoe. See that the gravel-walks in this department are kept free of weeds by hand-weeding them; this is best done during showery weather, when the weeds will come up easier, and the roller, which should always be brought into use immediately after the weeds have been pulled up, will make a better impression on the walks. In order to preserve these in a clean and good condition, there should be a sufficient number of garden scrapers—which are easily made, and can be got in readiness during bad weather—distributed over the gardens, especially in the alleys leading from fruit walls and borders on to the walks, as also from their short distances from each other, at the sides and ends of the various plots, &c. *H. W. Ward, Longford Castle, Salisbury.*

FLOWER GARDEN.

General Work.—Since the rain all kinds of plants have grown so rapidly that, instead of having to peg them out to cover the ground, they need curtailment by cutting and pinching; especially is this required in formal or geometrical arrangements, else the profusion of growth soon destroys all traces of order or arrangement in the beds at a proportionate loss of effectiveness. Indeed, it is the neglect to keep such arrangements in perfect form, combined with the adoption of the severely formal or flat "pancake-like" style of planting, that has begotten dislike in some quarters to all kinds of what is usually called "carpet-bedding," a term appropriate enough for it when the growth is entirely flat and unbroken. This, however, is a system of bedding we should never think of adopting or advising, preferring the more natural and far more pleasing way of breaking all unavoidable formal arrangements by the introduction of standard plants, in such proportion as the size and position of the beds warrant. Flowering plants need to be picked over every few days, both for neatness sake, and the ensuring of continuous blooming by the prevention of seeding. Mowing, clipping verges, and keeping walks in good order, are at the present time the remaining principal requirements that may be placed under the heading of general work.

Subtropicals.—These were never more effective than they are this season, the extreme heat of a month ago and more recent heavy rains have just suited them; tying to supports and keeping them in bounds by removing shoots or big leaves that encroach on adjoining plants, and keeping the edges of beds in trim condition, is about all that is now needed in this department. It may be noted that the commoner and most easily raised plants are just as telling as the rare exotics that are sometimes used for subtropical planting, not to mention the increased labour and house-room for winter preservation that is necessary for the latter class. The best of ours were sown in heat in February, planted out the first week in June, and now range in height from 2 to 6 feet. Among the best are the Castor-oil, several kinds; Solanum, several kinds; Wigandias, giant Hemp, Tobacco, variegated Maize, Ferulas, and Eucalyptus. Those readily propagated and that can be grown on in small pots are Abutilons, the Australian Dracæna, and Sonchus.

Mixed Borders.—The Phloxes now make a fine display, and these, with other plants of similar habit, need to be examined as to ties every week; they should be tied loosely. This may necessitate a couple of stakes to large plants, which is infinitely better than if they were tied tightly to one, looking like so many birch brooms stood bottom upwards. Pick pods off Sweet Peas and pinch out the tops of the shoots; this will conduce to the formation of fresh lateral growths that will produce flowers quite equal and as freely as the first bloom, and even better if a good watering with liquid-manure be given. Annuals that have done flowering should be pulled up, the places forked, and refilled with perennials for spring and early summer flowering, such as Wallflowers, Antirrhinums, Sweet Williams, Brompton Stocks, Pinks, and Carnations. Other vacant spots may be furnished by sowing patches of any of the hardier annuals, among which are the Silenes, Salpiglossis, Limnanthes, Nemophilas, and Schizanthus.

Propagation.—This should now be done. Pelargoniums give least trouble if the cuttings are inserted in boxes or pots in which they are to winter. They should be well firmed in the soil, have one good watering to settle the soil about them, and no more be given till roots are formed; they should be fully exposed to the sun. All other kinds of bedding plants require a close atmosphere for successful propagation; a slight bottom-heat, such as that given off from 2 or 3 feet depth of leaves, is also desirable; plunged in this, and the frames kept shaded, the following strike root in a very few days:—Petunias, Verbenas, Heliotropes, Lobelias, Ageratums, Iresines, Coleus, and Alternantheras. Of all these, only just sufficient should be propagated to ensure stock for spring propagation, to prevent space being taken up unnecessarily by plants that are just as well propagated in the spring. Violas, Pansies, Phloxes, Antirrhinums, Pentstemons, and the like may be struck under hand-lights in any sheltered spot, and be left to winter under the same conditions, and those cuttings will now strike freely in any sunny exposure, provided the soil is sandy, and the cuttings well pressed into it. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Peaches and Nectarines.—In the fourth line o my last Calendar, for "maturing" read "watering." Keep early and succession houses from which the fruit has been gathered as cool as possible. Syringe the trees well twice daily on fine bright days, and keep them well supplied with water at the roots. Look over succession-houses, and give the trees liberal supplies of manure-water. Tie in all young shoots, stopping laterals and any gross shoots that are taking the lead. Get all the fruit that have commenced their last swelling well up above the foliage, in order to get them highly coloured. There are some varieties, however, such as Noblesse, Sulhamstead, Raymackers, Walburton Admirable, and others, which are always naturally pale coloured. At the same time they are the better flavoured for being exposed to all the light and air it is possible to give them. *J. Wallis, Keele Gardens.*

Melons.

Having already indicated the lines upon which the successful cultivator of Melons must proceed during the autumn months, it is assumed that the suggestions heretofore offered have been acted upon, in which case the last batch of plants will have been planted out and be growing away freely. The atmospheric conditions must now be regulated according to the state of the weather, and with greater caution than when the weather was so hot and genial. Young plants must be kept growing, but not too rapidly during dull days, otherwise the constitution will be impaired, and disappointment will be the result. Give air freely as often as the weather will admit, in order to secure a firm texture of leaf and stocky short-jointed growth, which is the best safeguard against damping off at the neck and other diseases incident to Melons. A regular mean temperature is essential also, so that in case of a few fine days occurring it must not be taken as safe to do without fire-heat when evenings and nights are cold, or a period of damp dull weather has set in. This latter remark especially applies to plants that are swelling and finishing off their fruits. If the border in which the plants are growing is surface-mulched, a great diminution in the supply of water to the roots may be made with perfect safety. Where fruits are colouring, the atmosphere of the house or pit should be dried up before closing time, in order to secure flavour and finish. A little air admitted through gratings at the base of the house or pit and coming in contact with the hot-water pipes is a good way of preventing lurking damp, which is injurious to flavour. *W. Hinds.*

Cucumbers.

The present is a most important juncture in Cucumber growing. A week earlier or later in sowing or planting successions during the summer months is a matter of little moment, but when the days begin to shorten rapidly a week sooner or later may make a great difference in the production of an indispensable crop. Almost every family requires large supplies of Cucumbers for shooting and other parties from November to January; therefore plant soon enough for an early winter supply, and have a close succession coming on. The autumn may be genial, in which case plants will come into bearing sooner than may be required, but, on the other hand, to be behind, with all the elements of light and heat against one, is not desirable. If the plants are bearing too early it is a simple matter to remove the fruits, but if there are no fruits at all it is an awkward business at a season when plants will not bear hard forcing except at the risk of undermining their constitution. An early batch should therefore be planted at once, and a succession about the beginning of September, which will be making sure of securing a crop. When the plants are planted out they should be so treated as to insure hardiness; and the temperature should be kept at the lowest minimum the plants will bear, without giving much fire-heat, the benefit of which will be perceptible when the short days of winter set in. *W. Hinds.*

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	Aug. 23	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.
Wednesday,	Aug. 24	Great International Horticultural Exhibition at Manchester (and three following days). Burton-upon-Trent Horticultural Society's Show.
Thursday,	Aug. 25	Reading Horticultural Society's Show.

SOME few years ago, in the hope of rescuing old favourites in the way of herbaceous plants, flowering shrubs, and ornamental trees, and of securing the acquisition of others, it became necessary to protest against the disproportionate attention paid to Bedding Plants and bedding-out generally. There can be no question that there was too much bedding-out, and that a good deal of it became, by its monotonous glare, repulsive rather than attractive.

Now-a-days the tendency is beginning to show itself in the opposite direction, and if it be not guided with discretion we may have our gardens containing ill-assorted aggregates of ill-selected herbs, and devoid of those spots of well-balanced, well-harmonised colour which give expression to the tamest garden. We may have mixed indiscriminately with plants of beauty and interest a miscellaneous collection of weeds; in fact we shall get to the condition of a botanic garden, especially of a Continental one, without the excuse of expediency or necessity, such as may be pleaded in those establishments. Take an average garden, and consider what it would be without bedding plants at the present season, when the Roses and Lilies and Carnations are over, the Phloxes and Larkspurs and evening Primroses past their best, the herbaceous borders given up in large proportion to Composites, æsthetic Sunflowers of all sizes, and the straggling remnants of the summer's growth. To be sure, smooth swards and specimen shrubs are ever attractive, but who will say that their beauty is not enhanced by well-selected masses of colour judiciously disposed and used with moderation? And then, again, for endurance and continuity, what is there to rival a well-managed flower-bed? As we write, the herbaceous plants are draggled and dishevelled with a storm of wind and rain, but the beds of Pelargoniums and tuberous Begonias are scarcely one whit the worse. Gladioli and the noble Hyacinthus candicans are in no sense less beautiful for being massed in beds rather than dotted in the herbaceous border. The truth is, that it is the abuse rather than the use of the bedding system that is to be blamed, exactly as it is the abuse, if not the utter disuse of the almost illimitable resources to be found among herbaceous plants and ornamental shrubs and trees that is in so many cases to be deplored. In either case it is ignorance and blind, follow-my-leader routine that produce and perpetuate the mischief.

To people who do not care for plants the condition of their garden is matter of little consequence. In how many little gardens near London is it not obvious that the proprietor cares nothing at all for his garden; in other cases it is equally obvious that he cares nothing for anything but Roses: all his attention is lavished on his Roses—generally standard Roses—because they are especially ugly for ten months of the year. In the next garden a violent flower-bed is the only garden idea that is actually realised, even if it exist. The defect in such cases is want of interest in plants, and consequent want of knowledge; given the interest, and the knowledge will gradually but surely accumulate, increasing the interest as it does so in constantly increasing ratio; and this leads us to speak of the remedy for the exclusive addition to bedding-out plants, or to whatever other group it may be, and the neglect of others. The remedy is to visit, and visit often, a well ordered establishment where no branch of ornamental gardening consistent with the circumstances of the locality and the means at disposal is neglected, but where each and all are represented in a suitable manner and in due proportion. Such a complete establishment as we have spoken of is no doubt ideal, and failing such a Utopia completeness must be sought from many rather than from one source. Still the London parks (some account of one of which appears in our present issue) do already to some extent furnish—and might be made to do so still more—lessons to the visitor. Battersea and Victoria Parks are especially instructive to amateurs and young gardeners precisely because the balance between different styles and methods of garden decoration are more evenly kept than they are in some others.

—— Agave Salmiana.—"In the *Gardeners' Chronicle* of August 28 last," writes Mr. Hanbury, from Mentone, "you depicted a group of succulents before my house here from a photograph which I sent you. The remarkable Agave Salmiana there shown is now in full flower, and is truly a noble object. The total height is exactly 30 feet, but the lateral candelabra-like branches have developed much more since the flowering commenced. The flowers are of a a yellowish-green colour, full of nectar. It would be interesting to know if any of your readers can cite a larger example of an Agave; of the many hundreds of visitors who were in my garden this spring no one had seen anything to equal it in size."

—— The Manchester Rose Show.—We understand that the following addition has been made to the National Rose Society's schedule for Manchester on the 24th:—Class 5. Eighteen distinct, single trusses, £1 10*s*., £1, 10*s*., for nurserymen within 20 miles of the Town Hall, Manchester. Class 13 A. Nine distinct, single trusses, £1 10*s*., £1, 10*s*., for amateurs within 20 miles of the Town Hall, Manchester.

—— The Manchester International Horticultural Exhibition.—For the satisfaction of intending competitors in classes 219 and 220, who, it has been stated, have felt doubtful as to whether they would receive the prizes offered by the General Horticultural Company, John Wills (Limited), we have been requested to state that the amount offered in the two classes (£102) has already been placed in the hands of the Secretary, Mr. Bruce Findlay.

—— The late Miss Hope, of Wardie.—The decease of this lady left a well marked blank in the horticultural community and in garden literature. Her originality and force of character pervaded all she undertook, and, unless we mistake not, these characteristics will be even more generally recognised now that her scattered horticultural writings have been collected together in a book—*Notes and Thoughts on Gardens and Woodlands* (Macmillan)—than they were at the time of publication. For the moment we can only announce the publication of the book, which has been put together by the devotedness of Miss Hope Johnstone, and to which it will be our duty to refer at greater length on another occasion.

—— Potatos on the Haulm.—Mr. F. Moore sends us a fine example of this condition, which we have frequently figured and described. The chief interest lies in the proof they offer as to the real nature of the tuber, which is thus shown to be a bud. The stem tubers, if not diseased, might very well be used for seed.

—— Pinus austriaca.—Dr. Seckendorff has published the first part of a monograph on this Pine, which shows the exhaustive manner in which the Germans do their work. After some introductory observations and references to the literature of the subject a special description is given of every part of the tree; then follows a section on the distribution of the tree throughout Austria and Hungary, descriptions of remarkable specimens and statistics of the plantations in various parts of the empire. Twenty woodcuts and fifteen quarto tables illustrate Dr. Seckendorff's monograph.

—— Flowers in Season.—Mr. Moore, Glasnevin, sends blooms of three plants which are very attractive just now. In the Victoria Water Lily house Curcuma petiolata and Costus speciosus are both growing well. They are easily cultivated, and can be wintered in any warm dry corner. Blooming as they do at this time, when flowering plants are getting scarce, they have a special value. The delicate white corolla and pink calyx of Costus form a very pleasing contrast; the bright buds are also very attractive. Harpalium rigidum from the open border is one of the best autumn plants we have, and cannot be too highly recommended. The colour is particularly good and rich. Mr. Moore also sends a curious spathe of Anthurium Scherzerianum, which is beginning to revert to the ordinary green leaf.

—— Pilfering at Flower Shows.—Complaints of petty thieving at flower shows are becoming too numerous to be pleasant. The latest comes from Liverpool, where, at the recent exhibition in Sefton Park, some miscreant helped himself to some plants in Mr. B. S. Williams' collection, notwithstanding that unusual precautions were taken to protect the property of exhibitors. The person who took them must have known perfectly well what he was taking, the plants being new and rare, and if discovered, he should be prosecuted as a warning to others.

—— Eucharis.—A correspondent sends us a flower of this plant from the garden of John Rylands, Esq., of Longford Hall, near Manchester. It has ten flower-segments, ten stamens in a single row, a five-lobed stigma, and a five-celled ovary. There is nothing about the external appearance of the flower to indicate the cause of this increased number of parts, but on cutting across the ovary two centres of growth are seen, with two cells on the one side and three on the other. The case, then, is one of fusion of two flowers, at a very early date, with the consequent suppression of two parts in each of the outer whorls, and of one carpel in the innermost.

—— "Science is the topography of ignorance from a few elevated points," said Dr. Billings, at the Medical Congress. "We triangulate vast spaces, enclosing infinite unknown details. We cast the lead and draw up a little sand from abysses we shall never reach with our dredges."

—— Torenia Fournieri.—A few plants of this charming greenhouse annual at Chiswick show in the flowers greater size, more depth of colour, a more compact habit, and greater quantity of bloom than is usual. These form a most attractive feature, and indeed constitute one of the pot gems of the gardens.

—— Green Peas.—The *Citizen* states that the Great Eastern Railway Company have returned 3407 tons of green Peas as the amount of traffic between June 14 and August 8. This, compared with the quantity during the same period last year, exhibits a decrease of 2460 tons, arising from failures in the crops through the hot dry season. The heaviest weight on any one morning this year was nearly 450 tons, on Saturday, July 9, when under the arrangements of Mr. W. Gardner, the goods manager, all was delivered at the various markets before 8.30 A.M.

—— Phylloxera Congress at Bordeaux.—The following programme has been published as to this meeting, which was appointed to open on the 29th inst., but a circular received since this note was put in type announces that the Congress is postponed till October 10:—

August 29.—Opening of the Congress; address of the President; reception of delegates.

August 30.—Morning and evening meetings; discussion on sulphide of carbon and sulpho-carbonates.

August 31.—American Vines and graftings.

September 1.—Vine culture in the sand hills, &c.; report on the objects and machines exhibited; conclusions; measures to be adopted.

September 2—3.—Excursions.

—— To Correspondents.—The four rules for the preparation of an article for a journal, said Dr. Billings at the recent Medical Congress, and which we commend to all writers—and, so far as they apply, to speakers also—are: 1. Have something to say. 2. Say it. 3. Stop as soon as you have said it. 4. Give the paper a proper title.

—— Objects of Sex and of Odour in Flowers.—Mr. Meehan questions the assertion that the odour of flowers is necessarily developed for the purpose of attracting insects and so securing cross-fertilisation. He doubts whether the possession of such attributes as form and colour is of any benefit to the individual plant possessing them. Sex in Nature is, says Mr. Meehan, not primarily for reproduction, but to insure variation; that questions which properly come under this law of variation have but a remote relationship to questions of natural selection, but are referable to some external power governing universal good, with which the individual governed has little but co-operation to do, and which as often tends to the destruction of individuals or races as to their preservation.

—— Manchester Field Naturalists' Club.—In the recently issued report of this Society mention is made in the following terms of the old gardens at Orford Mount:—"From 100 to 150 years ago they were the principal gardens of the kind in the North of England. A beautiful genus of Indian trees was named Blackburnia, and one of the finest species of the fan-leaved Palms, Sabal Blackburniana. Miss (Anne) Blackburne, of Fairfield, near Warrington, sister, we believe, of Colonel Blackburne's grandfather, corresponded, during many years, with Linnæus. The collection of plants was subsequently removed to Hale. As a proof of the mildness of the Hale climate it may be added that in the gardens, somewhat sheltered, but still quite outside, there stands a nice Bay tree, quite unscathed by the deadly frosts of 1878—1879 and last winter, the frosts which near Manchester were fatal to every Bay tree we had knowledge of."

—— "Florentia."—This is a year-book for horticulture in Italy, and in addition to the usual calendarial details contains an elaborate series of meteorological observations in relation to the growth of plants, taken in the experimental garden of the Royal Tuscan Horticultural Society, lists of the principal botanists and horticulturists of Italy, and other useful information.

—— Mons. Lemoine's New Ceanothus.—A bed of these now in bloom at Chiswick shows several novelties, the finest of which—and a very beautiful kind—is the lavender-blue Gloire de Vaite. This produces several large spikes of bloom fully expanded on each branch, and would be a grand thing to urnish cut flowers for large vases. It is well deserving of the highest honours, and merits universal culture.

—— Epping Forest Naturalists' Club.—In the recently issued part of the *Transactions* of this Club, amongst other articles are papers on the evolution of fruits by Mr. Boulger, in which, basing his speculation on the known facts of anatomy and progressive development of the fruit, he developes an imaginary pedigree of Dicotyledonous orders. In the

Fig. 51.—Agave Salmiana in Mr. Hanbury's Garden at Mentone. (see p. 240.)

same number Mr. English gives an amusing account of the first night's "sugaring" in Epping Forest in 1843. It was he who first turned to account the plan of attracting and capturing night flying moths, and which, from the first, was recognised as of the greatest value for the purpose.

—— The "Journal of Forestry." — The August number of the *Journal of Forestry* contains an interesting article, with woodcuts, relating to the New Forest. Alluding to the rabbit plague, Mr. McCorquodale recommends that the animals should be killed, and, failing that, the trunks of the trees it is desired to protect be coated with gas-tar, of the consistence of treacle, applied with a rag, as if the operator were washing the tree. It is estimated that a man should be able to treat 450 trees in a day.

—— Erica vulgaris alba nana.—A very pretty hardy Heath, the bloom of the purest white, sent to the gardens at Chiswick by Mr. Anthony Waterer, of Knaphill, Woking. A patch of it on the rockwork is truly charming. It does not exceed 4 inches in height, and presents little clumps of pure white flowers. It ought to be found on all rockworks, and doubtless will be when better known. There is with it a pretty carpet Heath, vulgaris aurea, which has pale yellow foliage, and a capital spreading habit, and is a nice thing to make rock "carpets."

—— Extraordinary Tithe.—A demonstration of no little importance took place at Colgates Farm, near Halstead, on Tuesday last, when a stack of hay was sold by auction in order to defray an impost of £22 3*s*. 7*d*. levied by the Vicar of Halstead, because certain woodland had been converted into Hop and fruit growing land, and which Messrs. Bath, the lessees, refused to pay. The neighbouring farmers supported Messrs. Bath, and also one of the local clergy, who denounced the tax as unjust, unfair, and capricious. The grievance is that in certain districts only of certain counties in addition to the ordinary tithe an extraordinary tithe is levied by the clergy on Hops, fruit, and vegetables, to the amount of 30*s*. per acre on Hops, 13*s*. 4*d*. per acre on market garden produce, and 10*s*. an acre on fruit. Seeing how unprofitable it is to grow Wheat and how desirable it is to increase the growth of fruit and vegetables, this extraordinary tithe seems a most objectionable impost, and the proceedings of Tuesday last, by calling public attention to the matter, will do much towards its removal.

—— Tropæolum compactum Bedfont Rival. —Fronting the Dahlia border at Chiswick is a long line of this scarlet Tropæolum in full bloom. It has flowered freely from the first, and promises to do so all the season. For lines or masses it is a first-class thing, and exceedingly effective. Continuing the same line is a number of the King of Tom Thumb kind of dwarf Tropæolum, but they present little else but leaves, flowers being few, and these mostly hid in the foliage. If this be their feature in a dry season what would they be in a wet one? It is worthy of record, however, that they come very true from seed.

—— Apples in Hedges.—On the way from Maresfield to Uckfield in Sussex are to be seen at the present time some fine rows of Apple trees laden with fruit, which to a good many people are a novelty in their way, from the fact of the trees being planted in the hedges at a few yards apart. The trees are of course grown as natural standards, and the branches of the trees so profusely adorned with fruits of various sizes and colours are weighed down so that the tips of the branches touch the tops of the green hedges, which is an agreeable as well as an instructive sight to many who have never seen this method of Apple growing before.

—— Food for Vines.—In an editorial article in the *Gardener* for August, the following plan is recommended. In November a good dressing of bone-meal is forked in as near to the roots as possible without injuring them, and the border then covered with 4 inches of the richest manure procurable. The manure is allowed to remain undisturbed until about the time when the Grapes are thinned, when it is removed without disturbing the border, and another dressing of manure applied. If the weather be dry when the summer dressing is applied, a thorough soaking of water is given. In time of heavy rain a sprinkling of guano is sometimes applied, and sometimes a dressing of soot, which imparts colour and texture to the leaves. It should be stated that no manure except crushed bones is put into the border when made. In Grape growing, says the writer, there are a few cardinal points to be attended to. First, never to mix much manure with the border but to top-dress liberally; to have the most perfect drainage, and to give plenty of water in dry seasons and localities: never to have the rods closer together than 3½ feet, nor the spurs closer than 18—20 inches; to avoid an over-moist atmosphere, to give plenty of air night and day, and to avoid high night temperatures, especially early in the season. The nitrogenous manures here alluded to stimulate growth in a powerful manner, but maturation and ripening of the wood have to be considered also, and for this purpose in addition to the lime and phosphorus of the bone-meal, the addition of potash salts is called for if the border does not already contain sufficient.

—— Begonia Ingrami.—This charming scarlet-flowered Begonia is one of the most useful in cultivation as a flowering decorative plant; the drooping habit of its flowers, which are produced in such numbers, renders it at once an ornament of the first type when grown as a specimen plant. Mr. George, of Uckinden, Sussex, has several fine specimens of it now in flower in a warm greenhouse, which are so neatly but loosely trained that the plant looks quite a picture, and one almost wonders why many more such samples are not grown. The plants are grown bush fashion, about 3 feet in diameter, and, unlike plants trained for exhibition, there is nothing formal or stiff about them—the natural beauties and habit of the plant are allowed to develope in a natural way. The open flowers, too, are in pleasing contrast to the unopened ones, which hang like bells amidst the leaves and expanded flowers. The great utility of this variety lies, however, in the fact that it flowers as freely in winter as in summer; indeed, under a generous system of cultivation, plants will continue flowering over a period of several months, and they are equally useful when grown in a small as in a large state. It is, however, best to have a distinct batch of plants for winter flowering, making due provision for a suitable number of plants for supplying cut flowers.

—— Tuberous Begonias.—Mr. Cannell sends flowers of four very fine French sorts, two single and two double. The singles are: Trocadero, of a brilliant vermilion-orange, resembling the colour of the bright orange garden Nasturtium, the sepals oblong, 2½ inches long, so that the flower measures 5¼ inches over; and Countess of Kingston, of a deeper crimson-scarlet hue, the sepals nearly circular and each 2 inches across, forming a very large, well-shaped flower. Both these are enormous flowers. The doubles are: Pæoniæflora, which has large, roundish guard sepals 1¼ inch across, and a dense centre mass of smaller petals fully 2 inches across, and the same in depth, the colour a deepish rosy-pink, like a miniature Hollyhock; and Lucie Lemoine, which is smaller, but of the same Hollyhock-like form, with guard sepals of creamy-white, and the crowded smaller central petals showing a tint of primrose-yellow at the base. They are all very handsome sorts, of strikingly distinct character. Mr. Cannell states that his plants, occupying a house 150 feet long, are now in grand condition. — Messrs. John Laing & Co. are now flowering a fine batch of seedlings of these handsome plants, amongst which are many doubles of great merit. A box of unnamed seedlings brought to our office the other day included some splendid new single flowers. One of them measured 4 inches in diameter and was almost circular in outline, and a pretty shade of rosy-scarlet in colour. A pure rose coloured flower, equally round, measured 3 inches in diameter. Another was remarkable for its intense shade of crimson; and yet another for its new tint amongst these flowers, a pretty rosy-magenta. Others were clear yellow, orange-scarlet, bright salmon-red, flesh-tinted white, and one was orange in the centre, shading off into rose at the edge; and all of beautiful form.

—— Malt-dust and Kiln-dust.—We may state, for the information of a correspondent who enquires (p. 155) about kiln-dust, that malt-dust consists of the shoots of the germinating Barley separated from the grain by the process of screening, while kiln-dust is that portion of the small rootlets which falls through the wire gauze, and becomes mixed with some of the ashes of the kiln fire. As to their fertilising properties Dr. Voelcker states (Morton's *Cyclopædia of Agriculture*, i., 306) that "Both kiln and malt-dust are excellent manures, particularly when used in a slightly fermented state. When kept in a heap, fermentation soon sets in, especially when the heap is occasionally moistened with urine, or liquid manure. Added to compost heaps, their value becomes very much enhanced, but it is not usual to apply this refuse matter in such a form. Generally malt and kiln-dust are used as a top-dressing, and applied with success to almost any crop. They act quickly, and produce striking effects on vegetation Their effects on grass-land are especially surprising.'

—— Scabious.—A number of Scabious in 7-inch pots, just coming into full bloom at Chiswick, show how admirable they are for pot culture. A big bed in the garden tells even more forcibly how fine they are for massing, and specially to furnish an abundance of cut bloom. Each flower is perfectly double, and the colours largely vary. Pure white, cream, carmine, red, maroon, deep crimson, are but a few of the colours found. Gardeners who have to furnish a lot of cut flowers should sow half a rod of ground with these Scabious.

—— The Apple Crop in Sussex.—Judging from the experience of a short tour in Sussex, the Apple crop this year will be both abundant and good. In many districts the soil is well adapted to the cultivation of Apples, and this very important natural condition, together with the fine autumn of last year, which assisted the trees to ripen their wood well, is now succeeded by very satisfactory crops, and the trees seem to have sustained but little injury from the severe frosts of last winter.

—— Tropæolum speciosum.—Trailing over an Arbor-vitæ hedge in the nurseries of Messrs. Wood & Son, Maresfield, Sussex, is a grand example of this lovely creeping plant, which has a charming effect upon the carpet of green. To see it growing up walls and tied or trained to wires is nothing unusual, or even to see it climbing up a piece of rustic work is a common enough idea, but it was a still happier thought to allow it to ramble up a green groundwork, where its bright scarlet flowers are sure to startle the visitor who has had no previous acquaintance with this mode of treating the plant so as to show it off to the best advantage.

—— The Harvest.—The *Agricultural Gazette* remarks that it is satisfactory, after the experience of the past few years, to have to report a harvest, even if we can only say of it that it is not a disaster, as so many of its predecessors have been. The Wheat crop will not yield what we call an average crop, though if the experience of the last five years be added to those of some fifteen or twenty years before them "the average" of English experience in Wheat growing must itself be considerably lower than what we usually consider "an average" or fairly satisfactory return. Barley, on the other hand—generally the crop of this year—is declared in a large percentage of our returns to be over average. The Oat crop is very disappointing. Beans and Peas, especially the latter, are much better than they at one time promised to be; and that, too, also may be said of most of our green crops. Mangels have very much improved of late. Swedish Turnips, which, after the first sowings, had been almost everywhere destroyed by the fly, are now generally growing well, and the later sown Turnips are good. Hay is one of the shortest crops ever known; but excepting in the very late districts, it has been made easily and well. Harvest, which at one period threatened to be very late, has been hastened on by a hot July, and is now general.

—— Scilla maritima.—The common Squill flowers so rarely in cultivation that its flowering is worth remark. It is now blooming in the Cambridge Botanic Garden. There are six scapes, three of which proceed from one bulb. The finest measures 5½ feet in length. Its white flowers are not in any way handsome, but they are very numerous, and occupy more than the upper half of the scapes.

—— The Germ Theory.—One of the principal results of the recent Medical Congress has been to vindicate the necessity for that mode of obtaining knowledge known as vivisection. For the sake of protecting a relatively very small number of animals a few well-meaning persons would absolutely prevent

all experiments on living animals, even though the results might be of incalculable advantage to the whole human race, and to the animal as well. Professor Virchow was able to dispose in a very few words of the objection, raised in sheer ignorance, that nothing had been gained by such experiments since the time of Harvey; while Professor Pasteur was enabled to bring forward results of so much immediate practical importance that a week had not elapsed ere the matter was taken up in that very unscientific assembly, the House of Commons. Briefly, Professor Pasteur has devised a plan for vaccinating fowls and sheep, so as to prevent chicken-cholera in the former, and splenic fever in the latter. In France, according to M. Pasteur, animals to the amount of 20,000,000 francs are lost every year from splenic fever; but by M. Pasteur's procedures this disease can be definitively arrested. Fifty sheep were taken, of which twenty-five were vaccinated, the others left unvaccinated. A fortnight later all fifty were inoculated with the most virulent germ poison, the twenty-five that had been vaccinated all resisted the disease; the twenty-five that had been unvaccinated all died. Since that time thousands of sheep and a large number of cattle and horses have been so treated. The possibilities opened out by the experiments are hardly to be gauged. The preventatives for the various fevers which slay so many thousands annually and cause so much distress and misery seem now within reach. Let the anti-vivisectionists reflect on the folly of their procedures, and not saddle themselves with responsibility of perpetuating disease and misery, which it is now shown that a few well-devised experiments can, in certain cases, almost entirely abolish. The principle of the process seems to be, that the activity and virulence of the germ may be checked or attenuated by exposure to oxygen, and that the virus so attenuated and used as ordinary vaccine lymph suffices to prevent the development of the disease in its more severe form. The "cultivation" of the germs is a matter of the highest interest scientifically and practically. Under certain conditions they may be so cultivated as to produce germs or spores only; under other circumstances no spores are formed, but only spawn-threads.

—— The Fruit Crops at Chiswick.—That fine Apple, Ecklinville Seedling, is to be seen on several small trees. It is a free bearer, fruit extra large and handsome, somewhat resembling Warner's King, but much earlier—in fact, as seen here it is, if not earlier, at least finer than Lord Suffield. The trees are of free growth, though small. It should make a first-class market Apple. Stirling Castle on small trees is fruiting most abundantly, and Mr. Barron mentions that in Mr. Dancer's garden it is a wonderful crop. A most striking Pear is Beurré d'Amanlis panachée; one tree of this kind has a heavy crop of fine fruit, already showing its beautiful yellow stripes; when ripe it will be exceedingly handsome.

—— Vesuvius Pelargonium.—We learn from a friend that "Vesuvius has again been in eruption," and this time has thrown a golden tricolor sport in the way of Mrs. Pollock.

—— Mr. Ritches.—We were obliged, from the numerous communications which reached us, to "name" this dealer. One correspondent now writes that he has received a letter from Mr. Ritches, with excuses for non-fulfilment of the order, and full value for the sum sent him three months ago. In justice to Mr. Ritches we make the fact known.

—— Croton angustifolius.—In the gardens at Ockenden, Sussex, the seat of J. W. Boord, Esq., M.P., are some handsome plants of the above well-known Croton, which is still unsurpassed in point of beauty and gracefulness as a furnishing or decorative plant. Mr. George has it superbly coloured and in fine health, in which condition it still bears comparison with any of the newer and rarer varieties.

—— Glasgow Botanic Garden.—We called attention in our last to the efforts which are being made to place this institution on a footing more in accordance with its title and supposed objects. The directors have become the possessors of the Kibble Palace, a vast structure, which is re-arranged as a temperate-house; but as the space to fill—50 yards in diameter—is very large it would be a boon if gentlemen with large specimens which have outgrown the accommodation they can afford them, or who have duplicates which they can spare, would make them over to the garden, where they will be of much service. A new range of plant-houses, about 500 feet in length, is also in preparation to replace the old ones, which are in a very unsatisfactory condition. A new class-room for the Professor of Botany, with laboratory, museum, and herbarium-room attached to the garden, are also proposed. Glasgow is so important a centre and so well suited for the importation of new and rare plants, and its means of conducting scientific inquiries so great, that we trust the fullest success will await these efforts to put the garden and botanical establishment on a proper footing.

—— New Annuals.—Of these Mr. Barr sends the following:—Candytuft New Giant Carmine. This is a fine robust hardy plant, of stout growth, with the flowers of a bright pink, and the central undeveloped buds carmine. It looks like a good thing. Candytuft New Carmine: of a deeper pink than the foregoing, but with smaller flowers. Mignonette Golden Queen, already noticed at p. 181, is said to be a good pot-plant, as will probably be the case; it is of compact habit, with the anthers of a yellowish-orange tint, which throws a golden glow over the whole plant when in blossom. Linaria reticulata aureo-purpurea: a very striking looking plant, with slender awl-shaped foliage, and lax wiry stems, bearing a short crowded raceme of medium-sized flowers; the upper lip and the spur, with the border of the lower lip, rich deep maroon-crimson, and the great prominent palate of a rich orange-yellow, strongly contrasting with the other parts of the flower.

—— Potatos at Chiswick.—These still look exceedingly flourishing, although the earliest kinds are ripening off fast. Some sorts show crops of the most abundant kind, and several new ones present valuable additions to our present stocks. The late ones, as a rule, are so vigorous and robust that their maturation is at present quite problematical. We hope to be enabled to say something about the Potatos generally later on.

—— Publications Received.—*British Bee-keepers' Guide Book.* By T. W. Cowan (Houlston & Sons).—*Some Talk about Pears and Pear Trees.* By James Calthrop Barnham. A paper read before the Heigham Horticultural Society.—*Household Horticulture.* By Tom and Jane Jerrold (Chatto & Windus).

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 15, issued by the Meteorological Office, London:—The weather has been unsettled and dull in all parts of the kingdom. Showers have been very general, and heavy rain was experienced in London on the 12th and an exceedingly heavy fall at Arlington (North Devon) on the 13th. The temperature has been below the mean in all districts, 3° in Scotland, and as much as 4° to 7° over Ireland and England. The maxima were very low for the season, the highest reading being only 71°, which was registered in London on the 9th, and at Durham on the 14th. The lowest of the minimum readings occurred at Strathfield Turgiss on the 11th, and at Brookehorough on the 12th, when the thermometer fell to 38° and 37° respectively. In most districts the minima varied between 40° and 45°. The rainfall was more than the mean over the southern, central and eastern parts of England and the south of Ireland, but rather less elsewhere. Bright sunshine shows a decided decrease nearly everywhere; the percentages were very low, ranging from 13° in the "Midland Counties" to 37° in "Scotland, W." Depressions observed:—The depressions within our area during this period have been very numerous, but generally small. They have moved, for the most part, from W. to E., and occasioned south-westerly to north-westerly winds, of moderate strength on most days, but which increased to a strong breeze at times, and blew a moderate to fresh gale in the N.W. on the 10th, and at Wick on the 11th.

—— Gardening Appointment.—Mr. John Wilson, for the last ten years Gardener at Belsize Court, Hampstead, N.W., has been appointed to succeed Mr. James Smith, as Gardener to Miss Sullivan, of Broom House, Fulham, S.W.

REMARKS ON THE FRUIT CROPS.

[We select the following remarks from the letters accompanying the tabular details published in our last issue.]

The summer has been comparatively cool since the last week in May, and the fruit crop is about ten days later than usual. It promises to be the heaviest crop since 1875, and the finest fruit seen in this district for a good many years; but heat and dry weather are required to bring it to maturity. Apples are a first-rate crop, almost every kind bearing, and the best sorts are heavily laden. The fruit is clean, and fine in size and quality. Pears are also first-rate in size and quality, but the crop is partial—some trees bearing abundantly, and others without a fruit. The barren trees had no flowers last spring, and almost every tree that flowered is bearing a good crop. Standards are generally bearing better than wall trees, and Jargonelle, Williams' Bon Chrétien, Marie Louise, Beurré Diel, Flemish Beauty, Swan's Egg, Hessle, &c., are loaded with fine fruit. Apricots are generally good, and so are Peaches and Nectarines where the young wood escaped injury from the severity of last winter. Plums and Cherries are a good crop and fine fruit, although many trees were almost stripped of their foliage by caterpillars in the month of June. Damsons are a heavy crop, and fine; and the same may be said of Morello Cherries. Raspberries are very fine, and an abundant crop—Fastolf and Northumberland Fillbasket being the best. Gooseberries are a heavy crop, the best being—red, Industry, Keens' Seedling, Warrington, Ironmonger (English), Speedwell, and Companion; white, Whitesmith, Hero of the Nile, Snowdrop, and Hedgehog; yellow, Leveller, Leader, Mount Pleasant, and Peru; green, Gascoigne, Laurel, Hepburn's Prolific, and Thumper. Currants are an enormous crop; the best black is Black Prince (a large variety of Black Naples); red, Dutch for early, La Versaillaise and Raby Castle for late; white, Dutch cut-leaved. Strawberries were much injured by the severe frost of last winter, and generally were not half a crop. In high-lying parts, where the snow protected the plants throughout the winter, the crop is abundant. Nuts were also injured by the winter, but in a few places where they escaped they are good. Holly-berries, haws, and wild fruits in general, are a heavy crop. *M. Dunn, Dalkeith, Midlothian.*

—— All small fruits, with the exception of Strawberries, are a splendid crop. In this district (the north-eastern) of Perthshire there are hundreds of acres of Strawberries grown, and they may be said to be a total failure this year, the blooms having been all destroyed by the frost on June 7. *Donald Matheson, Meiklour, Perth.*

—— Perhaps never were fruit trees more abundantly decked with blossom than this year, but the frosty winds in May sadly marred our prospects, and the result is an uneven crop of Apples and Pears and an almost total failure in Plums, whilst Cherries, though plenty set, are smaller than usual. Among Pears the Jargonelle, Louise Bonne of Jersey, Beurré d'Amanlis, Comte de Lamy, Gratioli, Bellissime d'Hiver, Glou Morceau, Passe Colmar, and Ne Plus Meuris have stood the best. Of Apples Lord Suffield, Hawthornden, Dutch Mignonne, Boston Russet, Lewis' Incomparable, Yorkshire Greening, Betty Geeson, and a few local sorts have done best; but all Apples and some Pears are just now shedding their fruit too freely, and it seems probable that we shall have but little to gather in at last. Apples trees in an orchard upon a cold clay bottom were nearly killed last winter, and are now looking very sickly; and Cherry trees in all positions suffered equally much, and will have to be cleared away in some instances. Apricots, Peaches, and Plums on walls stood better, and are now looking well. *F. Harrison, Knowsley, Lancashire.*

—— The Apple crop here generally is the best known for some years past. The trees are healthy and clean, and the fruit has that bright glossy appearance all like to see. The same remarks apply to Pears. During the time Apricots were in bloom the weather was most unfavourable, but the protection of old fish-nets suspended three-thick enabled the trees to set a good crop. Figs are a failure owing to the destruction of the bearing wood by the severity of the last winter's frost. Plums on walls are a blank, but the Damsons and other cooking sorts grown in the

orchard as standards are an immense crop. Early Cherries were excellent, Morellos are the same. Peaches and Nectarines are promising well, also Mulberries. All kinds of small fruits bore well, but Strawberries, owing to the drought and intense heat, lasted but a very little time. *A. Lancaster, Holkham, Norfolk.*

—— A dry, hot season may be regarded as one well calculated to encourage a healthy development of fruit in our gardens and orchards. The setting of Apples, and Pears, and Cherries was rapid, and the growth of the fruit equally so. Apples are abundant on certain trees, and others are quite without fruit. The prolific examples are Keswick Codlin, Frogmore Prolific, Blenheim Orange, Betty Geeson, Bess Pool, and others. Pears are also irregular—Citron des Carmes, Williams' Bon Chrétien, Louise Bonne, Marie Louise, Orpheline d'Enghien, Bergamot d'Esperen, Joséphine de Malines, are bearing full crops. Morello Cherries are a wonderful crop. The old sorts of Plums are the best bearers this year—Orleans, Green Gage, and Winesour; but it is not a Plum year. Fruit trees have been singularly free from their worst enemies. *W. Ingram, Belvoir, Leicestershire.*

—— This is far from being a good fruit district, though sometimes in the almost uncultivated orchards we see a very good crop of the hardier fruits. My own immediate neighbourhood, lying in the valley, suffers much from late spring frosts, the thermometer often registering 3° or 4° of frost when there is none on the higher ground 1 or 2 miles distant. *W. Kennedy, Kimbolton, Huntingdon.*

—— After a very fair and promising season of bloom the Apple crop, owing to the spring frosts, is again a partial failure in this district. Worse may be said of Pears. In England, so far as Apples and Pears are concerned, it may now be said, with a good deal of truth, that there is more trade done in the sale of fruit trees for planting orchards than there is done in the sale of fruit. Our silver hook will again have to be cast for the American barrelled supply. The season, on the whole, is highly favourable for kitchen garden crops, and so it is also for farm produce, such as Wheat, Beans, Barley, and Oats. *W. Miller, Combe Abbey, Coventry, Warwickshire.*

—— All bush fruits—Gooseberries, Currants, and Raspberries—are an abundant crop, and very fine. Strawberries are the largest crop we have had for nine years: on a piece of ground, planted August 20, 1880 (with plants which were layered in small pots for planting), we had a very heavy crop; many of the plants bore from 3 lb. to 5 lb. of fruit on each plant—in fact, the Strawberry crop here has been something wonderful. Vicomtesse Héricart de Thury, Sir Joseph Paxton, President, Eleanor, and Duke of Athole were the most prolific. Pears are about the average on pyramids and walls; the following are best:—Beurré d'Amanlis, Marie Louise, Jargonelle, Thomson's, Williams' Bon Chrétien, Louise Bonne of Jersey, Napoléon, Easter Beurré, and Beurré Clairgeau. Apples are under the average: on standards and pyramids Hawthornden (new), Pomona Russet, Nelson's Glory, Pott's Seedling, Newtown Pippin, Kerry Pippin, and Scarlet Nonpareil are the best. Plums are very thin, with the exception of Damsons, which are an average crop. *R. Greenfield, Priory Gardens, Warwick.*

—— The condition of outdoor crops of fruit which have already attained perfection this year has been of a most satisfactory character, and future prospects in regard to the rest are most hopeful. Amongst the earliest subjects to ripen fruit noticeable are the Early Beatrice Peach, Worcester Pearmain, dessert and Transparent culinary Apples; all these are worthy of a place in every outdoor collection on this account. *G. T. Miles, Wycombe Abbey, Bucks.*

—— The crop of fruit in this district is much below the average, exception being made of the smaller fruits—Gooseberries, Strawberries, and Currants—which have been unusually fine. The blossom was particularly abundant and fine; some damage was caused by late frosts to the Apple and Pear blossoms, especially on the lower trees; but far more damage was done, in my opinion, by the scorching sun and great dryness and heat of the atmosphere at the flowering period: they were forced too much and never set. A somewhat low, cool temperature is best for the setting of fruit blossoms. Some few varieties of Apples are bearing most abundantly, and the same sorts have done so for the past four or five bad seasons, viz., Stirling Castle, Small's Admirable, Lord Suffield, King of the Pippins, Manx and Keswick Codlins, &c. Of Plums Victorias and Pershore are the only ones that deserve mention. Pear Doyenné d'Ete was ripe this season on July 25, the average date being July 12, so that the season is still late although unprecedentedly hot, 98° being registered in the shade. *A. F. Barron, Chiswick.*

—— Plums and Cherries have been very disappointing; they appeared to set well, but after stoning mostly dropped. Pears of all kinds almost none, except Hessle. Gooseberries very plentiful, but whole plantations destroyed for want of care by two or three dressings of soot thrown on the trees in spring and renewed after rain. It is the most effective and cheapest remedy, and does good to the soil. In my own garden not one bush is affected, although much eaten last year. Strawberry crop fell short through drought, but was plentiful at the outset. *Chas. Lee, Croxby House, Hounslow.*

—— This is the best fruit crop grown in Kent, to take the county throughout, that has been produced for two seasons previously at least. Small fruits had been very abundant, as a rule, and had brought satisfactory prices. Strawberries blossomed wonderfully, but owing to the very dry weather the fruit was not perfected in many cases. The late rain will do the Apple much good. *Charles Whitehead, Barming House, Maidstone.*

—— The yield of fruit has not come up to anything like the promise in the early part of the season; this is probably owing to the extreme heat and the want of rain causing so many thousands to fall off abortive; but with the exception of Plums and Pears there is a fair average of most sorts, and Apples especially look very promising; nothing, however, approaches over average. *J. Cox, Redleaf, Penshurst.*

—— Some varieties of Apples bear abundantly, especially the earliest, such as red and white Juneating, Irish Peach, Astrachan, and Early Harvest; also the early kitchen varieties, Keswick Castle and Lord Suffield. Cellini, Cox's Pomona, Orange Pippin, and New Hawthornden are loaded. Pears, with the exception of Williams' and Marie Louise, are a failure. Apricots are a failure; a neighbour has two fruits, we have about six. Gooseberries are abundant and first-rate. Raspberries suffered from drought. All other small fruits are really good. *J. Douglas, Loxford, Essex.*

—— This season the word "average" for this neighbourhood predominates. I am happy to find from a rather extended survey of our neighbouring counties that the word is applicable; at any rate, it applies here, excepting a few Apple trees, which bore heavily last year. I have fewer Plums than usual, owing in a great measure to the frost we experienced on May 10. All the small fruits have been abundant, and of excellent quality. Of others with me not specified in your form are Walnuts, generally speaking a heavy crop: a great many have been gathered for pickling. Grapes, too, late one of "Fenn's fads" at Woodstock—fast completing the furnishing of the walls of my present abode—are a heavy crop. Of course they are very old friends—the Royal Muscadine and the Black Esperione. I have samples of my old wines by me, some of them thirty years old. *Robert Fenn, Sulhampstead, Berks.*

—— A finer show of fruit was probably never seen in this district up to the end of April: but several nights severe frosts crippled the hopes of orchardists and others. The 10th of May, on which 10° of frost was registered, completely cleared many gardens and orchards. *M. Temple, Impney Park, Worcestershire.*

—— The fruit crops in these gardens and the district do not come up to the expectations formed early in the season. The long spell of easterly winds, combined with a continuous low temperature—nightly at freezing point—when the trees were in blossom, must be credited with the "blight to our hopes" of having a full year; still, taken generally, the present is a better fruit year than for several years past. Peaches are a heavy crop, having been well protected. Apricots were much injured by the severe winter; the fruit-buds dropped by the thousand the moment the sap became active. Strawberries have been immense crops, but of short duration by reason of the drought and excessive heat—90° in the shade on several days, and twice we have registered 94°. Through the self-same reason Pears and Apples will be small, but the splendid rains we are now having will prevent further harm in this direction. All small fruits very abundant and fine in quality. *W. Wildsmith, Heckfield, Hants.*

—— The fruit crops on the whole in this locality are a decided improvement on last year's. Both Apples and Pears flowered well, the bloom being both plentiful and fine, and a good set was secured, but the sharp frosts in May, accompanied by a prolonged dry east wind, caused the young fruits to drop wholesale; and although some few kinds have full crops, the majority have only very partial ones. The following kinds of Apples and Pears have full crops:—Apples: Lord Suffield, Keswick Codlin, Hawthornden, Cellini, Mère de Ménage, Alfriston, Tower of Glamis, Dumelow's Seedling, King of the Pippins, Ribston Pippin, Lord Burghley, Margil. Pears: Williams' Bon Chrétien, Maréchal de la Cour, Urbaniste, Louise Bonne of Jersey, Duchess d'Angoulême, Triomphe de Jodoigne, Nouveau Poiteau, Thompson's, the Pitmaston Duchess, Marie Louise, Beurrés—Diel, Easter, Hardy, d'Amanlis, and de l'Assomption, Winter Nelis, Joséphine de Malines, Huyshe's Victoria. *John Austen, Ashton Court, Bristol.*

—— It is very gratifying to state that all fruit crops are up to and some over the average. Had it not been for the long periods of drought, there would have been little cause for dissatisfaction. Early Strawberries were excellent, though the bloom was thrice cut by the late spring frosts, but the main crops and late varieties suffered very much from the drought. Bush fruits dropped in an unripe state towards the last: the steep incline of the greater part of our garden, together with the light and sandy nature of the soil, would accelerate this. Copious rains have now fallen, and most opportunely for the Apple and Pear crops. In some parts of the neighbourhood the Apple orchards have been seriously affected also by the drought. Fig trees were so much cut up by the severe frosts last winter that we can reckon on only a small crop of fruit, this being the only exception. *D. C. Powell, Powderham Castle, Devon.*

—— Fruit trees generally, with few exceptions, blossomed very freely here this season, and the blossoms were large and healthy, giving promise of full crops, but we have been disappointed, owing to the cold east winds and late frosts which we experienced. Both Apples and Pears are partial. Of the former Hawthornden, Irish Peach, Lord Suffield, and King of the Pippins carry the best crops; and of Pears Louise Bonne of Jersey, Winter Nelis, Williams' Bon Chrétien, and Beurré d'Amanlis—an old standard of the last-named has not failed to carry a crop during the last seven years. The best crops of Pears are on walls, while pyramids are a failure. Apricots are thin, but excellent in quality. Plums are also thin: Coe's Golden Drop, Reine Claude Violette, and Jefferson have fair crops. Morello Cherries are an average crop, of good size; and small fruits of all kinds are abundant and good. *J. Coomber, Hendre Gardens, Monmouth.*

—— The season with us is somewhat better than the disastrous one of 1880, though the temperature of June and July was low, and the weather in great part showery with not much sunshine, consequently fruit and other crops are late. The bloom on our most useful hardy fruits, Apples and Pears, was abundant, but a succession of storms of wind and rain with a low temperature destroyed much of it. The quality of the fruit we have will, I fear, be rather inferior on the whole. Small fruits, except Strawberries, have been abundant, quite an average crop. The tenderer kinds of stone fruits, such as Peaches and Apricots, do not succeed in this island in the open air save in a few favoured localities, of which ours is not one. With the protection merely of a glass covering they are as satisfactory as elsewhere. *J. Ellam, Bodorgan, Anglesey.*

—— The season has been very prolific of all kinds of fruit, and of good quality; many bushes and trees have died from weakness and severity of the winter. Blackbirds have been very troublesome, and have been as prolific as the fruit. There is no scarcity of kinds here of all sorts. Caterpillars were very severe in the commencement, but the finch tribe cleared them. *P. Middleton, Wynnstay, Denbighshire.*

—— We have not much to complain about with fruit this year, except Peaches out-of-doors, and they bloomed and set well: the frosts in June nearly stripped them, but they are recovering fast. Small fruits are very plentiful, and of good flavour; Strawberries in particular are very good; of Raspberries I have not seen such crops for eight years. Some Apple trees are loaded, so we must be very thankful. *John Clew, Headfort, Kells, Co. Meath, Ireland.*

—— Apricots are not grown in this district. Plums are an average crop, and Damsons much above the average. Cherries are an average. Peaches and Nectarines under an average, Apples and Pears above the average, and small fruits very plentiful. It is quite a pleasure to lift the Potatos; I never witnessed such a crop before, and there is very little sign of the disease. A great quantity have been sold in the market at 4*d.* per stone. The varieties are Flounders and Champions. *Frederick Prince, Dartrey Castle, Co. Monaghan.*

—— This has been a very bad season for out-of-door fruits with the exception of Pears, which show a good average crop, especially the Chaumontel, although the trees in some places have suffered from the intense heat we experienced a month ago. We had a succession of easterly gales during the time the stone fruits were in bloom; they promised well, but the cold nights and drying winds no doubt prevented their setting their fruit. Apples are usually a good crop here, but this year they had to contend with cold and east winds, and the crop is a light one. *Ed. Pond, The Vineries, Jersey.*

—— The promise in early spring was very great, but we sustained unusual damage from a long continuance of easterly wind, which at some times was thoroughly charged with salt, resulting in a coating of this being deposited on the foliage, and ruining much. *C. Smith & Son, Caledonia Nursery, Guernsey.*

THE PHYLLOXERA.

From a report from Her Majesty's Consul at Bordeaux we extract the following:—

Of the 2,200,000 hectares (a hectare = 2½ acres nearly) which composed the vineyards of France, 500,000 are destroyed, 500,000 others are greatly attacked: it is a loss of more than three milliards to the country. The Gironde is one of the Departments which has suffered most: one-third of the vineyards are destroyed, another third are badly attacked. For the very important vineyards of the Gironde, where submersion is possible, it is a sure remedy, which is generally employed, and with invariable success. In the cases of vineyards already, destroyed, the remedy seems to be to reconstitute them by planting American Vines as stocks for grafting French cuttings on, which plan has been the subject of satisfactory and conclusive experiments for the last few years, especially in Languedoc. Where the Vines are not too far gone a judicious use of sulphide of carbon is a certain means of preservation, and, in most cases, practicable, owing to the moderate cost.

Submersion.—The good effects of submerging vineyards have been fully demonstrated, especially in the Gironde, as the rivers deposit a quantity of fertilising matter, being of a muddy nature, which manures the land whilst destroying the insect; and thus there is reason to believe that the gain in produce may pay for the cost of the operation. As the means of applying the water varies with the local way of procuring it, it is impossible to lay down rules as to how this should be done. Of course it can only be employed on low-lying flat land. Embankments are constructed to keep the water in, and a depth of from 40 to 50 centimetres is considered sufficient, the time for the operation being early in the winter—November or December—and the water remains on the land about forty days. I am informed that a vineyard in the South, belonging to Mr. Faucon, treated by submersion every winter for ten years, is in the most flourishing condition; and that whereas in 1869 the crop only yielded 25 hectolitres, it has since come up to 2500 in the year 1875. Mr. Faucon appears to have been the first person who tried the system of submersion.

Insecticides.

Sulphide of Carbon.—The drawbacks to the employment of this specific are its dangerous nature from inflammability, the difficulty of diffusing it equally in the ground, and that, if used in too great quantities, it destroys the Vine as well as the Phylloxera, but, used with prudence, its good effects are incontestable. During winter or towards the commencement of spring, but before vegetation commences, one or two treatments should be given; if two, not more than 15 grammes in each, with an interval of eight to ten days between the two doses; if only one treatment, from 25 to 30 grammes. In spring and summer it is not advisable to apply the sulphide, except in very bad cases. The soil should not be disturbed for at least a fortnight after treatment.

As the roots of Vines extend in all directions underground, the sulphide should be introduced so as to extend as evenly as possible throughout the vineyard; thus it should be injected by holes bored at equal distances—for instance, if the Vines are planted 1 mètre apart, one hole between each two Vines; no hole should be nearer than 30 centimetres to the Vine.

In this country the instrument used for injecting is the *Pal Injecteur Gastein*, which is a kind of large syringe with a long nozzle, and contains the sulphide, the quantity being regulated by washers, limiting the stroke of the piston.

Sulpho-carbonate of Potassium.—This insecticide, which, from the quantity of water required on using it, is so expensive as to be excluded from general use, although it is still in request where patches of disease manifest themselves, has the advantage of containing potash in considerable proportions (about 28 per cent.), which fertilises the ground, whereas the sulphide of carbon possesses no manurial qualities.

The cost of employing sulpho-carbonate is about 600 francs per hectare, whereas the sulphide of carbon costs about 200 francs. A poisonous solution is formed by mixing it with water, and it is thrown into basins hollowed out round the foot of each Vine. These basins should be carefully prepared, so as to allow of the mixture reaching the whole of the insects underground. The quantity of sulpho-carbonate to be applied to each root varies according to age and vigour of the plant—for young plants from two to four years old, from 20 to 30 grammes, according to size, diluted in 10 litres of water, to each Vine. When the solution has been absorbed by the ground, 10 litres of water should be thrown on it, to drive it deep into the soil. In summer, when young roots are superficial, and may carry insects on them, or if the solution has not been absorbed, no water should be added. The ground should be filled up round the roots as soon as possible after the operations, and should not be disturbed for a few days afterwards. Many other insecticides have been tried, but the above appear to be the only means proved to be practicable and efficacious by long experience.

Plantation of American Vines.—Experience has shown that American Vines, although not exempt from the attacks of the Phylloxera, are hardier, and their roots possess much more resistance; consequently a system of using American roots with French Vines grafted on them has been carried out lately, when new vineyards have been planted, or to fill up vacancies in existing ones. The species of American Vines most in vogue for grafting upon are, I am informed, Riparia, Clinton Vialla, Solonis, Elvira (which, without grafting, produces white wine of good quality), and also the Facquez (which gives a wine of the type of "Vin du Midi"), Herbemot, &c.

Various methods of planting and grafting are used, which I shall endeavour to explain as clearly as possible. 1. American cuttings are planted in the vineyard, and after a year, at the time when the sap has risen, and before the buds begin to swell, the grafting takes place. 2. By planting the American cuttings in a nursery to root, and, after a year, lifting them, grafting and planting out in the vineyard: this plan is more certain. 3. By taking two cuttings, one American, the other French, grafting the latter on the former, and planting in a nursery. After a year all those which have succeeded are lifted, and transplanted in the vineyard: this is the quickest method.

The graft is always below the surface of the ground, and, when done, loam or clay is covered round it in a cone to protect it, without using any mastic. A clever workman can, with an ordinary grafting-knife, and, assisted by another man to tie up, graft from 250 to 300 plants in a day.

Several machines have been invented for grafting: the one most recommended is the "Machine Petit," invented by Mr. Petit, engineer, of Langon, Gironde. This machine is for performing the operation ("*greffe en fente Anglaise*") in a house or shed; it is placed on a table, and contains two blades—one for making the diagonal cuts, and the other for splitting. Price 35 francs. "Machine Berdaguer," said to be not so complete as the former, but less expensive. Price 12 francs. "Machine Leydier," for the "*greffe Champin*," which is a more complicated form of graft "*en fente Anglaise*." "*Moule à greffe Teysonneau*" (12 francs), for grafting "*en fente Anglaise*," either on a table or in the ground; but when grafting on a plant rooted in the ground is practised it is usually done by hand, as there is difficulty with any machine cutting so low down, and the knives get spoilt by the clay, stones, &c. With one of these machines, when the plants are out of the earth, and can be operated on on a table, two men could get through more than 1000 in a day.

Japanese raphia, previously soaked in a solution of sulphate of copper, to prevent it rotting, is much used for tying the grafts. Vineyards planted in virgin sea-sand are said to be free from Phylloxera.

Mr. Armand Lalande has published a pamphlet entitled *Le Phylloxera dans la Gironde*, which is well worth reading; and I may mention the following works, which have been recommended to me:—*Manuel pratique de Viticulture*, par Gustave Foer, containing much useful information and plates of various methods of grafting: and *Traité théorique et pratique du Greffage de la Vigne*, par Amié Champin—a very complete work on grafting.

Home Correspondence.

A Gardener's Holiday.—Mr. Fish's enthusiastic letter in your issue of last week ought to force even the most asphyxiated gardener from his home. Many gardeners may not inappropriately be compared to Sea Anemones; so content are they with their own environment and the successive tides of horticultural news that the *Gardeners' Chronicle* brings that to swim away from the rock on which they stand, except when removed by pressure, is without the pale of their thoughts. The visitors to whom they show their treasures, about one in ten of whom have any knowledge of horticulture, so surfeit them with "flattery and fustian" that they think they have hardly any necessary information to glean from their brothers in the craft:

> "The lyfe so short, the craft so long to learne,
> Th' essay so hard, so sharpe the conquering."

Verily Mr. Fish was never happier than when he says "Very few gardeners know the latent powers of the plants they cultivate." The saying that "There is nothing new under the sun," appears questionable when applied to horticulture. Every gardener, however omnipotent, will doubtless gain some accession to his knowledge at Manchester, and it will be greatly to the advantage of employers to permit their gardeners to attend the international show. And let every gardener "ding" anxiety "a coit's distance from him," and "fleet the time" not "carelessly" but thoughtfully at Cottonopolis. *W. Carmichael.*

Gooseberry Caterpillars.—I have used a decoction of Hellebore powder this spring to my Gooseberry trees with great success, and have had a most abundant crop of fruit. The caterpillar pest has been strongly developed in this neighbourhood for several years, and most of my neighbours have had all their trees stripped bare of leaves early in the year. In June last the caterpillar showed itself on my trees: I at once mixed 3 lb. of Hellebore powder in 30 gallons of cold water, and let it stand for two days, and then syringed thoroughly every tree with the decoction. Ths result was most satisfactory—the ground under the trees was covered with dead caterpillars, and I have had no return of the plague. There appears to be a prejudice against the use of Hellebore powder, on account of its poisonous qualities, and if the fruit is wanted for use immediately after the syringing it requires washing before cooking. I have not found the ripe Gooseberries affected by it in the slightest degree, and I have never had larger or finer flavoured berries. *Henry Langford, Coleraine House, Stamford Hill, Aug.* 13.

—— Allow me to thank "W. B. B." for the excellent recipe given by him for destroying this pest. Some of our trees were literally covered with caterpillars—one or two of them had every leaf eaten off. I was so anxious to try the remedy that I could not wait until I could get some Gishurst Compound, and used soft-soap instead. I examined the trees a couple of hours after, and thought it had not done the least good. I was greatly mistaken though, for it cleared them all off, and I have not seen one since. I put the quassia in a copper and boiled it for half an hour, then put it into a tub and added the soft soap. *R. McIntosh, Gr., The Abbey, Great Grimsby.*

Gooseberry Fungus.—In thanking you for your most interesting article on Æcidium grossularis, and asking you to supply your readers now and then with similar exhaustive treatises on the fungoid diseases of our plants, I can corroborate the writer's assertion as to the sporadic visitations of that pest. It appeared last year very extensively in a neighbour's garden, where it had never been noticed before; this year it has changed its habitation to mine, though it has not developed itself to any great extent. The same seems to be the case with Æcidium urticæ, which was very common in some parts of Norfolk last year, but of which, after the most diligent search, I have only succeeded in finding one specimen this year. *J. M. D. P.*

Galtonia (or Hyacinthus) candicans.—In your issue for February 26 of the present year, at p. 273, is an excellent illustration of this remarkably striking plant; and a fine group or bed of it is now to be seen in full flower in the Botanic Gardens, Bury St. Edmunds. The bulbs were planted about the end of last February at a depth of some 3 or 4 inches, and after they were planted the frost on more than one occasion penetrated to a greater depth than this, so that the plant is evidently perfectly hardy. The soil in which they are planted is comparatively light, and by no means rich. At the time the bulbs were planted in the open air a portion was also potted in 5-inch pots and placed in a cold pit, where they remained until they showed flower, and they are now in full bloom in one of the greenhouses. The spikes are a little over 3 feet in height, and when cut and placed in water retain their expanded blooms for a considerable time, while those towards the end of the spike continue to unfold; on the lower portion of the same the blooms are produced in pairs, and afterwards singly. The flowers are comparatively scentless, but they are very pretty, and in colour pure white, and individual blooms, when mounted on wire or slender twigs, will be found useful for bouquet making, &c. The plant belongs to the order Liliaceæ, and if it can be induced to bear seed by using the pollen of allied species a useful and interesting race of hardy plants might possibly be the result. The species which might be supposed to afford a chance of success in realising this desideratum might probably be some species or variety of the Hyacinth, or of the Lachenalia, Gagea, Ornithogalum, Scilla, &c., or even some of the Alliums, many of which, notwithstanding their unpleasant odour, bear very pretty flowers. The plant in question was introduced to this country from Natal in 1872. *P. Grieve, Bury St. Edmunds.*

Verbascum nigrum var. album and others.—The white-flowered variety of the Black Mullein is one of the prettiest of our native plants, and deserves a place where none but the choicest hardy plants are admitted. The pure white of the petals, contrasted with the rich purple of the anthers make a most pleasing combination. When left alone for two or three years the plants become rather coarse, the proportion of leaves to flowers being too great. Young plants are best, but many of my friends have complained of the difficulty of dividing this plant. I found the same formerly, but now treat this and other plants with large solid roots as I would Dahlias or Salvia patens, putting them into a hot-bed in early spring, and striking the young shoots, which they then produce in abundance. These spring-struck plants flower from the beginning of July. One of them now has six handsome flower-spikes, 18 inches long, with just enough leaves to set them off. The white variety of the Moth Mullein, V. Blattaria, grows to a gigantic size here, and flowers for two years, making very large plants the second year, with a dozen or more flower-spikes, besides laterals. I am still in the dark as to what Verbascum Chaixii is or ought to be, having frequently had V. nigrum both yellow and white, sent to me for it. I saw the name assigned to some Mulleins in leaf, which I did not recognise, in a nursery at Tooting. One I bought here is a fine variety, but corresponds exactly with many which come from seed about my borders, and which I take to be hybrids between V. nigrum and the giant biennial V. phlomoides (of Sibthorp), a native of Turkey, which I grow in abundance. There is no end to the varieties in hybrid Mulleins. *C. Wolley Dod, Edge Hall, Malpas.*

Disbudding Chrysanthemums. — Chrysanthemum growers in all parts of the country will now be on the *qui vive* for the buds which will produce their fine show flowers early next November. Outside a very narrow circle the method of growing large flowers is indeed a mystery. Different kinds of compounds are recommended for potting, the size of pot in which they should be grown is diligently inquired after; when to pinch, how to pinch, and how many shoots should be grown to a plant, are all questions that crop up periodically among the uninitiated. There are many who think they have only to "order the good kinds" to insure success. But what a fallacy! The good or evil will be accomplished during the present month. Those who grow flowers for size usually grow from three to nine shoots upon a plant. I have seen good-sized bushes bearing fine flowers under a skilful system of cultivation and disbudding. Many of the early flowering kinds are now showing bud—of course in an embryo state: still it is there. Young shoots will be observed at the base of the bud, which if allowed to grow will render the bud useless. But first of all examine the form of the bud and the vigour of the plant. If the bud is cone-shaped, and the plant does not appear to be over-vigorous, remove the embryo shoots at the base of the bud at once. Of course some knowledge of the kinds, as to whether they are early or late varieties, is indispensable. In a doubtful case it is prudent to leave the bud and one shoot, so that in the event of the bud turning out to be imperfect or too early for the kind there is a chance left of obtaining a later flower from another bud. The removal of lateral growths, skilful disbudding, and feeding the plants occasionally with weak soot-water, will contribute much towards a display of fine flowers next autumn. *W. Hinds.*

Standard Peach Tree Culture at Whitehill.—At the gardens on the beautiful estate of Whitehill, near Hawthornden, belonging to R. B. Wardlaw-Ramsay, Esq., is to be witnessed at present a sight seldom if ever seen in this country. Peaches at Whitehill have for some time been famous, but this season, especially as regards the prolific crop, eclipses all former years. The fruit range, which is erected upon an elevated plateau, surrounded by pretty and well designed flower-beds, consists of four Peach-houses and three vineries, all span-roofed. The central house, which is several feet higher than the others, is the standard Peach-house, of which I wish more especially to speak. It is about 32 feet by 18 feet, and about 20 feet high. It was erected about twenty-five years ago, and in it were planted out as standards four Peaches and one Nectarine. They are now about 18 feet high and about 12 feet through, and are literally covered with beautifully coloured fruit, and when the afternoon sun falls upon them, to stand underneath these trees and look upwards, a sight is seen which will rarely be forgotten. It is estimated that on these trees there are not less than from 2300 to 2500 fruit, and on one of the Peaches there are not fewer than 600 well finished fruit. Mr. Leyden, the courteous head gardener, pulled one of the Peaches, and it was found to weigh 7¾ ounces, and measured 10 inches in circumference. *John Methven, Edinburgh.*

The Lombardy Poplar.—It may be interesting, though somewhat late, to supplement the letter of your correspondent, "Diss," at p. 764 of your last volume, by some observations made during a short tour in Belgium. In the lowlands about Antwerp and Brussels, which are somewhat south of London, the Lombardy Poplars were much injured, and some were dead, but in the Ardennes, from 40 to 70 miles further south, it was a rare thing to find one alive. The valleys in this district vary from 500 to 800 feet above the sea. At Oxford the Poplars are scarcely injured, while here, in Norfolk, hardly a healthy one is to be found, and nine out of ten seem to be quite dead. *J. M. D. P.*

Cooling's Ne Plus Ultra Dwarf Bean.—We have sent for your inspection a couple of roots of the new dwarf Bean, Ne Plus Ultra, which we offered for the first time this season. We think you will be struck with its enormous productiveness, dwarf habit, and handsome shape of its pods. We recommend it specially as a forcing kind, as it proves to be as productive indoors as out. A leading gardener in the North, writing to us a few weeks since, said he had picked it in a little over five weeks from sowing, and a friend in the trade wrote us a day or two ago that —"It is one of the very few things that proves equal to the raiser's description." We may add that those sent have not been in any way specially treated, being drawn from a large breadth we have growing. *G. Cooling & Son, Bath.* [The plants received are a foot high, and very compact. One bore forty-three and the other four dozen straight handsome pods, averaging 5 inches in length. It the bulk is like the sample this is evidently a first-rate introduction. Eds.]

Wasps.—These tormentors have again made their appearance, very much to the annoyance of the gardener; and as fruit, as a rule, is this season not too plentiful, to preserve it is the anxious care of all who have charge of it. It is, therefore, of great moment that every means to its preservation should be taken advantage of, and the destruction of these pests most perseveringly followed up. Many means to that effect have been resorted to, and all with more or less success; but wasps are sometimes rather cunning, and form their nests in strange places and very difficult to get at, so that many of the remedies for their destruction are extremely difficult of application, and not unfrequently become of non-effect in consequence. For several years I have used the following with the best possible results, and that too in places where many other specifics have failed, such, for instance, as gas-tar, sulphur, turpentine, and the like. My remedy is simple but most effective. Dissolve 4 oz. of cyanide of potassium in about three-fourths of a pint of water, in a rather wide-mouthed bottle, keep it well corked down and excluded from the light as much as possible; bind a piece of coarse rag round the end of a stick, folding it round several times, making it enter the mouth of the bottle easily; let it remain in the solution until it becomes well saturated, then put it in the entrance to the nest, letting it remain there as long as the wasps continue to come, which they will do until all have returned home. In most cases one application will be found sufficient to destroy the whole nest, but when the nest, as is sometimes the case, is in a difficult position, it will be found necessary to make a second application. I have frequently watched the nest after applying the cyanide, and seen the wasps fly in in large numbers, but have never seen any return; they appear to become stupefied by its fumes, and in a very short time die. Of course, owing to its deadly properties, it will be necessary the solution should be labelled "Poison," and be put in some secure place and out of the reach of the too inquisitive. *Nemo.*

The Greater Hardiness of Variegated than of Green Trees and Plants.—In some of my accounts of severe winters I have noticed this on a large scale in regard to variegated Hollies. In many cases, where almost the whole of the green ones were destroyed, the variegated escaped unharmed. This was notably so in the abnormally severe winter of 1859-60. Probably it arises from the fact that light colours lose heat more slowly than dark, their powers of conduction being less potent; at all events, we may safely add the Holly to the variegated plants noted in the Isle of Wight as withstanding the cold better than the green forms. *D. T. Fish.*

Hampton Court Seedling Verbena.—Of late years the Verbena seems to have lost its place as a flower garden plant, while it is, perhaps, more extensively used by amateurs and florists as a pot plant. There is nothing very wonderful in people growing tired of great masses of purple, crimson, or white, but mixed beds of Verbenas are so truly beautiful that having once tried them they are sure to gain favour in public estimation. The variety above-mentioned is as yet unknown to the public, but its habit and free-flowering qualities are almost certain to commend it to notice. It is of the Crimson King type, but much larger in the truss, and having a bolder eye. From a florist's point of view it may not take high rank, but as a free grower and profuse bloomer it possesses merits which are requisite in every flower garden plant. Mr. Graham has a charming bed of it at Hampton Court, not planted *en masse*, but mixed in a free and easy way with Alyssum maritimum variegatum, Cineraria maritima, and Violas Blue King (light) and Tory, and edged with Ageratum Cannell's Dwarf. The effect is good, the arrangement simple, and the plants are within the reach of every one who grows plants at all. *W. Hinds.*

The Potato Disease.—If Mr. Thoms possesses a secret so valuable that he can cause, through its agency, Potatos to resist the disease, even though growing under the worst possible conditions, it is to be regretted that he does not take some more fitting means of making it known than through the instrumentality of a challenge which no one will further notice. A benefactor of his race would hasten to give to the world so inestimable a boon. Meanwhile the now too familiar black spot is showing itself in the tops of the earlier kinds, warning that these should be lifted as soon as possible [and destroyed]. All later sorts seem yet free from attack, although they can hardly long remain so if the present dull cold weather prevails, yet though in the middle of August all later kinds seem to be in about the same stage of growth as they were last year in the middle of July; indeed, the rains have given them altogether a fresh start, but to what end it is yet difficult to say. *A. D.*

Conservatory and Orchard-House Combined.—There is no difficulty in growing the finest fruit in a greenhouse; it has not the least injurious effect on the plants. When the fruit is ripening the golden appearance adds considerably to the beauty of the flowering plants; and even when it has been gathered, the green leaves, being well above the plants, do not produce any disagreeable impression. I have at this time in a small conservatory, 50 feet only in length, a Rivers' Orange Nectarine, with 200 large fruit of the darkest colour, the light being all round this tree; it is a standard of the umbrella form, the laden branches being tied up to the roof. This house runs north and south, the branches extend 9 feet from east to west, and 7 feet the other way; allowing 3 feet more for lateral extension. A house of this size would hold five of these trees—1000 Nectarines and Peaches, coming in at different times, would be sufficient for a small household. This Nectarine was formerly planted in a large tub, but the roots have been encouraged to pass through holes in the tub, where they are fed with good manure. As the house is ventilated on each side and at the top, the flavour is perfection itself. I do not allow the laterals to be stopped until they are of good thickness. I fancy the bloom-buds are more perfected than when the laterals are stopped early; besides that, you get a larger tree in a shorter time. As there is a small amount of heat to keep out frost in this house, the fruit comes in early. The tree at this time is admired by all. To prevent red-spider and burning, it is

necessary for the house to be north and south, and the roof of a sharper angle than usual. I have proved that it is the sun which produces red-spider. In a house of this size you may grow six beautiful creepers on each side, all the Tacsonias, Bougainvilleas, Passion-flowers, Lapagerias (in a shady part), &c., without doing any harm to another plant, but they must be grown in pots, or they will overgrow the glass. I have large flat pots in the soil, in which I place soot with a layer of manure over the root. *Philodendron.*

Ficus diversifolia.—Nearly two years ago the late Miss Hope, of Wardie Lodge, sent me a collection of what she called "curious and interesting plants." Amongst them were Kyllingia monocephala, Pelargonium tricolor, Kleinia repens, Fragaria indica, Linaria pallida, Billiardiera longiflora, and, what interested me most as an acquaintance of my old days at Kew, this little burly Ficus diversifolia (fig. 52). I often wonder the London market growers have not seized on this manageable little plant as a relief to the acres of F. elastica now grown by them. Even the growers around Paris, however, seem to have thus far neglected it. Cuttings root freely in bottom-heat, and it grows quickly in a close, hot temperature, forming bushy little plants the first season if the cuttings be rooted early. Like its congeners, well grown plants withstand a cool temperature for months without material injury; hence it is very useful for room or window decoration. The leathery textured leaves are bright green above, dotted with light brown specks, pale green below, dichotomously veined. The delta, situated in the fork of the principal veins or nerves at the back of the leaf, has long been a puzzle to inquiring minds. My attention has again been drawn to this unique little species by our "Irish Miss Hope"—Miss C. M. Owen, of Knockmullen, near Garey, "a worthie gentlewoman, and a lover of all faire floures," as Master Gerard hath it. *F. W. B.*

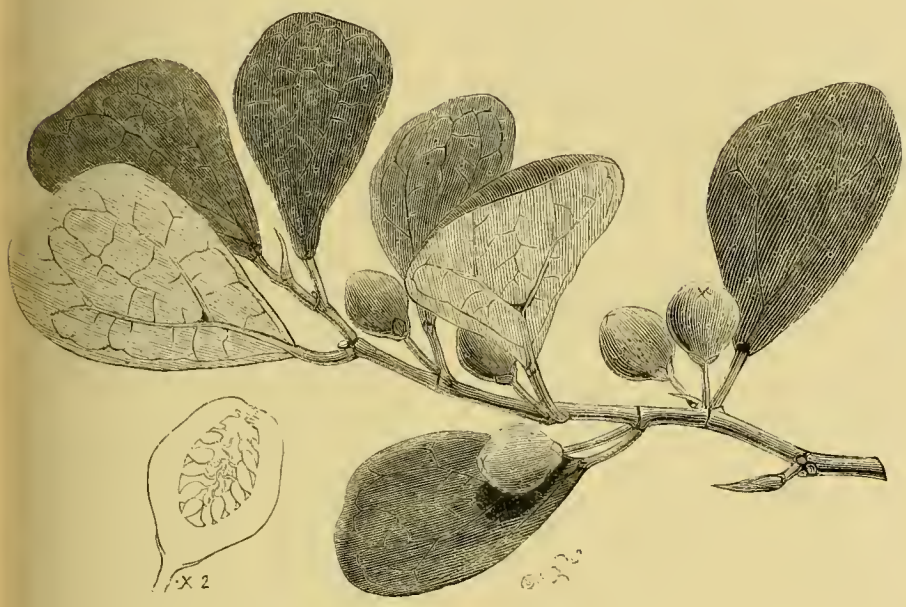


Fig. 52.—Ficus diversifolia.

The Bath Token (see p. 208). The history of the Bath token you ask is short and simple. During the last decade of the eighteenth century there was a rage for coining tokens, of which the halfpenny size was the more numerous. Many of them, however, were not struck for circulation, but for collectors. Thus, we have upwards of thirty Bath pieces, of which this is one, and easily purchased of any dealer in such articles. All the principal buildings, streets, &c., are thus represented, but not connected with any tradesman as a rule, with the exception of those bearing the names of Lambe & Co., Leade & Co., &c. The Botanic Gardens are thus introduced, probably as being newly established at the date of the piece—1794. *M. A.*

The International Potato Exhibition.—I had hoped that ere now the committee conducting this exhibition would have seen its way to withdraw from the schedule the objectionable condition which attaches to the class for three white kidneys, viz., that one dish must be of Wiltshire Snowflake. With good reason a change from single dishes of white and coloured kidneys and white and coloured rounds has been made to three dishes of each, and heretofore these classes have been open to any kind in the respective sections, and of course open to all competitors. Now by permitting this condition to be affixed to the class for three white kidneys the committee practically shut out all who may have even a score of fine kinds of white kidneys and yet may not have this Wiltshire Snowflake, because sent out for the first time this year. The variety in question is inferior both in table quality and beauty, and its introduction into the schedule, was in my opinion, a grave mistake. Not less so are the prizes offered for another kind, that is the most ungainly Potato grown. *A. D.*

Temperature of July.—The table of mean temperature for the month of July, p. 215, as recorded at Culford during the last twenty-two years by Mr. Grieve, is very interesting. It would also, I venture to say, be equally interesting to learn what is the highest and lowest temperatures experienced in the same month within, say, the present century. If any of your correspondents having easy and immediate access to old records of temperature would kindly send you the information, I, for one, and doubtless many others amongst your readers, would feel greatly obliged. With regard to the words "a difference in temperature of something like 100° in the same month," p. 183, I have to say that I did mean as Mr. Grieve rightly infers from my remark, "the temperature in the full sunshine." I may further add that a perusal of the weekly meteorological reports appearing in your columns will show that the actual difference in the temperature of last month was 134°; the highest being 175°, and the lowest 41°. I much regret being unable to state the number of degrees of frost we had here on the occasion referred to at p. 183; but the fact of the matter is that we had not a thermometer on the grass at that time, and those from which we take our readings are fixed to a west wall at a distance of 5 feet from the ground, and in a somewhat sheltered situation. *J. Horsefield, Heytesbury, Aug.* 15.

Mixed Flower-beds.—Variety is the rage of the day, and he who conceives an original idea or revives an old system, which is in good taste and in accord with the spirit of the times, renders no small service to gardening. Time was, when mixed flowers were more in vogue than they are now, when there was not half the material to be procured by gardeners to arrange their flower-beds or borders. Now every one goes in largely for groups and masses of foliage plants and flowers, mosaic designs, commonly called carpet-bedding, herbaceous gardens, beds, and borders. Even annuals find a place in most gardens, and well do many of them deserve it. But mixed beds are either ignored or forgotten. Why? Is the effect produced by a judicious combination of colours less pleasing, less effective, or less admired generally? Try a bed or two, and here is a good example to imitate. It is not necessary to use exactly the same plants, but the idea may be useful. A bed of Abutilon novum maculatum and purple Petunias mixed, and edged with Alyssum maritimum variegatum, or what makes a still better bed, a central group of Veronica Andersoni variegata, mixed with crimson or scarlet Verbena, with a band of Iresine Lindeni, and edged with Euonymus radicans variegata. Another superb mixed bed is formed of Centaurea ragusina, mixed with Verbena venosa, the purple tips of which peeping up from among the white leaves of the Centaurea have a very striking effect. *W. Hinds.*

Embothrium coccineum.—Had your correspondent's visit to Osborne been made in spring he must have been struck with the beauty of this plant. When I saw it in a full blaze of glory it riveted me to the spot. Embothrium coccineum is not a very fast grower, and it would not surprise me to hear that this tree at Osborne would bear comparison with any outside of Devonshire and Cornwall. *H. E.*

Helonias.—I notice at p. 215 of your last issue reference to Helonias erythrosperma, but from the description there presented I take it for Helonias (Xerophyllum) asphodeloides. I have never seen the former over 9 inches high in flower, while the latter will rise when planted in a favourable position to the height of 2½ feet. Having myself handled the identical plants to which Mr. Dod alludes, I am enabled in some degree to speak with certainty; at the same time allow me to fully endorse Mr. Dod's remarks as to its intrinsic beauty and value as a hardy perennial,—in fact, it may be said to rank among the choicest of such plants; being so neat and elegant, it forms a most requisite and desirable change among hardy plants. It is also well suited for the rockwork. *E. Jenkins, August* 16.

The Rains and the Fruit Crops.—These have proved disastrous to the late small fruits except the autumnal bearing Raspberries, and these enjoy any quantity of rain, especially after such a season as the present. But those that have to keep Currants and Gooseberries on the bushes for the shooting parties in September and October have had a sorry time of it during the past week, when it has rained—and yet rained more heavily—every day, and very often all night long into the bargain. When these are in great demand a north wall, from 4 to 7 feet high with a wide coping, is the best place to grow them. The coping alone will throw off most of the rain, and if this is supplemented with a net stretched tight, the latter will make the face of the wall virtually water-tight, as well as prove impregnable to birds, wasps, and flies. The old plan of matting up the bushes is the next best: but it needs to be done skilfully to prove effective. Now that bottled fruit has become more common far less bush fruit is thus protected, and the season prolonged by several months; but ripe Gooseberries cannot be kept fresh and good in bottles, and it is a great thing to be able to command a dish of red Ironmongers in October. This can be done by such simple devices as here set forth, provided the rain does not prove excessive and cause the fruit to burst. The effect of the rain on other fruit promises to prove beneficial. A good many Apples and Pears, and most of the open-air Peaches, threaten to prove small. The heat has been great at times, the drought long and severe, and not a few of the fruit trees have evidently been severely checked for lack of water. The continuous rains have reached the roots at last, and there is the prospect of a fine crop of Peaches reaching to full size. The earlier Apples and Pears are, of course, past the period when the rain could prove useful, but the late varieties will derive great benefit. The advice is easily given, to water fruit trees in dry weather; but it is really seldom done with sufficient liberality to be of much use. It takes a deluge almost to reach the roots of trees and give them enough to drink and to spare; and this is just what a week or so of rain does. It also washes and cleanses the foliage. This latter service is one of special value to Peach and other trees on walls. The trees are generally in good health, and with a favourable autumn to ripen the wood the probability is that we shall not only finish the finest crop of recent times in good condition this year, but also ripen the wood so thoroughly as to be able to gather a fine crop next year. *D. T. Fish.*

Strawberries Planted upon North Borders.—The trying heat of the past summer has taught people to think of things that never occurred to them before. Planting for succession a number of varieties of the same kind of fruit is all very well in its way, but situation must be studied as well as variety. The past Strawberry season has been the shortest on record with a good many out-of-doors. Most practical gardeners know by experience the advantage of utilising north borders for prolonging the season of small fruits, but amateurs and others often forget or entirely neglect to make provision for such contingencies until it is too late. During the past season handsome crops

were gathered from a north border; a fortnight after there was not a single fruit left in the open brakes of the same varieties, which included Sir Charles Napier, Oxonian, and Marguerite—a fine late sort, though somewhat soft and coarse in flavour for the South of England. To all, therefore, who care for a good succession of Strawberries, I would recommend to layer a suitable number of the above-mentioned sorts in 4-inch pots, and plant out on a north border at the beginning of next month. The border should be fairly well manured and be well drained, or the plants will suffer in a southern climate from severe frost. After planting, the surface of the border should be mulched over with rotten manure, and in less than twelve months the results will more than compensate for the labour. *W. Hinds.*

Non-flowering of Limes.—In the park here Lime trees, which are one of the special features, have this year, as regards flowering, completely failed us, and how to account for it I know not, except it is that their profuse flowering of the past three years, together with the long drought we have experienced this, has weakened their constitution to an unusual degree; but this, of course, is only a vague theory, and must be taken for what it is worth. Their not flowering, however, is to us rather a matter for regret than otherwise, not only on account of their fragrance, which for the time being literally perfumes the air, but also for the sake of the bees. To complete the honey harvest we have long since come to regard the flowering of the Limes as a *sine quâ non*. It would be interesting to learn how they have flowered in other localities, and, where they have failed, to what cause their failure is attributed. *J. Horsefield, Heytesbury.*

Gardeners' Royal Benevolent Institution.—The number of responses to the appeal for the Pension Augmentation Fund up to and including this morning (the 18th), is 339, contributing the sum of £406 11*s.* 10*d.*, or an average of £1 4*s.* each response. I again beg to state that I shall be at the Great Show at Manchester next week, and can be found there at the office of the *Gardeners' Chronicle*, where I shall be pleased to afford any information in my power as to the affairs of the Institution, and I trust it will be the opportunity of seeing many old and valued friends, and making, I hope, many new ones. *E. R. Cutler.*

Helianthus rigidus.—Of more than a dozen kinds of Sunflower now beginning to flower, this—called also Harpalium rigidum—is by far the best. It is indeed one of the finest hardy perennials in cultivation. It grows here nearly 6 feet high, and the flowers, which are borne abundantly on separate stiff stalks, standing well above or outside of the leaves, have an expansion of 5 inches; the disk is black, and the rays dark clear yellow, having a slight upward curvature, which increases the elegance of the flower. The plant grows well in any good garden soil, and increases rapidly by shoots, carried by stolons to a distance of 3 or 4 feet from the parent stem, but the flowers are so much admired that the supply of young plants in my garden does not nearly keep pace with the demand. *C. Wolley Dod, Edge Hall, Malpas.*

Torenia Fournieri.—This handsome plant is one of the very best that can be grown during the summer and autumn months. Plants are now in full beauty from seeds sown last February, and treated according to the general run of half-hardy annuals. In 6-inch pots they make dainty little specimens with ordinary care in cultivation and in regulating the growth. They are also well adapted for basket plants for front halls, rooms, corridors, or indeed anywhere where basket plants are required. The shoots are quite amenable to any form of training, and so are more useful than the general run of things employed for furnishing hanging baskets. When the earliest batch is raised from seeds and the plants are growing, cuttings may be taken, which will root and grow in a gentle bottom-heat and make nice little flowering plants for the late autumn. *W. Hinds.*

Garden Memoranda.

Campsey Ash Gardens, Wickham Market, Suffolk.—The beautiful gardens of J. C. Sheppard, Esq., near Wickham Market, contain many features of interest. On a recent visit I was much struck with the beautiful manner in which the place is kept, and was much pleased with a combination of Clematis Jackmanni planted and intermixed with Acer Negundo variegatum. The effect produced can be better imagined than I can describe, the silver foliage of the latter and the deep purple of the former being grand. This was covering an old sun-dial in the middle of a large round bed in the centre of the lawn and facing the mansion, the clump being about 7 feet high and as much through, and surrounded with rings of Coleus, variegated Pelargoniums, Alternanthera, and Echeveria secunda glauca, forming a very imposing sight. Close by is a beautiful bowling green, surrounded with a fine Yew hedge cut to represent old-fashioned walls. Several fine Cedars of Lebanon are to be seen here, one of them over 90 feet high, and 25 feet in circumference, being a perfect beauty. I was also agreeably surprised to find tuberous Begonias doing so well. There are several beds containing many hundreds of fine seedlings doing well, and one mass of bloom. Mr. Keen, the enthusiastic gardener, kindly pointed out to me several plants that had been out all the severe winter with only a slight covering of long manure, so that it is evident they are much hardier than many imagine. As pot plants they cannot be excelled. One house (a span-roof) is devoted entirely to them—well-grown, fine specimens of all the glorious bright colours, to the purest white—is a sight I shall not easily forget. Mr. Keen lately showed a grand collection at Woodbridge, which were the admiration of every one. Another special feature is a beautiful collection of Carnations, some of which, no doubt, at some future time, will make their appearance in the catalogues. Mr. Keen has been a most successful hybridiser of these, and it is to him we are indebted for the beautiful Miss Jolliffe, which is one of the best in cultivation. *A. O.*

Fernhill, Winkfield, the seat of R. Ravenhill, Esq., is a fine square, brick-built mansion of about 100 years of age. It stands in a beautifully wooded park of 136 acres, and is 5 miles from Windsor and 1½ from Ascot racecourse. The main entrance is from the Windsor Park Road, and is approached through a fine avenue of gigantic Elms. There is a beautiful lake of about 2 acres standing to the left of the approach to the mansion. There are two islands in the lake, and are each planted with Portugal Laurels, Rhododendrons, and various flowering shrubs, which have a very striking effect whilst in bloom. The flower garden, which is attached to the house, is of considerable dimensions, and made up principally of Pelargoniums; it has a very brilliant effect, as it is surrounded with high Oaks, Beech, &c. On the north-west front is a magnificent view of the Oxford hills. The kitchen garden, which lies about 300 yards from the mansion, is reached through a belt of huge ponticum Rhododendrons, backed up with large forest trees. The first portion is a fruit garden, and most of the trees, which were imported from America seventeen years ago, are carrying very heavy crops of fruit. Here we approach a line of nice, compact, span-roofed houses. No. 1, plant-house, 24 feet long, 16 feet wide, where are growing Fuchsias, double Pelargoniums, and general decorative plants, for the supply of the mansion. No. 2, stove, of the same size; this house contains a fine Stephanotis floribunda, which is now in splendid flower, also Bougainvillea glabra, Adiantum farleyense, Dendrobium nobile, and a quantity of useful decorative Palms. No. 3, Pine-stove, in which there are some beautiful Queens in good fruit. No. 4, Melon-house, 12 feet by 16: this contains a splendid crop of Scarlet Gem, Hero of Lockinge, and Reid's Scarlet-flesh. No. 5, Melon-house; this contains a good crop of ripe fruit of a seedling between Reid's Scarlet-flesh and Trentham Hybrid, raised by Mr. Wells, the gardener, and which is very much appreciated here, the fruit averaging from 5 lb. to 6 lb. each. The next department is the framing-ground, which is kept most compact, and in systematic order. The next is a walled kitchen garden, 1½ acre, which contains a range of four lean-to houses, of which No. 1 is a vinery, containing Lady Downe's, Black Alicante, Black Hamburgh, very even crop. No. 2, early vinery, in which are still hanging a few beautiful bunches of Muscat of Alexandria. No 3, vinery: here is a grand crop of highly finished bunches, Black Hamburgh, Muscat of Alexandria, Black Alicante, Buckland Sweetwater, and Lady Downe's—all these in splendid condition and bearing fine bunches. No. 4, a plant-house, in which are some splendid Niphetos Roses, which have been very grand this season. The walls of this garden are furnished with Plums, Peaches, Pears, Nectarines, Apricots, and Cherries, which are all handled in a most practical form, most of them carrying heavy crops. Outside this garden, on the south wall, are planted a quantity of pyramidal Apples, 3 feet apart, which are carrying heavy crops. I simply mention this, to show that a crop of the best selected fruits can be produced in a very small space if a little protection from severe weather is afforded whilst in bloom. I would just mention that there is on the same wall a Brown Beurré Pear, worked on the Quince stock, and supposed to have been planted about seventy years ago, the stem at 1 foot from the ground is 3 feet 8 inches: this is a quaint old tree, and is carrying a large crop of fruit. This is an entirely well managed garden, and reflects much credit on Mr. Wells, the gardener. *S. Johnson, Ascot.*

Reports of Societies.

Scottish Horticultural Association: *Aug.* 2.—The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew's Square, Edinburgh, Mr. Robertson Munro, Abercorn Nursery, Vice-President, in the chair. Mr. John Wilson, Royal Botanic Gardens, Edinburgh, read a paper on "Interesting British Plants." After some preliminary observations on the importance of the study of botany to the gardener, he described the Sundew (Drosera rotundifolia), whose leaves attracted and were famous for the power it possessed of destroying insects. The white Nettle (Lamium album), which was called the dead or deaf Nettle, afforded a shelter for humble bees. The Horse-gowan, pot Marigold, and wild Spinach, were next referred to, and their properties described. The tea Nettle, from which broth was made from the tender leaves, afforded a home for thirty species of insects. In Germany the roots of the Dandelion were roasted, and after being ground made a fine coffee. The other interesting plants mentioned by Mr. Wilson were the wild Thyme, Marsh Mallow, and the upright sea Lyme-grass, from the former of which a tea was made; the latter (Elymus arenarius) grows by the seaside, and forms one of the best barriers against the encroachments of the ocean. It is sturdy in habit, having a spike of sometimes 6 inches long, borne on a stout straight stem. It is found in many continental countries (in Iceland and British America), and is said to have nutritive properties, being particularly rich in sugar. But its great characteristic is the power it has of growing in pure sand, thriving best where the sand is continually drifting round the plants in heaps, into which it pushes its tough running roots. These roots give rise to buds which, becoming plants in their turn, send forth roots, and the sand becomes bound together in a mat of fibres. Thus the process goes on, and the greater the accumulation of sand drift the faster it is converted into a natural barrier. About the year 1845 there was sown at the mouth of the Eden, near St. Andrews, Fife, in embayed points, near the musselmen's hut, half a pound of this seed. The progress which it made at first was insignificent, but of late years the rapidity of its extension has been remarked by many. It was not known until lately that artificial means were being employed to this end. A well-known resident in St. Andrews, who takes very frequent morning walks to the point at Eden, has been in the habit of, and takes pleasure in widening the bounds of this invaluable plant. Securing the seeds as they ripen in autumn, he either sows immediately, or, as is generally done, in the February following. The operation is simple in the extreme, only requiring the excavation of a little hole 4 or 5 inches deep and dropping in a few seeds, yet the results are manifestly great. There are at least 7 acres covered by it now, and these may be said to have been reclaimed by the quiet plodding exertions of one man. It is interesting to notice the outposts as it were of the aggressive power as they rise from seed to root, standing detached on the level sand surrounded by little conical heaps. These form nuclei round which the sand gathers, and by-and-bye they meet to dictate "Thus far shalt thou go and no farther." No one visiting the loose sandhills at Eden can fail to recognise the advantages here indicated, and every sandy piece of beach should be sown with it where practicable.

Mr. Wm. H. Gorrie, Mauldslie Castle Gardens, communicated a paper on the Poinsettia pulcherrima. He said that in this plant would be found a very useful subject in assisting to keep the stove and warm conservatory gay during several of the darkest months of the year. For dinner-table decoration few flowers are more handsome or more admired on a large table than a dozen or more of the flower-heads of the scarlet and white varieties cut and placed alternately in the glasses on the table. When used in a cut state for vases, &c., the bracts stand much better and longer when the stem is denuded of leaves. This with some may be an objection, but when mixed with other flowers the effect is not much if at all lessened. Nearly 200 Poinsettias are grown at Mauldslie Castle Gardens each season, with very little accommodation. The plants are kept over winter underneath the staging or at the back of some pit where there is a temperature of from 50° to 60°. Towards the end of March or beginning of April they are shaken clean out of the pots, most of the roots cut away, and the stem cut down to the eye next the old wood; then they are placed in boxes properly drained and filled with river sand, and removed to a Melon pit, where there is a night temperature of 65° or 70°, not being particular whether the boxes are plunged or not, as they succeed very well either way—in fact, we can rarely afford them the benefit of being plunged in bottom heat. As soon as the eyes start a few inches, they are potted off in 4 or 5 inch pots, according to size of plants, using good fibry loam with plenty of river sand and some leaf-mould, then plunged in the propagating-house with moderate bottom-heat, or in any available place with stove temperature. Shade from mid-day sun, and syringe morning and afternoon to keep down insects. By the second week of June they will require a shift into 6 and 7 inch pots, and to be placed in a house where there is plenty of head-room. About the beginning of July we try if possible, to keep them a little cooler, so as to firm the tops previous to their being taken for cuttings about the third week in July. These are inserted singly in 3-inch pots, using two parts river sand and one part leaf-mould and are then plunged in a hot-bed with bottom-heat from 80° to 90°. The frames are kept closely shaded with double mats until the leaves begin to lose the yellow tinge they assume after being taken from the parent stock. With this treatment 98 per cent. will be rooted in a fortnight, when more air and less shade must to be given being careful that the foliage does not get burned. The next process is to shift into 5-inch pots and place them

in Melon pits from which the crop has been cleared and the pit well fumigated. Keep the atmosphere humid by syringing gently every afternoon, and maintain a night temperature of 65°, with 75° to 80° during the day, shading carefully for a time, then gradually withdrawing it altogether. Shift as soon as necessary into 6 or 7-inch pots, but if the plants are required larger and the bloom later a few are potted into 10-inch pots. Sometimes several are put into 10-inch pots, say five in a pot, and these when in flower have a fine effect among other plants in the stove. For general work plants in 6 and 7-inch pots are the most useful. When a few are required to be in flower early in November, place them in the forcing-house as near the glass as possible; they will stand a high forcing temperature provided they are well set. Feeding with liquid-manure composed of sheep-droppings, with a little guano and soot, is highly advisable. The second crop of cuttings, taken off in August and treated similar to the first batch, and flowered in 4 and 5-inch pots, some in very useful, the bracts, of course, being much smaller though none the less useful. In regard to watering, there are few plants more impatient of having this work carelessly done; if too much is given, or too cold, the plants soon lose the points of their fleshy rootlets, then the leaves turn yellow and drop off; and if too sparingly given, thrips and red-spider soon spoil the plant, as the leaves will not stand sponging without injury. There is nothing new in the treatment here described, although differing in the system practised less than thirty years' ago, when Poinsettias were grown part of the season in cold frames, and the dwarfest about feet high when it did flower. The old variety is the most useful sort; the only point in favour of the double variety is that it stands much longer in flower, and thereby extends the season of flowering into March and April. The white variety is equally easy to grow, but more inclined to be leggy than the others.

Mr. M. Dunn, Dalkeith Park Gardens, exhibited a large collection of Gooseberries; the sorts were Snowdrift, Goldfinder, Smiling Beauty, Mount Pleasant, Miss Bold, Crown Bob, Fanny, Speedwell, Thunder, Snowdrop, Antagonist, Souttar Johnnie, Ploughboy, Thumper, Hero of the Nile, Gipsy Queen, Black Prince, Railway, Hepburn's Prolific, Whitesmith, Forester, London, and Laurel. Two sorts of red Currants, La Fertile and Warner's Red Grape; pods of Ne Plus Ultra and Laxton's Marvel Pea, and plants and flowers of a fine strain of Gloxinia. Mr. A. Gibb, Restalrig Park, exhibited two new seedling Coleuses. Messrs. Dickson & Co. exhibited blooms of Pinks and Violas, also Rosa rugosa, Rose "The Pet," and several Lilium flowers. Mr. M. Chapman, Easter Duddingston Lodge, exhibited a large spike of Veratrum nigrum. Messrs. Todd & Co. exhibited samples of Bountiful Strawberry, a variety which had done well this season.

Dundee Horticultural Association: *Aug.* 5.—The usual monthly meeting of this Association was held in the Templar Hall, Dundee, on the above date, the President, Mr. D. Doig, in the chair.

Mr. James Grieve, Pilrig Park Nurseries, Edinburgh, read a paper on "Florists' Flowers." As subjects for his remarks he made choice of the Carnation, Pink, Phlox, Pentstemon, and the Viola and Pansy; these he considered the most valuable genera of the many so-called florists' flowers. He gave the first place to the Pinks and Carnations, than which no richer flowers are in cultivation. The herbaceous Phlox and the Pentstemon then claimed Mr. Grieve's attention. Most of the original species of these, he said, are natives of America, and appear to have been introduced into this country at various times from 1732 to 1818. The Viola and Pansy were then treated of. Though last on his list, they were by no means the least worthy. No other class of plants ranked higher in favour with the multitude; nor was this to be wondered at, seeing they flourished in almost any soil, blooming profusely in many cases from early spring to early winter. This was especially true of some of the bedding Violas introduced of late years, some of which might well be termed perpetual bloomers. In treating these subjects, Mr. Grieve detailed in full the most successful and approved methods of cultivation. In speaking of the culture of the Viola and Pansy, Mr. Grieve (an acknowledged authority) said these were in many cases killed with over-kindness: all the knowledge required for even a novice might be contained in a nutshell. The first essential was deep digging with a good supply of well-rotted manure; of equal importance, though less generally practised, was early planting and planting deep, at least up to within an inch of the head of the plant. Planted in this way every eye under the surface would send up a shoot, and thus form fine bushy plants, while at the same time the roots would be protected from the summer drought. Another advantage gained by this system of planting was, that it obviated the necessity of watering, which in the case of Pansies almost invariably produced scalding or damping off at the neck.

Mr. John Nicoll, Arbroath, then read a most interesting and highly instructive paper on "Natural and Artificial Hybridisation." He introduced his subject by noticing the interesting but minute and intricate nature of the processes by which the reproduction of plants is effected, and proceeded to give a description of the various parts of a flower, pointing out those more immediately connected with the production of seed, and some of the most common modes by which fertilisation is effected, by agencies in some instances within the flower, in others beyond. The wind and insects are the principal agents in this operation when the flower is not adapted for self-fertilisation, and observation shows how perfect are the means for accomplishing this object. Where there is no gaily coloured corolla to allure insects, the pollen is light and powdery, and wind is commonly the means of transfer. But where flowers have bright coloured corollas there is also in most cases honey to induce the visits of insects, or at any rate pollen as food for the young of the domestic bee, and the pollen is of a gummy nature. Insects in quest of food carry off some of the pollen grains, and in their visits to other flowers deposit at least a part of these grains on the stigma. In addition to that class of plants which are unable to fertilise themselves in consequence of the sexual organs being on different plants, or at least in different flowers, there are others in which the sexual organs, though together, are not matured or sufficiently developed at the same time. Sometimes the stigma is in a ripe or receptive state long before the stamens are fully developed, while in other cases the anthers shed the pollen grains before the stigma is in a state to receive them. An example of this latter arrangement is to be seen in the Campanula family, where the pollen is not only shed, but in some cases the anthers completely withered away before the stigma is fully developed. On the other hand the Plantain, or Rib-grass, furnishes an example where the stigma has developed and decayed before the stamens make their appearance on the same flower. The examples referred to will indicate that Nature has made ample provision for cross-fertilisation, and that in the vegetable, as well as in the animal world close breeding is provided against.

Mr. Nicoll then spoke of the amazing number of the pollen grains and their great variety of form in different species. When pollen from the same flower, or different flowers on the same plant, or even from a different plant of the same species is deposited on the stigma and fertilisation follows, no change need be looked for in the future progeny from seed thus fertilised further than may be produced by cultivation, change of soil, climate, or other extraneous conditions—in short, no hybrid form will result. It was only in cases of cross-fertilisation between two distinct species that a new form might be looked for. But even though no improvement or even alteration were to result, cross-fertilisation might be of great value in regard to the extra production of seed.

Mr. Williams, experimenting on the Victoria regia, noted the following results, viz.:—A flower naturally fertilised produced twenty-five seeds, artificially fertilised with its own pollen sixty seeds, artificially fertilised with pollen from a separate flower on the same plant a hundred seeds, while a flower fertilised with pollen from a separate plant produced 300 seeds, or twelve times that of the naturally fertilised flower. This showed how important, from a mercantile point of view, cross-fertilisation may become if seeds entering largely into common use can be thus increased. In some parts of Germany, when fields of grain are in bloom and the anthers in the act of shedding the pollen, a rope is drawn across the heads of the grain, to ensure better fertilisation than would be effected naturally.

There had been considerable discussion as to whether the male or female elements have most influence in determining the character of the plant resulting from cross-fertilisation. Some have held the theory that the male parent has in all cases the greatest power; others hold that the result depends, not upon the male parent, but upon the proportionate health and vigour of both parents. It was reasonable to suppose that, if the male and female plants are equal in all respects, the progeny will show some intermediate characteristics; whereas, if one parent be superior in constitutional energy and sexual vitality, the future progeny may be expected to partake of most of its distinctive features. In closing his paper, Mr. Nicoll pointed to the many inducements cross-fertilisation offered to the scientist, as well as to those who, caring little for the exactness of science, seek rather to increase the productions of Nature either for utility or beauty.

Taunton Horticultural: *Aug.* 11.—There exist at Taunton a combination of circumstances which go to give the exhibitions annually held by this Society a position amongst the best and most successful that take place in the provinces. Energetic management, good prizes, a locality where numbers of the best plants in the kingdom exist, and the still further essential of a community who, by their presence in sufficient numbers, bring the wherewithal to enable the committee to keep up the attractive character of the shows. On this occasion the exhibition of flowering stove and greenhouse plants, Ferns, fine-foliage subjects, and the many other plants which the schedule provides for, was such as has rarely been brought together at even the most successful provincial gatherings in the kingdom. Not only were the plants large, vigorous, and in the case of the blooming examples beautifully flowered, but, what is of even greater importance, they were mostly in fresh condition, not showing so much of the transit bruises so detrimental to the look of plants that have been exhibited time after time until their flowers, besides being thin in number, lack their true character so far as to leave little that is pleasing in appearance, although exhibitors often are disappointed if they do not win with such.

In the open class of twelve stove and greenhouse plants in or out of bloom there were four competitors, Mr. George Cole, gr. to T. Lawless, Esq., Exeter, standing well in front with a beautiful dozen, in which several specimens were of extraordinary merit. Erica Marnockiana, some 5 feet in diameter, fresh, vigorous, and literally crowded with bloom, so that the flowers were piled on each other; it was one of the best examples of successful Heath growing that has ever been produced. Near it was Eucharis amazonica, 6 feet across, bearing near upon half a hundred strong spikes of its lovely white flowers. In addition to these Erica æmula, E. Jacksoni, Allamanda Hendersoni, Ixora Dixiana, I. Fraseri, and Dipladenia amabilis, were only so far inferior that they were not so large as the first-named; Mr. Cypher, who was a good 2d, had, in a meritorious group, Bougainvillea glabra, Ixora Fraseri, Allamanda nobilis, and A. Hendersoni, very well done. 3d, Mr. Tudgey, gr. to J. F. G. Williams, Esq., Worcester.

Six stove and greenhouse plants: With these Mr. Cypher had 1st, staging a nice group, in which the handsome autumn Heath, Erica Irbyana, was in good condition, as also was Ixora Cypheri, a distinct-looking hybrid variety, with bright orange-coloured flowers. Mr. Tudgey, who was a close 2d, had a nice collection.

Eight fine-foliage plants (open): The size and condition of the specimens shown in this class by Mr. Cole and Mr. Cypher were quite equal to those in the preceding, and were so near that they received equal 1st prizes, the most noticeable in Mr. Cypher's collection being Cordyline indivisa, Croton Disraeli, a dense bush of golden colour; Encephalartos villosus, 18 feet across, with several Palms and other ornamental foliage subjects little inferior. Mr. Cole had Gleichenia rupestris glaucescens, 9 feet through — a dense bush of glaucous shaded green; Croton variegatus and C. Disraeli, immense bushes; a beautifully managed Alocasia, and others to match. Mr. Appleby, gr. to T. W. D. Bide, Esq., was 2d.

Ferns also were present in excellent condition, and equally satisfactory as to numbers. For eight Mr. Cole was easily 1st, showing, in a fresh, well matched group, fine specimens of Nephrolepsis davallioides furcans, Gleichenia Mendelii, Davallia polyantha, and Thamnopteris Nidus. 2d, Mr. Appleby, who had a fresh and well-managed group, consisting of Adiantum Ghiesbreghii (scutum), 4 feet through; A. farleyense, still larger; and others of equal merit.

Fuchsias were very well shown. With six in the open class, Mr. Davey came in 1st, having a well-flowered lot, densely furnished with blooms of zonal and nosegay Pelargoniums. There was a much larger display than is usually seen, and with few exceptions they were very well done. Eight zonals: 1st, Mr. H. J. Penny, who had a nicely managed group, alike noticeable for their flowers and good foliage; 2d, Mr. H. Godding. Eight nosegays: 1st, Mr. Godding; 2d, Mr. A. J. Hall. Eight variegated, four gold and four silver: Mr. H. J. Penny 1st, Mr. Godding 2d. Single new plant in bloom: 1st, Mr. Tudgey, who had Anthurium Andreanum; 2d, Mr. Selway, gr. to Sir J. H. Amory, a dark-flowered hybrid Dipladenia, named rosæflora. Single new foliage plant: Mr. Cole took 1st prize, having a beautiful young specimen of Croton Warrenii; 2d, Mr. Selway. Single new hardy plant: 1st, Mr. Selway, for Asparagus plumosus, said to have stood out-of-doors through the winter, and which was as fresh and full of healthy growth as when kept in a warm house. Six Orchids: 1st, Mr. Perry, gr. to H. C. Miles, Esq., a nice lot of small specimens, the best being Odontoglossum vexillarium; 2d, Mr. Cypher.

In the amateurs' division for stove and greenhouse plants, in or out of flower, the display was only a little below that present in the open class. With twelve Mr. Cole was again to the fore, staging a handsome lot, amongst which were Ixora Colei and Erica æmula; Mr. Selway a very good 2d, his most meritorious plants in an evenly flowered group being Dipladenia amabilis, Ixora coccinea, and Stephanotis floribunda, well grown and full of bloom. Six stove and greenhouse plants: 1st, Mr. Selway, who had, along with others, Allamanda grandiflora, in good condition, and Erica tricolor Wilsoni, with very large flowers. The Ferns in this division were little if anything inferior to those in the open class. For six Mr. Cole was again 1st. In his half-dozen were beautiful fresh young specimens of Gleichenia semivestita and G. dicarpa longipinnata, two of the most elegant of this elegant genus of Ferns; the latter is the slenderest in habit of all the forms, and will be a charming Fern for using with cut flowers when it gets more plentiful; with these was Davallia Mooreana, some 10 feet in diameter. 2d, Mr. Perry, a very pretty collection. Lycopodiums were present in such form as to show how lovely they are when the kinds are well chosen and equally well cultivated. Four: 1st, Mr. Cole, with excellent examples of L. Lyallii, L. africana, L. Warscewiczii, and L. umbrosa; 2d, Mr. Selway. With six foliage plants, Mr. Selway took the lead, showing a nice group; 2d, Mr. Perry. Fuchsias were equally good in this division, the 1st prize for four going to Mr. F. Woodland; 2d, Mr. E. Bryant. Tuberous Begonias: These likewise were present in nice condition, Mr. H. Godding being 1st with eight, Mr. Penny 2d. Six (amateurs): 1st, Mr. Woodland; 2d, Mr. Penny. Pelargoniums were equally well represented in the amateurs' classes. Mr. Bryant took 1st honours for six zonals, and also for six nosegays; Mr. Penny being 2d in both.

Cut Flowers: Roses were in moderate condition, most of the competing stands having some flowers deficient in quality. Forty-eight: 1st, Mr. W. Smith. Twenty-four (amateurs): 1st, Mr. T. Hobbs; 2d, Mr. J. B. Daniel. Twelve: 1st, Mr. Hobbs, who also scored 1st with twelve Teas in good condition. Gladiolus were as usual shown by Messrs. Kelway, who took 1st with twenty-four spikes in excellent form, consisting of a selection of the best named sorts and several seedlings; amongst the latter was one which received a First-class Certificate—Queen of Taunton, of unusual merit, the ground colour a light peach shaded with bright pink; the individual flowers are of excellent shape, and it forms a fine spike. Dahlias were contributed in good order by Messrs. Keynes, of Salisbury, who took 1st for twenty-four and twelve, as likewise with twelve fancies, Mr. Nation coming in 2d with twenty-four. There was a great falling off in table decorations, vases of flowers, and bouquets, for which production there is a tent devoted to lady competitors, and which used to form quite a feature. On the present occasion there was only one exhibitor of a table, Miss Coker, who took the 1st prize; the same lady being 1st

with a single vase. Hand bouquet: 1st, Miss A. Davey; 2d, Miss L. Bourdillon.

There was a large display of fruit, most of which was good. Collection of ten dishes: 1st, Mr. Austen, gr. to Sir Greville Smyth, who put up a handsome lot, consisting of a Queen Pine, Muscat of Alexandria and Black Hamburgh Grapes, both of excellent quality; Elruge Nectarines, Moor Park Apricots, Noblesse Peaches, Brown Turkey Figs, a Melon, Morello Cherries, and a dish of Apples. Mr. Crossman, gr. to Mrs. Baghot, 2d. Six dishes: Here, too, Mr. Austen came in 1st, with fruit similar in character to that staged in the preceding class. Mr. Crossman, who was 2d, also had a nice collection. Two Pines: 1st, Mr. W. A. Beale. Three bunches Black Hamburgh Grapes: With these Mr. Austen bad an easy victory, excellent examples, alike good in bunch and berry, with faultless finish; 2d, Mr. T. Frost. Three bunches Muscats: 1st, Mr. Austen, Muscat of Alexandria, in good condition; 2d, Mr. T. Frost. Three bunches of Black Grapes, Hamburghs excluded: 1st, Mr. Dufferin: 2d, Mr. Frost. Three bunches white Grapes, Muscats excluded: 1st, Mr. T. O. Bennett, showing Buckland Sweetwater, in nice order; 2d, Mr. T. Frost. Six Peaches: 1st, Mr. Dufferin; 2d, Mr. Selway. Six outdoor Peaches: 1st, Mr. Crossman, Rivers' Early York: 2d, Mr. Austen, Hale's Early. the latter the finest, but not quite ripe. Six Nectarines: 1st, Mr. Crossman, a fine dish of Pitmaston Orange; Mr. Austen 2d, with Pineapple, good and nicely coloured. To judge by the display of Apricots they must have been much more plentiful in this part of the kingdom than in other places. For six, Mr. Powell, gr. to the Earl of Devon, had 1st, a very fine dish of Moor Park; Mr. Hopkins, gr. to the Rev. W. Knight, 2d. (*From a Correspondent.*)

Weston-super-Mare and East Somerset Horticultural: *Aug.* 9.—The ninth annual exhibition of this Society took place on the above date. The handsome prizes which the committee offer has the effect of inducing most of the best growers in this part of the kingdom to put in their appearance, the result of which is that a good competition is secured in most of the leading classes. In the open class for twelve mixed flowering and fine-leaved plants Mr. Cypher, Cheltenham, took 1st, staging a fine group—the blooming specimens fresh, with an absence of the stale flowers not unusually present at this season amongst the productions of those who exhibit flowering plants—containing a well-flowered Allamanda nobilis, Stephanotis floribunda, Erica Irbyana, E. æmula, both full of bloom; Ixora Williamsi, I. Fraseri, and a grand Bougainvillea glabra, backed up by very large fine-leaved specimens, the best of which were Encephalartos villosus, and Croton Disraeli, furnished with dense, high-coloured foliage. Mr. Tudgey, gr. to J. F. G. Williams, Esq., Worcester, 2d, with an effective collection, composed of half flowering and half ornamental-foliaged subjects; 3d, Mr. J. F. Mould, showing a nice group.

Six flowering stove and greenhouse plants: With these Mr. Tudgey was well to the fore, his best examples being Dipladenia Brearleyana and Erica ampullacea Williamsii, a fine white variety; 2d, Mr. J. F. Mould. Six foliage plants: 1st, Mr. Tudgey, who staged a medium-sized group; 2d, Mr. Perry, gr. to H. C. Miles, Esq. Six exotic Ferns: 1st, Mr. Perry, a healthy half-dozen, containing a large specimen of the elegant Pteris scaberula, Davallia bullata and the crested form of Woodwardia radicans; 2d, Mr. S. Brown, in whose collection was a beautiful example of Lygodium scandens.

Fuchsias are much better shown at Weston than at most of the exhibitions we see. With six, Mr. S. Brown took the lead, having tall pyramids some 8 feet high, well furnished with healthy foliage and large flowers; 2d, Mr. E. Bryant, Bath, who also had a well-managed lot, large and full of bloom. Zonal Pelargoniums were present in better condition than usual, the 1st prize going to Mr. S. Brown, for large specimens, not overtrained, well clothed with good foliage and equally well bloomed; 2d, Mr. Palmer.

Lycopodiums were nicely shown. 1st, Mr. Matthews, gr. to T. T. Knyfton, Esq.; 2d, Mr. S. Brown, who took 1st with six hardy Ferns, Mr. Capell being 2d. Coleus were shown in very good condition. In a close competition Mr. Pain, of the Weston-super-Mare Nurseries, came in 1st with large, highly-coloured plants; 2d, Mr. Matthews. Six Adiantums: With these, in a well represented class, Mr. Brown had 1st honours, his most meritorious being A. gracillimum, A. venustum, and A. decorum, fresh and vigorous; 2d, Mr. Perry, who likewise put up a nicely grown half dozen. With a new plant Mr. Tudgey was 1st—a nice young example of Anthurium Andreanum, very bright in colour, and much wider in the spathe of the flower than many that have yet bloomed; Mr. Cypher 2d, with Croton Warrenii. Six Begonias: 1st, Mr. Capell; 2d, Mr. Brown. Gloxinias, too, were well shown by Mr. Bowen, gr. to J. F. Taylor, Esq., who was 1st. Mr. S. Brown had 1st with six Clematis, large and well-flowered examples. Achimenes: 1st, Mr. W. H. Matthews, gr. to H. Lewis, Esq.—a well-grown lot.

In the amateurs' class for six blooming plants Mr. Tudgey took 1st—an even half dozen, containing three nicely-flowered Heaths (E. Lindleyana, E. Candolleana, and E. metulæflora bicolor); 2d, Mr. Perry, who in a neatly bloomed group had the seldom seen Erica vestita coccinea and the pretty pink-flowered Chironia; Mr. Bryant 3d. Six fine-foliage plants (amateurs): 1st, Mr. Tudgey; 2d, Mr. Perry. Single stove plant in bloom: 1st, Mr. Bryant; 2d, Mr. Perry. Four Coleus: 1st, Mr. Reading, gr. to J. Wright, Esq., showing a nicely grown lot of plants; 2d, Mr. J. F. Taylor; and Mr. Palmer also well-managed exhibits. Four Fuchsias: 1st, Mr. Bryant; 2d, Mr. Hall. Petunias were nicely shown, Mr. Hall taking 1st, with an assortment of double and single varieties; 2d, Mr. Capel. Six zonal Pelargoniums: These were beautifully grown, full of flower and healthy foliage: 1st, Mr. Palmer; 2d, Mr. Bryant.

Cut Flowers.—Roses were much better than might have been expected in August, especially after the parching weather experienced in this part of the kingdom. With twenty-four in threes, the first honours were secured by Messrs. Keynes & Co., Salisbury, in a bright, fresh lot of flowers, having Madame Victor Verdier, Madame Villermoz, Xavier Olibo, La France, Paul Neron, and Mons. E. Y. Teas, in nice condition. Messrs. Parker & Son, St. Michael's Hill, 2d, showing larger flowers, some of which were past their best. Twelve varieties, Tea Roses: Mr. Smyth 1st. Dahlias were very well shown for so early, Messrs. Keynes taking 1st in the class for twenty-four varieties, and also for twelve fancies: Mr. Nation 2d with twenty-four. Gladiolus, twenty-four spikes: Of these Messrs. Kelway were the only exhibitors, taking a well-merited 1st with a fine stand of flowers, the most noticeable amongst which were Camilla, Painted Lady, Harriet Pulman, Hero of Weston-super-Mare, Amberley, and Hero of Bath. Twenty-four Asters: 1st, Mr. S. Brown, who staged flowers in good condition. Phloxes, twelve varieties: 1st, Mr. H. Cattley. Twenty-four varieties, cut flowers: 1st, Mr. Perry. Twelve varieties: 1st, Mr. O'Brien, gr. to Mrs. King, a handsome lot, including white and red Lapagerias, Ixoras, Allamandas, Dipladenias, &c. Stand of fruit and flowers: 1st, Mr. Hookings, Clifton, Bristol—a prettily arranged exhibit. Drawing-room stand: 1st, Mr. W. Pethick. Hand bouquet: 1st, Mr. Hookings. Buttonholes: Mr. Cypher 1st in one class and Mr. Hookings in the other.

Fruit.—Of this a very good display was forthcoming. Grapes, Peaches, Nectarines, Melons, and Apples, both kitchen and dessert sorts, the latter being represented by some very pretty examples, evidently grown under glass. For eight dishes of fruit Mr. Austen, gr. to Sir Greville Smyth, was easily 1st, with very good Muscat of Alexandria and Black Hamburgh Grapes, the latter of which were unusually well finished; Noblesse Peaches, Moor Park Apricots, Elruge Nectarines, Brown Turkey Figs, a Melon, and a Queen Pine. 2d, Mr. Cole, gr. to W. B. Fortescue, Esq. With a Pine Mr. Austen had 1st, showing a nice Queen; 2d, Mr. Mitchell, gr. to Sir G. Elliott. Three bunches white Grapes: 1st, Mr. Austen, good bunches and even berries; 2d, Mr. Loosemore, gr. to W. Cooper, Esq.; 3d, Mr. Shelton, gr. to W. K. Wait, Esq. Three bunches Black Hamburghs: 1st, Mr. Austen, who had magnificent bunches, large in berry, black, and covered with thick bloom; 2d, Mr. Vallance, gr. to J. C. Wall, Esq., likewise a very good exhibit; 3d, Mr. A. W. Hancock. Three bunches, any other black kind: 1st, Mr. Daffurn, gr. to Colonel Walker, with Madresfield Court, large in bunch and berry; 2d, Mr. Trotman, gr. to H. O. Wills, Esq., with Madresfield Court, smaller but better finished. There were nineteen exhibitors in these two classes of black Grapes. Peaches and Nectarines were fine. With six Peaches Mr. Austen took 1st, staging unusually large fruit of Grosse Mignonne; 2d, Mr. Daffurn, with Noblesse, beautifully finished. Dish of Nectarines: 1st, Mr. Trotman, Pine-apple, in fine order: 2d, Mr. Daffurn. Apricots: 1st, Mr. Uphill, gr. to W. Fear, Esq., with Moor Park; 2d, Mr. Baker. (*From a Correspondent.*)

Clay Cross Horticultural: *Aug.* 16.—The twenty-fourth annual exhibition of this Society was held on the above date, and proved to be equal to former exhibitions as regards quality and quantity of exhibits, which three spacious marquees failed to hold, many vegetables and much farm produce having to be staged on tables outside. There were classes for cottagers, amateurs, farmers, and nurserymen and gardeners. We will confine our remarks to the latter class. The 1st prize, for twenty plants, six foliage, six Ferns, and eight in bloom, was won by Messrs. E. Cole & Sons, Manchester, with, amongst others, well-flowered examples of Ixora Fraseri, Erica Turnbulli, Marnockiana, and æmula; Allamanda nobilis and grandiflora, Vinca alba, and Dipladenia amabilis. Mr. Ward, gr. to T. H. Oakes, Esq., Riddings House, Alfreton, was a close 2d, staging Kentia Fosteriana, Croton Johannis and Challenger, very good; Dasylirion glaucum, a good Dicksonia antarctica, Gleichenia rupestris glaucescens, and Cyathea Smithii—his best flowering plants being Clerodendron Balfourianum, Statice profusa, Ixora Fraseri and Dixiana, Erica Thomsoni, and E. Austiniana. Mr. Cypher, of Cheltenham, was 3d, not staging such good samples as he usually does. His best plants were Ixora Fraseri and Williamsi, Anthurium Scherzerianum, Dasylirion acrostichum, and Cycas Normanbyana. Mr. J. Dore, of Clay Cross, was 4th, with rather small but good plants; and Mr. Anderson, gr. to. W. Walker, Esq., Cromford, was 5th. These fine collections were all staged in one large circular group in the centre of a large tent, and a very imposing group they made. For six flowering plants Mr. W. Haslam was 1st, with only a moderate lot; and Mr. Lyon, gr. to Lady Ossington, Newark, 2d. The latter was 1st for six fine-foliaged plants, Mr. Swanwick, gr. to Colonel Seely, Sherwood Lodge, being 2d. Mr. Swanwick was 1st for three flowering plants, with very good ones. Fuchsias, tuberous Begonias, and Balsams were only moderately shown, but much better were the Gloxinias shown by Mr. Anderson. In the groups for effect there were four exhibitors, Mr. Ward being 1st, with a bright effective group, well toned down with fine-foliaged plants; Mr. Lyon being a very good 2d, not much, if any inferior to the former; Mr. Dore was 3d; Mr. Webb, gr., Kelham Hall, Newark, 4th.

The fruit on the whole was good, and most of the classes were well contested. For a collection of eight dishes Mr. Ward was 1st, with good dishes of Jefferson Plum, Brown Turkey Figs, Elruge Nectarines, Peaches, Queen Pine, Melon Madresfield Court, and Bowood Muscat Grapes; Mr. Webb being a very good 2d, and 1st for Pine. There were seven competitors with black Grapes, Mr. Ward being 1st with Madresfield Court, small bunches, but good in colour and berry; Mr. Lyon 2d, with Black Hamburgh, well finished; and Mr. Frith, gr. to — Jackson, Esq., 3d. Five lots of white Grapes were staged, all Muscats, Mr. Swanwick being 1st, with examples good in bunch and berry, but wanting in colour; Mr. Ward 2d, with some good coloured bunches but rather wanting in size of berry; 3d, Mr. Eggleston, gr. to C. Binns, Esq. Mr. Lyon was 1st for Peaches, and Mr. Webb, 2d. Mr. Lyon was also to the fore with Nectarines, Mr. Ward being 2d. Mr. Smith was 1st for Melon, Mr. Ward 2d. Mr. Lyon was 1st for a collection of eight dishes of hardy fruit, having good Apricots, Plums, Cherries, Apples, &c.; Mr. Webb being a close 2d.

Cut flowers were not shown in any quantity, but Mr. Proctor, nurseryman, of Chesterfield, staged some good Roses, Dahlias, Asters, and others. Mr. Webb and Mr. Haslam also showed well. Mr. Dore was 1st for a bouquet, and Mr. Cypher 2d, but their positions were reversed for a wreath. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
For the Week ending Wednesday, August 17, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Aug.	In	In.	°	°	°	°	°	°	°		In
11	29.77	—0.02	67.8	50.3	17.5	58.0	— 4.2	52.5	82	W.; S.S.W.	0.
12	29.57	—0.20	59.0	53.0	6.0	54.6	— 7.5	54.2	99	WSW: S.	1.
13	29.55	—0.21	57.5	50.2	7.3	53.3	— 8.9	46.1	76	W.	0.
14	29.67	—0.10	61.0	51.2	9.8	55.3	— 6.7	46.7	90	WNW	0.
15	29.66	—0.12	67.1	52.2	14.9	56.6	— 5.1	49.5	77	WSW: S.W.	0.
16	29.40	—0.38	68.0	56.0	12.0	60.0	— 1.4	58.0	92	W: WNW	0.
17	29.35	—0.43	67.0	54.0	13.0	58.2	— 3.0	51.9	80	WSW: S.W.	0.
Mean	29.57	—0.21	63.0	52.4	11.5	56.6	— 5.3	51.3	85	Var.	1.

Aug. 11.—A fine day; overcast from 0 h.; overcast at night with light rain.
— 12.—Sky overcast all day and night; 1 inch of rain fell between 3 P.M. and 7 P.M.
— 13.—A fine but dull, cloudy day and night.
— 14.—A dull, cloudy day; thunder heard at 2.30 P.M. night very cold.
— 15.—A dull day; gusty wind; sun's place seen at times; fine day and night.
— 16.—Fine, but dull morning; sun shone brightly from 0 h. to 2 P.M.; slight rain in the evening and night.
— 17.—Fine morning; sun shining frequently; heavy showers of rain from 2 P.M.

London: *Atmospheric Pressure.*—During the week ending August 13, the reading of the barometer at the level of the sea decreased from 30.21 inches at the beginning of the week to 29.49 inches by 9 P.M. on August 8; increased to 29.86 inches by midnight on the 9th; then decreased to 29.77 inches by 3 P.M. on the 10th; then increased to 30.05 inches by 9 A.M. on the 11th; then decreased to 29.6 inches by midnight on the 12th, and was 29.77 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.83 inches, being 0.21 inch below the of the preceding week, and 0.10 inch below the average for the week.

Temperature.—The highest temperature in the shade in the week was 74°.2 on the 8th; the next in order was 74° on the 7th. On August 13 the temperature did not rise above 57°.5. The mean of the seven highest day temperatures was 67°.3, being 7°.5 lower than that of the preceding week.

The lowest temperature in the week was 50°.2 on the 13th; the next in order was 50°.3 on the 10th and 11th. On the 8th the lowest temperature was 54°.7. The mean of the seven lowest night temperatures was 52°.

The greatest range of temperature in one day was 21°.4, on August 7; the next in order was 19°.5, on the 8th; the smallest was 6°, on August 12; the next in order was 7°.3 on August 13. The mean of the seven daily ranges was 15°.3.

The mean daily temperatures were, on August 7, 6°.2; on the 8th, 63°.1; on the 9th, 59°.8; on the 10th, 58°.2; on the 11th, 58°; on the 12th, 54°.6

d on the 13th, 53°.3; of these, that of the 7th day s the same as its average; that on the 8th was above its average; and all the rest were below their erages by 2°.3, 3°.9, 4°.2, 7°, and 8°.9 respectively. e mean temperature for the week was 58°.4, being 9 lower than last week, and 3°.7 below the average sixty years.

The highest reading of a thermometer with black-ed bulb in vacuo, placed in the full rays of the sun, s 130°.3, on the 9th, and the highest on the 12th s 66°. The mean of the seven readings was 3°.8.

The lowest reading of a minimum thermometer th its bulb placed on grass and fully exposed to sky was 46° on the 11th, and the mean of the ven readings was 49°.4.

Rain fell on four days, to the amount of 1.95 inch the week, of which 0.42 inch fell on the 8th, and 46 inch on the 12th.

England: *Temperature.*—During the week end-g August 13 the highest temperatures were 77°.2 at mbridge, 75° at Brighton, and 74°.2 at Black-ath. The highest temperature in the week at olverhampton was 66°.3, at Bristol 67°.1, and at verpool 67°.2. The mean from all stations was °.9, being nearly 10° smaller than that of the pre-ding week.

The lowest temperatures in the week were 42°.7 Bristol and 44° at Leicester and Hull. The lowest nperature in the week exceeded 50° at Blackheath d Liverpool. The general mean from all stations s 46°.6, being the same as last week.

The greatest ranges of temperature in the week re 32° at Cambridge, 28°.8 at Nottingham, and 28° Hull. The smallest ranges were 16°.5 at Liverpool d 19° at Plymouth. The general mean was 24°.3, ing nearly 10° smaller than that of the preceding ek.

The mean of the seven highest day temperatures s or exceeded 68° at Brighton, Cambridge, and ottingham, and was less than 64° at Wolverhamp-n, Liverpool, and Bradford. The general mean from stations was 65°.8, being 6°.2 smaller than that of e preceding week.

The mean of the seven lowest night temperatures s or exceeded 53° at Truro, Plymouth, Brighton, d Liverpool, and was less than 46°.1 at Hull and ottingham. The general mean was 51°.1.

The mean daily range was 19° at Brighton and ottingham, and was 7°.5 at Liverpool and 11°.2 at radford. The general mean was 14°.7.

The mean temperature for the week exceeded 59° Brighton and Truro, but was less than 55° at Hull d Wolverhampton. The general mean was 56°.9.

Rain.—The largest falls were 1.95 inch at Black-ath, 1.88 inch at Leicester, and 1.85 inch at Bristol; e smallest falls were 0.35 inch at Bradford, 0.41 inch Leeds, and 0.44 at Sunderland. The general mean as 1.09 inch. It fell on four days on an average, it at some places it fell on six days, and at others three days.

Scotland: *Temperature.*—During the week end-g Saturday, August 13, the highest temperatures ere 69°.5 at Leith, and 69° at Edinburgh and undee; at Greenock the highest temperature in the eek was 64°, and at Paisley was 65°. The general ean was 67°.

The lowest temperatures in the week were 40° at aisley, and 44°.7 at Aberdeen; at Glasgow and eith the lowest temperature in the week was 48°. he general mean was 45°.6.

The mean temperature was highest at Edinburgh, 7°.2; and lowest at Paisley, 54°.9. The general ean was 56°.3.

Rain.—The largest falls were 0.97 inch at reenock, and 0.91 inch at Edinburgh; the smallest lls were 0.14 inch at Aberdeen, and 0.40 inch at undee. The general fall was 0.62 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon.

The Mountain Ash.—Do you know of any way in hich the clusters of berries of the Mountain Ash may e preserved for use in decorating late in the year? *nquirer.*

Answers to Correspondents.

egonia: *J. Haffenden.* Yes, we have seen several of a much deeper crimson colour. It is a poor thing by comparison with the best varieties.

ooks: *Thuya.* We do not know of any books which give the information you desire.

ucumbers: *H. S. James.* It is the too well known Cucumber disease, the exact cause of which has not yet been determined. We can only recommend you to try a complete change of seed, soil, and manure.

ecabelone Barklyana. — Wanted, Decabalone Barklyana, either as a plant or cutting, in exchange for other species and varieties of Stapelia, or cash. Address, John E. Daniel, 6, The Terrace, Epsom.

Deutsche Gärtnerverein, Jena: *Cor.* We believe the meetings of this Society are held every fortnight, at the "Fountain," Sloane Square, London, S.W. Herr Ludwig Daucher is the Secretary.

Errata.—At p. 211, for "amber-coloured" read "umber-coloured rocks," and for "sheltered from the dirt," read "sheltered from all the airts"—the winds. —At p. 216, for "200 other species and varieties of Fuchsia," read "twenty."

Grape: *F. Simmons.* We take it to be the Dutch Hamburgh, but cannot say for certain without seeing a bunch and a leaf or two.

Names of Plants: *P. P.* Gypsophila paniculata.—*G. B.* 1, Sedum rupestre; 2, S. Lydium; 3, S. spurium; 4, S. acre; 5, a Saxifrage which we do not recognise; 6, Sedum nicaeense.—*C. F.* Galtonia (Hyacinthus) candicans.—*J. Day.* 1, Liatris spicata; 2, Chrysanthemum segetum; 3, a pretty Veronica, but we do not know which; 4, Antennaria tomentosa; the other may be Verbascum nigrum.—*Cedar.* Æschynanthus grandiflorus.—*C. B., Kendal.* Staphylea pinnata.—*Z.* Gilia capitata. You must send a better specimen of the Begonia.—*J. Smith.* 7, Agrostis alba var. stolonifera?; 8, Echium vulgare; 9, Centaurea nigra; 10, Origanum vulgare; 11, Statice limonum? no leaves.—*C. W. D.* Both forms of Sidalcea oregana. —*J. L.* Specimens altogether insufficient for naming. —*H. J. R.* 1, Lycopodium Selago; 2, L. clavatum; 3, L. alpinum.—*B. & S.* Œnothera riparia; Cedronella cana.—*W. G. T.* Pavia macrostachys.—*W. D., Reigate.* If growing wild, Senecio Jacobæa.—*T. W. R.*—Quercus glabra, a hardy and very handsome Japanese species.

Peach Trees: *Thorne.* The leaves you have sent us of your Peaches are covered with red-spider and a few mealy-bugs. The former may, and should have been, prevented by carefully syringing and moisture, and the latter by washing, &c. The best and simplest insect-destroyer we have ever used is Fir-tree oil. We are of opinion that your trees have been somewhat injured, as in many other instances, by the cold wet seasons lately experienced, and so weakened their constitutions as to make them very liable to insect plagues.

Rose Insect: *J. D. S.* The Bedeguar, or Robin's Cushion, a gall produced by a small Hymenopterous insect, Cynips rosæ.

Sweet Williams: *Austin & McAslan.* Very fine indeed; large, and richly marked, white with broad crimson belting of different shades, and with an even white edge.

The Late Liverpool Show.—We are informed that the 2d prize for herbaceous cut flowers was taken by Messrs. James Dickson & Sons, and not by Messrs. F. & A. Dickson & Sons, as stated by the writer of the report.

White Cucumber: *F. B.* A very old variety, and quite as wholesome as the green ones.

CATALOGUES RECEIVED.

Dickson, Brown, & Tait, 43, Corporation Street, Manchester—Autumn Catalogue of Flowering Bulbs.

Dicksons & Co., 1, Waterloo Place, Edinburgh — Select Flower Roots, Bedding Violas, &c.

Haage & Schmidt, Erfurt—Flower Bulbs and Roots, &c.

G. E. Elliott, 97, Bradford Road, Huddersfield—Dutch Bulbs, and other Flower Roots, Roses, &c.

Dickson & Robinson, 12, Old Millgate, Manchester —Hyacinths and other Bulbous Roots.

Benjamin S. Williams, Victoria and Paradise Nurseries, Upper Holloway, N. — Bulbs, Fruit Trees, Roses, New Plants, &c.

Communications Received:—J. D.—M. Y.—T. W.—W. H. —J. G.—F. W. B.—C. W. D.—E. J.—T. B.—O. B.—J. L. D. T. F.—W. N. C.—Constant Reader.—J. S.—G. S.

DIED, on August 13, at Hope Cottage, Winkfield, Lucy, relict of the late John Standish, of the Royal Nursery, Ascot, aged seventy-nine.

Markets.

COVENT GARDEN, August 18.

A good supply of English Apples now arriving in our market, but clearing at low prices. Trade quiet. *James Webber, Wholesale Apple Market.*

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 2- 0 4	Mignonette, 12 bun.	1 6- 3 0
Asters, 12 bunches ..	3 0- 6 0	Pelargoniums, 12 sprays ..	0 9- 1 0
Bouvardias, per bun.	0 9- 1 6	— zonal, 12 sprays	3 0- 6 0
Calceolaria, 12 bun..	6 0-12 0	Pinks, various, 12 bunches	3 0- 6 0
Carnations, 12 bun.	3 0- 6 0	Primula, double, per bunch	0 6- 1 0
Cornflower, 12 bun..	1 6- 3 0	Rhodanthe, 12 bun.	8 0-12 0
Eucharis, per doz. ..	4 0- 6 0	Roses (indoor), doz.	1 0- 3 0
Feverfew, 12 bun. ..	3 0- 6 0	— (outdoor), 12 bun.	4 0- 9 0
Forget-me-not, 12 bunches	3 0- 6 0	Stephanotis, 12 spr...	4 0- 6 0
Gardenias, 12 blms..	3 0- 8 0	Sweet Pea, 12 bun..	3 0- 6 0
Heliotropes, 12 sp. ..	0 6- 1 0	Sweet Sultan, 12 bun.	4 0- 8 0
Lapageria, white, 12 blooms	4 0- 6 0	Tropæolum, 12 bun.	1 0- 3 0
— red, 12 blooms..	1 0- 3 0	Tuberoses, per dozen	0 9- 2 0
Marguerites, 12 bun.	4 0- 6 0		

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0-42 0	Foliage Plants, various, each	2 0-10 6
Asters, per dozen ..	4 0- 6 0	Fuchsias, per dozen	3 0- 9 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ivy Geranium, doz.	4 0- 6 0
— (common), dozen	6 0-12 0	Lilium lancifolium, per doz.	12 0-36 0
Begonias, per doz. ..	4 0-12 0	— auratum, p. doz.	24 0-60 0
Calceolaria, per doz.	4 0- 9 0	Lobelia, per dozen..	4 0- 6 0
Chrysanthemums, per dozen	9 0-12 0	Marguerite, white, per dozen.. ..	18 0-24 0
Cyperus, per dozen	6 0-12 0	— Yellow, per doz.	12 0-30 0
Dracæna terminalis	30 0-60 0	Mignonette, per doz.	3 0- 6 0
— viridis, per doz...	12 0-24 0	Myrtles, per doz ..	6 0-12 0
Euonymus, various, per dozen	6 0-18 0	Palms in variety, each	2 6-21 0
Evergreens, in var., per dozen	6 0-24 0	Pelargoniums, doz.	9 0-18 0
Ferns, in var., p. doz.	4 0-18 0	— scarlet, per doz.	3 0- 6 0
Ficus elastica, each	1 6- 7 6	Rhodanthe, per doz.	6 0-10 0
		Solanums, per dozen	9 0-12 0

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve..	1 6- 3 6	Kent Filberts, per lb.	0 9- ..
Apricots, per doz. ..	1 6- ..	Lemons, per 100	4 0- 6 0
Currants, red, ½-sieve	3 0- 4 0	Melons, each ..	2 0- 3 0
— black, ½-sieve..	6 0- ..	Peaches, per dozen..	3 0-10 0
Figs, per dozen ..	3 0- ..	Pine-apples, Eng., lb.	2 0- 3 0
Gooseberries, ½-bush.	2 6- 3 6	Plums, per ½-steve..	4 0- 7 0
Grapes, per lb. ..	1 0- 2 6	Raspberries, per lb.	0 4- 0 6

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0- 6 0	Herbs, per bunch ..	0 2- 0 4
Asparagus, English, per bundle.. ..	0 9- ..	Horse Radish, p. bun.	4 0- ..
Aubergines, each ..	0 4- ..	Lettuces, Cabbage, per doz.	0 6- 1 6
Beans, French, p. lb.	0 4- ..	— Engl. Cos, score	1 6- ..
— Broad, per bush.	4 0- ..	Mint, green, bunch..	0 4- 0 6
Beet, per doz. ..	1 6- 2 6	Mushrooms, p. baskt.	1 6- 2 0
Cabbages, per doz. ..	1 0- 2 0	Onions, per bushel..	5 0- ..
Carrots, per bunch..	0 4- 0 6	— Spring, per bun.	0 6- ..
— New Fr., bund.	0 9- 1 0	Parsley, per bunch..	0 4- ..
Cauliflowers, English, dozen ..	4 0- 6 0	Peas, per bushel ..	5 0- 8 0
Celery, per bundle ..	1 6- 2 0	Radishes, per bun..	0 2- 0 6
Cucumbers, each ..	0 6- 1 0	Rhubarb, per bund.	0 4- 0 6
Endive, per doz. ..	2 0- 3 0	Small salading, pun.	0 4- ..
Garlic, per lb. ..	1 0- ..	Spinach, per bushel	4 0- ..
		Tomatos, per lb. ..	0 9- 1 0
		Vegt. Marrows, doz.	3 0- ..

Potato trade very heavy, and prices much lower, as follows:—Kent Regents, 100*s.* to 110*s.*; Roses, 80*s.* to 90*s.*; Myatt's, 100*s.* to 120*s.*; Magnum Bonums, 90*s.* to 110*s.*

SEEDS.

London: *Aug.* 17.—There is now a steady demand for those descriptions of seeds which are wanted for present sowing. As regards Trifolium incarnatum the sale improves, and full prices are obtained. Sowing Mustard and Rape seed sell freely at former currencies. For winter Tares and Rye there is more inquiry. The quotations in France to which Rye-grass has been advanced are considered prohibitory. Red Clover seed is very firm; choice parcels have become scarce. In Canary seed a rise has been established of several shillings per quarter. Of fine blue Peas the supply does not promise to be plentiful. *John Shaw & Sons, Seed Merchants,* 37, *Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the tone of the market was rather quieter than on Saturday, but the advance of 2*s.* to 3*s.* per quarter established then was upheld. Flour was very firm, at a general improvement of 2*s.* to 3*s* per sack on the week, and the top price of town flour was raised 3*s.* per sack. Barley, Beans, and Peas sold fully 1*s.*, and Maize 2*s.*, over Monday se'nnight. Flat corn obtained a similar rise on forward positions. Oats commanded a good sale at an advance of 1*s.* per quarter.—On Wednesday the transactions in Wheat showed that the market still hardens, and a fair business was concluded at 1*s.* over the rates of Monday. Flour also tended against buyers. Barley, Beans, and Peas could hardly be so well bought as on last market day. Oats realised a fresh advance of 3*d.* to 6*d.*, and Maize 6*d.* Average prices of corn for the week ending August 13:—Wheat, 46*s.* 9*d.*; Barley, 28*s.* 5*d.*; Oats, 24*s.* 3*d.* For the corresponding period last year:—Wheat, 44*s.* 4*d.*; Barley, 29*s.* 7*d.*; Oats, 24*s.* 6*d.*

POTATOS.

The Borough and Spitalfields Markets reports state that supplies were very moderate and the demand slack, at the following quotations:—Essex Shaws, 4*s.* to 5*s.*; kidneys, 5*s.* to 6*s.* 6*d.*; Jersey ditto, 6*s.* to 6*s.* 6*d.*; Cherbourg, 5*s.* 6*d.* to 6*s.*; round, 4*s.* 6*d.* to 5*s.* per cwt.—Last week's arrivals in London consisted only of 910 cases from Barfleur and 300 cases from Cherbourg.

COALS.

The following are the quotations current at market during the week:—Bebside West Hartley, 14*s.* 6*d.*; Ravensworth West Hartley, 14*s.* 6*d.*; East Wylam, 15*s.* 6*d.*; Walls End—Hetton, 17*s.*; Hetton Lyons, 15*s.*; Hawthorns, 15*s.* 3*d.*; Lambton, 16*s.* 6*d.* and 17*s.*; Original Hartlepool, 17*s.*; Wear, 15*s.*; South Hetton, 17*s.*; Tunstall, 15*s.*; Chilton Tees, 16*s.*; Caradoc, 17*s.*; South Hartlepool, 15*s.* 6*d.*; Tees, 16*s.* 9*d.*; Westminster-Brymbo and Wrexham Navigation, 13*s.* 9*d.*

Government Stock.—On Monday Consols closed at $100\frac{1}{2}$ to $100\frac{5}{8}$ for delivery, and $100\frac{9}{16}$ to $100\frac{11}{16}$ for the account; Tuesday's final record was the same. The closing prices of Wednesday were $100\frac{5}{8}$ to $100\frac{1}{2}$ for both delivery and the account, and on Thursday the closing quotations were $100\frac{1}{8}$ to $100\frac{1}{4}$ for delivery, and $100\frac{5}{16}$ to $100\frac{7}{16}$ for the account.

THOS. W. ROBINSON,

DENNIS PARK IRONWORKS, STOURBRIDGE,

MANUFACTURER OF

HOT-WATER PIPES,

IMPROVED "EXPANSION JOINT" PIPES,

BOILERS,

SPOUTING, PUMPS, TANKS, WROUGHT-IRON TUBING,

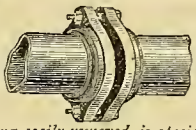
And every description of Ironwork for Horticultural and Building Purposes.

SOCKET HOT-WATER PIPES.

	s. d.	s. d.	s. d.
Pipes (6 ft. long)—	2-in., 1 6 ..	3-in., 2 8 ..	4-in., 3 4 each.
,, (9 ft. long)—	,, — ..	,, 3 9 ..	,, 4 6 ,,
Elbows (No. 12)—	,, 1 1 ..	,, 1 8 ..	,, 2 0 ,,
Tees (No. 33)—	,, 1 5 ..	,, 2 4 ..	,, 3 3 ,,
Syphons (No. 23)—	,, 1 3 ..	,, 2 0 ..	,, 3 0 ,,

"Expansion Joint" Hot-water Pipes.

The "Expansion Joint."



The Best and Quickest Made.

This Joint, being easily removed, is specially adapted for Tenants.

	s. d.	s. d.	s. d.
Pipes (6 ft. long)—	2-in., 1 5 ..	3-in., 2 3 ..	4-in., 2 11 each.
,, (9 ft. long)—	,, — ..	,, 3 4 ..	,, 4 3 ,,
Elbows (No. 3)—	,, 0 8 ..	,, 0 10 ..	,, 1 0 ,,
Tees (No. 13)—	,, 0 11 ..	,, 1 2 ..	,, 1 4 ,,
Syphons (No. 16)—	,, 1 0 ..	,, 1 4 ..	,, 1 6 ,,

Joint complete, with Rubbers and Pins, 2-in., 10*d.* each; 3-in., 1*s.* 2*d.*; 4-in., 1*s.* 4*d.*

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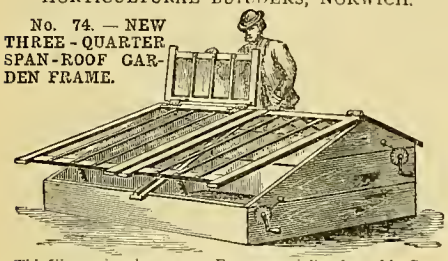
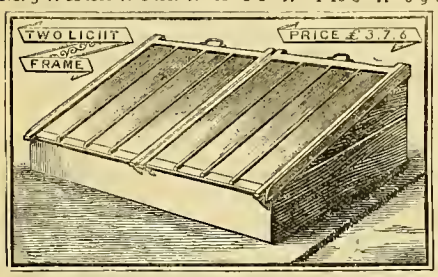


This Illustration shows a new Frame, specially adapted for Growing Cucumbers, Melons, &c., and for Storing Plants, giving greater height, more convenience, and better access to all the plants inside than our ordinary Melon and Cucumber Frame, No. 75.

PRICES—CARRIAGE PAID.

Size.	Long.	From front to back.	Gearing extra to 8 ft. size and upwards.	Packing Cases.
No. 1 ..	4 feet ..	6 feet ..	£3 0 0 .. —	.. £0 4 0
No. 2 ..	8 feet ..	6 feet ..	4 15 0 .. £0 15 0	.. 0 5 0
No. 3 ..	12 feet ..	6 feet ..	6 10 0 .. 1 2 0	.. 0 6 6
No. 4 ..	16 feet ..	6 feet ..	8 5 0 .. 1 10 0	.. 0 8 6
No. 5 ..	20 feet ..	6 feet ..	10 0 0 .. 1 16 0	.. 0 9 6



Our stock is made of the best seasoned wood, ready glazed with 21-oz. English glass, painted three coats of best colour, and easily put together in a few minutes.

PRICES—CARRIAGE PAID.

			Packing Cases.
2-light Frame ..	8 feet by 6 feet..	£3 7 6 ..	4*s.* 0*d.*
3-light ,, ..	12 feet by 6 feet..	4 17 6 ..	4*s.* 6*d.*
4-light ,, ..	16 feet by 6 feet..	6 7 6 ..	5*s.* 0*d.*
5-light ,, ..	20 feet by 6 feet..	7 17 6 ..	6*s.* 0*d*
6-light ,, ..	24 feet by 6 feet..	9 7 6 ..	6*s.* 6*d*

Lights only, 6 feet by 4 feet, unglazed and unpainted, 6*s.* each. Glazed with 21-oz. sheet glass and painted three coats, 16*s.* each.

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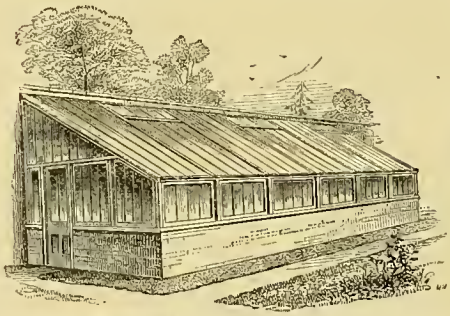

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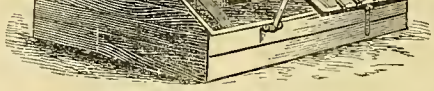

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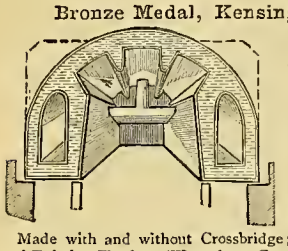

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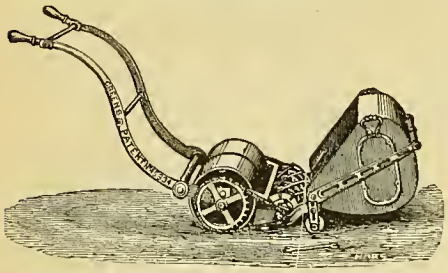

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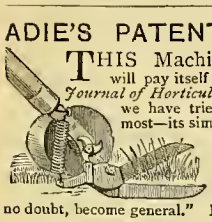

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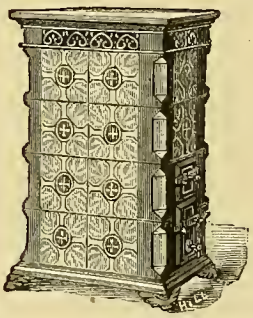

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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

No. 400.—Vol. XVI. { New Series. } SATURDAY, AUGUST 27, 1881. { Registered at the General Post-office as a Newspaper. WITH SUPPLEMENT. } Price 5d. POST FREE, 5½d.

With this Number is presented a Double-page Coloured Plate of a "GROUP of ORCHIDS."

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ISLE of THANET FLORAL and HORTICULTURAL ASSOCIATION and COTTAGERS' GARDENING SOCIETY.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 31, and SATURDAY, September 3, at half-past 12 o'Clock precisely, several large consignments of first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, and other BULBS, just arrived from well known Farms in Holland, in lots to suit all buyers. Also a consignment of BULBS from Germany.

On view mornings of Sale, and Catalogues had.

Thursday Next.

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MR. T. ABBOTTS has been favoured with instructions by Mr. Foster, the Proprietor, to SELL by AUCTION, on TUESDAY, August 30, at 3 o'Clock in the afternoon, at the "King's Arms Hotel," Peckham Rye, S.E., the unexpired TERM of a LEASE, over eighteen years to run, of the above NURSERY, with every accommodation for carrying on an extensive Business, having an area of over an acre of Ground with five large Vineries and Greenhouses all in good condition, and heated with flues and hot-water pipes, together with two Homesteads, Stabling for three Horses, Cow-shed, Rabbit and Chicken Pens, with partitions, secured by wire fronts and other conveniences. There are several large Fruit Trees, and the soil is in a rich and productive condition. The whole now in occupation of Mr. Foster (except one Cottage let off at 5s. per week) at the low rental of £60 per annuum. The Vendor reserves the right of selling his Stock-in-Trade on the premises at any time between the date of the present Sale and completion of the purchase.

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OLD BUILDING MATERIAL, CHOICE SHRUBS, TURF, TIMBER, &c.

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The best sorts for Forcing.

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Also strong plants of the above, from open ground, 2s. 6d. per 100, 20s. per 1000. Package free. Extra plants for carriage. Cash from unknown correspondents.

H. J. HARDY, F.R.H.S., Stour Valley Seed Grounds, Bures, Suffolk.

GERANIUMS.—The best of the New, all that took Prizes or Certificates.—Denny's Romeo, Dudu, &c., eight varieties, post-free, for 6s.; Catlin's (Carter & Co.), five varieties, for 4s.; Cannell's, ten varieties, for 7s. 6d.; Pearson's, ten varieties, for 7s. 6d.; Cuttings half-price. All the best Doubles in Cultivation. Also PELARGONIUMS Regal and others. See CATALOGUE.

RICHARD PANNETT, Nurseryman, Chailey, Sussex.

To the Trade.

FERNS—FERNS—FERNS.

	Per dozen. s. d.	Per 100. s. d.
PTERIS CRETICA	2 6	18 0
NEPHRODIUM MOLLE	3 0	20 0
PTERIS HASTATA	3 0	20 0
„ TREMULA	3 0	20 0
„ CRETICA ALBA LINEATA	3 0	20 0
LOMARIA GIBBA	3 0	20 0
PTERIS SERRULATA CRISTATA	3 6	25 0
„ LONGIFOLIA	3 6	25 0
NEPHRODIUM MOLLE CORYMBIFERUM	3 6	25 0
LYGODIUM SCANDENS	3 6	25 0
DOODIA MEDIA	3 6	25 0
GYMNOGRAMMA ARGYROPHYLLA PERUVIANA	3 6	25 0
GYMNOGRAMMA MARTENSI	4 0	28 0
ADIANTUM SETULOSUM	4 0	28 0
PTERIS ARGYREA	4 6	30 0

Many thousands of the above splendid stuff in 60's, fit to pot on. Special terms by the thousand. Orders over 20s. carriage paid to London.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

HEDERA HELIX MADEIRENSIS VARIEGATA.

This very handsomely variegated IVY obtained First-class Certificates at the Exhibition of the Royal Horticultural Society on July 13, 1880, and of the Royal Botanic Society, on May 25 last. It was figured in the *Gardeners' Chronicle*, and described as follows:—

"It is a very handsome, large-leaved, silvery variegated plant, perfectly hardy in constitution, and very free growing; and has, moreover, the quality often wanted in variegated Ivies, of retaining its variegation throughout the season."

Now being distributed. Price 7s. 6d. per plant.

Trade Price on application.

OSBORN & SONS,

THE FULHAM NURSERIES,

LONDON, S.W.

WILLIAM GORDON having this year received large importations of the following fine ORCHIDS, offers semi-established but unflowered Plants at following low prices:—

	Each.—s. d.		Each.—s. d.
Aerides japonicum	2 6	Dendrobium Freemanii	5 0
„ Lobbii	3 0	Calanthe vestita	2 6
„ quinquevulnerum	2 6	Cattleya Acklandiæ	5 0
Cœlogyne cristata	5 0	„ Loddigesii	5 0
Cymbidium eburneum	2 6	„ Mendelii	7 6
Cypripedium barbatum	2 0	„ Mossiæ	2 6
„ Hookeræ	2 0	„ Trianæ	7 6
„ insigne	2 0	Epidendrum vitellinum	2 6
„ niveum, specially fine pieces of this grand old favourite	2 6	Lælia autumnalis	2 6
Dendrobium aggregatum	2 6	„ majalis	2 6
„ cambridgeanum	2 6	Odontoglossum Alexandræ	5 0
„ cretaceum	2 6	„ citrosmum roseum	5 0
„ crystallinum	2 6	Oncidium crispum	2 6
„ fimbriatum	2 6	Saccolabium Blumei	2 6
„ formosum giganteum	2 6	„ retusum	2 6
		Sophronites grandiflora	2 6

And nearly every other Orchid at equally low prices, on application to

WM. GORDON, City Offices, 10, Cullum Street, London, E.C.

LILIES of the VALLEY.—Why import the above when they can be had at home quite as good and cheap as the imported roots? Being a large grower of the famous large flowering Berlin variety, I can offer them at 37s. per 1000

Testimonial from Mr. CH. PENNY, *Head Gardener to* H.R.H. the Prince of Wales:—

"ENGLISH-GROWN LILY OF THE VALLEY.—Perhaps to many the above heading may appear ridiculous, but such is not the case. Having tested these the last two years by the side of the best imported roots, I can recommend all growers to try some of the very fine stock of home-grown Lilies for early forcing. Mr. Jannoch, of the Lily Nursery, Dersiogham, Norfolk, who makes the above a speciality, and well does he deserve patronage.—CHARLES PENNY."

Early orders are respectfully solicited.

T. JANNOCH, Lily Nursery, Dersingham, Norfolk.

SPECIAL OFFER of COLLECTIONS of CLEMATISES, in 4-inch pots, and TEA and NOISETTE ROSES in 5-inch pots, fine plants; package free. All orders to be accompanied by Post-office Order or Cheque.

12 CLEMATISES, best old kinds		14s. 0
24 „ „ „		26 0
12 „ „ new „		25 0
12 TEA and NOISETTE ROSES, best kinds		15 0
24 „ „ „		28 0
50 „ „ „		52 6
100 „ „ „		100 0

Including many newest and rarest kinds.

Sorts must be entirely left to, and Post-office Orders and Cheques made payable to

EWING AND CO., Norwich.

Autumn Planting.

FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.

THE LAWSON SEED and NURSERY CO. (Limited), 1, George IV. Bridge, Edinburgh, 106, Southwark Street, London.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d. stamp.

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Farm Seeds for Autumn Sowing.

NEW TRIFOLIUM INCARNATUM, RAPE, Italian RYE-GRASS, Winter TARES, RYE mixed Pasture GRASSES, &c. Fine samples and quotations on application.

THE LAWSON SEED and NURSERY COMPANY (Limited), 106, Southwark Street, London, and Edinburgh.

PANSIES.—We offer for the approaching season Seed of the following superior, large-flowered varieties of Pansies, dark blue, brownish red, and light blue:—

KAISER WILHELM, quadricolor.—Clear golden-yellow, violet bordered with white. 2s. 4d., per oz., 1d. per packet.

BARON DE ROTHSCHILD.—Burnished gold colour. 3s. per ounce, 1d. per packet.

AURIKEL.—Bronze colour, splendid flowers; Rœmer's Improved, nigra; Dr. Faust, rubra. 4s. 6d. per ounce, 1½d. per packet.

SNOW-WHITE, STRIATA PERFECTA (Rœmer's Improved).—White, with a violet eye. 7s. 6d. per ounce, 2½d. per packet.

ODIER.—Largest blooms. 10s. 6d. per ounce, 4d. per packet.

CORONATA.—A novelty (Rœmer). 5s. per packet.

The above splendid sorts, first quality, assorted, 29s. per pound; 2s. 4d. per ounce; second quality, mixed, 16s. per pound, 1s. 4d. per ounce. Also the best, selected, blooming varieties of the old colours. 12s. 7½d. per packet.

My collection of Pansies gained the First Prize at the exhibition at Magdeburg.

FRIEDR. RŒMER, Seed Grower, Quedlinburg, Germany.

MUSHROOM SPAWN.—Now ready for delivery, in excellent condition, and of our usual good quality, a fine stock of new Spawn, price 5s. per bushel (exclusive of package). The Trade supplied. Price on application.

OSBORN AND SONS, The Fulham Nurseries, London, S.W.

LILY OF THE VALLEY (Convalaria majalis), hardy roots, of best quality, 36s. per 1000; 10,000 at 35s. 6d. per 1000; delivered free on board, Hamburg or Bremen (packing included).

OSKAR KNOPFF AND CO., Erfurt, Prussia.

Forest Tree Seedlings.

MESSRS. PETER S. ROBERTSON AND CO., NURSERYMEN, Edinburgh, are now preparing their English journey, and they will have much pleasure (on receiving notice) in showing their samples to any Nurseryman in any part of England, who may be requiring the above.

SHISMATOGLOTTIS ROBELENI.—The beautiful Dieffenbachia-like plant has been imported by us from Manilla, and named after the collector. It is a plant of easy growth, compact and busby in habit; leaves 8 to 10 inches long, silvery-grey, variegated. 5s. each, £2 8s. per dozen.

SANDER AND CO., St. Albans.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR ANNUAL SUPPLY OF

HYACINTHS, NARCISSUS, TULIPS, AND OTHER BULBOUS ROOTS;

And are pleased to say that they are in very fine condition.

CATALOGUES, Illustrated with upwards of 60 Woodcuts, are now ready, and will be forwarded Post-free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

DUTCH AND OTHER BULBS.

OSBORN & SONS

Beg to announce that they have received their First Consignment of the above from the Principal Bulb-growing Establishments in HOLLAND and FRANCE, and will be pleased to forward their Catalogue of the same post-free upon application. It contains a Descriptive List of

HYACINTHS, TULIPS, NARCISSUS, and MISCELLANEOUS BULBS;

ALSO OF

VEGETABLE and FLOWER SEEDS for Autumn Sowing, &c.

As an evidence of quality they may mention that they were awarded the HIGHEST HONOURS for HYACINTHS, TULIPS, and NARCISSUS at the Royal Botanic Society's Exhibition in Regent's Park last March.

OSBORN & SONS,
THE FULHAM NURSERIES, LONDON, S.W.

DUTCH and FRENCH BULBS.

PAUL & SON,

"THE OLD NURSERIES," CHESHUNT, N.,

Have now received their supplies of

CHOICE HYACINTHS and OTHER DUTCH BULBS.

ALSO

ROMAN HYACINTHS, DOUBLE NARCISSUS, and other FRENCH BULBS.

Descriptive List, comprising also Lists of

AZALEA INDICA, CAMELLIAS, EARLY SPRING-FLOWERING PLANTS,

AND

DESCRIPTIVE LIST of STRAWBERRIES, with TIME of RIPENING,

POST-FREE ON APPLICATION.

Orchids a Speciality.

HUGH LOW AND CO. have recently received, in excellent condition, many thousands of PHALÆNOPSIS, and ODONTOGLOSSUM ALEXANDRÆ (CRISPUM). Amongst the plants are many of unusual size, and very varied in appearance, giving promise of good varieties. The stock of these lovely Orchids is by far the largest hitherto seen in Europe, and the same remark applies to the general collection of Orchids, which is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO. very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

Just to hand, large quantities of CATTLEYA MENDELII, CATTLEYA LEOPOLDI, CATTLEYA TRIANÆ, LÆLIA PURPURATA, all of which are on sale at moderate prices.

Clapton Nursery, London, E.

Tripoli Onion, Lettuce, and Cabbage Seeds for PRESENT SOWING.

BIDDLES AND CO., having a fine stock of the above, offer them at the following low prices:—

ONION, Large Late Flat Red, 6*d.* per ounce.
" " " " extra, 1*s.* per ounce.
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" Giant Rocca, 6*d.* per ounce.
" White Lisbon, 2*s.* 6*d.* per pound.

CABBAGE and LETTUCE, all the leading varieties, at equally low prices.

CATALOGUES, with 500 Illustrations, free.

THE PENNY PACKET SEED CO., Loughborough.

MR. LOUIS DE SMET, NURSERYMAN, Ghent, Belgium, has great pleasure in informing his numerous Customers in England that he has, as usual, a splendid stock of budded CAMELLIAS, AZALEA INDICA, GHENT AZALEA, AZALEA MOLLIS, GLOXINIAS, BEGONIAS (the most marvellous strain in Europe), FERNS by the million, PALMS, &c.

BEGONIAS, tuberous-rooted, double-flowering, mixed seedling varieties, nice plants in full bloom, price 15*s.* per doz.

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To the Trade.

FRESH SEEDS of the following CHOICE PALMS, just arrived in splendid condition (Prices on application):—Kentia Belmoreana, Kentia Canterburyana, Kentia Fosteriana, Areca Baueri (Seaforthia robusta).

ERNEST BENARY, Seed Grower, Erfurt, Germany.

EARLY WHITE FLOWERS, for Winter Blooming.

AZALEA DAVIESII, white, sweet-scented, very fine bushes, with from ten to fifty buds on each, 2*s.* 6*d.* to 3*s.* 6*d.* each.

RHODODENDRON CAUCASICUM ALBUM, nice bushes, six to twelve buds on each, 1*s.* 6*d.* to 2*s.* 6*d.* each.

ISAAC DAVIES, Nurseryman, Ormskirk, Lancashire.

Dutch Bulbs direct from the Growers.

ANT. ROOZEN AND SON. HYACINTHS, TULIPS, CROCUS, GLADIOLI, &c., at Growers' Prices, delivered entirely free to the Railway Stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent, carriage paid, to destination. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents. Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.

Collections B, C, E, and F, can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10*s.* 6*d.* each, against cash payment.

ANT. ROOZEN AND SON, Nurserymen, Overveen, near Haarlem, Holland.

MR. A. VAN GEERT begs to inform his numerous Friends and Correspondents that he has, as usual, a fine Stock of Budded CAMELLIAS and Indian AZALEAS—Azalea mollis and Ghent varieties, KALMIAS, FICUS ELASTICA, CHOISYA TERNATA, Otahiti ORANGES, CENTROPOGON LUCYANUS, DRACÆNA INDIVISA and TERMINALIS, Tuberous BEGONIAS, GLOXINIAS, PALMS and FERNS for Table and General Decoration, DIELYTRA SPECTABILIS, LILY of the VALLEY in Clumps and Pips, &c.

FERNS in small pots—PTERIS, LOMARIA, BLECHNUM, &c., at £15 per 1000, or 35*s.* per 100.

CATALOGUES free.

The Continental Nurseries, Ghent, Belgium.

DOUBLE CINERARIAS.

Admirers of the above should order at once

R. H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and Description on application. Price, the Set, £3 3*s.*; Single Plant, 7*s.* 6*d.*; Seedlings, 6*s.* per dozen. Seed, per packet, 3*s.* 6*d.* and 5*s.* Usual Discount to the Trade.

CHAD VALLEY NURSERIES,
Edgbaston, Birmingham.

MIGNONETTE.—Miles' New Hybrid Spiral, in sealed packets bearing my name and address. Orders now being booked will be executed in strict rotation. Price 1*s.* per packet. Special quotations to the Trade by the dozen, 100, or 1000. Address

W. MILES, West Brighton Nurseries (close to West Brighton Station), Cliftonville, Brighton.

Wholesale Bulb Catalogue.

WATKINS AND SIMPSON,
Wholesale Seedsmen and Bulb Merchants,
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Their Wholesale BULB CATALOGUE is now ready and may be had on application. Special quotations for large quantities of Lily of the Valley crowns and clumps, American Tuberoses, Double and Single Snowdrops, Winter Aconites, many sorts of Narciss, Tulips, Lilies, and Gladioli, &c.

Garden and Flower Seeds, of best quality, for present sowing.

B. MALLER has much pleasure in again offering his usual superior stock of the following:—

ERICA HYEMALIS and other varieties, EPACRIS, GENISTAS, AZALEAS, CYCLAMEN, BOUVARDIAS, SOLANUMS, ADIANTUM CUNEATUM and other Ferns, GREVILLEAS; also a fine lot of VINES in Pots. An inspection invited.

Trade CATALOGUE forwarded on application.

The Annual SALE by AUCTION will be held in September.

Burnt Ash Lane Nurseries, Lee, S.E.

ORANGE TREES for SALE. — Three ORANGE TREES and a LEMON TREE for Sale, in Tubs, s ... from 6 to between 7 and 8 feet high from the top of the tubs; would be an ornament to any large conservatory. App'y to

M. H., Mr. Acworth's, Broadway, Ealing, W.

JOSEPH BAUMANN, NURSERYMAN, Nouvelle Promenade, Ghent, Belgium, begs to offer, in fine plants:—

		Each.	
AZALEA INDICA, of sorts, with buds,	1	to 3 francs.	
" MOLLIS, " " "	1.50	" 2	"
" PONTICA " " "	1	" 3	"
" MOLLIS, SEEDLINGS "	1	"	"
CAMELLIAS, of sorts, good quantity, Double Whites	1.25	" 2	"
RHODODENDRONS, of sorts, with buds,	2	" 5	"
FICUS ELASTICUS, fine plants	1.25	"	"

SWEET BAYS and ARAUCARIAS, of all sizes. See CATALOGUE, post-paid, on application.

THE A B C BULB GUIDE,

PUBLISHED BY

THOMAS S. WARE,

CONTAINS

Every Bulbous Plant worth growing, with numerous hints as to cultivation, and a short description to each. The prices of many new plants have been reduced as low as possible, especially the lovely Chionodoxa, Giant Snowdrops, and many others. The

COLLECTIONS of LILIES and NARCISSUS

are unique, containing every variety worth growing, and prices generally will be found as low as any Foreign or English House.

DUTCH BULBS

of every description are also treated in a very liberal manner, and great care has been exercised with regard to

FORCING PLANTS,

which are a speciality. Lily of the Valley (both clumps and crowns) are extraordinary fine, being specially grown abroad for me; also Dielytra, Spiræas, Tuberoses, &c. It also contains a

SELECTION of HARDY PERENNIALS,

embracing principally those plants which should be planted in autumn; also an extensive collection of

PRIMULA SIEBOLDI and HELLEBORES,

and numerous other families of good showy, hardy plants.

HARDY CLIMBERS, ROSES in pots, HERBS, &c., will be found at end of Catalogue. Post-free upon application.

HALE FARM NURSERIES,
TOTTENHAM, LONDON.

SPLENDID DOUBLE TUBEROSES

(*Crop* 1881).

These are of African growth. The few tried last year proved to be unusually vigorous, throwing up in some cases several flowering stems from one bulb. They may be brought into flower in November and December. First consignment just arrived in fine condition.

Price per 100 or 1000 on applicatton to

HOOPER AND CO., Covent Garden, W.C.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

CRANSTON'S NURSERY and SEED CO. (Limited),
KING'S ACRE, near HEREFORD.

PRIMULA.
CINERARIA.
CALCEOLARIA.

Wm. Cutbush & Son's Strain of these cannot be surpassed. They are sold in Packets, 2*s.* 6*d.*, 3*s.* 6*d.* and 5*s.* each; but quality is the same.

HIGHGATE, LONDON, N., and BARNET, HERTS.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

NOTICE.—NOTICE.

MESSRS. EWING & CO.

Being about to discontinue their Nurseries at Eaton, near Norwich, beg to thank their numerous Customers in this Country and all over the World for the kind support they have extended to them, and also take the present opportunity of intimating that their very extensive stock of ROSES, HARDY ORNAMENTAL FOLIAGED TREES and SHRUBS, GRAPE VINES and ORCHARD-HOUSE TREES, CLEMATISES and other CLIMBERS, &c., is shortly to be offered at considerably reduced prices, for cash.

Special LISTS are in course of preparation.

POT ROSES.

PAUL & SON, "THE OLD NURSERIES," CHESHUNT, N.,

INVITE AN INSPECTION OF THEIR STOCK OF

Choice Tea and Hybrid Perpetual Roses in Pots,

Which are now in splendid condition to be selected from.

The Stock is believed to be unequalled in the Kingdom, including at least 1000 Conservatory Climbing Roses, such as Maréchal Niel, &c., large Plants, with flowering shoots 7 to 12 feet long.

Paul & Son's Selection, from 30s. to 84s. per dozen.
Half to Full Specimen Roses, from 15s. to Ten Guineas each.

THE GENERAL HORTICULTURAL COMPANY

(JOHN WILLS), Limited.

Central Offices: Warwick House, 142 & 144, Regent Street, W.

EARLY ROMAN HYACINTHS, NARCISSUS, &c.

The Company having made large purchases from the leading Bulb Gardens of Holland and France, are now prepared to supply HYACINTHS, TULIPS, NARCISSI, CROCUSES, and all other BULBS for Autumn Planting, and with a large discount to Shareholders; Non-shareholders will be treated with on the most liberal terms.

The Company also supplies all kinds of NEW and RARE PLANTS, Ferns, Fine-foliaged, New Holland Plants, Standard and Dwarf Roses, and all kinds of Fruit and Forest Trees, Evergreens, &c., GARDEN SEEDS for Autumn Sowing, FARM SEEDS, HARDY PLANTS for Winter and Spring Gardening, PLANTS for FORCING, &c., MUSHROOM SPAWN, and all kinds of GARDEN IMPLEMENTS and REQUISITES, at the lowest prices.

FRUIT, BOUQUETS, FESTIVE and MEMORIAL WREATHS, FLORAL CROSSES, DRIED FLOWERS, &c., sent to all parts of the country on receipt of letter or telegram.

The General Manager may be consulted as to the re-arrrangement of Gardens, Laying-out of Grounds, and General Landscape Work, also for the Erection of Conservatories, Greenhouses, Forcing Houses, &c., and will attend at any part of the country for these purposes.

Catalogues on application. Early Orders are respectfully solicited.

JOHN WILLS, General Manager.

DUTCH FLOWER ROOTS.

THOS. METHVEN & SONS

Beg to intimate that their importations of the above have arrived in fine condition.

Priced CATALOGUES forwarded, post-free, on application.

15, PRINCES STREET, and LEITH WALK, EDINBURGH.

NEW RASPBERRY—BAUMFORTH'S SEEDLING.

Since I had the pleasure last season of introducing this new Raspberry, I have taken ample means to further test its value, and I am happy to say the results have not only justified my previous desciption, but far exceeded my most sanguine expectations. Indeed, to give anything like a definite description of it now, I cannot do better than refer to the numerous testimonials I have already received respecting it, copy of which can be had on application.

The season has, undoubtedly, been very trying for Raspberries. Whilst the usually good and robust Northumberland Fillbasket has nearly succumbed to the excessive drought, the Baumforth's Seedling has shown a great vigour, and carried through the crop of fruit which has been the admiration of all who have seen it. In my plantations I have gathered nearly 3000 quarts off barely 3 roods of land, and yet, though possessing such a marvellously prolific constitution, the fruit has maintained one grand uniform size, of the most beautiful crimson colour and finest possible flavour. I have no hesitation in pronouncing it the greatest acquisition in Raspberries of the present day.

Price, 7s. 6d. per dozen, 50s. per 100 Canes.
" Extra strong, 10s. 6d. per dozen Canes.
Price to the Trade on application.

EDMUND PHILIP DIXON, HULL.

NEW CRIMSON-FLOWERED EUCALYPTUS.

THOMAS LANG & CO.,

NURSERYMEN and SEEDSMEN, MELBOURNE, AUSTRALIA,

Intimate to the Trade in Europe, United States, and elsewhere, that it is their intention to arrange an expedition into the interior of Western Australia, chiefly for the purpose of COLLECTING SEEDS of the charming EUCALYPTUS FICIFOLIA, which produces crimson-coloured flowers of great beauty, and which comes so rapidly to a fruit-bearing condition that in a few years it is covered with its beautiful blossoms. The leaves are provided with the essential oil which has proved so valuable as a febrifuge all over the world.

In a recent publication Baron von Mueller says :—"Although Eucalyptus ficifolia is not a tree of large dimensions, this splendid species should be mentioned for the sake of its magnificent trusses of crimson flowers."

No doubt in this expedition there will be many seeds collected of the magnificent Proteaceous Plants of that region, and of numerous Shrubs and Novelties.

Those who desire to obtain seeds of this Eucalyptus, and of the other species to be collected, will please intimate what amount they wish expended, and where delivery is to be made, and payment to be received in London, and ample value will be sent for the amount fixed upon.

THOMAS LANG & CO. refer, as to their respectability, to Mr. ERNST BENARY, Seedsman, Erfurt, Prussia; and to Messrs. HUGH LOW & CO., Clapton Nursery, London, E.

TO NOBLEMEN AND GENTLEMEN ABOUT TO PLANT.

GEORGE SMITH, DELL NURSERY, ROCK FERRY, CHESHIRE,

HAS THE FOLLOWING TO OFFER :—

AUCUBA JAPONICA, beautifully coloured, the best in the Trade, and
GENERAL COLLECTION of EVERGREEN and DECIDUOUS SHRUBS.
DWARF ROSES, very fine, in all the best varieties.
PYRAMID APPLE and PEAR TREES, recently transplanted, and in bearing condition.
Extra-sized HORIZONTAL TRAINED PEARS, will cover bare walls and come into bearing at once; and other FRUIT TREES, 2 and 3-yr. trained.

Priced and Descriptive LIST on application.

PLANTS AND TREES GIVEN TO COMPENSATE FOR CARRIAGE.

Through Trucks to any Station upon the London and North Western, Great Western, or Midland Systems.

REDUCTION OF PRICE, 1881.

RIDGWAY'S NEW PATENT HEDGE CUTTING MACHINE.

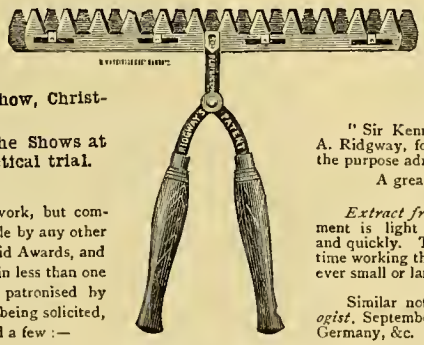
Patronised by Her Majesty's Commissioners of Forests, and now in use at Windsor Great Park.

Awarded Special Silver Medal, Royal Belgium Horticultural and Agricultural Society, July, 1879.

Special Silver Medal, Royal Manchester, Liverpool and North Lancashire Agricultural Society.

Honourable Mention, Horticultural and Agricultural Show, Christchurch, New Zealand.

And the Medals and Highest Commendations at all the Shows at which it has been exhibited and submitted to a practical trial.



This instrument will not only do several times the quantity of work, but completes it with greater neatness, finish, and perfection than is possible by any other known means. The truth of this is indisputably shown by the aforesaid Awards, and by the Testimonials and Newspaper Reports, and also the act that in less than one month after the invention was made known to the public it was patronised by upwards of 150 of the nobility alone, many of whom have, without being solicited, spoken of its merits quite as highly as before stated, of which I append a few :—

"*The Gardens, Stanley Hall, Bridgnorth, Sept.* 15, 1879.
"Dear Sir,—I beg to enclose £1 12s. 6d., your account against Sir Henry Tyrwhitt, Bart. Your Patent Hedge-cutter does its work admirably well; it is the greatest boon for gardeners ever invented.—I am, dear sir, yours truly,
"Mr. A. Ridgway. "THOS. FIELD."

"*Chigwell, Essex, July* 25, 1879.
"Sir Kenneth Kemp encloses Post-office Order, £1 12s. 6d., payable to Mr. A. Ridgway, for a medium-sized Hedge-cutting Machine, which he finds answers the purpose admirably, and is undoubtedly a great economiser of labour."

A great number of others may be seen by applying to the Patentee.

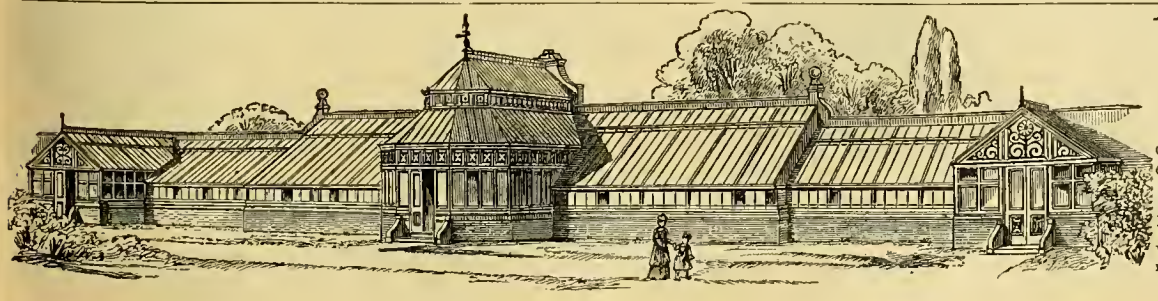
Extract from the "Journal of Horticulture," August 14, 1879.—"The implement is light to handle, acts with great freedom, and does its work thoroughly and quickly. The operator may keep on walking at a slow but constant pace, all the time working the Machine and cutting the hedge. No garden establishment, however small or large, should be without one or more of these useful implements."

Similar notices appear in the *Field*, August 23, 1879; the *Florist and Pomologist*, September, 1879, and many other journals both here and in France, Belgium, Germany, &c.

May be had from all respectable Seedsmen and Ironmongers, or direct from the Patentee. Carriage paid upon receipt of Post-office Order.

Price, £1 5s. to cut 2 feet wide; £1 1s. to cut 18 inches wide.

WORKS: London Road Mill, Macclesfield. LONDON WAREHOUSE: 86, Chiswell Street, Finsbury Square, E.C.



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CAMELLIAS, AZALEAS, &c,

Is now ready, and will be sent, post-free, on application.

The Bulbs this year are of very fine quality.

Collections of Bulbs from 10s. 6d. to 84s.

"Hyacinths formed the most important feature of the show, the principal exhibitor being Mr. Wm. Paul, of Waltham Cross, who was far in advance of any other in the size and beauty of the noble spikes which he placed in competition."—*Journal of Horticulture.*

"Hyacinths were again the main feature, Mr. William Paul taking 1st prize with a collection that were as near absolute perfection as, in the present state of our knowledge, we can imagine."—*Gardeners' Chronicle.*

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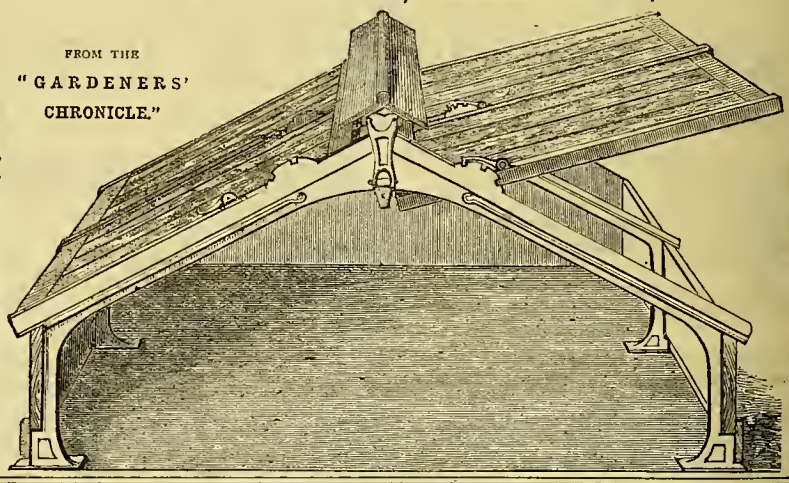
FROM THE "GARDENERS' CHRONICLE."



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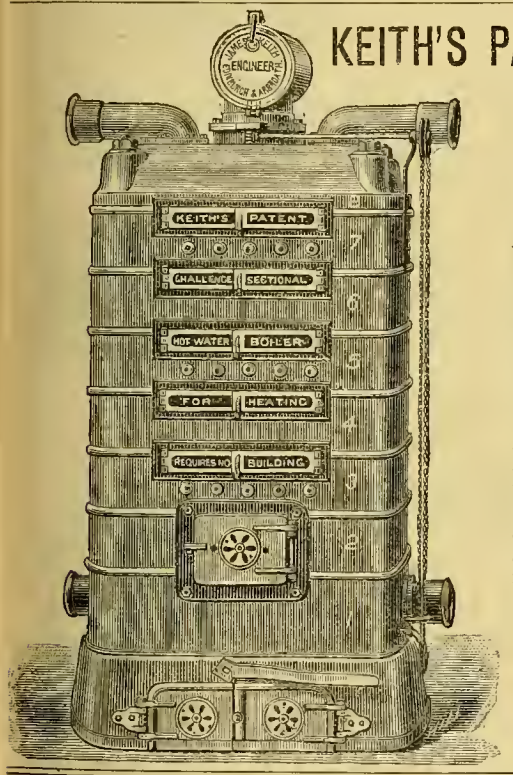

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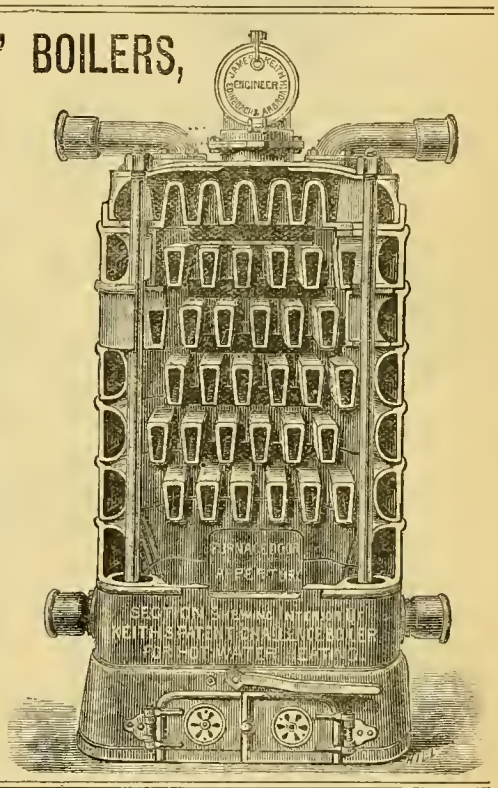

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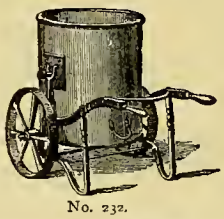

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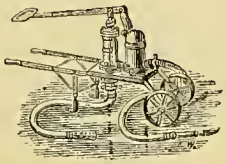

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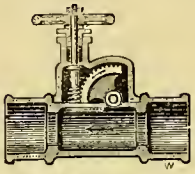
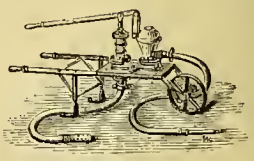


Hot-water Valves (Warner's Patent).



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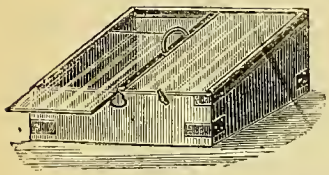

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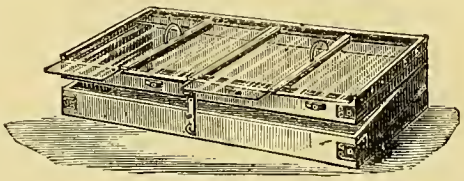

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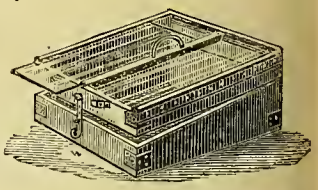

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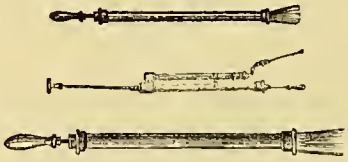

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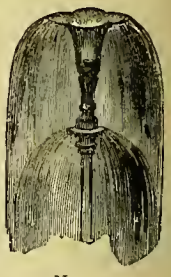

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Sole Manufacturers of Randall's Patent Valves,
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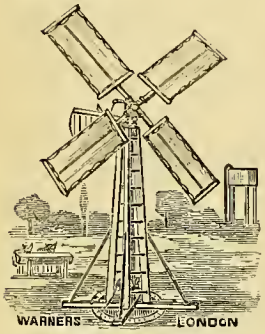
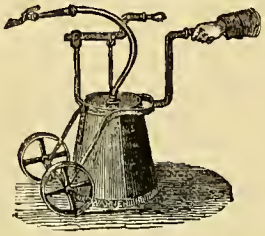
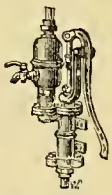


Warner's Four-Arm Windmill for Pumping.





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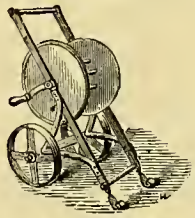

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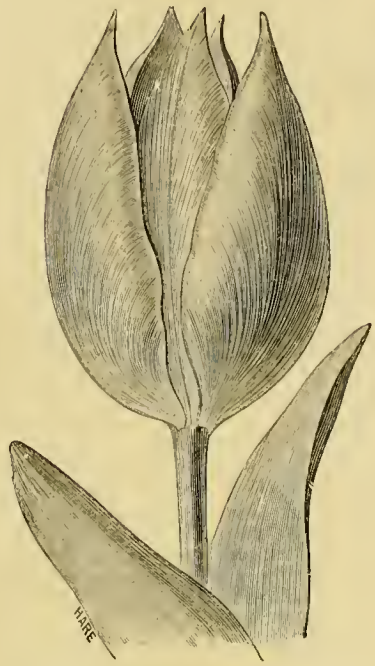

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THE

Gardeners' Chronicle.

SATURDAY, AUGUST 27, 1881.

ORCHIDS, PAST AND PRESENT.

It seems a fitting time to take a retrospective glance of Orchids, past and present, on the occasion of your presenting a coloured plate, representing certain favourite species, to the readers of the *Gardeners' Chronicle*. Time was when Orchids were so few in number, and limited to a few connoisseurs, that such a thing as your presentation plate would have been looked upon, no doubt, as a beautiful picture by the generality of your readers without commanding the sort of personal interest that is attached to it now. So great have been the strides in extending the popularity of this wonderfully interesting family of plants within the last ten years, that the whole body of horticulturists have, so to speak, been drawn in to know less or more about them. Scarcely a general collection of plants exists in this country without a few representatives of the Orchid family, and the desire, almost amounting to craving, is for more. How this has been brought about it would serve no useful purpose to discuss. In passing it may be said that the cheapness of the article has been a strong inducement in winning over those who might have been disinclined at first to pay what are called fancy prices, and so your group of Orchids will be welcomed and scanned by the critical eye of thousands of your readers.

To a comparatively old stager, let it be hoped of the evergreen type, this is exceedingly gratifying. It is an earnest of the advancement of taste, and of winning over the growing generation to worship—for it is a species of worship of the best kind—some of the most beautiful productions of Nature, and may possibly lure them from pastimes of a less ennobling character. When we glance at the past, dating nearly a third of a century ago, an Orchid bouquet was a *rara avis*; a few stray Orchid racemes of flowers was a thing an enthusiastic gardener would have gone a day's journey to see, and then he could only look and long to get within the precincts of an establishment where he could learn the art of culture, and possibly look and long in vain. How different it is now! You cannot move an hour by rail, particularly about and around the great marts of commerce, but you find collectors and collections—houses with their hundreds and thousands of imported and established plants. The wonder is, as you pass from city to city, where they have all been collected, and if there be any left for others to get in the race for rivalry. And still they come, and, let us hope, will come in sufficient quantities to satisfy, if not to satiate, the taste for these treasures. In this great hive of industry ambition goads men on to rival their fellow men, and where the one fails the other triumphs; and so the art of culture is improved. It was different fifty, thirty, even twenty years ago. There were not so many units of a species to practise upon, and the grower in charge and the owner of the plants hesitated, and possibly

lost by their hesitation. Now, what with "overland routes" and other modes of facilitating transport of cases of plants, they come to us in their thousands, and the buyer of a quarter of a century ago who purchased by ones and twos thinks nothing of dozens or hundreds. Whoever dreamt even twenty years ago of anybody having a houseful of Odontoglossum crispum? and yet now there are many dozen gentlemen that have large housefuls of them. Fashion compels the opulent to possess these sort of things, and if some do not exactly cultivate them they must go to market for them. Covent Garden—the great mart of the world—amongst its other great attractions, has within the last dozen years provided no end of Orchid racemes as a marketable commodity, and these things must find an outlet else they would not be long there to delight the casual visitor. Orchid-houses have in consequence become as much a business necessity for providing cut flowers about and around large towns as any other houses for decorative plants. I am, therefore, only one of a very large and important constituency who welcomes your coloured group of Orchid flowers. *James Anderson, Meadowbank.*

Cool-house Orchids.

Never at any time in the history of British gardening has the whole of this quaint and beautiful section of exotic plants been so well or so extensively cultivated as they are at the present time. A whole host of enthusiastic amateurs has taken to the cultivation of Orchids, and a very large proportion of them spare neither trouble nor expense to bring their plants to the highest state of development. Amongst amateurs of this class there are not a few who are wanting in that practical experience which is best obtained by daily working amongst and studying the plants all the year round. If a few cultural remarks from one who has had a lengthened experience of this kind should be of service to any grower of Orchids, the writer will be well repaid. I would like to make a few cultural and general remarks on each section of Orchids, taking those requiring cool-house treatment first. The cool-house section comprise the many beautiful varieties and species introduced in recent years, principally from the mountainous districts of the north-west of South America, where, in their native highland home, they experience a very moist and nearly uniform temperature of 65°. It would be disastrous to many of the plants were we in Britain to attempt to imitate this in the winter, although for many months in the late spring, summer, and autumn months, this would be about the average temperature without the aid of artificial heat. In winter the minimum temperature would be about 45° as an average, while the maximum average would not be more than 55°. The different kinds of Orchids succeeding best in the cool house are the following:—Ada aurantiaca, Aerides, represented by A. japonicum, a pretty white species; Barkerias, the genus Cattleya, represented by the handsome but singular looking C. citrina; Cœlogyne cristata, Colax jugosus, a very pretty thing that ought to be more grown than it is. There are half-a-dozen Cypripediums. Epidendrum is represented by E. macrochilum and its varieties roseum and album, E. vitellinum and the major form of it, also the handsome E. syringæthyrsus; Lælia by L. albida, autumnalis, majalis, and furfuracea; Lycaste Skinneri and its many beautiful varieties, including the pure white one. There are a great number of species of Masdevallia, at least a score distinct besides varieties.

Odontoglossum is the genus most largely represented; so much is this the case that the cool-house is frequently called the Odontoglossum-house. The principal species are O. crispum, O. cirrosum, O. grande, O. Hallii, O. luteo-purpureum, O. Pescatorei, O. Rossii, and O. triumphans. Oncidiums are represented by O. bifolium majus, O. cheirophorum, O. macranthum, &c. Then there are the pretty Restrepias, Sophronites, and other things. Many persons have an idea that specially constructed houses are required for Orchids. This is not so, and very often the best Orchids are found in places where they are grown in any ordinary houses. At Loxford Hall the Orchids that we have are scattered about the garden in variously-constructed houses, but none of them were built specially for Orchids. We grow the Odontoglossums, Masdevallias, &c., in a small span-roofed house that was built and heated to grow Pines, and should never have thought of placing them in a house of this kind from choice. The best house for them is a lean-to or half-span built on the north side of a wall. Mr. John Ward, when gardener to the late F. G. Wilkins, Esq., Leyton, grew the cool Orchids in a lean-to house facing the north. The collection was not a large one, but I have not seen better grown plants. They were frequently in winter subjected to low temperatures, sometimes as low as 35°. Our own plants were sometimes very cool indeed last winter, but they have not been injured in the least thereby. I would rather have the cool-house down to 40° in winter, than keep up the temperature to 50° by over-heating the pipes. At least nine-tenths of coolhouse Orchids succeed best grown in pots; all the large-growing Odontoglossums should be grown in that way. The material to pot in and the system of potting have each been frequently described, but even yet many persons make mistakes. One of the most frequent is over-potting. This is a serious and often fatal mistake, and the results are more likely to be disastrous with Odontoglossums, &c., than with the occupants of warmer houses, because they require more water than most other Orchids, and in the cool atmosphere they more quickly show the effects of sour, sodden compost. No plant should be potted until it has well filled the pot in which it is growing with roots, and when it is repotted no more fresh material should be added to the roots than they can well work through in one season. Another important point is to keep the drainage clean—large pots filled to two-thirds of their depth with drainage, smaller ones to be about half their depth. Before putting in the compost a layer of clean, dry sphagnum should be placed over the drainage: the compost used is good fibrous peat and sphagnum, in about equal parts, with a liberal proportion of clean potsherds and broken charcoal. Let the plants in every case be well raised out of the pots, finishing off with some healthy live sphagnum on the surface, as most of these Orchids succeed best when the sphagnum is kept in a growing state all the year round. We have had plants in our small collection occasionally get into an unhealthy state, the most frequent cause being something wrong with the compost. In that case it is best to turn the plant out and wash the roots with clean rain-water, and when they have been left to dry for an hour or two, repot again in a much smaller pot. The treatment required is very much the same all the year round. We do not dry off any of the Odontoglossums or Masdevallias in winter; they do not, as a matter of course, receive so much water in winter—just enough to keep the moss alive; but to allow them to become so dry as Dendrobiums, or even Cattleyas, would shrivel the bulbs, and cause the leaves to become yellow. They are all much subject to the attacks of greenfly, thrips, and red-spider—the last not so frequently. It is very difficult to get rid of these pests, as the plants will not bear so much tobacco-smoke as will kill the fly and thrips. Two ounces of soft soap, and half-a-pint of tobacco liquor added to a gallon of boiling rain-water will kill them, if the plants are dipped in it when it has cooled down to about 100°.

If it is intended to form a collection of Orchids, it is much better to purchase, say a dozen or a hundred of any species of recognised merit, than to obtain multitudes of distinct species, some of which may be scarcely worth house room and the labour of attending to them afterwards. I much prefer to purchase plants that have not long been imported. Any of the large trade growers who import Orchids have houses full of the most popular species, and they can supply them at a cheap rate as soon as they are fairly established. There is a probability, too, that some grand varieties of the species may be obtained amongst them, and one experiences the same pleasure in watching the expanding of the first flowers that the florist does in watching the opening blooms of his choice seedling Auriculas or Carnations. The varieties of Odontoglossum crispum or Masdevallia Harryana are as distinct from each other as seedling forms of the Auricula or Carnation; and extra good varieties of choice species of Orchids get more valuable every year. A very fine form of Odontoglossum crispum was sold for about 35 guineas at the King Street rooms during the past summer—a plant which might have been purchased a year or two previously for a few shillings. The commercial view of the question must not be kept out of sight. It is more profitable to grow Orchids than it is to purchase and cultivate any other class of plants. If a judicious selection is made to begin with, and they are kept in good health, they increase in value every year, so that the Orchid fancier has the satisfaction of enjoying his pets, and feeling at the same time that his capital invested in them has been laid out at good interest. *James Douglas, Loxford Hall, Ilford.*

New Garden Plants.

Zomicarpella maculata, *N. E. Brown.*

This is a pretty little stove Aroid, introduced somewhat recently from New Grenada by Mr. Linden. Botanically it is interesting as forming a new and distinct genus of the order, although it is nearly related to Zomicarpa, but differs from that genus in having the spathe entirely expanded, and only one ovule in the ovary; whereas in Zomicarpa the spathe is convolute at the basal part, and the ovary contains about six ovules. The whole inflorescence moreover is of unusually small size. Horticulturally it is a foliage plant of dwarf tufted habit, with prettily spotted leaves, which recall to mind the leaves of Caladium marmoratum (Alocasia Roezlii), although in form and carriage they are quite different. The generic name is a diminutive of Zomicarpa given on account of its affinity with that genus, and the small size of the spathe and spadix. I have only seen leaves and an inflorescence, so that I am unable to describe the rootstock, but in all probability it is tuberous. The following is a description of the plant so far as I am able to give it. The type specimen is in the Kew herbarium. Petioles slender, about 3 inches long and about 1 line thick, terete, channelled down the face, striate, sheathing at the base for about a quarter of its length; the colour is dull olive-green marked with small irregular transverse bars of olive-brown. Lamina broadly ovate in outline, subacute at the apex, deeply cordate-sagittate at the base, with the basal lobes deltoid-ovate in outline obtusely rounded at their apices. It is pedately 9-nerved, all the nerves arising from the apex of the petiole: the inner pair of lateral nerves are ascending, curving inwards and uniting with the midrib a little below the apex; the second pair are at first directed horizontally towards the margin, and then abruptly curve upwards and unite with the inner nerves by transverse veins in a series of two or three large loops, in one of which the nerve on either side terminates, or is continued and becomes excurrent at the margin a little below the apex; the two lower pairs descend into the basal lobes, and then suddenly recurve and in each lobe unite and form an intramarginal nerve, which is connected with the second nerve on each side by transverse veins in a series of loops, and is either excurrent at the margin a little above the middle, or continued to the apex as a slender intramarginal nerve, just within the margin. All the nerves are impressed above and prominent beneath. Upper surface of the leaf dark green, prettily marked with some large very irregularly shaped blotches of a pale green shaded and spotted with darker green, which are arranged in a series around the leaf at a little distance in from the margin. Scape slender, 3—4 inches long, ¾ line thick, terete, striate and coloured like the petiole. Spathe dull olive-green, 9—10 lines long, 3—4 lines broad, oblong-lanceolate, spreading open nearly flat down to the base, no part of it being convolute, margins revolute. Spadix twice as long as the spathe (1½ inch); androgynous, bearing unisexual achlamydeous flowers for one third of its length, the rest of it being a naked filiform erect black appendix about 1 inch long. The female part of the spadix is adnate to the back of the spathe; the ovaries are few, about 12—15 in number, dull brownish-olive, oblong, with a sessile stigma, one-celled, with a basal placenta, bearing one erect anatropous ovule. The male part of the spadix is about as long as the female part, quite free from the spathe, and separated from the ovaries by a short naked interval; the anthers are sessile, blackish, two-celled; the cells are sub-contiguous, sub-globose, and slightly depressed on the tops, each opening by one round central pore; pollen exuded in strings, orange-coloured. *N. E. Brown.*

Madagascar Plants. — We learn that the national herbarium at Kew has acquired another important collection of dried plants from Madagascar. The collection was made by Dr. G. Parker, and comprises about 400 species, many of them novelties. Among other things is a miniature Palm, 2 or 3 feet high, and having pinnate leaves. We understand that Dr. Baillon is engaged writing a *Flora* of the island.

TUBEROUS BEGONIAS.

Those who are interested in the cultivation of decorative plants must be aware of the vast improvement which has been effected in many of these plants during the last few years. This improvement has been more particularly rapid and successful in such cases as the Chinese Primrose, herbaceous Calceolaria, zonal Pelargonium, the Cineraria, the Cyclamen, &c.; but in no instance has this advance been more decided than in that of the tuberous Begonias. The earlier introduced species of this plant were all natives of tropical countries, and a somewhat high temperature was long considered to be necessary to their successful culture—and in some of the species this is in reality the case; although, on the other hand, some are found to succeed very well in ordinary greenhouse temperature. Begonia tuberosa was introduced to this country about the year 1810, and was possibly the first tuberous species which was introduced, and this plant was not remarkable for its beauty. But the now extensive and beautiful race of tuberous varieties may to some extent owe their origin to this somewhat remote species, as well to those more recently introduced, such as Veitchii, Frœbelii, &c. The most beautiful varieties, however, of this splendid group of ornamental plants are of hybrid origin, and there is possibly no other tribe of plants in which hybridisation is more easily and effectually secured, as they all seed very freely, and each plant produces male as well as female flowers, and the pollen of one plant is easily conveyed to the stigmas of another. To effectually prevent any chance of self-fertilisation, the plants intended to produce seed should be isolated, and the male blooms, which are readily distinguished, should be removed as early as they can be distinguished; while the female flowers, as soon as the stigma is matured, should be fertilised with foreign pollen taken from those varieties which may be considered to be the most likely to produce the conditions desired in the progeny, and this as regards the colour, form, and dimensions of the bloom, as well as the character of the foliage, and the habit of the plant can be reckoned upon with something approaching to a certainty. So well is this understood and taken advantage of that numerous exceedingly fine varieties have recently been secured, some with double as well as single flowers of the greatest brilliancy as regards colour, of good form, and of wonderful dimensions, in some cases not less than 5 inches in diameter. Many of those beautiful hybrid plants are found to be sufficiently sturdy to admit of their being successfully used as bedding plants, and never fail to furnish increased beauty and interest to the flower garden by agreeably contrasting with the more ordinary kinds of bedding plants; while cultivated as pot plants they are now well known and admitted to be among the most attractive of plants, and in all respects admirably suited for the decoration of the greenhouse and the conservatory. The seed of these plants should be sown as soon as it is perfectly ripe, providing that this is not later than the middle of August; if later than this it is better to defer the sowing until the end of the following February. The seed is exceedingly small, and it is possibly best to sow it in pots some 5 or 6 inches in diameter, which should be well drained and filled to within a quarter of an inch of the level of the rim with a compost formed of light sandy loam and finely sifted leaf-soil, the surface of which should be made quite level and slightly watered with very hot water passed through the fine rose of a watering pot, with the view of destroying the germs of insects or small earthworms which may be contained in the soil. When this has become absorbed the seed should be carefully sown upon the surface, and slightly pressed down with a smooth piece of wood or other material, and a pane of glass should cover the surface of the pot, which might during very bright sunshine have a little dry moss shaken lightly upon its surface.

The seeds being so small any covering in the form of soil would be objectionable, but a very slight portion of silver-sand might with advantage be dusted upon it. The pot, or pots, should be plunged in a very slight bottom-heat in an air temperature of between 60° and 65°. The seed does not usually vegetate very quickly, and generally does so somewhat irregularly, so that it is frequently necessary to carefully draw from the soil, from time to time, the most forward plants and prick them into seed-pans filled with soil, as has been recommended to sow the seed in. The plants should be kept in a light and comparatively warm situation throughout the winter, and potted singly into 3-inch pots early in March, and by the middle of May many of them will show flower, and this will admit of a selection being made of such varieties as may be considered worthy of being cultivated; and all should at once have the flowers removed, and should be repotted into pots some 5 or 6 inches in diameter. With generous treatment such plants will continue to bloom throughout the summer months, or even until the end of October, when the foliage will begin to show signs of decay. Water should then be gradually withheld, and the plants should be allowed to go to rest, allowing, however, the tubers to remain in the same soil in which they grew until they again start into growth in the following spring, when the greater portion of the dried soil should be removed and the plants should be repotted in most cases into larger-sized pots, or such as they may appear to require, and during the second season they will, in all probability, make much finer plants than they did during the first. The soil or compost which appears to suit them best is one formed of about two parts light, rich, turfy loam, and one part well-rotted hotbed manure or well-decayed leaf-mould. Peat is sometimes used, but it does not appear to be necessary, and is perhaps better dispensed with. During the time the plants are at rest they may, of course, be stowed away in any convenient situation, but it is unsafe to allow the temperature of the same to fall under 45°, and the tubers appear to have an objection to being disturbed during their period of repose. Instead of starting them in heat it is found to be much better to allow them to start naturally, when the plants generally prove more robust, and in all respects succeed better. There are now so many named and very meritorious varieties of these deservingly popular plants that it is by no means an easy matter to obtain anything like an advance upon existing sorts; but by judicious selection of parent plants, careful crossing, and the raising of a considerable number of plants there is always a probability or a chance of obtaining a "break," or the dawning of a new and distinct strain or race of ornamental plants, and the pursuit is in itself exceedingly interesting.

It is, moreover, always desirable to have a fresh stock of young plants coming on in order to take the place of older specimens, which will in time become worn out, or may be lost during winter.

In the case of really superior varieties originating, it will, of course, be very desirable to increase the same as rapidly as possible, and this can readily be accomplished by cuttings, which should however be inserted (as early in the season as they can be obtained) in pots some 5 inches in diameter, and a compost, in which they will generally strike very freely, may be formed of equal parts of finely sifted leaf-mould and silver-sand. The pots should be plunged in a slight bottom-heat, in a close moist atmosphere, and in a temperature not much under 70°. The early insertion of cuttings is recommended for this reason, viz., that cuttings inserted at a somewhat later period of the season will strike root freely enough, but frequently fail to form tubers, and are consequently lost during the winter.

Most of the plants which will remain in small pots after the best varieties have been selected need not be thrown away, as they will be found very useful as border plants in the open air, to furnish beds in the flower garden; or as denizens of the artificial rockery, where they are very appropriate, and generally succeed well. And they may with safety be planted out during the first week of June, as they are quite as hardy as most kinds of bedding plants.

For open air culture plants with large flowers are perhaps less desirable than free-flowering varieties, with stiff and compact habit of growth; but cultivation in the open air is as regards this class of plants conducive to this condition, as varieties of comparatively loose habit when grown under glass are considerably improved when planted out-of-doors. *P. Grieve.*

Veitch's Diamond Peach.—This variety, which is very uncommon in gardens, has borne some grand crops of fruit in the garden of Sir Talbot Baker, Ranston House, Dorset, this season. It appears to have a better constitution than any of the ordinary varieties generally cultivated in gardens, and the name (to me) is a new one. One thing, however, is certain it is a most prolific bearer, the fruits being well formed, highly coloured, and weighing half a pound each upon an average. *Visitor.*

BOTANICAL COLLECTORS.

David Nelson.—The subject of this notice was a gardener at Kew, and was appointed assistant to the botanists in Captain Cook's third voyage (1776—1780), but no plants are recorded as having been introduced by him. In 1787 Government having deemed it desirable to introduce the Breadfruit tree into the British West Indies, the ship *Bounty* was commissioned by the Admiralty and placed under the command of Captain Bligh, who was instructed to proceed to Otaheite to procure a cargo of young plants of the Breadfruit tree; he was accompanied by David Nelson, who was to procure the plants and superintend their management; in this he was assisted by William Brown, a gardener. On arriving at Otaheite, the securing of young trees was immediately proceeded with; the requisite number having been procured, and secured in boxes on deck, they sailed from Otaheite on April 7, 1789, with every prospect of the undertaking proving successful, but when near Annamoka, one of the Friendly Islands, a mutiny broke out on board, and the captain and nineteen of the crew, including Nelson, were forced by the mutineers into an open boat and set adrift in mid-ocean, the nearest place where European aid could be obtained being the island of Timor, 3600 miles distant, which they reached in June, where, from the effects of the long exposure, Nelson died, on July 20, 1789. A genus of Acanthaceæ was named in his honour by Robert Brown.

Christopher Smith.

The first expedition of Captain Bligh having failed, through the mutiny of his crew, as stated in the above note relating to David Nelson, shortly after the captain's arrival in England the Admiralty commissioned the ship *Providence*, which was placed under his command, and in June, 1791, he again sailed for Otaheite, and was accompanied by Christopher Smith, who was to take charge of the plants, assisted by James Wiles. This time the voyage proved successful; they obtained a cargo of young trees, which were conveyed in safety to the West Indies in February, 1793. Portions of the cargo were landed at several islands, 300 being landed at Jamaica and placed at the Botanic Garden at Liguana (9 miles from Kingston), under the charge of James Wiles. They were propagated, and before long Breadfruit trees were common in the West Indies.

On Bligh's return to England he brought with him a large collection of West Indian plants, collected by Christopher Smith, all of which were recorded in *Hortus Kewensis*, 2d edit. 1813.

On December 17, 1793, the subject of this notice was elected a member of the Linnean Society, and in the following year he received the appointment as botanist of the East Indian Company, Calcutta. He prepared a large collection of plants for Kew, which were brought home in 1797 in charge of Peter Good, who had been sent to Calcutta for that purpose, taking with him a collection of plants. In the same year Christopher Smith visited the Moluccas, and made a large collection of plants, especially herbarium specimens, the latter being especially noticed by Sir James Edward Smith in the second volume of Rees' *Cyclopædia*, where, under the article Dicksonia sorbifolia, he says, "Gathered in the island of Honimia in the East Indies in July, 1797, by the late Mr. Christopher Smith, to whom the author of the present article is indebted for most numerous additions to his herbarium." We have no information of his return to Calcutta, but learn that in 1805 and 1806 he was in Penang, where he died. *John Smith, ex-Curator, Royal Gardens, Kew.*

COLONIAL NOTES.

Cinchona Planting in Sikkim.—From the report for the year 1880-81, we learn that the planting operations of the year were confined to yellow-bark trees and trees of the still unnamed hybrid variety. It has not been deemed necessary to increase the number of succirubra trees, from which the Cinchona febrifuge is manufactured. There are now more than 4,000,000 of these trees on the two plantations of Mungpoo and Sittong, and this is quite sufficient to provide red bark for a much larger consumption of the febrifuge than there is any reason immediately to anticipate. Endeavours have therefore been confined to increasing the stock of quinine-producing trees to meet the demand for sulphate of quinine in the hospitals and different departments of the Government service. There are two descriptions of these trees on the plantations, the supposed hybrid variety and the Calisaya. Of the former, which

yields a bark rich in quinine, 90,320 plants were put out during the year, 85,320 at Mungpoo, and 5000 at Sittong, and the total number now on the plantations is 199,898. Special attention has been devoted to the propagation of the Ledgeriana variety of Calisaya, which is especially rich in quinine, and 99,415 trees were planted out at Mungpoo. At Sittong 6000 Calisaya trees were put out. There is a large nursery stock of Ledgerianas, and the permanent plantation of this valuable variety will probably be largely increased during the current year. The propagation of the species which yields the Carthagena or Columbian bark has been retarded by the attacks of the thrips pest. This species was only introduced in January, 1880, when the late Mr. Bierman brought out four plants of it. There are now sixty rooted plants and ninety partially-rooted cuttings, and every effort will be made to increase the stock. The total number of trees of all kinds planted out in two divisions is now 4,677,720. The produce of the plantations during the year was 377,525 lb. of dry bark, against 361,590 lb. in 1879-80, and 261,659 lb. in 1878-79.

The introduction of the Java plan of shaving the bark of living trees to the height of from 8 to 10 feet from the ground was an interesting feature in the operations of the year. The results have been favourable, as under this plan the bark renews perfectly. Dr. King proposes to test by analysis whether the renewed bark is as rich in medicinal alkaloids as the original bark. But the Dutch plan of grafting Ledgeriana on succirubra stocks, which was also tried during the year, was not attended with success; a further trial, however, will be made.

Sydney.—We understand that the Government of New South Wales has taken all the necessary steps towards establishing a State Nursery. Some 25 acres of excellent land have been selected for this purpose, and Mr. Alexander Moore, late of the Royal Botanic Gardens, Dublin, has been appointed Superintendent of the establishment, subject to the vote of Parliament. The object of this nursery is to furnish material for reafforesting with trees likely to produce timber of economic value such public lands as may be considered suitable for the formation of forests. The great extent of this colony—at least 700 miles long, by as many in breadth—varying in climate from the snowy mountains in the south to the Sugar growing districts in the north, admits of the cultivation of an immense variety of trees from all parts of the world. These and the best of the indigenous kinds will afford splendid scope for the selection of trees most suited for the very varied situations which will require to be planted.

THE ISLE OF WIGHT.

(*Continued from p.* 236.)

The Laureate's Garden—Faringford House.—So densely embowered on all sides in trees that no glimpse of the house is visible from the outside, lies Faringford, the seat of the Poet-Laureate. He himself has described ts situation—

> "Close to the ridge of a noble down."

In truth, it lies at the foot of the chalk downs, in the trough that separates those limestone hills from the sand ridge of Headon Hill. For shelter against the fierce winds, as well as for the sake of securing privacy, thick belts of trees bound the estate on every side, the dense evergreen foliage of Pinus insignis, and of Cupressus macrocarpa, being especially noteworthy alike for the excellent way in which they serve their purpose and for the massive beauty of their appearance—

> "For groves of Pine on either hand,
> To break the blasts of winter, stand."

Openings are made here and there to let in views of the noble downs, of the Bay of Freshwater, and the coast as far as St. Catherine's Point. So bold are the hills, so rich the tints of the distant cliffs, so blue the sky and sea, that the scene suggests reminiscences of the Riviera. Although it is found necessary to exclude the British Philistine, the curiosity of whose mind obscures the delicacy of his sentiments, yet at times the grounds are thrown open, as on the occasion of the meeting of the British Medical Association lately, when the Laureate

> "Gave his broad lawns until the set of sun
> Up to the people."

The annual flower show of the district is also held within their bounds; so that the question—

> "Why should not these great Sirs,
> Give up their parks some dozen times a year
> To let the people breathe?"

is practically answered in the affirmative. The visitor is taught by the poet himself what sort of garden to expect—

> "A careless ordered garden"—

which, however, simply means that repose and comfort, rather than formality and display—

> "rather use than fame"—
> . . . . . .
> "Flowers of all heavens, and lovelier than their names,"

are the chief things aimed at. It might, indeed, be further described, in his own words, as

> "A realm of pleasaunce, many a mound,
> And many a shadow-chequer'd lawn."

There are some notable trees about the grounds, in particular an evergreen Oak (Quercus Ilex), some 96 yards round; a Wellingtonia planted by Garibaldi; a fine Judas-tree, Deodars, Robinias, and

> "in the midst
> A Cedar spread[s] his dark green layers of shade."

The bedding-out calls for no special remark further than this, that the bright flecks of colour serve excellently well to relieve the otherwise monotonous green of the lawns, and the darker hues of the Pines and Cypresses. Vesuvius, Christine, and the old Tom Thumb Pelargonium, with Petunias, dwarf Dahlias, and Golden Feather, constitute the material employed for the flower beds and vases—

> "And many a rose-Carnation feeds
> With summer spice the humming air."

The kitchen garden is fenced round with tall greystone walls of a date long, long, anterior to the existing house. Outside the fidelity of the poet's description of natural objects is brought to mind; for it is as easy to see where

> "monstrous Ivy stems
> Claspt the gray walls with hairy-fibred arms,
> And suck'd the joinings of the stones, and look'd
> A knot, beneath, of snakes, aloft a grove;"

as it is inside to realise where

> "The rusted nails fell from the knots
> That held the Pear to the gable wall."

The crops were everything that could be desired, more especially considering the proximity of the roots of "immemorial Elms" and other trees. Sutton's Improved Reading Onion, sown in February, had now (August) fine sound bulbs 10 to 12 inches across. Deep trenching and the use of soot had contributed to this result. Early Peas were gathered the last week in May, while with Omega the gardener, Mr. Smith, had taken the prize three years in succession at the local flower show at the end of August. Between these Dr. Maclean, Fortyfold, Duchess of Edinburgh, and others, had yielded their supplies in a way which seemed as if the dry season had not affected their productiveness. Telegraph Cucumber, Hero of Bath Melon—for the poet is

> "A raiser of huge Melon,"

—and Early Egyptian Beet, are the favourites, being excellent of their kind, and never causing disappointment.

Public roads skirt the estate on all sides. Across one of these pictural lanes, overhung by the arching boughs of the Elm, a rustic bridge has been thrown, to give access direct from the pleasure-grounds on to the downs, and of which we propose to give an illustration at another time.

Weston Manor

asserts itself as a landmark throughout the western corner of the island. It vies with the beacon on the neighbouring downs, and if it is not, like that, seen from quite every quarter, it makes up in size and conspicuousness wherever it is seen. It stands on a ridge running out into Alum Bay, with the chalk downs on the southern side, and the sands and clays of the heather-clad Headon Hill on the other. In this exalted position it commands noble views of the Solent on the one side, and of Freshwater Bay and the bold south-west coast of the island on the other. Partly shrouded in rain-cloud, as when we saw it, these downs are imposing enough to be ranked as "sub-alpine." The abrupt termination of the chalk downs at the Needles is too close to allow of the sea at that extreme point being seen, but it is only the extreme point that is invisible: and so it may be said that Weston is all but surrounded by the sea. The scenery on the one side, as compared with that on the other, bears much the same relation as the prospect on the northern side of the Simplon does to that of the Italian lakes on the south.

A garden in such a situation has to contend with all the winds that blow, and, high though it lies, and at some distance actually from the sea, yet we were assured that it is no unusual circumstance for the ground to be flecked with the foam, wind-borne from the sea hundreds of feet beneath, and many hundreds of yards distant. Provision for shelter has, therefore, been made, the black Austrian Pine being particularly serviceable for this purpose. The bounding shrubberies—planted, we believe, under the direction of Messrs. Veitch—are full of nice things, such as Escallonia macrantha, Spiræa ariæfolia, Cotoneasters, Rhododendrons, Cupressus macrocarpa, and other evergreen and flowering shrubs, which it is not necessary to mention here as they form the contents of the gardens throughout the island. But even in a cursory notice like this one must not fail to speak of the shrubby Veronicas, such as Andersoni and Lindleyana, full of bloom and quite unhurt by the winter. It was interesting also to notice not a plant here and there duly sheltered of V. Traversii, but whole bedfuls, thriving as if frost and wind were harmless agencies. Thinning out is a matter of some urgency, else the beauty of individual shrubs will be lost, and their value as shelter also impaired. The ordinary bedding plants have a lustre and depth of colour such as they never possess far from the sea, but Roses are too frail to stand the strong wind and keen air without protection. A sunk bed is therefore provided for them, and nestling under its sheltering banks the Roses had evidently been profuse with their flowers, whilst Clove Pioks and Carnations, and stately plants of Campanula pyramidalis, both white and blue, did their best, and did it well too, to make up for the Roses. A sheltered walk available in stormy weather, a skating rink, a lawn tennis ground, and excellent paths in every direction, show that the charms of this lovely spot are appreciated, and, what is more, there are many evidences that the owner of this estate bestows a kindly thought for his neighbours, and even for the casual visitors, as well as for his own convenience and that of his personal friends. The saying that "Property has its duties as well as its rights," is evidently well acted up to here. We may add that the kitchen garden is well cropped, and relatively unusually extensive, and at the time of our visit early Potatos were being lifted, and among them Beauty of Hebron, of large size and fine quality. There are no forcing-houses here, Mr. Ward having another establishment at Northwood Park, near Cowes. The garden at Weston is confided to the able management of Mr. McCabe. *The Rambler.*

BATTERSEA PARK.

Upon entering the Park from what is known to Londoners as the Gymnasium entrance, off Albert Road, the eye is first attracted by two long mixed flower borders of Pelargoniums, Heliotropes, and Mignonette, having two rows at the back of the border of bright-coloured Dahlias and Anemone japonica alba, which are in pleasing contrast with a belt of evergreen trees and shrubs upon either side. The Pelargoniums employed are scarlet and pink, viz., Mont Rouge, John Gibbons, Mrs. Quilter, and Mrs. Turner. At the further end of one of the borders the Anemones are mixed with very good effect, A. alba and A. rosea being planted alternately.

The football and croquet ground is next traversed, and at the opposite side, upon a bank, is a group of Polygonum cuspidatum, with a line of Funkias for an edging and a background of Rhus Cotinus (the Wig plant), and a bed of Cannas, with Pelargoniums and Violas, the latter peeping up from amongst the leaves of the Pelargoniums. Another feature worthy of notice, and one that is suggestive, is that of a bed of Nicotianas, with every alternate plant cut down, which furnishes the bed with an undergrowth of green, the leaves after the plants are cut down coming quite distinct in form from what they were before. This bed is edged with Funkia ovata, viridis, albo-marginata, and an equally good effect is produced by a

bed of Cannas on a sloping bank, with a band of Pelargonium Mrs. Holden and an edging of Dactylis glomerata variegata. The subtropical garden is now in view, and is a very happy and instructive form of the mixed bedding style. The bed is oblong, on a slope overshadowed by trees, and consists of groups of tuberous Begonias (very showy in colour), alternated with variegated Yuccas, Jacaranda mimosæfolia, carpeted with Selaginella Krausiana, and edged with Echeverias and Lobelia Omen. Another bed, also having a background of shrubs. is made up of Abutilon brasiliensis, Jacarandas, Fuchsia fulgens, Eurya latifolia. with a band of Golden Pelargoniums, and an edging of Sedum sarmentosum (carneum variegatum) and Lobelias.

The tall Cannabis gigantea, which is of graceful habit, but rather difficult to keep within bounds, is here well managed by cutting it down, which causes it to branch away into a comparatively dwarf-growing shrub, and renders it more useful and handsome in appearance. Here also is a grand bed of Polymnia grandis, mixed with a rich dark variety of Heliotrope and Agapanthus umbellatus, having a band of variegated Pelargoniums and blue Lobelias, and an edging of Sempervivum tabulæforme set in a carpet of Herniaria glabra.

Then comes a variety of beds of Coleus, in a groundwork of Sedum acre elegans, a large plant of Polypodium cuspidatum as a dot plant, and an oval planted with Cannas in variety, Pelargonium Mrs. Schwind and Funkia undulata variegata. Several Palms dotted in grass, and others in groups give sufficient relief to the high colouring of many of the carpet-beds and flowering plants. Nor must I forget to describe a circle which I thought an admirable mixed arrangement, composed of the following plants :—A centre of golden coloured Abutilon, mixed with Heliotropes, Petunias, Centaureas, and edged with Lobelias and Nierembergia gracilis. These are beds affording much variety in the selection of the plants and a good display of taste in the arrangements. As before indicated, a bold background of neutral colours has much to do in giving effect, as for example a large bed of white Phloxes (The Queen), having massive heads of flower and located near to a background of purple Nut, has a very striking effect. This is the class of thing among hardy plants that merits praise and is both useful and effective. The Phloxes are margined by scarlet Pelargoniums, Solanum marginatum, and Dactylis glomerata variegata. The serpentine beds come next in order, the circular shaped extremities of the figures being planted with medium-sized plants of Dracæna australis in a mixed groundwork of Cockscombs and golden Pelargoniums and the centres carpeted—the plants employed being Golden Feather, Sedum lydium, Alternanthera magnifica, and an edging of Euonymus radicans variegata kept small. This arrangement is then varied by a circle having a large Phœnix reclinata for a centre and a groundwork of Centaurea and Cannell's Lobelia "What's that," margined by Sempervivum repens. A little further back from the walk, and standing out in bold relief to the dwarf growing plants, is a magnificent group of Eucalyptus globulus, Marvel of Peru, and Zinnias, mixed, and a band of Cannas, Pelargoniums, and Gazania splendens. From this point are some pretty peeps between the trees and a valley of rich green having an undulating slope upon the right and left adorned with a single specimen Palm, foliage plant or some other striking object. The aim is evidently to introduce as much variety as possible compatible with the nature of the ground and in keeping with the character of the trees and shrubs that are retained as permanent objects. One of the raised circles struck me as being very good; the centre plant, Aralia papyrifera, was surrounded with Hydrangeas and mixed Verbenas, and edged with Pelargonium Titania and Salvia argentea, a splendid dwarf white-leaved plant for edging large beds or borders. Next to this is a long curving bed of Wigandia caracasana, having a groundwork of mixed Petunias and Lantanas Faviola and speciosa, and edged with Pelargonium Manglesii and scarlet Tropæolums. Leaving a clump of Bambusa Metake and a fine Copper Beech on the left, a border is approached close to the Lily pond, which is strong in subtropicals, including Ricinus sanguinea, Abutilons, and front lines of pink and variegated Pelargoniums. The Lily pond is gay with Nymphæa alba grandiflora, a variety that is much larger than the common alba. From the middle gate entrance are two rows of Limes upon either side the walk. A kind of recess scooped out in the shape of a trowel in the border makes a capital "break," and affords that pleasant variety which is the distinctive characteristic of Battersea, and which keeps the eye from travelling confusedly over a labyrinth of form and colour. The slopes of this charming spot are overhung by fine healthy samples of Ailantus glandulosa, and the border itself is enriched with bronze-coloured Ricinus, and edged with Dactylis glomerata variegata. What a fine effect this common grassy-like plant with its rich silvery

Fig. 53.—The Laureate's Garden, Freshwater. (see p. 268.)

leaves has when it is brought into contact with bronze and green tints! A group of Polygonum occupies one corner of the plot, and Palms are dotted in the grass, sparingly, but in strict proportion to the limits of the place. Cannas and Funkias border the opposite slope, and a weeping Birch droops gracefully in one corner of the nook. One of the great features of Battersea is that the borders are made quite as attractive as the beds, and the sombre tones of the one seem to balance or afford relief to the other, so that there is no predominating glare to offend the eye. One of these borders consists of Solanum laciniatum, and Browallia elata, edged with variegated Funkias. Then there is an oblong bed of Erythrina compacta, which is the best flowering variety this season, mixed with Plumbago capensis and Artemisia judaica with bands of Pelargonium Mary, Mabel, Lobelia Brilliant, and Convolvulus mauritanicus.

We now come to the fountain side of the subtropical garden, where there is a magnificent bed of Yucca aloifolia variegata, each surrounded by a band of Pelargonium Crystal Palace Gem, Lobelia pumila magnifica and Koniga variegata, then a line of Pyrethrum aureum, and a band of Antennaria tomentosa, with dots of Aloe attenuata, and two rows of Echeverias, in a carpet of Sedum glaucum. The "coffin beds" are next to be described, and these are very elegantly planted in the carpet style; they are quite close to the walk, and, in spite of their name, are very popular. The beds are of unequal width, and the central figure, running nearly the whole length of the bed, consists of a long diamond, connecting itself with smaller figures, and a neat figure composed of three semicircles looped together at the wide end of the bed; the latter is filled with Alternanthera paronychioides major, the lines drawn with small plants of Kleinia repens, next to which is a band of Mentha Pulegium gibraltaricum, smaller figures of Alternanthera amœna, a band of Alternanthera paronychioides aurea, and an edging of Sedum acre elegans—a very telling arrangement for the situation.

Next comes a fine subtropical bed, having a background of Ailantus glandulosa. The bed curves and the centre line are planted with moderate-sized plants of Ailantus glandulosa, a sufficient distance from the border to show a clear distinction. Next to the Ailantus are some fine examples of Solanum macrophyllum, Sonchus laciniatus, a plant bearing rich yellow flowers on the ends of upright shoots, and well adapted for subtropical bedding; Senecio Ghiesbreghtii, Melianthus major, or St. John's Bread; Amicia zygomeris, a plant of lovely habit, and just beginning to show its golden-coloured Pea-shaped flowers; and Salvia argentea, which has been already described as a very showy edging plant. The style of grouping is now varied by using commoner plants, such as Love-lies-bleeding and Amaranthus melancholicus ruber, having a plant of Dracæna australis for a centre, and an edging of Artemisia judaica, and Sempervivum ciliare. Another bed with a specimen Holly intervening is planted with Ricinus sanguinea in a groundwork of Veronica Andersoni variegata, with a band of blue Ageratum, and edged with silver Euonymus. At the pier entrance into the garden are two fine Yuccas (pendulifolia) in a star of Golden Feather and a groundwork of Mentha, and edged with Sempervivum montanum. Turning to the right from the fountain entrance there is the usual display of Palms and other handsome foliage plants, under the shade of trees wonderfully healthy and well arranged. The plants include Monstera deliciosa, Sanseviera zelanica, Areca sapida, Platycerium alcicorne, and a group of Acer Negundo variegatum in a groundwork of Coleus Verschaffeltii. Next in order is an oblong carpet-bed dressed out of the usual run of the carpet style in bold figures of silver Pelargoniums, dots of Beaucarnea recurvata, with a single line of Leucophyton Brownii and Golden Feather in a massive groundwork of Sedum acre elegans, and finished off with a broad band of Alternanthera amœna, and an edging of Sempervivum tabulæforme on a carpet of Herniaria glabra. A relief bed (I have coined the term) of subtropicals is next introduced, composed of Polymnia grandis, Solanums, and Abutilon brasiliense, with golden-coloured leaves; Coleus Trophy, and an edging of silver Pelargoniums. A very pretty border is close to here, having a back row of Love-lies-bleeding, margined by two varieties of Anagallis Empress Eugénie (blue), and A. Napoleon III. (red).

As the visitor proceeds there is no lack of variety, not of the same plants differently arranged—which is a ready and an excusable way of meeting the public taste, but here there seems to be an inexhaustible supply of plants to draw from, and much taste is in nearly every case displayed in the grouping and associating of the different colours. The variegated Vine (Vitis heterophylla), for instance, makes a grand groundwork for Acacia lophantha, and a deep band of Lonicera variegata, of a rich golden colour, comes in well against a border of Alternanthera magnifica, and a single line of Cerastium tomentosum against a raised edging of Sedum acre elegans. Then comes a long bed laid out in a series of circles planted with Dracæna marginata in a groundwork of Cerastium tomentosum and Pandanus Veitchii in a groundwork of Lobelias. A broad band of Mentha is then introduced, bordered by a single line of Kleinia repens and triangles of Rochea falcata margined by Golden Feather, after which comes a band of Alternanthera amœna, another line of Kleinia, and a band of Antennaria tomentosa with dots of Mesembryanthemum Bollei—the South African variety—and edged with Echeveria pumila, in a carpet of Sedum glaucum. It will be seen from the variety of plants used in the arrangement that the effect is really of the first order. A bank of Daturas, Solanum marginatum, and Fuchsia Golden Treasure, is the last example that I will mention in this division of the Park, and will now proceed to the Peninsula, the entrance to which is by the Fern glade, where there are many fine plants tastefully grouped and dotted about and under the trees. I must mention, among many others, Zamia horrida, Todea africana, Coccoloba pubescens, Pothos acaulis, Pandanus utilis, Pritchardia pacifica, Hedychium Gardnerianum, making splendid breaks this season; Aralia integrifolia, Thrinax elegans, Marantas, &c. The glade upon the right-hand side of the walk contains what would require a long list to enumerate, but a few names will suffice to show the general character of the stock. Cycas Armstrongi and revoluta, Zamia villosa, Aletris fragrans, Encephalartos (species) with three grand young fronds, Kentia Fosteriana, Aralia longifolia, Solanum macrophyllum, and many others. Proceeding from here are some good carpet-beds on the left, and banks and borders with trees and groups of plants, which are agreeable to look at. At the base of one of these mounds is a fine bed of Hibiscus sinensis rosea, mixed with Abutilons and Heliotropes, and edged with Artemisia Stellariana. There are circles of Bonapartea gracilis tenuifolia in groundworks of Sedums and Cerastium close to the Hibiscus bed, which, though sombre in tone, are still not without their attractions, and, as it were, prepare the visitor to look out for less gaudy arrangements. Whether it was the idea not to change abruptly from the bright colour of the foliage plants to the sombre hues of less striking subjects I know not, but the scene gradually changes until presently we reach the Alpine Mound, which is not the least interesting sight in the Park. The high peaks covered with Antennaria, like hoar-frost; the dots of Polygonum between the mounds, the golden-coloured Conifers, sparingly used; the Palms, Yuccas, and Dasylirions, and a very pretty Aloe, rosea cincta, are all objects worthy of inspection. Of course I cannot give a tithe of the names of the plants, only a few examples of the most showy things. The old Ricinus Gibsoni I noticed on a bank, of fine colour, and enjoying the open situation by making stout self-supporting plants, unlike those that are frequently to be seen where they are more sheltered.

We have now reached the side of the Ladies' Pond, where there is a fine hedge of Clematis in flower, chiefly of the Jackmanni type, and Tropæolum canariense, and a border of Cannas and Pelargonium Fire King, Sonchus pinnatus, and Begonia ricinifolia just coming into flower. Other plants grouped upon the bank with good effect are Fuchsias in masses, Yuccas, white Phlox The Queen, mixed with Amaranthus salicifolius, Eucalyptus, scarlet Pelargoniums, and dwarf edging Lobelias and succulents.

As you reach the waterfall there are two handsome Willows upon either side the walk and a few strides further brings the visitor into the hardy fernery, where there are good succulents and a fair collection of hardy Ferns.

The American ground is entered from the road leading to York Road Station, where there are mixed borders of Pelargoniums and Violas, and good examples of Dahlias forming back rows.

How truly interesting and pretty those mixed borders are when they produce a constant succession of flowers! Bearing towards the cricket ground the display of Pelargoniums in groups in a groundwork of seedling Lobelias (variety spectabile), and having a back row of Gnaphalium lanatum, although a simple way of planting is yet very pretty, the bright colours being required where so much greensward and evergreen shrubs are the predominating element.

The new addition to the Park leading to the Chelsea Suspension Bridge is also well furnished with plants of suitable habit and hardiness for a rather exposed situation. The Park altogether is in excellent order, and he who is not satisfied with a visit to Battersea Park as it is at present must be difficult to please. *Special Reporter.*

Home Correspondence.

Cottage Gardening in Devonshire.—I am glad that "T. W.," in his charming notes on Devonshire (p. 211), has called attention to this subject. The lack of cottage gardens, and the slovenly condition of those seen, was one of the most serious drawbacks to my pleasure in a rapid run through part of that charming county of green lanes and Fern paradises some years since. Numbers of cottages had no garden, mere stone huts on the roadsides or in fields, with hardly standing room outside—out of the house on to the road; the stone hovels hardly deserved the name of house. Now and then Fuchsias or Myrtles might be seen scrambling up the walls, but oftener the long blocks of stone were bald and bare, and seldom were the windows furnished with plants or flowers. The gardens were mostly Potato patches, variegated with a few Cabbages and abundance of weeds. Flower borders or beds around the cottage I saw few or none of in Devonshire. Not a few of the cider or other orchards were marred by dilapidated fences, or fallen, dead, or dying trees. Nature, in fact, had done so much to beautify the county that it seemed to me that man had felt at liberty to mar it as much as he could. I drew attention to the matter at the time, I think, through your columns, and this brought me letters from ladies of influence in the county, to whom I pointed out privately the state of the cottages, the want of gardens, and the terribly patched condition of not a few of the cottagers seen, giving rise to the need for a whole-clothes as well as a cottage garden society, worked on such principles as that suggested by your able correspondent; but little or nothing, I fear, came of my suggestions, as the same state of things seems to continue. In no county are better cottages, in good, well-cultivated gardens—in a word, attractive homes—more needed. The cottagers can hardly be blamed in many cases. Not a few of them have no gardens, and the soil in those that have seems poor; the fences, if any, dilapidated; and in no one instance did I see a cottage garden laid out tastefully, or furnished and kept with order and care. I hope your correspondent will persevere until the Devonshire labourers are furnished with good gardens around their houses, and are taught to cultivate them with skill, and keep them clean and orderly. *D. T. Fish.*

Cycads of Indian Peninsula.—It is no doubt true, as you remark, that the passage quoted in Veitch's *Manual of Coniferæ*, from Sir Joseph Hooker's *Himalayan Journals*, stating that no gymnospermous tree inhabits the Indian peninsula, no longer holds good. But the more limited statement as to "the want of any Pine whatever in the peninsula of Hindostan" (Introductory Essay to the *Flora Indica*, p. 37) is still, I believe, a remarkable and distinctive character of its flora. My interest in the note is, however, more particularly excited by the mention of two common Cycads as indigenous to the peninsula. Of course the well-known Cycas circinalis of the Malabar coast is well known, but what is the second? A small-growing species has been more than once introduced from the Indian peninsula into European gardens, and yet is apparently entirely unrecognised by Indian botanists. It already bears no less than three names in garden literature. Cycas squamosa, Lodd. (? C. squarrosa, DC. *Prodr.* xvi., pt. 2, p. 529) is the earliest. For this identification I am indebted to Herr Wendland, who informs me that it was introduced by Fr. Adolf Haage, of Erfurt, from Travancore. The plant is in cultivation at Herrenhausen, and I am indebted to Herr Wendland for a specimen. Cycas pluma (Bull, Retail List, 1877, p. 4): Mr. Bull describes it as "a distinct Indian Cycad from the Presidency of Madras." With the courtesy which in the interests of science never fails so enthusiastic a cultivator of rare plants, Mr. Bull has put himself to some trouble to hunt up for me the history of this plant. I hope I am committing no indiscretion in recording that it came from Colonel Puckle, then Director of the Government Gardens (Lal Bagh) at Bangalore, "who," adds Mr. Bull, "curiously

enough, from not knowing Cycads, sent them to me as C. revoluta." Cycas Boddami: The same plant seems to have been sent from Southern India to the Belgian nurseries by Colonel Boddam, another Director of the Lal Bagh, and to have received its garden name from the sender. Mr. Cameron, the present Superintendent of the Lal Bagh, writes to me—"I think the late Colonel Boddam, who had great facilities for travelling, did find another species or variety" besides Cycas circinalis. A Cycas from another source (Cochin China) also bears the name of C. Boddami in the Belgian nurseries. If the specimen I have seen is authentic it is not, I think, the same species. I should be very grateful to any reader of the *Gardeners' Chronicle* in Southern India who would aid me in obtaining the female fructification and male cones of this plant in order that its characters may be determined, as at present I possess nothing but fronds derived from garden specimens, the real origin of which it is not always possible to ascertain free from ambiguity. And I should be no less glad of specimens of the fronds from plants in their natural localities, with detailed information as to the places where this Cycas occurs. *W. T. Thiselton Dyer, Kew.*

Helenium.—Eight or ten species are enumerated in the herbaceous catalogues of English nurserymen, nearly all of which I have tried. Half of them, from a gardener's point of view, seem to be different forms of H. autumnale, a distinct and free-flowering plant growing about 4 feet high, useful for decoration where there are not too many yellow Composite flowers already. A taller form with similar flowers is called H. grandiflorum, generally a suspicious name to botanists; but the best of this set is called H. pumilum, with flowers quite as large and produced abundantly on stalks not more than a foot high. H. Hoopesii flowers two months earlier and does not flower freely here, though it is well worth growing. Its flowers are orange-coloured, and resemble those of Inula glandulosa, but are smaller. H. grandicephalum is a tall species with small flowers, having little merit as an ornamental plant. Two others, H. Bolanderi and H. atropurpureum, have not yet flowered here. *C. Wolley Dod, Edge Hall, Malpas.*

Tropæolum speciosum.—This beautiful hardy climber forms a most conspicuous object in the York Nurseries. It was planted about three years ago in peaty earth, in a slightly shady position, where it has spread to such an extent that it now completely covers some Rhododendrons and other bushes, festooning them in the most charming manner with masses of its lovely scarlet blossoms.

The Potato Crop in Connemara.—The notes of all your correspondents on the Potato crop are most jubilant. To the absence of rain and intense heat you had in England is attributed the freedom from disease this year. I have delayed my remarks until the present, as in such a season as we have, or, rather, I should say are passing through here, it would have been premature. As your representative in this remote district, where the Potato is so all-important a crop, I desire to state the facts as accurately as possible. Well, since the disease commenced in 1846, I recollect no year in which the Potato crop presented so splendid an appearance as it has done up to August 1 generally, and with Champions up till the present, the 15th. In former years the disease almost invariably made its appearance here about the middle of July. Within the last few days disease on the haulm has set in rather rapidly on what has been the main crop Potato here for the last twenty-five years; it is called by the people "Protestants," but how it got that name I do not know; perhaps Mr. Forster (our Irish Chief Secretary) introduced it after the famine, as many old people here still recollect him on his beneficent mission at that terrible time. I think it is the Scotch white Rock. It has done good service, and is still a great favourite, the Champion notwithstanding, although of late years very subject to disease. Well, to return, there is thus apparently a clear gain of a month's growth: I say apparently, as in reality it is not so, for had the disease set in at the usual time it would have been disastrous in the extreme for these reasons. The spring was dry and cold, and the sets lay long in the ground before growth commenced. On May 26 the weather broke, and all along the western seaboard it has been almost continuous rain, with very frequent high winds, many of them absolute storms, and the heat much under the average. The crop everywhere grew too much to tops, and there was really nothing under them in July. I speak of the Potato above alluded to, and it is only now that they can be had. I thought it was a matter for congratulation that the Champion formed so large a portion of the main crop this year, but now fear very much that it will turn out a great disappointment. The season was entirely against it—too wet and cold; being naturally a strong grower in any season, this year the tops are prodigious. The action of the winds has so bruised these strong stems at their junction with the ground, and the continuous rains preventing the wounds healing or drying up, that the leaves, although still flourishing and quite green, can have but little effect in perfecting a crop. The consequence is that every person I have spoken to on the matter has the same story to tell—there is next to nothing under them. I do not think the Champion will ever become a favourite here. It certainly resists the disease better than most others, but it requires a good season, which is very uncertain here, and it also at the best of times has one great fault, viz., if they grow to any size the large ones are almost always hollow in the heart; it is also a very wasteful Potato in boiling, as it throws off its jacket, and with it a large portion of its flesh in starchy matter, before it is half cooked through. Having said so much against it, let me state some of its advantages as the poor man's Potato. Half the quantity of seed suffices, as it must be planted thin, and the produce in suitable soil and a good season is quite double that of the old favourite. Magnum Bonum is quite useless in bog ground. I have tried it for several years, but it is not eatable. To sum up, we are still in the midst of rain, with an almost entire absence of sunshine, and it would require a month of good weather to mature the crop, so that our prospects are gloomy enough, and I am sorry I cannot write so jubilantly as your other correspondents. *James Garnier, The Gardens, Kylemore Castle, Galway.*

Wall Copings.—Permanent wall copings have been condemned by many on account of their keeping off the rain and dew from the trees, but in seasons like the present, when we get a glut of wet just as fruit is about ripening, the protection they afford is of great value, for with us they have been the means of saving a fine crop of Apricots from rot. I am the more able to speak positively as to this, as we have two walls with precisely the same aspect, the one sheltered with a glass coping, and the other not, and from the trees protected we pick quantities of fine ripe perfect fruit, with but few specked or decayed, while from the others a large percentage is affected with these blemishes, especially after rain or damp nights, when we rarely find any that are entirely sound and whole. Apricots are a particularly tender fruit, easily damaged by wet, as the slightest perforation or injury to the skin is, when exposed to wet, a sure forerunner of rot. So pleased am I with glass copings for Apricots, that I only wish we had had them years ago, as when we got fruit it was always disappointing and vexatious at gathering time, when we generally experienced a difficulty in finding any sound and good for dessert. Besides being such a great protection to the fruit, I find that the trees under the coping have suffered much less from cold and spring frosts, as they have little or no dead wood, and are now looking pictures of health. The width of coping I like best for walls 8 or 10 feet high is that of 2 feet, which is quite wide enough for all purposes, as it will ward off rain, and to a great extent frost; but it is by keeping the wall so dry where it is of such service in saving the blossoms. Then we had canvas blinds attached to the rods in front, and these, with the glass and fishing-nets, have secured us a first-rate crop. *J. S.*

Fruitful Vines.—In a vinery under my charge the Vines are bearing what seems to me an extraordinary second crop of Grapes, the cause of which I should be very glad to find out. The Vines seem healthy in every way, and the first crop of Grapes (Black Hamburgh and Buckland Sweetwater) are now colouring, when a second crop appeared on the laterals all over the house, to the extent of upwards of a hundred bunches. I removed the greater part but left a few, and these are now hanging beside the earlier ones. Can you tell me the probable cause of their bearing so profusely a second time? *G. Sell, Wallingford.*

Nicotiana affinis.—It is my duty to "confess some," as our American cousins say. At p. 183 I said that Nicotiana affinis was grown here under the name of N. acutifolia. I now find that that statement was an erroneous one, the true night-scented N. affinis kindly sent to me by Mr. Cullingford since I wrote being distinct from N. acutifolia in other features (truthfully shown by your artist), as well as in perfume; and of the two plants N. affinis is decidedly the one best worth a place in gardens. N. suaveolens, alluded to as being grown at Sudbourne Hall, is identical with the N. undulata (*Bot. Mag.*, t. 673), according to Mr. Cullingford. My friend, Mr. W. Spinks, however, sends me fresh flowers and living plants from the Exotic Nurseries, Harbourne Road, Birmingham, and mentions the fact that it is "always fragrant" day and night—N. undulata being fragrant only at night, or on very wet, dull days. The flowers of N. suaveolens are stained with purple behind, and are smaller than those of N. undulata. I must here acknowledge the courtesy of Mr. Cullingford, and of Mr. Spinks, in affording me the means of satisfying myself as to these fragrant species of Tobacco. Permit me to "take back" my criticism on your drawing and descriptive remarks as to N. affinis, which, thanks to the specimens sent by Mr. Cullingford, I now know to be correct in all ways. I must simply "chaw the Leek" as the result of having jumped at conclusions too precipitately. The only consolation I have is in making a full and true confession. *F. W. B.*

The Gooseberry Caterpillar.—The late Dr. Lindley used to find removing the earth from under the bushes to the depth of 4 to 6 inches, and burning it, completely destroyed the larvæ; but unfortunately the moths from neighbouring gardens come and visit our bushes, and as fast as one crop of leaves studded with eggs is removed fresh eggs are deposited, so that the labour is endless, and wears out the patience of the most persevering. Cannot anything be discovered that will make the bushes so disagreeable to the moth, that she will not alight upon them? I have been told that planting broad Beans amongst the bushes would have that effect—can any one corroborate this from experience? In our garden there are some broad Beans within a foot of a red Currant, and the bush is devoured by caterpillars—so this does not seem to be always effectual. Another person suggested drawing a ring of gas-tar round the bushes—which sounds like a very probable remedy—has any one tried it with success? Lime has been tried; burning the soil has been tried; Quassia chips and Gishurst's Compound have not, for, as with "A. S. Z.," the natural flavour of the Gooseberry is preferred to any other. *B. T., Clipston Rectory.*

Wiltshire Snowflake.—I have grown thirty-three varieties this year, and find this a good grower, medium height, white colour, first-class as to productiveness, white and floury when roasted. *F. Grant, Lincolnshire.*

OUT-OF-DOOR GRAPES.

I am very much interested in the cultivation of outdoor Grapes, and having here a long south wall, have planted Vines of various sorts against the pillars that project every 10 feet, and these are doing well, and I hope during the present autumn will produce and ripen some fruit. I have Sweetwater, Royal Ascot, Madresfield Court, Royal Muscadine, and Frankenthal. I wish I had the Esperione, especially of the fine old Vine that once covered the Rectory at Woodstock; but Mr. Fenn has some of that old fellow's progeny doing splendidly on his cottage at Sulhamstead, and no doubt he can give a good account of them. I have planted these in the full knowledge that of late seasons have not favoured the Vine in the open. It is some three or four years since there has been a decent crop of out-of-door fruit, and that experience is not calculated to make one very enthusiastic; still, in this matter of weather I have more faith than I have in many other things, and fully expect that we shall have some warm Grape-ripening summers after a time. In the matter of growing Grapes in the open air for table consumption, it must be admitted that we have formidable rivals in some Continental countries. They send over here fairly good Grapes, which are sold in our shops and streets so cheaply that it is not possible we can hope to excel them from our own out-door Vines.

But it must be admitted that where Grapes are not largely grown—in towns—is just where these foreign Grapes are most abundant. It is in the rural districts, where Grapes may or should be grown, that imported Grapes are less accessible; therefore, there is no reason why, if good home-grown Grapes can be had they should not find a ready if not a very profitable sale. There still remains, however, the important use of converting them into comparatively innocuous wines, and when so employed they are put to a use to which it is difficult to take exception. It is perhaps rather odd that staunch teetotallers as Mr. Fish and myself should be found advocating the conversion of good fruit into an intoxicating beverage, but we rarely find this is done except when fruit is plentiful and no more profitable use can be found for it, whilst in the case of home-grown Grapes there are large quantities that are not ripe enough to suit the palate that will none the less make, with the aid of sugar, a very pleasant wine. With me, however, and probably also with Mr. Fish, it is a matter of interest that we should strive to induce our fellow countrymen to exchange their highly alcoholised ales, beers, and porters, and their far more spirituous gins, whiskeys, and rums, for lighter and more innocuous beverages—we know too well what the former produce. They seem to exist only to give wealth to the maker and vendor, and to curse the consumer.

We hear, however, of no charges of demoralisation against the home-made wines of our households. Simply made beverages from Gooseberry, Currant, Rhubarb, Parsnip, Elderberry, and even the Grape, seem to afford pleasure and gratification and to injure no one. In the world of philanthropy and social enterprise very much is being done by the wider introduction of coffee, zoedone, and other pleasant but strictly unintoxicating drinks, to wean the people from strong drinks, and there is still further ample room in the direction of producing at home those light and though stimulating yet comparatively non-potential drinks, such as good home-made wines present. All who have tasted of Mr. Fenn's home manufactures have expressed the highest admiration for them. Hardened wine-bibbers or free partakers of whiskey would no doubt prefer something more fruity, or, as they really mean, having a greater proportion of alcohol; but their deprecation is for these light wines the highest praise. Get men accustomed to enjoy the fresh and comparatively harmless piquancy of such drinks and the evils of our drinking habits will vanish.

With reference to the "jolly old monks," of whose temperance so much has been written that is deprecatory, I do not think we should judge too hastily. The words of the popular song, the "Holy Friar," may be very good history of some monks, but we may take it for granted that then, as now, amongst their modern representatives, there were good, bad, and indifferent; and if they did, as Mr. Fish assumes, drink of the wines made from the Grapes that grew on their monastery walls, they must have drank amazingly indeed to have got drunken upon them. If the stigma of drunkenness and riotous living really attaches to any of the pious fathers I fear they found their beverages elsewhere. Was not sack the supposed favourite strong drink of the middle ages, and is not that a brandied compound? Of the favourite wines also, if we hear nothing of ports and sherries, were there not malmsey and malvoisie, and of what nationality were these? Just as the monks of old came from the Continent, so may we reasonably expect that they brought with them a taste for the drinks of their native clime, something more spirituous, if not more spiritual, than was the home manufactures even from monastery walls. But in these days at least, there is no proof that Continental people as a rule possess in any degrading degree the fondness for strong drinks that exists so widely in this country, and if the same characteristic existed in France, Spain, and Italy in the middle ages, then it was not probable that the monks were drunkards.

An old resident in France said but the other day, that he had often seen more drunken people in London in one day than he had seen in France in a year. Whether that is true or not, I have no means of proving, but some such expression is very common. Certainly the marvellous thrift and prosperity shown by the French people seems to lend force to the statement. If this be so, to what is the difference between English and French people in relation to drinking habits due? It is solely that whilst we will be content only with highly alcoholised compounds, the Frenchman drinks only his own light and almost innocuous wines, that lead not to demoralisation or debauchery. Much as we may therefore benefit horticulture by encouraging the growth of outdoor Grapes for the making of simple wines, to be used as ordinary beverages, much more in that way may we hope to benefit the moral and social well-being of the community by so doing, and that surely is something which all gardeners, whose occupation is so pure and so elevating, may well hope for and desire. Our friend Mr. Fenn will tell us that his most formidable opponent in his efforts has been the popular demand for strong drinks; if we can in ever so little change the tastes of the people that demand would presently cease. *A. D.*

Begonia semperflorens rosea.—Of this plant, which, as its name implies, is a rose-coloured variety of B. semperflorens, there are considerable quantities grown at the Durdham Downs Nursery, Bristol. It is a most useful decorative subject, flowering continuously in a small state; in habit it differs little, if anything, from B. semperflorens, but the flowers are of a bright rosy-pink colour. Independently of its pretty appearance as a pot plant the drooping character of the flowers makes them well adapted for filling small vases, &c.

FRUIT NOTES.

Early Rivers Peach.—From what I have seen of the Early Rivers Peach, I am of opinion that it is a very valuable variety, as here, growing on the open wall in an east aspect, I gathered fruit of it on August 8, which, judging from present appearances, will be nearly a month before any others are ripe. The fruit is of a pale colour, like that of Noblesse; but is not so well formed and nice-looking, it being deeply furrowed in the middle and compressed at the apex; but against those adverse points, the flavour is good. As to size, I measured the best and found them vary from 8 to 10 inches round, and to weigh from 7 to 8 oz. each, which is not a bad size for so early a Peach. It seems a strong vigorous-growing kind, as a tree two years old from the nursery covers a space of nearly 100 square feet; but then I never cut back or shorten any shoots except such as are gross, and appear taking an undue lead during the summer, when I nip out the end and lay a lateral, which maintains a proper balance of growth, as the sap is at once diverted into other channels, and its force more equalised. *J. Sheppard, Woolverston, Ipswich.*

Peaches and Nectarines in the Open Air at Singleton.—Chancing to be in the vicinity of Swansea the other day, and having heard much about the excellent garden practice carried on at Singleton, I resolved to run out there for an hour or so; and while I saw much both original and well done, nothing pleased me so much as the Peaches and Nectarines on the open walls. The trees are the finest I ever saw anywhere, either in or out-of-doors, and the crop is astonishing. The chief Peach wall is about 100 yards in length and 15 feet high, and the whole of this extent is beautifully clothed with splendid trees. The first two are the Salway—noble trees, covering a space 25 feet by 15 feet each. The wood was clean and well developed, the leaves spotless, and the crop, as I said before, marvellous. It was easily enough seen that every one that had formed were not anxiously left to form the crop, as the fruit were much too even for this. Grand free swelling fruit were perfectly regular all over the trees, at a distance of 6 inches apart, and a tree fruited at this rate always looks full, as these undoubtedly were. In former years fruit weighing from 12 oz. to 1 lb. have been gathered from these trees, and they give strong indication of a general accomplishment of the same kind again. Early Louise was the next one we came to, but the trees of this are as yet young and small, but their growths were healthy and their crops great, and Mr. Harris prefers this in every respect to all other early Peaches. Hale's Early, another kind grown, is behind in all the true Peach qualities, so amply possessed by Early Louise. Elruge Nectarine trees are, like the first Peaches spoken of, about twelve years old, and they are in the same wonderfully healthy fruitful state as all the others. Bellegarde was another of noble proportions and grand crop, and so was the Pitmaston Orange Nectarine. It is rare indeed that such healthy trees are to be met with; we have seen a good many Peach-walls in different parts of the three kingdoms, but none to equal this in the excellency of its furnishing, and regularity and profusion of free-growing fruit. The attention required to bring about such a state of matters must be constant, unlimited, and of the most judicious kind. The surface from old pasture fields and lime rubbish are the principal or indeed the only rooting materials. Much attention is given to protecting the trees when in bloom, but this can only be done with old mats, canvas, &c., so that their remarkable condition can hardly be attributed to this, and the only thing else we can think of is the skill of Mr. Harris. *Discriminator.*

Large Peaches.—Mr. J. Horsefield mentions with surprise Peaches of 14 and 16 oz. Last year a large Peach tree, Dr. Hogg, which had only borne a few dozen fruits, had one which scaled 23¾ oz. This year the same tree bore twelve dozen: the largest scaled 18½ oz., and several were between 14 and 16 oz. I quite endorse Mr. J. Rust's remarks as regards flavour. My first pick was on May 16 in an early house (span, 60 × 40), and I hope to continue the succession until October. I am now picking in two houses whose aggregate length is 720 feet an average of 600 Peaches daily, the heaviest day's picking hitherto has been 1452. I have never yet been unable to supply my customers in answer to telegrams or orders, of which I have several daily. I shall be glad to show my houses to any gentleman who will favour me with a call at the "Vineries," Marsham Street, Maidstone. *A. T. Goodwin.*

Lord Napier Nectarine.—This is a grand Nectarine, and one that should be in every garden where there is a house or wall devoted to the growth of these esteemed fruits, for not only is it larger and finer looking than any other with which I am acquainted, but it is full of rich juice and of exquisite flavour; besides which, it is a free setter, and ripens some days or weeks in advance of the Elruge, which is generally considered one of the earliest. The tree, too, is very hardy, and a strong, vigorous grower, and as the time will soon be here for planting, those who have room should not fail to add one or more of it to their collection, for from the experience I have had of it, it is a kind I can strongly recommend; but as Peaches and Nectarines do not behave the same everywhere, it will be well if others will say what they think of it. *J. Sheppard.*

THE GIANT BAMBOO IN CEYLON.

There is no group of plants, not even that of the Palms, which is more striking to the botanist who first sees tropical vegetation than the Bamboos; the singularity of their habit, the remarkable rapidity of their growth, the persistence of many species for long periods of time without flowering, and the extreme beauty of form presented by the larger kinds, all contribute to interest the mind and strike the imagination. The effect is enhanced by the knowledge that these towering and umbrageous masses of foliage, rivalling or overtopping the slow-growing and solid trees of the forest around, are in all respects as truly grasses as the humble Poas and Fescues of our downs and meadows.

Perhaps the very largest known Bamboo is that of which mention was made in an article on Ceylon by "H. J. E." in a recent number of the *Gardeners' Chronicle.* An illustration of one of the magnificent specimens in the Royal Botanic Gardens, Peradeniya, there alluded to, is now given (fig. 54), and being taken from an admirable photograph, it conveys an accurate idea of the vast dimensions and perfect symmetry of a well grown plant of this fine species.

The species is Dendrocalamus giganteus, Munro (Bambusa, Wallich), and is described in the late General's well known monograph. Though thriving with such vigour in Ceylon it is not a native here, but of the Malay peninsula. There appears to be some doubt as to its precise home. Brandis gives Moulmein, but Kurz does not include it in his *Forest Flora of Burmah*, and states that it is confined to Malacca and the adjacent islands. It appears to be a local species, and the majority of visitors from the Straits who come to Peradeniya are unfamiliar with it.

It appears to have been introduced into the Calcutta Botanic Garden in 1831, whence specimens were received at Peradeniya in 1856. It seems to have flowered at Calcutta in 1861 or 1864, and to have survived the process. Colonel Munro was able to examine the fruit and thus to fix its generic position as a Dendrocalamus. In 1864 the great cyclone destroyed four out of the five plants then in the Calcutta garden. The original plant at Peradeniya is still a thriving and handsome specimen; it was soon largely propagated from, and the numerous specimens in the gardens and in many parts of Ceylon are its descendants: the subject of the portrait was one of the earliest propagated. No specimen has as yet flowered in the island.

Any detailed scientific description would not be in place here, but a few particulars will be interesting, and attention may be called to some facts of morphology. We have here essentially a perennial tufted grass on a large scale; the hard solid subterranean rhizome is excessively branched, and each branch terminates in an aërial stem or culm. In this species these are crowded very closely together, and are added to every year, the oldest ones being principally in the centre, but the rhizome branches are so intermingled and interlaced that there is little regularity in this matter.

The clump figured must contain several hundred culms of various ages, and the mass measures 98 feet in circumference about a yard from the ground. Each culm is cylindrical, and grows as vertically straight upwards as its older companions will allow; the squeezing and jostling which occurs is wonderful, and the enormous compressing force will in cases force a culm out of shape slightly. As with other Bamboos they take their full diameter almost immediately, and while yet soft, the silicic hardening not being completed till they have reached nearly the full height. The outer ones towards the top get somewhat pushed over by the immense weight of foliage of those within, and are sometimes broken off in consequence. The usual dimensions of the culms are from 26 to 29 inches in circumference, the largest I have measured attaining 33 inches, or nearly a foot

in diameter. They are not thickened at the joints, perfectly smooth, of a pale dull green colour as a basis, but this is overlaid with a sort of "bloom" of whitish-blue, and the effect of this is to give a pale greyish tint to the stem. Their actual length is over 100 feet, but that is about the height of the clump figured; each joint is 15 to 18 inches in length, and the thickness of the wall about 1 inch; the lowest ones are shorter, with a rather thicker wall. When young each node gives off a large thick, leathery, yellow sheath, topped with a rudimentary leaf-blade, but they are quickly detached, and fall off or often slide down the stem, slipping over one another, so as to form quite a mass at the base of the culm. These sheaths are beautifully polished within, but are set outside with minute brown hairs, separable by the slightest touch and somewhat irritating to the skin. No sheaths are seen in the photograph, which was taken when no young culms were rising. A dense narrow collar of short, stiff, crowded, very hard, blunt rootlets comes off just above each partition in the lower part of the culm; these increase as we pass down in length and number till at the very base they pass into the innumerable rootlets originating from the rhizomes themselves, which in incredible numbers permeate the soil in every direction, and effectually prevent the growth of any other large plant in the immediate neighbourhood.

This, and the litter caused by the quantity of fallen leaves, are the principal objections to these magnificent objects in a botanic garden, and by choosing suitable sites for planting them these are rendered of no great consequence. During the very high winds that are experienced in Ceylon at the changes of the monsoons and at other times, a few stems are occasionally broken off, and the grinding, creaking, and clattering noises which go on overhead among the straining stems in windy weather are apt to alarm any one standing beneath.

I may add that in the view the river is the Mahawelli-ganga, which, by a bend, surrounds three sides of Peradeniya gardens, and on its opposite bank we get a glimpse of a Cocoa-nut plantation. The little Bamboo on the bank under the giant is the common small wild one of Ceylon, Beesha stridula, the "Bata lē" of the Cinhalese, but a poor specimen. The Palm on the bank is a young plant of the common "Kitool," Caryota urens; whilst the small tree, only a portion of which is included on the left hand of the picture, is the "Gadoomba," Trema or Sponia orientalis, a useless plant, and a good example of what the late Dr. Seemann used to call a "tree-weed."

I should add that I am indebted for this photograph to Mr. Skeen, of Colombo, whose artistic taste has brought together a beautiful series of studies of tropical tree-forms, mostly taken in the Royal Gardens and the neighbourhood of Kandy. *H. Trimen.*

Garden Operations.

FRUIT HOUSES.

Vines.—The earliest vineries will now be losing their leaves, and it will be better, if this be not already done, to cut out the laterals and prune back the wood a few eyes to admit all the light possible. In the case of young and very strong Vines, where the wood is not thoroughly ripe and of a nut-brown colour, give a little fire-heat in the daytime with abundance of air, turning the heat off early in the afternoon. Any Vines with the borders re-made as advised in my last Calendar will now be making new roots, and must be kept cool, and the laterals pruned back, but not before the house has been kept cool for some days, or it may induce the maiden buds to break. Any houses not in a bad state will be better with 6 inches of top-dressing, taking out the old soil carefully with a fork to that depth, and if any roots are disturbed, let them be laid carefully in the new soil, which should only contain moisture sufficient to enable it to be trodden firmly down, then put a few inches of rotten dung over all as a top-dressing, and give a good soaking of water if the border is dry, with abundance of air. Houses in which ripe bunches of Black Hamburgh are hanging must not be allowed to get dry, but should be watered with clear water when necessary, and an abundant supply of air given on bright days, but if the weather is dull or cold less air with a little fire-heat will be best. If the Vines, through being in a bad state at the roots or red-spider, have lost much of their foliage, a slight shading, such as an old herring-net spread over the glass, will help to keep them plump; but on healthy Vines with good foliage no shading is necessary. Succession houses of Black Hamburgh that are ripening will require a little fire-heat while this dull, wet weather lasts, and on wet days very little front air should be admitted, keeping enough on the back ventilators to keep up a circulation. If the borders are dry, wait for a fine day to water them, turning on for the day a little extra fire, and give a good supply of air to carry off the excessive surface moisture; keep all the laterals thinned out to admit air, leaving sufficient only to cover the trellis without crowding. Muscats that are ripe can now be kept cooler and drier; but do not let the borders become too dry, or the fruit will shrivel. When damping down is done, let it be done in the early part of the day, so that it will dry up before evening, and water the borders when dry with clear water. The latest house ought now to be ripening, for if later the Grapes never can attain high colour and finish, and will not keep so well, if ripe later than the end of September. Push on any that are late with fire-heat, closing early in the afternoon, and keep to a night temperature of 70°. Late varieties of Grapes keep as advised in my last Calendar, keeping a sharp look-out for spiders, or they will disfigure the bunches with their webs. The best plan is to go over all the corners of the houses with a soft hair brush twice weekly, which if done all the season will keep them down. The latest house of Black Hamburgh will now be about changing colour, and must be kept as previously advised for Hamburghs when colouring. Newly planted vineries may now be kept a little drier at the roots and the syringing discontinued, and if the wood is not ripening well give fire-heat in the day with abundance of air back and front, turning off the heat in the afternoon. The earliest pot Vines will now be ripening fast, and will be better placed in front of a south wall, taking care to have them properly secured, and the pots covered with Fern or litter to prevent evaporation, they will then take less water and ripen better. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

Suckers after they are potted should be well shaded for two or three weeks, as they make roots better in such positions than if exposed to bright sunshine. If the suckers are very sappy when taken off put them in a dry place for two or three days, with the base of the suckers turned towards the sun. The suckers should first be trimmed by pulling off a sufficient number of the lower leaves, but it is not a good plan to take too many off at this stage. Pines in all stages do better when kept near the glass, and this is very important with all young plants. As the solar heat declines diminish the shading accordingly. This is easily done by not shading so early in the mornings, and by taking it off earlier in the afternoons. Put the last batch into fruiting pots the end of the month or the beginning of the next, and keep them growing slowly all through the winter. They should never be allowed under any circumstances to become drawn, and should always be in a light structure. The plan of frequent potting, worked in successive batches, is better than keeping plants about too long by retarding after they have completed their growth; in fact, this plan is almost indispensable when a succession of fruit is required all the year round. A lot of Smooth Cayennes, Charlotte Rothschilds, and Black Jamaicas should be started into fruit; these will come in after the early autumn fruit. Examine carefully all plants before watering, and let the soil be in a state that will take water, and at the same time be open and sweet. If loam for potting is getting short it should be supplied with fresh-cut loam stored in a dry state. It should not be stacked too long, as the fibre decomposes; then the loam loses its best virtue. Instead of storing a quantity at one time it is better to get smaller lots at three or four different times during the season. As the plants are cleared from the permanent houses draft succession plants from dung frames or any temporary place to fill up the vacancies thus made. Later lots of succession plants that were plunged close at the time of potting should be re-plunged and allowed more space. *D. Wilson, Castle Hill, Devon.*

HARDY FRUIT GARDEN.

Fig trees may now be looked over, and all the young Figs that are seen to be forming on the fresh growths may be broken out. Such fruits have no chance of ripening in the current year, and will certainly be killed during the winter; therefore it is advisable to remove them, as there is a probability of embryo Figs being formed in their places which will remain over the winter, and will usefully supplement the supply for the following season of those now being formed at the extremities of the shoots.

Fruit Packing ought to have attention bestowed upon it, as being an indispensable operation, which is but too often indifferently performed. It cannot be too frequently stated that, to ensure safe transit, the packing must be firmly done, the material used must be sufficiently elastic, and the boxes shallow, or, if deep, divided by trays. Perhaps the best materials for fulfilling the second condition are paper shavings and perfectly dry moss; the latter of which was generally used for packing fruit in the old coaching days, and is not yet superseded by anything superior. Keep the hoes going on the fruit quarters to destroy the fresh crop of weeds that is sure to appear after the recent rains. Attend to the ties of any buds of varieties of fruits on trial that have been inserted on established trees, and loosen if necessary. Continue to remove all suckers from fruit trees as soon as formed, and keep this department generally in the trim condition it ought now to present. *R. Crossling, St. Fagan's.*

PLANT HOUSES.

Stoves.—When a favourable opportunity occurs, it will be well to look over the whole collection in this department, and to consign to the rubbish heap any old exhausted plants, whether grown for their flowers or for the beauty of their foliage; thus giving room for the healthy young plants to develope themselves better. Old scrubby plants are too often kept in many collections, either for old acquaintance sake or for the want of resolution to cast them off in favour of the younger ones. There is not, I think, nearly so much pleasure to be derived from a quantity of full-sized specimens as there is in growing plants from the cutting, and from a small plant. Any plants that may have become rather loose and straggling should be tied into closer compass before colder weather sets in, when those kinds of stove plants which have been in somewhat cooler houses will require to be removed into a warmer temperature, thus causing a closer arrangement in this structure. Shading should now be gradually dispensed with, this will tend to ripen the growth of the plants, and bring them into a condition better able to resist our inclement winters. Do not let the temperature decline much below 70° at night as yet, keep the temperature up with a crack of air on to dispel the superabundant moisture, which will soon prey on the more tender subjects, rendering those with ornamental foliage unsightly, for months to come. Greenfly is often to be found to attack Alocasias and their congeners at this season. Occasional fumigation will keep them in check, as it will any thrips that may be lurking about for a comfortable residence as the weather gets colder. Look after the stock of Caladiums; these, when becoming shabby, are often moved into a colder house, where (if the temperature is allowed to be below 50° for a week or two) the bulbs will suffer greatly, and will often be found decayed and rotten when turned out in the spring. It is better to lay them on their sides under other plants, the little moisture that they thus secure will be more conducive to their well-being than otherwise. Give every attention to the stock of winter-flowering plants. If these have been well looked after they will prove of great service in the dull season when flowers are scarce. Where climbers are growing on the roof it will be well to thin them out somewhat if they obstruct the light from reaching the other plants.

Greenhouse.—Now that we are experiencing a considerable amount of wet weather it will be well to make preparations for housing some at least of the more tender greenhouse plants, such as Acrophyllum venosum, the Leschenaultias, Boronias, Dracophyllums, and the harder wooded Ericas. Any of the aforenamed will suffer greatly if allowed to become sodden at the root, especially so if they have received a liberal shift this summer. Some of the Ericas, such as Cavendishii, depressa, and the varieties of ventricosa, should have the benefit of all the exposure to sun and air that can be afforded them; unless recently potted, these may remain out a week or two longer, so may the stock of Indian Azaleas, which should now be well knotted up for next season's bloom. Previous to housing the entire collection of greenhouse plants it will be advisable to take advantage of a wet day to thoroughly cleanse the structure, leaving it clean and sweet for the winter. Where what are termed the greenhouse or Indian Rhododendrons are grown they will be greatly benefited if they can be kept apart from the general collection of Cape and New Holland plants, and a little warmth afforded; this will aid in ripening the wood early. This invaluable class of Rhododendrons ought to be grown in numbers by all who have to supply choice cut flowers. Where there is a good stock either one or the other kinds are invariably throwing up a stray truss or two, which are always acceptable in a cut state. Lachenalias should be sorted out and repotted without delay if they have become overcrowded in the pots they are now occupying. Orders should now be given for the general collection of Hyacinths and other bulbous roots: the foot-note added to the nurserymen's catalogues—"To ensure fine bulbs, &c."—should be regarded. It is not necessary, in order to secure a good display of Hyacinths, to launch out into the expensive kinds. Some of the cheapest are among the very best. Give attention to Primulas; the earliest will now be pushing up their flower-spikes to render good service in October; later ones should receive another shift as soon as possible to secure their being established before winter. See that Cinerarias do not become a prey to greenfly; shift these also if they are getting pot-bound, unless they are wanted for early bloom. Keep the shoots of Chrysanthemums tied to their sticks as they extend their growth, and give every attention to thinning and disbudding if fine blooms are desired. *J. Hudson, Gunnersbury House Gardens.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Aug. 29	Special Trade Sale of Dutch Flower Roots, at the Auction Mart, by Protheroe & Morris
Wednesday,	Aug. 31	Sherborne Horticultural Society's Annual Show. Horticultural Exhibition in the Butter Market, Carlisle (two days). Sale of Dutch Bulbs, at Stevens' Rooms.
Thursday,	Sept. 1	Sale of Imported and Established Orchids, Specimen Greenhouse Ferns, &c., at Stevens' Rooms.
Friday,	Sept. 2	Paisley Horticultural Society's Autumn Show.
Saturday,	Sept. 3	Sale of Dutch Bulbs, at Stevens' Rooms.

THE INTERNATIONAL EXHIBITION OF THE ROYAL MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY, held in celebration of the jubilee of the opening of the gardens of the Society at Old Trafford, which commenced on Wednesday last and closes this day, has been a decided success. It is probably the greatest combined fruit and flower show ever held in this country, though its component parts may have been equalled or excelled on other occasions in other places. It is, moreover, a highly meritorious show in respect to the quality of the exhibits, the orderly arrangement of which, by the hour appointed for the opening of the show by the President of the Society, Lord DERBY, is most creditable to the managerial skill of its Secretary, Mr. BRUCE FINDLAY, by whom the details have been admirably carried out.

No doubt the strongest features of the show were made up of fruit and vegetables — the quantity of fruit exhibited, and fruit in the main of excellent quality, was prodigious; but, though held at a somewhat unseasonable time, when plants—at least exhibition plants—are supposed to be almost gone out of season, and the best fruits have scarcely come in, there was no lack of the plant element, and the result must be held to have justified the date selected. Would that we could say as much for the state of the weather; but, unfortunately, the downpour of rain had previously been very great, and though the clouds were merciful on the opening day, giving only a few slight though threatening showers, the heavens were gloomy and foreboding enough to deter the timid from venturing to take part in this jubilee *fête*. Notwithstanding this, a large number of visitors were admitted to the gardens. The financial success of the undertaking, in respect to the object which the Council has set itself to accomplish—namely, the rebuilding of the range of glasshouses—depends upon the weather of the succeeding days. The exigencies of the printing-office and post-office, however, require that our record must close with the events of the first day, in order that our detailed report of the show, which will be found on another page, may be in the hands of our readers at the appointed time.

We have said that the strong feature of the show is its fruit element; but there was no lack of flowers, the foliage plants being well varied by the Dipladenias, the Lapagerias, the Eucharis, the Ixoras, the Allamandas, the Francisceas, the Heaths, and the not inconsiderable sprinkling of Orchids which were present, while the richly-tinted Crotons threw much bright colouring into the picture. The whole of the large iron-framed annexe tent was filled by "effect" groups of plants, which formed an exceedingly interesting feature, some of which, especially one in the 20 feet by 10 feet space, set up by Mr. SMITH, gr. to J. RYLANDS, Esq., of Stratford, was remarkable for the good taste displayed in its arrangement.

As regards the fruit itself we may just state that Mr. COLEMAN maintained his well-earned reputation by winning the leading prizes for collections with fruit of the highest quality and finish; and in the ten varieties of Grapes Mr. HUNTER came to the front. Mr. HUNTER was also the winner of the General Horticultural Company's munificent prize for a collection of Grapes. A magnificent fruiterer's display was made by Mr. MASON, of Manchester. Vegetables were very numerous and very good.

Carnations, though it was almost past the season for them, made a very fair display, and Roses and other cut flowers were creditable considering the climatal trials with which British gardeners have recently been afflicted. For the details of the several branches of the show we refer to the full report given on other pages.

ALTHOUGH Dr. LINDLEY'S prophecy, that ORCHIDS would in a few years from their introduction be hawked about the streets of London like Fuchsias and Pelargoniums, has not yet been fulfilled, the time has come when a garden is not thought complete without at least a small collection of COOL ORCHIDS. Nor have they escaped the notice of the money-making Covent Garden florist, as thousands of the more common Odontoglossums are grown entirely for their yearly yield of bloom. These plants have won their way to favour, not because they are botanical curiosities, nor yet through their rarity, but simply and solely by virtue of the beauty of their flowers. Indeed, one would soon run short of complimentary adjectives in describing the inmates of a cool Orchid-house. Nor can we in the least foresee to what extent additions may be made to this section of Orchids. Many really new ones may be introduced, and even the veteran orchidophilist, Mr. BATEMAN, may see once more those Orchids from the eastern side of the Peruvian Andes which LOBB once gathered for the Messrs. VEITCH, and which were, as Mr. BATEMAN tragically puts it, murdered in the stifling heat of an East Indian-house. Modern Orchid growers may smile at such treatment of cool Orchids, but there was every excuse for those who did it, and we might be doing exactly the same thing to-day were it not for the recorded failures of our predecessors. Our danger of to-day in the management of these plants lies in quite the other extreme. Do these cool Orchids benefit by an atmosphere through the winter near to the freezing point? And do they through such a summer as we are now passing really enjoy having the roof taken from over their heads by means of wide-open doors and ventilators, thus allowing an exhausting atmosphere at a temperature of between 80° and 95° to immediately surround them? Such treatment is not only often advised but often acted upon, and tends to make cool Orchid growing to all beginners in their culture quite a mystery.

The most popular kind of structure for a cool Orchid-house is a low lean-to facing north. In such a house they are more easily grown than in any other form, but the best plants are not in every case to be found in them, for through the country there are some first-rate plants, especially of Odontoglossums and Masdevallias, to be found growing in all kinds of undescribable structures: thus in a low span-roofed house at Mr. CHARLES WALKER'S, of Lanark; in a lofty narrow lean-to at Provost RUSSEL'S, Falkirk; in an ordinary span-roofed house at Mr. GAIR'S, Falkirk; in a house big enough for a racquet court at Trentham; in a long, low, almost flat-roofed lean-to facing north at Mr. BOCKETT'S, Stamford Hill; in a high-roofed house facing due south at Mr. HANBURY'S, The Poles, Ware; and in two vinery-like structures with northern aspects at Mr. BRYMER'S and Sir WILLIAM MARRIOTT'S, the two guiding lights of Dorsetshire so far as Orchids are concerned. Many more might be cited, but those enumerated are sufficient to prove that cool Orchids are not quite so hard to please in the way of structures as many suppose, and in order to give the most trustworthy information to amateurs and others, we avail ourselves of the experience of Mr. SPYERS, Mr. ANDERSON, and other cultivators who have favoured us with their valuable hints. To return to the popular lean-to, with a northern aspect: each of its top lights should be made to run down at least 6 inches, or ventilators should be so arranged as to give the same effect when opened. The side-lights should swing from their tops, outwards; and just above the ground line the bottom ventilators, covered on the inside by perforated zinc, should be fixed. When wide open they should be equal to an aperture 3 inches wide the entire length of the house. When shut it is all the better if slight currents of air can pass them. The ventilation of this house can be reduced, even on paper, to a system which, if carried out, will give every satisfaction. The governing agent must be the temperature of the external air; when that is a few degrees above the freezing-point the bottom ventilators should be opened slightly, at 45° they should be wide open, at 50° add an inch of top air, at 55° 2 inches, at 60° open the side ventilators 2 inches, at 65° open the top and side lights a trifle more, when the maximum of air-giving will be reached. The shading is even more simple. A roller-blind should be used, which is best when kept, by means of rods, a few inches clear of the glass. Have this blind down whenever the sun is shining upon the house. Enough fire-heat must be used in the winter to keep the night temperature between 45° and 50°, allowing from 5° to 7° rise through the day. Damp down by pouring water over stages, floors, and walls from one to three times each day according to the moisture or aridity in the external air. With the exception of an hour or two in the middle of the day, the air of this house should be near to the saturation point. If the house is so arranged, or divided, that one part may be kept 5° warmer than the other, a wonderful assortment of plants may be grown in it that are not usually to be found in cool Orchid-houses, such as Dendrobium Jamesianum, D. infundibulum, D. Falconerii, Trichosma suavis, Cypripediums Harrisianum, caudatum, Schlimii, and villosum; Promenæa citrina, Cattleya marginata, Lælia Dayana, Cymbidium Mastersii, and many others. The two Odontoglossums figured in our plate should be represented strongly at both ends—O. crispum at the coolest. Better known as O. Alexandræ, this magnificent Orchid has won more admirers than any other, not even excepting the queenly Phalænopsis amabilis. Ladies look upon the smaller spikes as grown expressly for the decoration of their hair, while the larger ones used as a bouquet look as natural as when growing in the houses. We are speaking of spikes which by the weight of their flowers are allowed to curve gracefully downwards; spikes of O. crispum trained perpendicularly are an absurdity. Semi-established plants of this Orchid (which, taking everything into consideration, are the best to buy), can at this moment be purchased cheaply. Large established plants are more costly than ever, for although not difficult to grow, this plant cannot be rushed quickly into specimens of the three or four strong spike type. The present is an excellent time to pot O. crispum and such of its companions as O. Pescatorei, O. gloriosum, O. cirrosum, and, in fact, all cool-house Orchids not in flower or showing such. The compost should consist of two-thirds sphagnum moss and one of fibry peat, very coarse silver-sand, and broken bits of bricks and charcoal about the size of peas may be freely thrown in during the operation of potting. Fill their pots at least three parts full of crocks, over which place a layer of sphagnum, to prevent all particles of compost from getting down amongst the drainage. Keep the base of the bulbs a trifle above the rim of the pot. Pack the compost so that the plant is perfectly firm, but on no account let it be so firm and compact as to prevent

FIG. 54.—THE GIANT BAMBOO IN THE BOTANIC GARDEN, CEYLON. (SEE P. 272.)

water passing rapidly through. When finished, a few heads of moss should peep through here and there, which, especially if soft water alone is used will quickly cover the entire surface. Hard water will kill sphagnum in a few weeks. All projecting pieces of peat and moss should be clipped off by the shears. Plants thus potted may be watered at intervals of from four to seven days. It is quite a mistake to suppose that Odontoglossums and Masdevallias cannot be over-watered. It is much better to double shade through the hottest hours of summer days than to keep frequently syringing and watering. The best peat consists almost entirely of the roots of Pteris aquilina, and the greater the elevation the Fern grows the better the peat. Let the moss used be carefully picked clear of all rubbish and vermin, and be thoroughly washed. No trouble must be spared in trying to rid it of slugs and their eggs.

The O. vexillarium is now almost as well known as any Orchid. It varies in colour from almost pure white to deep rose. It is so free flowering that one bulb will carry between thirty and forty flowers when strongly grown, some spikes actually branching, while others will perch themselves on the apex of the bulb. The flowers, thin in substance as they are, will last five weeks in perfection, but three weeks is quite long enough as regards the future welfare of the plant. The sooner all Orchid flowers are cut after they have reached perfection the better for the plant. O. vexillarium will grow alongside of O. crispum the whole year round. We have got one plant that is now thoroughly healthy which has passed three seasons with them, but we winter our main lot at the coolest end of the Cattleya-house, where there is about 7° more heat. Now is a good time to pot them, and the directions already given for O. crispum are sufficient. The great trouble with this plant is to keep it clear from those detestable pests, yellow thrips; and we take this opportunity of saying that Mr. Spyers, whose competency is beyond dispute, tells us that he deals with this pest by merely putting 3 oz. of shag tobacco into 2 gallons of water at a temperature of 90°; leaving it there one hour, straining it off and dipping the plants in. They require no washing off, but it is wise to water the plants after they have drained the liquor from their foliage. Other Orchids that like the few degrees more heat through the winter are O. grande, O. Insleayi, O. Warscewiczii, O. Phalænopsis, O. nævium, O. pulchellum, O. crocidipterum, O. blandum, Masdevallia tovarensis, and all of the chimæra and bella section. Excellent companions to O. crispum are Mesospinidium vulcanicum, now beautifully in flower; Oncidium macranthum, O. serratum, O. zebrinum, now in flower and strongly scented; O. nubigenum, O. cucullatum, Maxillaria grandiflora, Epidendrum vitellinum, and Lycaste Skinneri. On the roof, growing in shallow pans, or baskets, should be Sophronites of sorts, Nanodes Medusæ, Pleione humilis and P. Hookerii, Odontoglossum Cervantesii, O. Rossii, and Cattleya citrina.

—— Flowers in Season. — From Glasnevin come flowers of the lovely Crinum Moorei, whose exquisite pink colour and delicate fragrance render it one of the most desirable plants to grow; moreover, with the slightest protection in winter it is hardy. Mr. Moore also sends us the remarkable Hyoscyamus physaloides with glabrous sinuately lobed leaves tapering very gradually to a winged leaf-stalk, flower-stalks placed by the side of, not in the axils of the leaves, and with large pale blue funnel-shaped flowers, with a white throat. The calyx lobes increase in size after flowering, and finally form a green balloon-like investment to the globose capsule, which they completely conceal. From Mr. Barr comes the old Eucomis punctata, with its spotted flower-stem and dense spike of flowers surmounted by a tuft of green leaves, as if the spike had got tired of producing flowers, and was expending its remaining energies in the formation of leaves. Eucomis regia is a finer plant than the last-named, but of similar character, the flowers, however, are larger and paler in colour. Gladiolus purpureo-auratus is a species with primrose-coloured flowers, the segments somewhat connivent, and the lower ones striped on their inner surface with bands of rich purplish-brown. G. sulphureus, raised by Mr. De Graaf, of Leyden, is very beautiful; the flowers are large, self-coloured, of a delicate primrose tint. Cultivators should make a note of this. Bomarea Carderi is a very graceful greenhouse climber, with rose-pink Alströmeria-like flowers. It was first described and figured by Dr. Masters in these columns some years since, but is only now becoming known. Anemopsis macrophylla is a very interesting Japanese hardy perennial with tri-ternate leaves, the segments of which are lanceolate, tail-pointed, coarsely saw-toothed, and the semi-double blue flowers, each about 1½ inch in diameter, are borne in loose, erect, branching panicles. This very interesting plant is, as its name implies, closely allied to Anemone, and in habit is not unlike A. japonica.

—— Artificial Fertilisation. — A fact recorded by Mr. Williams, in the report of the Dundee Horticultural Association is so important that we think it well to give it greater prominence. A flower of Victoria regia naturally fertilised, says Mr. Williams, yielded twenty-five seeds; another, artificially fertilised with its own pollen, gave sixty seeds; another fertilised with pollen from another flower on the same plant, a hundred seeds; while yet another, fertilised with pollen from a flower on another plant, gave 300 seeds—twelve times that of the naturally fertilised flower.

—— Death of Madame van Houtte.—The death of this lady on the 18th inst. is announced. Those familiar with the great Belgian nursery, founded and presided over by the late Louis van Houtte, at Ghent, will know how greatly the success of this vast establishment was due to the energy and unflagging perseverance in detail which Madame van Houtte brought to bear in aid of her husband, and since his decease of her son. Aided by her two daughters this gifted lady managed the administrative department of the business with a business tact quite beyond ordinary experience, while her personal qualities endeared her to every one who had the pleasure of her acquaintance. Her funeral, as we learn from the *Journal of Horticulture*, was imposing from the spontaneous expression of feeling which was manifested, not only by the 160 *employés* of the establishment, many of whom have grown grey in the service, but for the tribute offered by the representatives of more than 100 other establishments of like nature in the old Flemish capital. Madame van Houtte and her family were so widely known in this country that the greatest concern and the deepest sympathy will be felt with the survivors in this great calamity.

—— The Apple Orchards in Worcestershire.—If there be one branch of horticultural industry more than another deserving the attention and consideration of market gardeners and others it is the cultivation of the Apple upon a large scale, which, in ordinary seasons, would not fail to be a remunerative crop. In the neighbourhood of Evesham we notice several orchards which must probably yield their owners a handsome profit this season. The trees are literally weighed down under the burden of their crop, and in every case the ground is cropped between the trees either with Turnips or other vegetables, or yielding good crops of grass, which is equally profitable. The point to observe appears to be not to plant the trees too close to interfere with the growth of other crops, and not to plant dwarf trees, which would be nearly as injurious, by shading the crops planted amongst them. Several new orchards have been planted lately, and the fact is encouraging, and ought to be an example to those who have the space at command, and a moderate soil and climate. Winter varieties would be the mark to aim at, because English-grown Apples are, except in a few instances, so superior to Americans that a good supply of the former would drive the latter out of the market. There is no insuperable difficulty in the way of farmers and others striking out a fresh line. The land need not be a waste while the trees are growing, and the first cost of the trees is hardly worth mentioning from a commercial point of view. A few dry hours enables any one to harvest a good crop of Apples, and altogether it looks quite feasible to accomplish something more than has lately been attempted in Apple growing.

—— The "Deutscher Garten."—Under the new title, *Gartenzeitung*, it is proposed to combine the *Deutscher Garten* and the *Berliner Monatsschrift*, the two above-named serials hitherto issued separately. The former is an independent publication, and the latter the organ of the Berlin *Verein zur Beförderung des Gartenbaues* and the *Gesellschaft der Gartenfreunds Berlins*. By this union of resources it is hoped to produce a horticultural periodical that shall compare not unfavourably with those of England, Belgium, and France.

—— The British Herbarium of the Late H. C. Watson.—Many persons will rejoice that this classical collection, if we may so term it, is to be deposited at Kew, where it will be kept apart from the main collections. The library will also be enriched by any desirable books the deceased author's library may contain.

—— The Buckland Yew.—This grand veteran, whose removal from the site he had occupied certainly for several centuries, was the subject of illustration and comment at the time (p. 556, May 1, 1880), is still alive, though on the northern and eastern side the tree looks in woful condition. The tree has been fenced round, and it looks well cared for. The church, to extend which the Yew was moved, is now completed, but although the work has been well done, and the effect—barring a certain lack of proportion—does not admit of unfavourable criticism, yet it is impossible to help regretting that a new church was not built elsewhere in this populous suburb of Dover and the Yew left alone. As it is, we must hope on and trust no further experiments will be made on trees of this character. The bole of the Buckland Yew is one of the grandest objects of its kind that can be seen.

—— Dipladenia hybrida.—It is not always safe to form an opinion of any plant from a single example, as it not unusually happens that there may be some peculiarity in the habit or cultural requirements of the variety which detract from its merits. But so far as can be judged from the plant under this name, exhibited By Mr. Tudgey at the recent Shrewsbury show, we have seen no Dipladenia equal to it, the vigorous growth, stout handsome foliage, profusion of flowers, and their intense glowing crimson colour putting in the shade everything that has yet appeared in the shape of Dipladenias.

—— The Macartney Rose.—This was killed in so many places last winter that we were glad to see it still flourishing on a garden wall at Dover lately.

—— Rudbeckia speciosa. — This handsome herbaceous plant is now in flower, and will continue so, under favourable conditions, for a month or more. It is certainly one of the finest things in that tribe of Compositæ of which it is a member. Singular to say, no figure of it, that we can ascertain, has ever been published, though it has been in cultivation upwards of fifty years, or, at least, it was cultivated more than fifty years ago. Indeed, it was first described from cultivated specimens, its native country then being unknown and long remaining unknown. Wenderoth described it in 1828 from specimens growing in the garden of the Academy of Marburg, and he was so very much impressed with its beauty that, comparing it with the other species, he expressed himself in the following words: "Elegantissima harum omnium, ex mea sententia est, propter magnum florem aureum cum disco atropurpureo." It has since been ascertained that it is a native of the mountains of Pennsylvania to Ohio, North America, and there are magnificent specimens in the Carey Herbarium at Kew. Independently of the great beauty of its flower-heads, it has the advantage of moderate stature, rarely exceeding 3 feet in height, and usually ranging in light soil from 24 to 30 inches. The lowermost or radical leaves are ovate, strongly ribbed, coarsely toothed, and borne on slender stalks, 6 to 9 inches long; and the succeeding ones are gradually narrower upwards with gradually shorter stalks, the uppermost being quite sessile. The stems branch freely from the lower part, and bear a good number of orange and purple-black heads on naked

stalks, from 6 inches to 1 foot in length. In vigorous plants the heads are as much as 4 inches across, but usually they are from 2½ to 3 inches across. The orange yellow ray contrasts well with the almost black disc or centre. There are garden specimens in Kew Herbarium named R. Newmanni. The most closely allied species are R. fulgida (*Botanical Magazine*, pl. 1996), and R. hirta (Sweet's *Brit. Fl. Gard.*, pl. 82), both from the same country, though not inhabiting quite the same region.

—— The Genus Echinacea.—By some authors the members of this genus are regarded as forming a section of Rudbeckia, by others as an independent genus, readily distinguished from the typical Rudbeckias by having purple, red or rose, not yellow, rays. Like the Rudbeckia speciosa, described above, they are handsome herbaceous plants. E. angustifolia (*Bot. Mag.*, pl. 3281) has unbranched stems from 2 to 3 feet high, bearing narrow leaves in the lower half, leafless in the upper half, and terminating in heads 4 to 6 inches across. The centre, or disc, is greenish, whilst the long, narrow flowers of the ray are light purplish-rose. It inhabits the country from Illinois and Missouri southwards to Texas and Louisiana. E. purpurea has the ray-flowers of a deeper purple-red, and more reflexed. Plate 2 of the *Botanical Magazine* represents this species. There is a cultivated specimen in Kew Herbarium in which the ray-flowers are nearly 4 inches long, and the head, with the rays spread out horizontally, 9 inches across. It ranges from Virginia and Ohio to the southernmost States.

—— The New Irish Rose, Thomas Gerrard.—The *Irish Farmers' Gazette* states that this new Rose originated with Mr. George C. Garnett, a most enthusiastic and accomplished rosarian, residing in the immediate vicinity of Dublin, and Messrs. Keynes & Son, of Salisbury, will distribute it. Its history is given as follows:—In July, 1878, a dwarf standard of Letty Coles—the fair Letty herself, by the way, a sport—was budded with Niphetos; the bud did not push that season, but remained dormant during the winter. In the spring of 1879 it swelled and produced a shoot, which ultimately dwindled and died away. The bush, however, showed unusual vigour of foliage and bloom, but the blooms of that and the following season, 1880, were those of Letty Coles, very fine, but otherwise true to colour and character. Nothing further occurred to attract observation or attention until April of the present year, 1881, when a strong shoot appeared, producing two flower-buds, which, when fully developed, were both parti-coloured or piebald, the colours white and salmon-rose. After Mr. Garnett had cut away the wood to forward for propagation to the Messrs. Keynes, a second sport of three blooms appeared, all rose-coloured, and only one showing the colour and perfection of the first sport.

—— Eucalyptus citriodora.—Of late years it has been the fashion to grow, both in greenhouses and out-of-doors, the Blue Gum tree, that has (deservedly or not) got the character of being an antidote against malaria; but its inability to bear our winters outdoors, and the rapid growth it makes inside, where it quickly outgrows its limits, renders it of little use. But those who are fond of plants with fragrant foliage cannot fail to like E. citriodora in the condition we recently saw it at the Durdham Downs Nursery, in the shape of compact plants from 1 foot to 15 inches high, in small pots; they were raised from seed sown the present spring. It has handsome lance-shaped leaves; the perfume is something like the Lemon-scented Verbena (Aloysia citriodora). Near it was a fitting companion in the small-leaved, double-flowered Myrtle, Jenny Reitenbach—a plant that may be described as of moderate or small growth, a profuse bloomer, with very neat foliage; the small shoots are excellent for use as the green material in bouquets, for which purpose it is much superior to the larger growing kinds. If more of this and similar things were used in these arrangements, in place of the often closely packed flowers, the effect would be very much better.

—— Robert Brown's Australian Plants.—Until quite recently few persons had any chance of knowing what a magnificent collection of dried plants this most distinguished botanist formed in Australia during the first years of the present century. It was perfectly well known, of course, what an immense number of new genera and species he collected, and what splendid results he obtained from a study of them and gave to the world. Although possessed of brilliant abilities, Brown, like other men, had also his weaknesses, and his principal weakness, perhaps, was the desire to keep his collection entirely to himself. And this he practically did until his death in 1858, when it came into the possession of the late J. J. Bennett, Brown's intimate friend and successor in the botanical department of the British Museum. But although it still remained a private collection, its owner permitted Mr. Bentham access to it for the purposes of his *Flora Australiensis*. Independently of this, the British Museum possessed a very imperfect set, forming part of the Banksian collection. Mr. Bennett died in 1876, and by his direction to his executrix the officers of the British Museum Herbarium were to select for that institution a complete series of the plants, the second set was to go to Kew, and the third set to Edinburgh. This separation was, we believe, completed some time ago by the officers of the botanical department of the British Museum. There were now three herbaria possessing sets of Brown's Australian plants, but of these three only the British Museum contained a complete set, though from the Director's official reports we learn that Kew received altogether no less than 3105 species, including 35 lichens. Brown estimated his Australian collection to contain nearly 3900 species, so that the second set fell some 800 short of being complete. Subsequent to the separation alluded to, a further large quantity of duplicates was discovered in the stores at the British Museum, and forwarded to Kew to be divided between that establishment and Edinburgh. This find proves to be an important one, the specimens being for the greater part in excellent preservation, though the outside papers were begrimed with the dirt of three-quarters of a century's accumulation. Not only will these additional duplicates considerably supplement the sets at Kew and Edinburgh, but, as the specimens are authenticated by original labels recording their habitats, the value and interest of these two sets will be thereby greatly enhanced.

—— Manchester Field Naturalists' Club.—This Society, as we perceive from its report, does not confine itself simply to creatures *feræ naturæ*, but deigns to make visits to well ordered gardens, where the cicerone of the party turns to good account the plants that are under cultivation. A vast amount of information may thus very usefully and very pleasantly be obtained by the visitors, many of whom have probably little or no other means of acquiring such knowledge. That a garden is a very charming adjunct to an establishment, however modest, every one will admit; but its charms are enhanced to the intelligent mind when it is made the medium of acquiring knowledge of plants, their habits, and their history.

—— New and Rare Turkestan Plants Flowering in the Petersburg Botanic Garden.—Dr. Regel publishes the following notes on plants introduced by his son, A. Regel, from Turkestan, which have lately flowered in the Petersburg Botanic Garden, and which he intends illustrating in the *Gartenflora*:—Allium Ostowskianum, Regel; a handsome species, resembling A. roseum, but having larger rosy-red flowers of agreeable odour. Helicophyllum Lehmanni, Regel (Biarum, Engl.); distributed by Dr. Regel as Eminium Ledebouri, but it is not Helicophyllum (Eminium) Ledebouri, Schott and Engler. Leontice Alberti, Regel; a novelty, with orange-coloured flowers. Viola altaica, Pall.; the true progenitor of our Pansies, in blue, yellow, and white, bearded and beardless varieties. Awarded a special prize by the Imperial Russian Horticultural Society. Allium Sewerzowi and A. stipitatum, Regel; two beautiful new species of Allium, with rose-violet flowers, belonging to the same group as A. atropurpureum. Corydalis Sewerzowi, Regel; flowers orange-coloured, 1½ inch long. Merendera Raddeana, Regel; a violet-flowered species, from the Caucasus.

—— Campanula pyramidalis.—In the curvilinear-roofed conservatory at Messrs. Garaway's, Durham Downs Nursery, Bristol, this elegant habited Campanula is freely used in the form of a double row down the centre, the blue and the white varieties alternately, where it has an excellent effect. There are comparatively few hardy plants in cultivation that are alike suitable for indoor and outdoor culture, but this Campanula is undoubtedly one that stands at the head of the list, for it would be difficult to imagine any assemblage of plants either flowering or handsome-foliaged, but what are improved by its presence. Still more in its favour, it may be said to have scarcely an equal for hall or room decoration, where its varied soft and deep blue shades, associated with the pure white form, are even of more delicate colour than in theo pen air. It is one of the good old things that have been allowed to fall into comparative neglect, so much so that although often enquired for in the nurseries it is rarely to be met with in condition suitable for flowering in pots. Seedlings sown early in the spring under glass, so as to admit of their getting strong before autumn, are the best for pot use. They may be planted out in May, and lifted and potted in September, and wintered in a greenhouse, or with the pots plunged in a cold frame.

—— Weather Aspects.—The weather of the past few weeks has created considerable anxiety, not only amongst agriculturists, because of the cut and standing corn crops, but also amongst gardeners, and specially growers of Potatos on a large scale. After such a long spell of drought, lasting from the end of March to the end of July, few perhaps expected that August, usually the most summer-like and steadfast of all the summer months, would show such a changeable and stormy temper. Yet it must have been obvious that in this sea-girt island any long spell of drought must have an end even at an unseasonable time, and so it has proved. Although Nature has not yet worked out her usual scale of compensation, we have already had enough rain to establish all green and winter crops, and may well desire fine and even warm weather for yet another month. Following upon such excessive heat, the rains have worked wonders in the appearance of the soil and its denizens, and where there are growing crops or grass the greenness and luxuriance of foliage seem as refreshing as it is unwonted. The uncertain weather has sent up the price of corn, but that, though giving some tangible relief to agriculturists, is doubtless but a temporary rise, and corn will soon find its level. With Potatos abundant and very cheap, it is not possible to maintain a high price for bread. Perhaps the greatest concern is felt for the Potatato crop. This year enormous breadths seem to have been planted, and, encouraged by the crop of last year, growers have invested largely in the popular tubers. All is now dependent upon the weather, and could we but get a few weeks of genial warmth and dryness, the crop would be not only safe, but a very heavy one. Believers in old-world whims will, perhaps, put their trust in the new comet, and think that its appearance means warmth and sunshine. But if Potatos give gardeners, and cut corn crops give farmers concern, they have some comfort in the appearance of all other crops, which are making a splendid growth and are full of promise for a winter's supply of good things for man and for beast.

—— Dried Grasses.—Messrs. Hooper inform us, in illustration of the demand for these ornamental grasses, that they have just received a consignment of 8 tons of Stipa pennata! and this only represents a portion of their stock, a large quantity being also stored in their warehouse in Germany.

—— Market Garden Produce.—Few products are so subject to variable changes in the price as market fruits and vegetables. Many things tend to produce this variableness, the chief of which just now would seem to be the absence from London of so large a portion of the consuming public. Except about the parks and West-end squares there is so little difference to be seen in the extent of the moving population to the ordinary eye that it is difficult to realise that London is out of town. Still tradesmen know by the considerable slackness of trade which at this time of the year prevails that too many of their customers are from home, and none perhaps find this out more readily than the greengrocer, who is the market grower's best, because most constant, customer. When therefore he and his fellows state that they want but little of the various garden products, it is evident that the supply soon exceeds the demand, and prices fall at a bound. Growers having fine crops of Runners and dwarf Beans complain that they can get but 1*s.* 6*d.* per bushel return for these, and that good Cos Lettuces fetch but 10*d.* per tally of twenty. Cabbages go for a mere song, and good Regent Potatos may be had in any quantity at 2*s.* 6*d.* per bushel, and inferior kinds

much cheaper. Plums bring about 7s. per bushel, and of these there are a great abundance in some districts. Good kitchen Apples, such as Lord Suffield and Warner's King, obtain 5s. per bushel, and moderate samples of Keswick and Manx Codlin 3s. In the face of such very indifferent prices it would be folly to protest that we have not enough of garden produce for consumption. Indeed, but that buyers purchase largely in the London market for sending North the returns would just now be much worse. Consumers resident in London and other large towns may thus learn that if they have to pay dearly to retailers for their garden stuff, it is not because the growers get so much for it. No doubt the middlemen gain by far the largest profits.

—— Trowbridge Horticultural Society.—The origin of horticultural societies opens up what there is no doubt would prove a very interesting investigation. Take the Trowbridge Horticultural Society, for instance, for which one of the local newspapers claims a Teutonic origin. Herr Droffnove, a German, was instrumental in founding the Trowbridge Mechanics' Institution, and it was for the benefit of the funds of that Institution (which expired in 1867) that the first Trowbridge flower show was held in a field close to the Great Western Railway Station, where it was continued annually for twenty-nine years, until the extensive works of the railway required a portion of the field, and the Society was compelled to seek new quarters. So popular was the show from the commencement, and so wide a reputation did it obtain, that the *Illustrated London News* sent down a special artist some years ago to sketch the scene presented at one of the shows. This year the show was, as usual, a good one, Fuchsias forming the chief feature. Prizes were also offered for the most artistic house decorations, composed of evergreens, flags, &c. There were on this occasion eight competitors.

—— The Canadian Census—The return of this year's census of the Dominion of Canada has just been received, and the result shows that the increase in the population in the decade has been equal to 18.05 per cent., the inhabitants in 1871 numbering 3,686,596, while in 1881 the record is 4,352,080. It will be remembered that during the past year reports have been circulated that a large exodus was taking place from Canada to the States; but this is certainly disproved by the detailed figures which have come to hand, for all the older provinces (Nova Scotia, New Brunswick, Quebec, Ontario, and Prince Edward Island) show an addition, ranging from 12.44 to 18.05 per cent., while a very great increase is apparent in British Columbia and in the newly opened-up provinces of Manitoba and the North-west territories, the population there being nearly trebled, although the country was but little known only five or six years ago. The growth of the city of Winnipeg has been very remarkable, its inhabitants in 1871 numbering 200, while now it counts a population of 11,000. Now that these districts are being developed by railway enterprise, and emigration of all kinds is setting in, it will be a matter for surprise if the population of Canada, and particularly of the prairie provinces, does not show an even more satisfactory advance in 1891 than in 1881.

—— Publications Received. — *Garden and Farm Lands of the Peninsula* (Virginia, U.S.A.)—*Sammlung auf dem Gebiete des Gartenbaues* (Berlin).—*Semis et Mise à Fruit des Arbres Fruitiers.* Par E. A. Carrière.—Vick's *Illustrated Monthly Magazine*, Midsummer number (Rochester, N.Y.).

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 22, issued by the Meteorological Office, London :—The weather has again been very dull and unsettled, and heavy rain has fallen at nearly all our stations. Thunder occurred in some places on the 17th or 18th, and in many parts of the country at the close of the period. The temperature was 4° or 5° below the mean in all districts. The maxima were nowhere high, the thermometer only slightly exceeding 70° in our south-easterly, central, and southern districts, and varying from 64° to 69° in most other parts of the kingdom. Over the central and northern parts of Ireland on the 19th the maximum reading was only about 55°. The minima for the period were generally registered during the last two or three days, and varied from 37° in "Ireland, N.," to 41° in the "Midland Counties" and to 46° in "England, E." The rainfall was rather less than the mean in "Ireland, N.," and about equal to it in "Scotland, E.," but more elsewhere; over the central and southern parts of England and Ireland the excess was very great. Bright sunshine was very deficient in nearly all places, the percentages ranging from 40 in "England, S.," to 23 in "England, N.E." Depressions observed :—The barometer has again been exceedingly unsteady, several small depressions passing in a north-easterly direction across our islands. The most serious disturbance appeared over St. George's Channel early on the 19th, and, travelling rather quickly, reached the south of Norway on the 20th, and finally disappeared over Sweden. It caused strong south-westerly winds over England, light easterly airs in Scotland, and fresh northerly breezes in Ireland. On the 20th the wind had shifted to the westward, but in the course of the next two days, owing to the appearance of several small depressions, the wind became very variable.

—— Gardening Appointments.—Mr. George Hester, late Foreman, Wildernesse Park, Sevenoaks, has been appointed Head Gardener to J. T. Noakes, Esq., Brockley Hall, Brockley.

Reports of Societies.

The Great International Fruit, Vegetable, and Flower Show at Manchester: *Aug.* 24—27.—The Executive Committee of the Manchester Botanical and Horticultural Society—and especially the able Secretary and Curator, Mr. Bruce Findlay—are to be congratulated on the great success which has attended their labours in the organisation of the magnificent exhibition which opened in the Society's gardens, at Old Trafford, on Wednesday last, and closes to-day (Saturday). The weather has been unfortunately wretchedly bad. Most certainly it is a grand show, the best ever held in Manchester, or, perhaps, of its peculiar kind, anywhere else; and specially is this true with respect to the fruit and vegetables, the display of these garden products having been immense—over 3000 entries are enumerated in the catalogue—every kind finding good representatives. The general quality in the fruit classes was of a much more even order than is usually seen—collections of fruits and individual classes of Grapes, Peaches, Nectarines, Melons, Apples, Pears, &c., all were good.

Plants were well shown for the season, and cut flowers made a rich display of colour and beauty. Vegetables were shown in marvellous quantity, and generally of splendid quality — the Potatos alone, having been crowded out of the tents into the open air, would have made a fine exhibition themselves. In the garden structure and implement department there was a display of exhibits most varied and full of interest; but as a whole perhaps, this department was not equal to the similar admirable exhibition seen at the recent great summer show at South Kensington.

FRUITS.

Collections.—For a collection of fifteen kinds of fruits there were five competitors, and the awards of the judges rightly went to Mr. Coleman, gr. to Earl Somers, Eastnor Castle, 1st; Mr. McIndoe, gr. to J. W. Pease, Esq., M.P., Hutton Hall, Gainsborough, 2d; and Mr. J. Roberts, gr. to the Baroness L. de Rothschild, Gunnersbury Park, Acton, 3d. Mr. Coleman had fine examples of Black Hamburgh, Muscat of Alexandria, Madresfield Court, and the new Gros Maroc Grapes, very good Smooth Cayenne and Queen Pines, two Melons, large and highly coloured Bellegarde and Chancellor Peaches, Lord Napier and Stanwick Nectarines, good Moor Park Apricots, Pitmaston Duchess Pears, and Brown Turkey Figs. In Mr. McIndoe's collection the leading features in a first-rate lot were Barbarossa, Trebbiano, Black Hamburgh, and Muscat Grapes; very highly coloured Humboldt Nectarines, and fine examples of Violette Hâtive and Stirling Castle Peaches. Mr. Roberts had Madresfield Court, Foster's Seedling, and Black Hamburgh Grapes in excellent form; fine Smooth Cayenne and Queen Pines, Williams' Bon Chrétien Pears, Peaches, Nectarines, &c. In an unsuccessful collection from Mr. Johnston, gr. to the Earl of Strathmore, Glamis Castle, were excellent samples of Pearson's Golden Queen and Black Hamburgh Grapes. There were seven entries in the class for a collection of twelve kinds; and Mr. Austin, gr. to Sir Greville Smythe, Ashton Court, Bristol, came in 1st with remarkably good Grapes and Pines, a pretty dish of McLean's seedling Apple, Noblesse Peaches, Elruge Nectarines, and Negro Largo Figs, &c.—a very fine lot. Mr. Miles, gr. to Lord Carington, Wycombe Abbey, Bucks, was 2d, showing Gros Maroc and Muscat Grapes in excellent form, two Pines, Bellegarde Peaches, Lord Napier Nectarines, Dr. Hogg Figs, &c. Mr. Barker, gr. to Sir H. Allsopp, Hindlip Hall, Worcester, was a good 3d, with excellent Grapes, Pines, and highly coloured Bellegarde Peaches, &c. For a collection of nine kinds Mr. Edmunds, gr. to the Duke of St. Albans, Bestwood Lodge, Notts, was 1st; Mr. H. J. Clayton, gr. to John Fielden, Esq., Grimston Park, Tadcaster, 2d; and Mr. Wallis, gr. to Sir H. M. Thompson, Kirby Hall, York, 3d, in a good class. Mr. Edmunds' collection included small but well-finished Muscat and Black Hamburgh Grapes, a nice Smooth Cayenne Pine, Chancellor and Gladstone Peaches, Pitmaston Orange Nectarines, Best of All Melon, and Moor Park Apricot. The popular class for six brought thirteen entries, and Mr. D. Wilson, gr. to Earl Fortescue, Castle Hill, South Devon, took the 1st prize with good, well-coloured Alicante Grapes, an excellent Smooth Cayenne Pine, very fine Prince of Orange Nectarines, Dymond Peaches, Brown Turkey Figs, and a William Tillery Melon. Mr. J. Austin was a very good 2d; and Mr. Blair, gr. to Sir G. N. B. Middleton, Bart., Shrubland Park, Suffolk, 3d, and very close up. Not so large, but still very good, was the competition with twelve kinds of hardy fruits, in which Mr. Haycock, gr. to Roger Leigh, Esq., Maidstone, came to the front with a first-rate lot, including Williams' Bon Chrétien Pears, Devonshire Quarrenden Apples, Rivers' Orange Nectarine, Golden Gage Plums, Gooseberries, Nuts, Peaches, red and white Currants, Morello Cherries, and Czar Plums. Mr. McIndoe was a good 2d, and Mr. Faye, gr. to J. Derham, Esq., Sneyd Park, Bristol, 3d. Mr. McIndoe's tray, considering his northern locality, was a very fine one indeed.

Grapes.—In all the Grape classes the competition was very strong, and in some cases close enough for anything. The leading class was for ten varieties, and there were ten entries, but they did not all appear. Mr. Hunter, gr. to the Earl of Durham, Lambton Castle, was well 1st with a grand lot of fruit, the bunches and berries being large, and well finished for the date. His varieties were Black Hamburgh, Trebbiano, Lady Downe's, Muscat of Alexandria, Aramon, Barbarossa, Foster's Seedling, Alicante, Calabrian Raisin, and Gros Colmar. Mr. McIndoe's fruit was unexceptionally good in quality, but smaller in the bunch, his strongest points being admirable examples of Trebbiano, Barbarossa, Black Alicante, Golden Champion, and Duke of Buccleuch. Mr. Hammond, gr. to Sir Wilfred Lawson, Bart., Brayton, Carlisle, who was 3d, had a fine lot of bunches, but they wanted a little longer to thoroughly finish them. For six varieties, one bunch of each, the competition was strong and good. Here Mr. W. Elphinstone, gr. to E. M. Mundey, Esq., Shipley Hall, Derby, came to the front with first-rate examples of Muscat Hamburgh, Golden Queen, Gros Colmar, Alicante, Muscat of Alexandria, and Madresfield Court. The black varieties were well finished, but, as was the case with most of the white Grapes, these wanted longer to ripen up. Mr. J. Austin came in a good 2d, with Mrs. Pince's Black Muscat, Mrs. Pearson, Venn's Seedling, &c., all in excellent condition; and Mr. Hammond was well 3d. The class for two bunches of Black Hamburghs brought thirty-two entries, but ten of these dropped out, and the finest examples came from Mr. Boyd, gr. to Wm. Forbes, Esq., Callander Park, N.B.; T. S. Paterson, Esq., Kirklands, Rock Ferry; and Mr. Coleman, who took the awards in the order named. Mr. Boyd's bunches were large and thoroughly well finished, and the quality of the others in the latter respect was exceedingly good. The name of the exhibitor of the best two bunches of Muscat of Alexandria was not known to us at the time of writing, but his sample was a very good one, the bunches long and nicely finished. There were twenty competitors, and 2d best came Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury, an exceedingly good exhibit. Also very good indeed was the 3d prize lot from G. Middleton, Esq., Rainford Hall, St. Helens. Muscat Hamburghs as usual were staged in smaller numbers, there being only five competitors. Mr. Boyd, gr. to W. Forbes, Esq., again came in 1st with an unexceptionally good sample, while Mr. Wallis was 2d,

d Mr. G. T. Miles, 3d. The best of eleven lots of ıdresfield Court, came from Mr. J. H. Goodacre, to the Earl of Harrington, Elvaston Castle, fine in nch and berry and jet black; 2d, Mr. J. Roberts, ınnersbury, and Mr. Barker, Hindlip Hall, 3d, both owing very strong. The finest Black Alicantes re staged by Mr. Elphinstone, Mr. D. Forbes, gr. J. Harris, Esq., Derwent Lodge, Cockermouth, d Mr. Elphinstone, gr. to John Heywood, Esq., etford; and in the next class for Gros Colmar, Mr. Elphinstone, Shipley Hall, Mr. D. Forbes, and Mr. Indoe, took the awards in the order named. Of en very good lots of Lady Downe's the best came m Mr. Bannister, gr. to H. St. Vincent nes, Esq., Cole House, Westbury-on-Trym, W. Elphinstone, and Mr. Hunter; and for Duke Buccleuch Mr. McIndoe was 1st; Mr. Morton, gr. James Fildes, Esq., Chorlton-cum-Hardy, 2d; l Mr. J. Farquharson, Acton, Wrexham, 3d—all wing exceedingly well. The Golden Champion ss was also well contested by four competitors, l Mr. McIndoe took the lead, followed by Mr. J. berts, Gunnersbury, and Mr. J. Morton. The ıviest bunches of black Grapes came from Mr. berts, gr. to the Countess of Charleville, Tullare (20 lb.); Mr. Finigan, gr. to W. Burnyeat, Esq., ıyton; and Mr. Goodacre. Mr. Roberts staged immense bunch of Gros Guillaume, but the weight s not stated. In the corresponding class for white apes, Mr. Roberts also showed the largest bunch, of Trebbiano, well-shouldered and very compact lb. 3oz.) The same exhibitor also staged two er bunches of the same variety, which weighed lb. For the one prize offered for the best seedling ıpe, there were six competitors, and the prize ıt to Ollerhead's white, a very promising seedling parently between Muscat of Alexandria and Fos's Seedling, well shouldered and handsome in ıch, with medium-sized oval berries, and better our than Buckland's. Mr. Hunter showed a seed black Grape raised in 1880, nearly round in ry and very thick-skinned; and Mr. Allan, Gun, and Mr. Horsefield, of Heytesbury, had the atsworth, a pleasantly-flavoured black Grape, ich is said not to hang well. Mr. Hudson, Gunsbury, was Highly Commended in the white class, l Mr. Barker, gr., Hindlip Hall, in the black ıs.

Pines.—For so large a show the Pine classes were y weak, but included a few good fruits. Mr. Indoe was 1st for six, with examples of Smooth yenne, Charlotte Rothschild, and Ripley Queen; l Mr. D. Wilson, Castle Hill, came in 1st with Smooth Cayennes, weighing 6 lb. each; Mr. rray, gr. to the Marquis of Ailsa, Culzean Castle, ybole, N.B., in this class being 2d; and Mr. ılkner, gr. to F. R. Leyland, Esq., Woolton Hall, erpool, 3d. In a fair class of single Queens the prize went to a handsome fruit shown by Mr. ıitfield, gr. to F. J. Cross, Esq., Beechwood, gburth; Mr. Faulkner being 2d, and Mr. J. Austin For a Smooth Cayenne, Mr. James Ricks, gr. Sir Geo. Chetwode, Bart., Oakley Park, Market ayton, was 1st; and, with a Black Jamaica, Mr. lir, gr. to C. R. M. Talbot, Esq., M.P., Margam rk, was 1st for any other variety.

Peaches and Nectarines.—These were shown considerable numbers, and the quality was very gıd as a whole. Of three dishes of Peaches there re eighteen lots to judge, the best coming from Mr. nter and Mr. Coleman. The former had very fine mples of Early Mignonne, Bellegarde, and Grosse gnonne, and the latter of Early Mignonne, Hale's rly, and Royal George. Amongst twenty-one hes of twelve Peaches the finest of all was one of llegarde, large and highly-coloured, shown by Mr. leman. Next to these came Mr. C. Ross, gr. to Eyre, Esq., Welford Park, Newbury, with Prince Wales, and Mr. Hunter with Royal George. In class for a dish of six Peaches there were fifty- entries, but, of course, not this number of petitors. Mr. E. Bland, gr. to Mrs. Gra- n Smith, Cranbourne Court, Windsor, was with extra fine-sized Princess of Wales; Mr. Iorton, 2d with Violette Hâtive, and Mr. M'Kelvie, to the Dowager Duchess of Roxburgh, Broxmouth k, Dunbar, 3d, with Royal George. For twelve ctarines Mr. Coleman again came in 1st, with Lord pier; Mr. Hunter 2d, with Violette Hâtive; and Malcolm, gr. to the Marquis of Cholmondeley, with Pitmaston Orange; and the Downton, Red nan, Pine-apple, and Victoria being also well wn in the same class. For six fruits, Mr. Gilbert, to the Marquis of Exeter, Burghley Park, was 1st, h the Victoria; Mr. Masters, gr. to Col. Legh, h Legh Hall, 2d, with Prince of Wales; and Gaiger, gr. to S. T. Whitehead, Esq., Bakewell, with Pitmaston Orange, in a very excellent class. three dishes Mr. Hunter came in 1st, with Lord pier, Violette Hâtive, and Elruge; Mr. Coleman and Mr. Milne, gr. to Lord Delemare, Vale yal, Cheshire, 3d. As the times go with regard to Apricot the display of this fruit was very good, but there was such a sameness in the samples and the varieties that we need say no more than that Mr. Wallis, Kirby Hall, had the best twelve, and Mr. G. Malcolm, gr. to James Tomkinson, Esq., Tarporley, the best six; while the best three dishes came from Mr. Aitken, gr. to A. H. T. Newcomen, Esq., Redcar.

Melons.—These were forthcoming in considerable numbers, but, with the exception of those which obtained the prizes, were of very poor flavour. Mr. Miles had the best two fruits—Wycombe Hybrid and Golden Gem; Mr. Coleman being 2d, with Eastnor Castle and Dickson's Exquisite. Mr. Pratt, gr. to Lord Hill, Hawkstone, had the best two scarlet-fleshed Melons, but they were not named; Mr. Coleman was again 2d, and Mr. T. Blair 3d. Over forty single green-fleshed fruits were staged, and Hero of Lockinge, shown by Mr. Cordle, gr. to W. Boulton, Esq., Ulverston, came out as the best; Mr. Miles was 2d, and Mr. Coleman 3d. Mr. Bailey, gr. to T. T. Drake, Esq., Shardeloes, had the best scarlet-fleshed variety; Mr. O. Goldsmith, gr., Polesden Lacy, Dorking, the 2d; and Mr. G. Malcolm the 3d.

Hardy Fruits.—Apples, Pears, Plums, and small fruits made a great display, though but few of the two former were ripe. The finest dish of dessert Apples shown in a small class was a splendidly coloured sample of Red Astrachan, exhibited by Mr. Cooper, Calcot, Reading; Mr. Roberts, Gunnersbury, coming in 2d, with Duchess of Oldenburg. Mr. Haycock, gr. to R. Leigh, Esq., Maidstone, sent the best collection of twelve dessert Apples, consisting of Ribston Pippin, Red Juneating, Lady Derby, White Transparent, Red Astrachan, Duchess of Oldenburg, Irish Peach, Emperor Napoleon, Cox's Orange Pippin, and Red Quarrenden; Mr. Roberts, Gunnersbury, came in 2d; and Mr. J. A. Killick, Mount Pleasant, Maidstone, 3d. Baking Apples were very strongly represented, especially in the single dish class, in which Mr. Killick came in 1st, with Loddington Seedling, and Mr. Haycock 2d, with Lord Suffield. For a collection of baking varieties, the last-named exhibitor was 1st. Mr. McIndoe staged the six heaviest Pears, Pitmaston Duchess weighing 4 lb. 2 oz.; and also two varieties, three fruits of each, fine examples of Souvenir du Congrès and Beurré de l'Assomption. The best twelve Jargonelles were staged by Messrs. E. Smith & Sons, of Cheltenham; and Mr. Haycock put up the best of over thirty collections of Pears, twelve kinds; Mr. Wildsmith being 2d, and Mr. Austen 3d. The Green Gages of Mr. Upjohn, gr. to the Earl of Ellesmere, Worsley Hall, also took a 1st prize in the single dish class for Plums; and Mr. W. J. Gibbon, Seaford Grange, Pershore, had the best twenty, of five kinds.

The Fruiterers' Competition.—One of the finest features in the whole show was a magnificent collection of fruit shown by Mr. James Mason, fruiterer, of Manchester, and which gained the 1st prize in the class open to fruiterers only. Without exception it was the best of its kind we have ever seen, being very extensive, great in variety, and of unexceptionable merit throughout. Of Grapes there were at least fifteen fine bunches of Black Hamburgh, fine baskets of Duke of Buccleuch, Golden Champion and Muscat of Alexandria, ten splendid Pines, Peaches, Nectarines, Apples, Pears, Plums, Melons, Bananas, Nuts, &c., *ad libitum*. Mr. William Bradshaw, Bolton, was 2d; and Mrs. Beddowes, Bolton, 3d—both showing remarkably well. Mr. F. Stevenson, of Altrincham, staged the best lot of hardy fruits.

Miscellaneous.—The Gold Medal for the finest collection of Lemons, Citrons, &c. (open to all countries), was awarded to the only exhibitor, Mr. J. Muir, gr. to C. R. M. Talbot, Esq., M.P., Margam Park, who staged fruits and cut flowers of several varieties of Citrus aurantium, C. Pampelmoose Limonum, C. Limetta, C. Bergamia, the Malta Orange, &c., a remarkably nice lot of eighteen varieties. The only collection of fruits shown by a Horticultural Society came from the Bristol Chrysanthemum and Spring Show Society, and to this the 1st prize was awarded. It included good Pines, Grapes, Apples, Pears, Peaches and Nectarines, Melons, and hardy fruits. Messrs. Paul & Son, Cheshunt, exhibited a large collection of named sorts of Apples, and a smaller collection came from Messrs. J. Cheal & Sons, Crawley, Sussex.

VEGETABLES.

The general quality shown in this department was remarkable, whilst in quantity we doubt whether at any previous exhibition it has been exceeded; indeed, the competition in the various classes was marvellous. The largest collections were those shown by horticultural societies or their representatives—a Gold Medal being awarded to A. J. Skinner, Esq., of Cheltenham, as representing the society of that town, for some forty-five dishes, all displaying excellent quality and great variety, almost every kind of garden vegetable in cultivation being included. A very fine collection of fifty dishes came from the Bristol Horticultural Society, as represented by Mr. G. Webley, the secretary. There was also a very good though much smaller collection from the Rochdale Society. More interest, however, attached to the competition in the class for twenty kinds of vegetables, ten lots being staged. Here that veteran exhibitor, Mr. Miles, gr. to Lord Carington, Wycombe Abbey, Bucks, was well placed 1st with a very superior lot. He had good Telegraph Peas, Tender and True Cucumbers, Covent Garden Perfection Potatos, Canadian Wonder French Beans, Walker's Exhibition Onions, Green Curled Savoys, &c. The 2d place was taken by Mr. Muir, gr. to C. R. M. Talbot, Esq., Margam Park, South Wales, who ran Mr. Miles very hard, so good were his exhibits. Very fine were Culverwell's Giant Marrow Peas, Excelsior Potatos, Banbury Onions, Maltese Parsnips, Marvel Cabbage Lettuce, Eclipse Cauliflowers, &c. Mr. John Turk, a famous exhibitor from Cheltenham, took the 3d prize with some superb samples. The class for ten kinds of vegetables brought fifteen competitors and exhibits of very superior quality. The 1st prize went to Mr. John Snowden, of Thirsk, who had very fine International Potatos, remarkable Giant White Celery, Trebons Onions, Nonsuch Peas, Canadian Wonder Beans, Eclipse Cauliflowers, Excelsior Tomatos, Tender and True Cucumbers, &c. Mr. W. Iggulden, gr. to the Earl of Cork, was 2d, and had very fine Woodstock Kidney Potatos, Model Cucumbers, white Tripoli Onions, Excelsior Tomatos, and Ne Plus Ultra Peas—all good. Mr. Crump, gr. to the Duke of Marlborough, Blenheim Park, took 3d place with a very superior collection—Student Parsnips, Woodstock Kidney Potatos, and Scarlet Intermediate Carrots were exceptionally good.

Collections of Potatos were a remarkable feature, quite excelling any previous display of the tuber seen in the Midlands, and it is satisfactory to be able to remark that the judging in these different classes was very good. The class for twenty-four kinds brought ten collections, and Mr. Miller, gr. to the Marquis of Donegal, Hampstead Park, Newbury, may well be complimented on having staged in his 1st prize lot one of the best average collections yet seen. The samples were all of fair medium size, had netted skins, but none the less were exceedingly clean and handsome. He had Vicar of Laleham, Triumph, Late Rose, Bountiful, Radstock Beauty, Red Emperor, and Trophy, amongst coloured kinds; and Woodstock Kidney, International, St. Patrick, Magnum Bonum, Snowflake, Porter's Excelsior, Covent Garden Perfection, and Mona's Pride, amongst whites. Mr. Lumsden, gr. to Lady Hamilton, Bloxham Hall, Lincolnshire, came 2d with a very fair, even lot, perhaps a trifle rough coated, but the samples were good. He had Edgecote Seedling, Prince Arthur, Schoolmaster, Grampian, and Radstock Beauty in his collection. The 3d prize went to Mr. Ker, of Dumfries (of the firm of Ker & Fotheringham, seedsmen), whose samples were singularly bright and clean—in this respect perhaps excelling all others in the show. In his lot were handsome Pride of America, Beauty of Hebron, Matchless, Vicar of Laleham, Early Ohio, Triumph, &c. The class for eighteen kinds brought twenty-four collections, Mr. Miller again taking 1st prize, though his lot here was somewhat below good average size. It comprised most of the kinds found in his other collection. Mr. McKinlay, of Penge, Surrey, took 2d place with a very handsome lot, not quite up to that well-known grower's usual fine form, but still excellent. He had good Vicar of Laleham, fine Lord Mayor, Mr. Bresee, Cosmopolitan, Beauty of Hebron, Wiltshire Snowflake, quite like a round; King of Potatos, and other good kinds. With a fine collection, showing good size, Mr. Wildsmith, gr. to Viscount Eversley, Heckfield Place, Hants, was placed 3rd, having superb samples of Schoolmaster, International, Matchless, Cosmopolitan, Magnum Bonum, &c. The toughest contest arose, however, in the class for twelve kinds, not less than forty collections being staged. Here that able grower Mr. Gilbert, gr. to the Marquis of Exeter, Burgbley Park, Stamford, was placed 1st, his lot showing admirable quality and fair size. It included handsome Lapstone and International Kidneys, Fenn's Round Seedling, Porter's Excelsior, Radstock Beauty, Vicar of Laleham, Grampian, Beauty of Hebron, and Bresee's Prolific. Mr. Wildsmith here took 2d place with a fine lot of tubers, Fillbasket and American Purple showing to good advantage; and Mr. Ross, gr. to C. E. Eyre, Esq., Welford Park, Newbury, came 3d with a very pretty collection.

Some twenty-six classes were devoted to single dishes of vegetables, the competition being in all cases quite remarkable. There were twenty lots of three white Cabbages, the 1st prize going to Mr. G. Summers, gr. to the Earl of Scarborough, Sandbeck Park, who had fine Early Heartwell Marrow. Mr. C. Sherwin, of Altrincham, was 2d; and Mr. John Wilding, Walton-le-dale, 3d. Mr. Wilding was 1st in ten lots of fine red Cabbages, and also 1st in the class

for three Savoy Cabbages. Mr. John Heywood, gr. to J. E. Elphinstone, Esq., Stretford, came 2d with pretty heads, and Mr. D. Wilson, gr. to R. N. Phillips, Esq., M.P., Bury, was 3d. There were fine samples of white and of yellow Turnips, the latter remarkably handsome and clean. Vegetable Marrows in threes were an immense exhibit, forty-three lots being staged of all kinds and sizes. Mr. G. Jacob, of Headington, took 1st prize with very pretty examples of the long green kind, and Mr. D. Abbot, gr. to C. H. Frith, Esq., Sheffield, was 2d, with small long whites. In the class for four Cucumbers, in two sorts, Mr. A. Fallows, of Stretford, was 1st with a handsome dark-green kind, named Stretford Defiance, and a pale-green seedling kind. Mr. Vickers, gr. to J. Mason, Esq., Ashton-on-Mersey, was 2d, with good unnamed kinds. There were not less than forty lots in the class for the best brace of Cucumbers, Mr. Fallows again taking 1st place, and Mr. Brundritt, Stretford, was 2d, both with Defiance. As might be expected in Lancashire, Celery was remarkably fine, twenty-five lots being staged in the class for three heads of any white kind—Mr. Jarran and Messrs. Biddles & Co., both of Loughborough, taking the 1st and 2d prizes with Perfection, white, finely blanched. The same exhibitors took similar prizes for red Celery with Leicestershire Defiance, blanched almost white. Very fine Cauliflowers came from Mr. James Harrop, Timperley, who had Autumn Giant; Mr. John Wilding coming 2d with the same kind. There were fifty-three baskets of twenty-four pods of Peas, Mr. McIntyre, Darlington, coming 1st with Best of All; Mr. Robert Beale, of Thursley, taking the 2d prize with Premier. It was noteworthy that the judges favoured medium-sized marrow Peas rather than large podded kinds. There were twenty-six dishes of dwarf French Beans, thirty-four of Runners, and twenty-six of broad Beans; of these latter Mr. D. Lumsden, gr. to J. Jardine, Esq., of Langholm, N.B., was 1st; and here Mr. Bradley, Sunderland, was 2d, both having very fine Seville Longpod. Out of eighteen lots of Beet, Mr. Wildsmith was placed 1st, with handsome Dell's Crimson; and in the class for twelve Parsnips Mr. C. Smith, of Cheltenham, was 1st, with very fine clean Hollow Crown; Mr. Bloxham, gr. to Sir S. Duncombe, Bart., Brickhill Manor, being 2d, with the Student. Mr. Smith was 1st with Nantes Horn Carrots, and Mr. Bloxham 2d. In the class for Altrincham Carrots, Mr. J. Caunce, of Garstang, was 1st, with beautiful samples; Mr. Ridsdale, gr. to the Marquis of Ripon, Nocton Hall, Lincolnshire, coming 2d. The spring-sown Onions made a fine collection, not less than thirty-six lots being staged. Mr. G. Walker, of Thame, was 1st, and Mr. G. T. Miles 2d, with splendid specimens. There were twenty-four dishes of Tripoli Onions, all very fine indeed. Mr R. Lloyd, Brookwood Asylum, Woking, was 1st, with superb samples, and Mr. Ridsdale came 2d. Some remarkably coloured Onions were shown in the class for red kinds, and the Leeks were fine and well blanched.

PLANTS.

At an autumn show one does not expect to find a brilliant array of specimen-plants, but we hardly expected to find three such fine groups of twenty flowering and fine-foliaged subjects as were exhibited by Messrs. Cole & Sons, Withington, near Manchester; Mr. Tudgey, gr. to J. F. Greswolde Williams, Esq., Worcester; and John Rylands, Esq., Longford Hall, Stretford, who took the prizes in the order named. The Messrs. Coles' group included some noble Palms and Cycads, Crotons, and Gleichenias, and of flowering plants well done specimens of Dipladenia amabilis and Brearleyana, Erica Marnockiana, E. Turnbullii, E. Ewerianа superba, Ixora coccinea, Allamanda nobilis, &c. Mr. Tudgey's fine-flowering specimens included Ixora coccinea superba, Allamanda nobilis, Franciscea calycina major, Erica Irbyana, E. Fairieana, E. Austiniana, all well-flowered; some well-developed Palms, Crotons, and Ferns, &c. Orchids were not in great force, but of collections of eight both Mr. B. S. Williams and George Hardy, Esq., of Timperley, showed well, and secured 1st prizes. Two classes for Crotons brought out some well-grown and brilliantly-coloured specimens from S. Schloss, Esq., Bowdon; and Henry Samson, Esq., Bowdon; Messrs. Ireland & Thompson, Edinburgh; and Mr. James Cypher, of Cheltenham. Heaths were shown by Mr. Cypher, Mr. Tudgey, Messrs. Cole, and others; and a nice lot of Pitcher-plants came from Mr. B. S. Williams, Joseph Broome, Esq., of Didsbury, and James Fildes, Esq., of Chorlton-cum-Hardy; and Mr. B. S. Williams took the 1st prize for a group of twenty economical and medicinal plants. These, with the new plants noted elsewhere, were staged in the large conservatory. In the long tent, so well known to visitors to Old Trafford, an exceedingly fine effect was made by some very tastefully grouped collections shown by amateurs and nurserymen in competing classes, and by various nurserymen not competing. Among the latter the first place was taken by the General Horticultural Co. (John Wills), Limited, who showed a magnificent group of Palms, Crotons and Dracænas, young plants, most highly coloured and well shown up by a setting of Ferns, &c. The group covered a large sloping bank at one end, and, as usual with Mr. Wills' efforts, was most tastefully arranged. In front of this group was a central circular stand of considerable dimensions—a composition of plants, fruits, and vegetables, such as one would find in a second-class florists' and greengrocer's shop—a paltry affair that destroyed the view in the marquee, and contributed only to the amusement of the bystanders. The prettiest group arranged for effect came from Mr. G. Smith, gr. to John Rylands, Esq., Stratford, and which took the 1st prize in its class, beating another group from S. Schloss, Esq., Bowdon. The nurserymen also came out strong in this line, and the 1st prize group from Messrs. R. P. Ker & Sons, of Liverpool, contained some very good plants, though their arrangement calls for no special comment. Tree Ferns came from Mr. B. S. Williams and Messrs. James Dickson & Sons, Chester; and the last-named firm also contributed a group of half-specimen Agaves and other succulent plants.

Florists' Flowers, as represented by zonal and variegated Pelargoniums, Achimenes, Coleus, &c., were very well shown, especially the two former, and the latter.

THE SPECIAL PRIZES.

The General Horticultural Company's (John Wills, Limited), Special Prizes.—The splendid prizes offered by this company for the best collection of twelve kinds of fruits only brought out two competitors, Mr. Coleman and Mr. Goodacre, who took the 1st and 2d prizes in the order named. Mr. Coleman had very fine Hamburgh and Muscat Grapes, Smooth Cayenne and Charlotte Rothschild Pines, Bellegarde Peaches, and Lord Napier Nectarines, Eastnor Castle and Blenheim Orange Melons, Washington Plums, Morello Cherries, Figs, and Pears. Mr. Goodacre was also strong in Grapes, Pines, Peaches, Nectarines, &c. For the Grape prizes the competition was as it should be, there being at least half a dozen competitors, and all showing most creditably. Mr. Hunter staged a beautiful lot of bunches, and secured the 1st prize somewhat easily from Mr. Louden, gr. to Thomas Barnes, Esq., The Quinta, Chirk, who came in 2d. Mr. Hunter's varieties were Trebbiano and Muscat of Alexandria, Black Hamburgh and Alicante. Mr. Johnston, Glamis; Mr. Hammond, Brayton; Mr. R. Elphinstone, and Mr. Roberts, Charleville, also showed well.

The Veitch Memorial Prizes.—These consisted of ten £5 prizes and a Veitch Memorial Medal; and were awarded as follows:—To Mr. Roberts, Gunnersbury, for Saccolabium Blumei majus, with two fine spikes—the best single specimen Orchid in flower. To Mr. Tudgey, gr. to J. F. G. Williams, Esq., for a splendid specimen of the high coloured Dipladenia hybrida—the best stove plant in flower. To Mr. Tudgey, for a specimen over 5 feet through and splendidly bloomed of Erica superba—the best greenhouse plant in flower. To W. Brockbank, Esq., Didsbury, for the best fifty herbaceous and alpine plants. To Mr. Robert Tyldesley, Worsley, for the best collection of hardy Ferns. To Mr. D. Wilson, Castle Hill, Devon, for the best three Pines—handsome fruits of Smooth Cayennes, weighing collectively 18½ lb. To Mr. Goodacre, for the best ten kinds of English grown fruits. To Mr. J. Boyd, gr. to W. Forbes, Esq., Falkirk, for the best three bunches of black Grapes—grandly finished examples of Muscat Hamburgh. To Mr. Raffill, gr. to Lord Tredegar, Tredegar Park, for the best three bunches of Muscats—fine in size, compact and well coloured.

The Messrs. Sutton & Sons' Prizes.—For valuable money prizes offered by this eminent Reading seed firm for collections of twelve kinds of vegetables, thirteen lots were staged, the 1st prize going to Mr. Wildsmith, who had a very superior collection, including superb Intermediate Carrots, Student Parsnips, very fine Reading Onion, Schoolmaster Potatos, good Peas, Cauliflowers, &c.; Mr. Miles came 2d, with a capital lot, having fine Schoolmaster Potatos, Tender and True Cucumbers, Prince Albert Marrows, Telephone Peas, Maltese Parsnips, &c.; Mr. Milner, gr. to J. D. Corbett, Esq., of Shrewsbury, who was 3d, had handsome Dell's Crimson Beet, Early London Cauliflowers, Matchless Red Celery, &c.; Mr. Abbot, gr. to C. H. Frith, Esq., was 4th, and Mr. Bloxham 5th—the latter having some wonderful International Kidneys. The firm also offered prizes for single fruits of Hero of Lockinge Melon: Mr. J. Malcolm, gr. to the Marquis Cholmondeley, Nantwich, coming 1st; Mr. Upjohn, gr. to the Earl of Ellesmere, Worsley Hall, 2d; Mr. Gilbert, gr. to the Marquis of Exeter, Burghley, 3d; and Mr. Roberts, gr. to the Baroness Rothschild, Gunnersbury, 4th.

Messrs. Dickson, Brown & Tait's Prizes.—This Manchester firm offered prizes for the six finest heads of their Eclipse Cauliflower, twelve fine lo being staged. Mr. McIndoe was 1st, with supe heads, Mr. J. Edmonds, gr. to the Duke of St. Alban coming 2d, and Mr. J. Gould, gr. to Colonel Cros 3d. For six bunches of the pear-shaped Queen Tomatos, Mr. J. Hunter, gr. to the Earl of Durhan Lambton Castle, was put 1st, with fine samples; M D. Wilson, gr. to R. N. Phillips, Esq., M.P., Ma chester, came 2d; and Mr. W. Elphinstone, gr. to J M. Munday, Esq., Derby, was 3d. For prizes offer for their Best of All Melon, Mr. G. Wilkes, gr. Mrs. Tambaci, Cheadle, was 1st, with a handson fruit; Mr. Roberts, of Gunnersbury Park, was 2d and Mr. Abbot, 3d. This firm exhibited a large co lection of Potatos and other vegetables in one of tl tents.

Messrs. Webb & Sons, of Wordsley's, Prize —This popular firm offered many prizes for colle tions of six kinds of vegetables, for which twel growers competed. The best collection came fro Mr. W. Crump, gr. to the Duke of Marlborough Blenheim Park, who had very fine Banbury Onion Pride of the Market Peas, International Potato Jersey Lily Cucumbers, Excelsior Tomatos, and dwa French Beans. Mr. R. Milner, gr. to J. D. Corbet Esq., Shrewsbury, was 2d, having fine Internation Potatos, Kinver Marrow Peas, Reading Onion Trophy Tomatos, Matchless Red Celery, and Gia Cauliflowers. Mr. G. Bloxham, gr. to Sir S. Du combe, Bart., Brickhill Manor, was 3d; and Mr. J Beale, of Thursby, 4th.

Messrs. Dickson & Robinson's Prizes.—Th well-known Manchester seed firm offered good mon prizes for collections of twelve kinds of vegetable eight lots competing. The 1st prize was taken by M G. Summers, gr. to the Earl of Scarborough, San beck Park, who had fine Eclipse Cauliflowers, cle Snowball Turnips, Lapstone Potatos, Red Trip Onions, Grove White Celery, Heartwell Cabbage, a other good kinds. A. J. Skinner, Esq., of Chelte ham, was 2d, having some capital exhibits; and M W. Iggulden, gr. to the Earl of Cork, was placed 3

NEW PLANTS.

The display of New Plants in the classes and m cellaneous collections was considerable. In the cl for twelve Mr. B. S. Williams was 1st, Mess R. P. Ker & Sons, 2d; and Mr. J. Cypher, 3d. M Williams' group consisted of Delabechea ruprest Anthurium Andreanum, with two spathes; t neat Encephalartos Frederici-Guilielmi; Ara spinulosa, a rather coarse-looking subject, wi pinnate leaves and ovate leaflets; Cycas undulat with leathery glossy leaves and wavy leaflets; t grand Alocasia Thibautiana; Croton Stewartii, broad-leaved variety, with yellow variegatio Dracæna Lindeni, with elegantly recurved leav striately variegated with green and yellow; Ara spectabilis, with elegant bipinnate leaves a yard lon Anthurium Veitchianum, with its singularly corrugat elongate cordate leaves; Aralia Chabrieri, densely branched plant, with long dark gre linear leaves disposed in two ranks so that t bunches appear like pinnate leaves; and Philode dron elegans. In Messrs. Ker & Son's group was very handsome plant of Croton Warrenii, a varie with long drooping spirally-curved leaves and br liant red variegation. Messrs. Ker also had plants Dracæna Lindeni and of Anthurium Andreanum.

In the class for six new plants, not in commerce, M Williams, who was the only exhibitor, showed Kent costata, a free-growing greenhouse Palm; Dracæ Williamsii, with light-coloured variegation; Crot Bruce Findlay, with large oblong-obovate leaves a deep green, with bright yellow variegation; Anth rium Dickii, green, with thick, short petioled oblon lanceolate leaves, remarkable for their thicken midrib; Sanseviera aureo-variegata, scarce enough developed to judge of its merits; a Heliconia nigro-punctata, a dark-edged, bronzy-leav plant, like some of the dark-coloured Cannas.

The class for one new plant in flower, not in co merce, brought from Mr. Williams a pretty lit Angræcum called amabile, with distichous ret leaves, and spikes of small white flowers, having sepals and petals recurved, which was awarded t 1st prize; the 2d going to Dr. Ainsworth (M Mitchell, gr.), for Cypripedium Ainsworthii x, hybrid between C. Sedeni and Roezlii, with rosy-tint flowers, wanting in distinctness of character. other prizes were awarded. In the correspondi class for six new plants, not in flower, Messrs. Irela & Thomson were placed 1st, with Croton Thomso a strikingly handsome plant, with obovate leav diminished in the upper part so as to become son what fiddle-shaped, a foot long or more, with r yellow bold variegation on dark green ground. M Williams was 2d, with the Sandwich Island Asp nium horridum, a bold Fern of striking charact with pinnato-pinnatifid fronds. Messrs. Ker & S were 3d, with Lomaria obtusata, a neat and pre Fern, with erect evergreen pinnatifid fronds of c

aratively small size. In a miscellaneous group of rotons, outside the schedule, MM. Chantrier frères, of ortefonfaine, Paris, showed some handsome kinds, specially one named C. mosaicus, which has very fectively marked lanceolate-oblong foliage, the cuate venation having a somewhat blotchy character, ith bright yellow centre and veins, the midribs anging to crimson, and the other portions to rose lour.

A class was provided for twenty economical and edicinal plants. There was only one collection own; this, however, was a good exhibition, by Mr. Villiams, who had a fresh-looking and healthy collection of comparatively small plants, which included arcinia Livingstoni; the Manihot, M. utilissima; alvadora persica, the Mustard-tree of Scripture; rtanthe elongata, Myroxylon peruiferum, Coffea erica, Theobroma Cacao, Zingiber officinale, the inger; Maranta arundinacea, Arengo saccharifera, nd various others. Considerable interest attaches to ants of this character, and it is desirable, from an lucational point of view, that they should be ncouraged.

Besides the foregoing many striking novelties were own in the miscellaneous groups, and to several of ese Certificates of Merit were awarded. The subcts selected for this mark of distinction from Messrs. eitch & Sons' collection were the following—Lilium eciosum gloriosoides, with recurved undulated ruby otted perianth segments, and looking more like a ybrid than a variety; Lilium auratum platyphyllum, unspotted form, with segments of remarkably stout xture; Pachystoma Thomsoni, with white flowers, ving a peculiar purple-striped hooked lip; Ixora Burdgei, with lanceolate leaves and large salmony-orange owers, in the way of I. salicifolia; Ixora Westii ×, a ybrid between I. odorata and I. amboinensis, with vate leaves and rosy-pink flowers; Heliconia aureoricta, with the broad leaves closely transversely riped with yellow; Davallia elegans polydactyla, a retty crested form, Lælia Sedeni ×, a cross between perba and devoniensis, with purplish sepals and etals, the latter broader and notched at the lge, the lip wholly of a deep magenta-crimson; ymnogramma schizophylla, with elegantly cut onds; Croton Hawkeri, a small-growing kind, ith the base and centre of the leaves ellow; Lastrea Richardsoni multifida; the neat ergreen Quercus cuspidata argenteo variegata; arracenia formosa ×, a hybrid between S. psittacina nd variolaris, with erect pitchers, having the lips curved; Nepenthes bicalcarata; N. Morganiana, emarkable for its long red mottled pitchers; Sarrenia melanorhoda ×; Phalænopsis violacea, remarkble for its broad glossy green leaves and violetentred green-edged flowers; Cypripedium albo-pureum ×, a hybrid between Schlimii and Dominiana, emarkable for its rosy-tinted corkscrew petals; C. selligerum majus, with very large flowers, having road striated dorsal sepals; C. porphyrospilum ×, a retty and well-marked hybrid between Lowii and Hookeræ; Rhododendron Duchess of Connaught, ne of the hybrid Jasminiflorum group, with smooth axy flowers of a deep crimson-scarlet; Asparagus lumosus nanus, extremely elegant, with its flat Fernike branches; Alocasia Thibautiana, a free-growing lant, with bold cordate sagittate bronzy leaves, tracrsed by white ribs; and Yucca filamentosa aurea elegantissima, with yellow central striate variegation. The ame award was made to Mr. Anderson, of Meadowank, who showed a very fine Cattleya gigas, named uperba, the flowers large, deeply coloured, with the ip rich purple throughout except two creamy-yellow pots right and left of the throat. Mr. Williams was warded Certificates for Aralia Chabrieri, Dracæna Lindeni, Alocasia Thibautiana, Croton Bruce Findlay, Delabechia rupestris, Aralia spectabilis, Nepenthes icalcarata, Heliconia nigro-punctata, and Asplenium orridum, above described; and for Begonia Williamsii, a large-flowered white, of the tuberous section; nd for Asplenium novæ-caledoniæ, a species with inely divided leathery fronds. Certificates were also warded to Messrs. Ker & Son for Lomaria obtusata, Aralia Chabrieri, and Dracæna Lindeni, previously oticed, and for the Porcupine Rush from Japan, uncus zebrinus; to Messrs. Ireland & Thomson, for Croton Thomsoni; to Messrs. Osborn & Sons, for Hedera Helix maderensis albo-marginata, the fine new Ivy figured in our columns; to Mr. A. Waterer, for Abies canadensis variegata and A. canadensis pendula, two very elegant novel forms of Hemlock Spruce; and to MM. Chantrier, for Croton Baronne James Rothschild, C. Mortfontainensis, C. mosaicus, and C. Bergmanni.

HARDY SHRUBS AND CONIFERS.

We have never before at Manchester seen a finer display of these, especially as regards Conifers and Japanese plants, though there were only four exhibitors who sent anything like collections—Messrs. John Waterer & Sons, of Bagshot; Mr. Anthony Waterer, of Knap Hill; Messrs. Standish & Co., of Ascot; and Messrs. W. G. Caldwell & Sons, of Knutsford, Cheshire. The most interesting feature of the display was the competition between Messrs. Standish & Co. and Messrs. John Waterer & Sons in the class for the best collection of Japanese plants, both firms showing well. The Messrs. Standish had about 100 species and varieties, for the most part small and medium-sized plants, arranged in five separate groups, most conspicuous amongst them being many forms of the cut-leaved Maple, Elæagnus japonicus aureus variegatus, almost new; Daphniphyllum jessoensis, Desmodium penduliflorum, Abies polita, Larix leptolepis, standard plants of the variegated Osmanthus, Acanthopanax variegatus, Abies Alcocquiana, Euonymus radicans variegatus as small standards; and many species and varieties of Retinospora—a most creditable collection of hardy plants. The Messrs. Waterer's collection was not so extensive, but the individual specimens were larger and of more imposing appearance, making a very fine group. The genus Retinospora was represented by the original plant of R. filicoides, a handsome specimen; R. aurea, R. Keteleerii, a golden variegated form; R. argentea, R. plumosa aurea, a grand specimen; R. obtusa densa and the form densa aurea, R. pisifera nana aurea; a plant about twelve years old, and yet only 9 inches high, and some 15 inches in diameter; R. filifera, aurea and squarrosa, as standards, nice heads on clean stems 3 and 4 feet high; Euonymus japonicus aurea, Skimmia oblata, a dense bush; several forms of Acer japonicum, Thuyopsis Standishii, Cephalotaxus Fortunei, Abies polita, Sciadopitys verticillata, Thuyopsis dolabrata variegata, a very fine specimen, &c. Messrs. Standish & Co. took the 1st prize, and Messrs. J. Waterer & Sons the 2d. In the class for twelve hardy Conifers, distinct, Messrs. John Waterer & Sons showed a very handsome lot of specimens, ranging in height from 7 to 10 feet, and each perfect of its kind. The plants were Retinospora plumosa aurea, Abies lasiocarpa, Retinospora squarrosa, Picea Pinsapo, Cupressus Lawsoniana argentea, Araucaria imbricata, Retinospora plumosa, Cupressus Lawsoniana erecta viridis, Abies Nordmanniana, Thuyopsis dolabrata variegata, Abies nobilis, the glaucous-leaved form, and Abies orientalis. Messrs. W. G. Caldwell & Sons showed a fair lot of specimens, taller and altogether larger than the Bagshot plants, and were awarded the 1st prize, the Messrs. Waterer being 2d. Amongst the Knutsford specimens the most conspicuous were an Irish Yew, Golden Queen, Ilex Hodgsoni, I. maderensis nigrescens, the silver-striped Holly, variegated Box, and Retinospora squarrosa, &c. The Messrs. John Waterer & Sons also showed a dozen hardy evergreen trees and shrubs, bold, well furnished, and striking specimens of Waterer's Holly, Andromeda floribunda, Buxus japonicus aureus, Thuya Watererii, Thuya Vervaeneana, a golden variegated form; the common Tree Box, Chamæcyparis variegata, Taxus hibernica, the narrow-leaved Portugal Laurel, a very fine pyramid; Retinospora aurea, and the Holly-leaved Phillyrea. The 1st prize was their reward. The Messrs. Waterer and Messrs. Caldwell also competed with six Golden Yews, the 1st prize going to the last-named firm; and the Messrs. Waterer also had the 1st prize for half-a-dozen Hollies, fine tall specimens about 10 feet high. Mr. Anthony Waterer sent from Knap Hill, not for competition, a group of twenty very fine Golden Yews, a conspicuous feature on one of the lawns near to the entrance gate; also an attractive group of about sixty beautiful specimens of Conifers, variegated Hollies, &c. Amongst the latter were Golden Queen, Silver Queen, and Waterer's variety, all clearly and boldly variegated: and of Conifers, Retinospora obtusa aurea gracilis, about 7 feet high, Cupressus Lawsoniana lutea, very bright, and about 8 feet high; Thuya occidentalis lutea, very good variegation, and very bright; Retinospora pisifera aurea, true, a very fine plant; R. obtusa aurea, a close pyramid, from 7 to 8 feet high; a tall specimen of Cupressus Lawsoniana erecta viridis; Abies excelsa var. Renaultii, a very dense-habited form; Thuyopsis borealis var. compacta, a neat dense-habited plant of a nice glaucous hue; a handsome close-habited form of Cupressus Lawsoniana named stricta; Juniperus japonica alba; Retinospora obtusa compacta, very dense in growth; Retinospora filifera, a graceful pendulous plant, recommended for growth in pots in a small state; Abies excelsa pumila, an interesting plant in the way of the clanbrasilian Fir, but with stronger and more robust shoots, though equally dense in growth; Buxus nepalensis, a bold leaved plant and very hardy, and the narrow-leaved form of Portugal Laurel, the hardiest plant in the group, and which no amount of frost seems to injure; the new Abies canadensis variegata, a larger and finer specimen than was shown the other week at Kensington; and A. canadensis pendula, a form of unmistakable weeping habit.

Messrs. Charles Lee & Son, of Hammersmith, showed a very interesting and attractive collection of cut branches of hardy ornamental trees and shrubs, and a series of handsome young Conifers. Messrs. Osborn & Sons, Fulham, S.W., had a basket of well variegated young plants of their new variegated Ivy, Hedera Helix madeirensis variegata; and Messrs. James Dickson & Sons, Chester, showed small plants of a pretty silver variegated seedling Cupressus Lawsoniana.

CUT FLOWERS, Etc.

The very large exhibition of Dahlias was a surprise even to experienced growers, there being a very large quantity exhibited, and, considering the season, the inferior blooms were easily counted. The Northern growers had rather the advantage over those in the South this season; Mr. Charles Turner, of Slough, for instance, had to contend with hosts of thrips, which caused great injury to the blooms.

For thirty-six blooms, distinct, Mr. Harkness, Bedale, Yorkshire, was 1st, with large blooms in good condition; a few of them might be said to be rather rough, but these were the exception. Some of the best were Criterion, Harry, James Service, Yellow Boy, Delicate, Flag of Truce, Flora Wyatt, Lord Derby, A. Crammond, and George Smith. Messrs. Keynes & Co., of Salisbury, were 2d, with a lot of very evenly matched and good blooms; Messrs. H. Cannell & Co., of Swanley, 3d. The same exhibitors took the prizes in the same order for twenty-four blooms. Mr. Harkness had Flora Wyatt again, Jas. Cocker, Ovid, Louisa Neale, Royal Purple, Rifleman, John Standish, Jas. Service, and Thomas Goodman, very fine. Messrs. Keynes were placed 1st for twelve blooms, and really fine they were—Joseph Ashby, Jas. Cocker, Royal Queen, Lord Chelmsford, John Standish, Mrs. Percy Wyndham, J. C. Reid, Mrs. Harris, Julia Wyatt, Prince Arthur, Mrs. Dodds, and Goldfinder, were the varieties. Messrs. Cannell were 2d, and Mr. Harkness 3d.

Fancy Dahlias were shown in very good condition, Messrs. Keynes taking the 1st prize for twenty-four with a very even stand, nearly every bloom being in good condition: Ed. Peck, Egyptian Prince, John Lamont, Henry Glasscock, Annie Pritchard, Fanny Sturt, Jas. O'Brien, Mrs. Saunders, Professor Fawcett, and Robert Buros being the best blooms. Mr. H. Clark, Leeds, was 2d, with very good blooms, but a large proportion of them were sadly over-blown. Messrs. Cannell were 3d, with a really good stand, which might have been 2d but for a very bad bloom of Hugh Austin, which quite spoiled an otherwise good stand. Messrs. Keynes were 1st for twelve, Messrs. Cannell 2d, and Mr. Chas. Turner 3d. Hollyhock spikes were badly shown, and did not receive any award. The whole collection ultimately fell over amongst the Dahlias, and looked as if the rubbish heap were the best place for them. There were some good single blooms of Hollyhocks, the dozen exhibited by Messrs. John Thomson, of Newcastle-on-Tyne, being very good. Gladiolus spikes were, as usual, well shown by Messrs. Kelway, of Langport. This firm gained the 1st prize with a collection of 200 spikes, most of them being their own seedlings. The same firm also took the 1st prize for twenty-four spikes, also with Langport-raised varieties. Robert Tait, a variety which forms a long spike of crimson-scarlet flowers, received a First-class Certificate; other good blooms were James Douglas, Rev. R. Hole, John Downie, R. Laird, and Sir G. Nares, were the best of them. Messrs. John Thomson were 1st for eighteen spikes, and very fine they were—The Prince, Shakspeare, Horace Vernet, Mons. Legouve, and Belladonna, were very fine. Cut blooms of stove and greenhouse plants were very fine indeed, the 1st prize collection contained a beautiful spike of Miltonia spectabilis, and of Aerides suavissimum, Ericas, Lapagerias (white and red), Allamandas, Anthurium, Eucharis, &c. The 2d prize collection was also a good one, but the names of the owners were not affixed to either collection. Bunches of herbaceous flowers were very fine from Messrs. Perkins, of Coventry, who gained a 1st prize for thirty-six bunches; and from F. R. Leyland, Esq., Woolton Hall, Liverpool, who was 1st for twelve bunches. Mr. Walker, of Thame, Oxon, was 1st for twenty-four bunches of cut blooms of zonal Pelargoniums; they were really good, but would have been better shown with their own leaves as a backing to the trusses instead of the bouquet papers. Asters were numerously shown, but the largest proportion of them were not of the best quality. Messrs. Saltmarsh, of Chelmsford, were 1st for twelve French Asters, and Mr. Walker for twelve Globe Quilled Asters: these and the other prize collections were fine. Mr. R. Mann, of Howden, Yorkshire, was 1st for twelve African Marigolds, and very fine they were—large, well-formed blooms of the orange and lemon-coloured varieties; the other collections were also good. Mr. John Sutherland, Lenzie, N.B., was 1st with a well-marked dozen blooms of the French variety. There were numerous other collections shown, but most of them were of self or badly-marked flowers. Stocks were fairly good. Phloxes very poor. Pansies were very very good—the blooms from Messrs. Paul & Sons, Paisley, were a show in themselves; and almost equally good blooms, though not so many of them, were shown by Messrs. Debbie & Co., Rothsay, N.B., who also exhibited a stand of well-marked French Marigolds. Good prizes were offered for a dinner-table completely laid out for twelve persons, to

show the best means of utilising flowers and fruit in its adornment. There were five tables arranged, but none of them were entirely satisfactory. Mr. James Cypher, of Cheltenham, was 1st. He had two crystal stands at either end of the table, of the usual tall pattern—a Cocos Weddelliana in the centre, and a base of flowers and Ferns. The whole design was too large for the table, otherwise it was tastefully arranged. Mr. James Mason, Victoria Street, Manchester, was 2d. The fruit was good, but the centre ornament was very lumpy. Messrs. Jones & Sons, Shrewsbury, were 3d. The cut flowers laid about on the table were objectionable on this table. There were no less than 115 bridal and ball-room bouquets, and scarcely a bad one amongst them. They were exhibited in sixes. Messrs. Jones were 1st in each of the classes of six. Their bouquets were very well made and with great simplicity, the most being made of the very few flowers used—for the bridal bouquets there were white Lapageria, Tuberoses, Pancratium, Stephanotis, and Eucharis. For the ball-room bouquets Disa grandiflora was used with good effect. Adiantum gracillimum was used in the centre and A. cuneatum as a margin. Messrs. Perkins, of Leamington, were 2d for the ball-room, and Mr. Brown, of Richmond, for the bridal bouquets. Messrs. Henry, of London, were 1st for one bridal bouquet, and Messrs. Perkins for the ball-room.

The Cottagers' Productions formed one of the most creditable features of the show. The vegetables were equal to the best productions of gentlemen's gardens. The Potatos were particularly clean and good, upwards of 120 dishes being staged. Mr. A. Parkinson, of Garstang, was 1st for twelve white kidney Potatos; Mr. M. Bullough, Tarporley, being 1st for twelve red kidneys. Mr. J. R. Leyland, Altrincham, was 1st for twelve white round, and Mr. Bullough for twelve red round. Mr. Peter Gregson had the best white Onions amongst eighteen bunches; Mr. N. Tyldesley, Swinton, the best red amongst twelve. Mr. G. Gouldon, Bornden, had the best dish of green Peas—Stratagem; nineteen dishes were exhibited. There were thirteen good bunches of Turnips; Mr. R. Leyland had the best—Golden Ball. Mr. Geo. Whitfield had the best bunch of Carrots amongst fourteen good one. Cabbages, as cottagers' Cabbages ought to be, were large, and Mr. A. Higginbottom was 1st for two. Mr. A. Parkinson was 1st for two Lettuces. Rhubarb, Celery, broad Beans, dwarf kidney Beans, were all of high class quality; a dish of Canadian Wonder Kidney Beans gaining the highest place amongst twenty-nine dishes for Mr. Bullough. Celery was very remarkable, and great credit was due to Mr. J. E. Maxted for his three splendid heads of Premier Celery, which was the best amongst thirty-six exhibitors. Cut flowers from cottagers were very pretty indeed, especially the Pansies, Roses, Phloxes, Liliums, &c. Gooseberries of large size were shown in abundance, as were Currants of all kinds. A meed of praise must be awarded to Messrs. Cannell for a fine group of cut flowers in the cottagers' tent; they were in Cannell's best style, and comprised a fine lot of cut Verbenas, Pelargoniums, single Dahlias, Delphiniums, &c.

The National Carnation and Picotee Society held their annual exhibition at the same time and place. It was two weeks too late for some of the principal growers, for whom a supplementary exhibition had been held about two weeks previously in the Town Hall. Mr. B. Simonite, of Sheffield; Richard Gorton, Esq., Eccles; Mr. Booth, of Failsworth, and others, were at their best at the earliest date. However, Mr. Robert Lord, of Todmorden, was at his best; and the growers from Newcastle came in at the right time. S. Barlow, Esq., from Stakehill, was in good time, although his flowers were not so good as they would have been had the weather been more favourable. Beginning with Carnations, for twelve dissimilar blooms Mr. Robert Lord, of Todmorden, was 1st, with large and highly coloured blooms of Admiral Curzon, S.B.; Lord Milton, C.B.; Earl of Wilton, P.F.; Robert Lord, S.B.; Mrs. Dodwell, R.F.; Clipper, S.F.; Fanny Gardiner, Mr. H. Lomes, Rayner Johnson, Shirley Hibberd, C.B.; Sportsman, S.F.; George, S.B. Mr. Thomas Flowerday, Gateshead, was 2d; he had a really fine Sarah Payne, P.P.B.; Wm. Harland, Falconbridge, P.P.B.; Sporting Lass, Rose of Stapleford, James Flowerday, and Warrior. Mr. W. Taylor, of Middleton, was 3d; Mr. B. Simonite, of Sheffield, 4th; and Mr. Beswick, Middleton, 5th. For twelve dissimilar Mr. Lord was again 1st with a fine collection—it comprised Zerlina, Thomas William, Mrs. Alcroft, John Smith, Minnie, Miss Horner, Ann Lord, Elsie Grace, a fine light red edge; Mrs. Summers, Brunette, Medina, and Fanny Helen. Mr. T. Flowerday was a really good 2d, his blooms were good and beautifully dressed; Mr. Beswick was 3d, Mr. George Rudd, Bradford, 4th; Mr. Simonite being 5th. For twelve Carnations, nine dissimilar, Mr. Thomas Bower, Bradford, was 1st with large bright blooms of Lord Wilton, C.B.; Maid of Athens, R.F.; Dreadnought, S.B.; John Keet, R.F.; Squire Magnell, P.F.; Falconbridge, P.P.B., and Rifleman, C.B. Mr. R. Scott, Newcastle-on-Tyne, was 2d, his Sarah Payne and Falconbridge; being very fine indeed; Mr. George Rudd, 3d; Mr. George Thornley, 4th; Mr. T. Mellor, Ashton-under-Lyne, 5th; and Mr. J. Chadwick, Dukinfield, 6th. Mr. R. Scott was 1st for twelve Picotees, nine dissimilar, Thomas Williams, Miss Wood, J. B. Bryant, Minnie, &c., were very fine; Mr. G. Thornley, 2d; there was no name to the 3d; Mr. T. Bower 4th; Mr. Mellor and Mr. Chadwick being respectively 5th and 6th. Mr. E. Pohlman, of Halifax, was 1st for six Carnations; Mr. J. Witham 2d, Mr. John Whittaker 3d, S. Barlow, Esq., 4th. For six Picotees Mr. J. Witham was 1st, S. Barlow, Esq., 2d, Mr. Pohlman 3d, and Mr. Whittaker 4th. Mr. Lord and S. Barlow, Esq., gained the prizes for twelve selfs in the order of their names; both exhibitors had very pretty flowers: Mr. Lord's were the largest, and Mr. Barlow's the greatest and freshest. Single blooms, scarlet bizarre Carnations: Mr. R. Lord was 1st, 2d, 3d, 4th, and 5th, with grand blooms of Admiral Curzon; Mr. Bower 6th, with the same. Crimson bizarres: Mr. Lord again gained the first five prizes, the varieties being Lord Wilton, Rifleman, and Unexpected; Mr. Bower 6th, with Rifleman. Pink and purple bizarres: Mr. Bower was 1st, with Sarah Payne; 3d, with Falconbridge; Mr. Lord 2d, with Shirley Hibberd; 4th, with Albion's Pride; and 5th, with Eccentric Jack; Mr. Simonite 6th, with a seedling. Purple flakes: Mr. Lord 1st and 2d, with James Douglas; 3d and 4th, with Earl of Wilton; 5th, with James Douglas; 6th, Mr. Whittaker, with Lady Peel. Scarlet flakes: 1st, Mr. T. Flowerday, with Wm. Harland; 2d, Mr. R. Lord, with Sportsman; 3d, with Clipper; 4th, with Sportsman; 5th and 6th had no names attached. Rose flakes: 1st, Mr. R. Lord, with Lovely Ann; 2d, with Mrs. Dodwell; 4th, with John Keet; 3d, Mr. Thomas Bower, with John Keet, and 5th with the same variety. 6th, Mr. W. Taylor, with Apollo. Picotees, heavy red edges: Mr. Lord, 1st, 2d, and 4th, with John Smith; Mr. Flowerday, 3d and 5th, with J. B. Bryant; Mr. Rudd 6th, with J. B. Bryant. In light red edges Mr. Flowerday was 1st and 3d, with Thomas William. Mr. Lord, 2d, 4th, 5th, and 6th, with the same variety. Heavy purple edges: Mr. Lord 1st, with Zerlina; Mr. Beswick, 2d and 3d, with Zerlina; 5th and 6th, with Mrs. Summer; Mr. Pohlman 4th, with Zerlina. Light purple edges: Mr. Flowerday, 1st and 2d, with Minnie; Mr. Thornley 3d, with Mrs. Lord; Mr. Simonite 4th, with Mary; Mr. Lord 5th, with Minnie, Mr. Beswick, 6th, with Mrs. Lord. Heavy rose edges: Mr. R. Lord 1st, with Miss Horner, 2d and 5th, with Fanny Helen; 3d, Mr. Chadwick, with Edith D'Ombrain; 4th, Mr. Taylor, with the same variety; Edith D'Ombrain also being 6th, from Mr. Geo. Rudd. Light red edges: 1st, 2d, and 4th, Mr. Flowerday, with Miss Wood; 3d, Mr. Beswick, with Teresa; 5th, Mr. Barlow, with Miss Wood; 6th, Mr. Taylor, with seedling. The premium Carnation in the whole exhibition was a grand, richly coloured bloom of Admiral Curzon, from Mr. Lord; the premium Picotee being a very refined bloom of Thomas William, from Mr. Scott.

The National Rose Society also held an exhibition, and, considering the season, some very good blooms were exhibited, although a number of them showed the effects of the rough weather. In the nurserymen's class for forty-eight distinct Roses, Messrs. Robert Mack & Son, North of England Rose Nurseries, Catterick Bridge and Scorton, Yorkshire, was 1st; some of his best blooms were Marie Baumann, Lord Beaconsfield, Général Jacqueminot, Dr. Andry, Sir Garnet Wolseley, Mdle. Annie Wood, François Louvat, Catherine Mermet, John Stuart Mill, Madame Brassy, Duc de Wellington, Alfred K. Williams, &c.; 2d, Messrs. Paul & Son, Cheshunt, with a beautiful stand, comprising some fine Teas: amongst the best were Clothilde, Jean Ducher, Perle des Jardins, Niphetos, Marie van Houtte, Madame Welch, and Madame Villermoz. The Cranston Nursery Company, Hereford, were 3d. Messrs. Mack were again 1st for twenty-four varieties, three trusses of each; they were really good—Alfred Colomb, Beauty of Waltham, Auguste Rigotard, Marie Baumann, and John Stuart Mill, being fine amongst other good blooms. Messrs. Paul were 2d, and the Cranston Nursery Company 3d. Twenty-four distinct: Mr. John House, Peterborough, was 1st; and Mr. Walker, of Thame, 2d. Twelve varieties of Teas, three trusses of each: Messrs. Mack were again 1st with large blooms for the season, but some of them were rather rough, and the collection altogether was not so good as that of Messrs. Paul, which was placed 2d. The best blooms in the two collections were Madame Berard, Madame Lambard, Rubens, President, Perle des Jardins, Catherine Mermet, Madame Hippolyte Jamain, Madame Bravey, Souvenir d'un Ami. Mr. George Prince, of Oxford, was 3d. For twelve single blooms of Teas, the Cranston Nursery Company was 1st, and Mr. House, of Peterborough, 2d. Twelve single trusses of any variety: Messrs. Mack 1st, Mr. Prince 2d, and the Cranston Nursery Company 3d, the variety in each case being Alfred Colomb. Six single trusses of any variety: 1st, the Cranston Nursery Co., with Mrs. Jowitt; 2d, Messrs. Mack, with Marie Baumann; 3d, Mr. Prince, with Duke of Edinburgh.

Amateurs.—Twenty-four, distinct, single trusses 1st, T. B. Hall, Esq., Larch Wood, Rock Ferry, Cheshire: this gentleman exhibited some very nice Roses in this class, and was also fortunate in gaining the 1st prize for eighteen distinct single trusses; he exhibited blooms of the most popular exhibition varieties. Mr. Hall also took 1st prizes for twelve Tea Roses in single trusses, and six in trebles. For twelve distinct, S. Tate, Esq., Roseleigh, Woolton, Liverpool, gained a 1st prize with good blooms; the Teas Anna Oliver and Adrienne Christophle were very fine. For nine, distinct, E. Mawley, Esq., Lucknow House, Croydon, was 1st, with good blooms; the same exhibitor taking the highest position for six Teas. Mr. J. Brown gained a prize for a collection grown in the neighbourhood of Manchester; they were not large, but clean and well-grown. Samuel Barlow, Esq., of Stakehill House, also exhibited some really pretty Roses from his garden at Stakehill, and obtained two 1st prizes for nine and six trusses.

THE IMPLEMENT DEPARTMENT.

The exhibition of garden structures and requisites, boilers, and various similar adjuncts, under the management of Mr. Geo. Willis, of Tarporley, who has had much experience of similar work, was held in a portion of meadow land adjoining the gardens, and specially enclosed for the occasion, but the entrance to which was sadly spoiled by the weather. Here glass structures were chiefly arranged in the centre, whilst the various groups of combined exhibits were placed around the sides. Prominent amongst glasshouses were those erected by Messrs. Halliday & Son, Middleton, who exhibited a fine span-roof plant-house, a span vinery, a Peach-house, and an elaborately constructed and decorated conservatory that was certainly more ornamental than useful. They also had span frames with movable tops, boilers, and garden requisites in variety. Messrs. David Lowe & Son, Manchester and Edinburgh, showed a large, well constructed span-roof conservatory, and good roomy vinery; a small amateur's plant-house, stout, enduring frames; saddle and conical boilers, cisterns, &c. Messrs. Foster & Pearson, Beeston, Nottingham, had a very airy span-conservatory qualified to make a first-class show plant-house, the finest one on the ground; also a very neat span-vinery, span frames with crank ventilating appliances, and other useful exhibits. Messrs. Richardson & Co., of Darlington, had erected a very elegant span-roof plant-house, certainly the handsomest of the entire number. This had curved lips and the lines were graceful and pleasing; also a neat lean-to amateur's plant-house, with elevating ventilators, good frames, wall tree protectors, various boilers, &c. Messrs. Tracey & Son, Ilford, Essex, had a very neat span-house with curvilinear roof, admirably suited for a vinery or Peach-house, but too high for plants. Messrs. Mackenzie & Moncour, Edinburgh, had a medium-sized span-house, with lofty and somewhat inelegant ventilating ridge—not a good type of plant-house. Messrs. Wright & Holmes, Birmingham, exhibited a lean-to house, glazed, to show a simple principle of glazing with wood caps and screws, the lower half of the rib upon which the glass rested having a grooved channel to carry off moisture; also an unglazed house, showing the same system. Mr. B. W. Warhurst, Highgate, London, put up an amateur's span-roof greenhouse; and further exhibited massive flued and patent wedge saddle boilers. Mr. Watson, of St. Alban's, had his large and excellent patent wedge saddle boiler; also a small wedge-shaped guinea boiler, that seems capable of performing really good work. A large extent of space was occupied by the stand of Messrs. Elliot, Alston & Olney, of Manchester, who had a very varied and showy collection of garden seats, metal vases, with pedestals, jardinières, water-barrows, and many other garden requisites. Messrs. Bramham & Co., of Liverpool, had a number of huge saddle boilers fixed in a tent to show mode of setting and working; also a large and very handsome wire rosery of elegant design. The largest collection of exhibits here came from Messrs. Leach Bros. & Hoyle, Manchester, who had boilers in great variety, rollers, seats of massive and elegant designs in iron and bronze, garden tents, metal vases, and many other things. Messrs. Graham & Fleming, Booth Town, Halifax, had a large assortment of saddle, tubular, and other boilers, many of the most massive and evidently enduring kind. Boilers in great variety were also shown by Mr. Harlow, of Macclesfield, including patent tubulars, conical, and other kinds. Mr. J. G. Wagstaff, of Dukinfield, was also a large exhibitor of boilers. Of mowing machines the Chadburn & Coldwell Company, of Upper Thames Street, London, had their patent Excelsior lawn mowers, now so largely used. Messrs. Thos. Green & Sons, of Leeds,

nd London, had their famous mowers in variety, and ome massive boilers; and Messrs. Adie & Co. had heir admirable lawn edger or grass clipper. Messrs. Bradford & Co., of Victoria Avenue, Manchester, howed garden seats, vases, &c., with various lawn nowers; as also did Messrs. Follows & Bate, of Manchester, whose mowers have a wide reputation. Messrs. Armitage & Sons, of Manchester, had a fine isplay of white terra cotta garden pottery, vases, fountains, garden ornaments, &c.; and Mr. J. Matthews, of Weston-super-Mare, was not less prominent with a nost elegant assortment in red clay of garden vases, lant—stands of noble and elegant design, pleasing nd ornamental figures, and many other objects. Messrs. Joseph Davies & Co., Kennington, London, ad a good display of thermometers and other meteological instruments. Mr. Ramsbottom, of 81, Market Street, Manchester, exhibited lawn tennis ppliances, perhaps just now a little out of season. Mr. E. Griffiths Hughes, of Catheaton Street, Manhester exhibited Fir-tree oil as an insecticide. Mr. . H. Topham, 38, Fennell Street, Manchester, had nodel main filters for the purifying large supplies of vater. Messrs. Dick Radclyffe & Co., High Holborn, London, had plant jardinières and glass Fern cases. Mr. Deverill, of Slough, showed his patent irrigator or watering trees, lawns, &c. Mr. H. Inman, of Stretford, had handsome heather-covered summerouses, and Mr. J. H. Critchley, of Cheltenham, ouble and quadruple patent valves for hot-water pparatus.

The awards made by the judges, Mr. Shirley Hibberd and Mr. Challis, gr., Wilton House, Salisbury, in the implement department were the Society's Medal to Foster & Pearson, Beeston, Notts, for the best constructed greenhouse for durability and lightness; to Richardson & Co., Darlington, for the best conservatory suitable for a smoky district. Highly Commended in this class for good workmanship in vinery and plant-houses:—D. Lowe & Sons, Edinburgh; R. Halliday & Co., Middleton, for the best collection, as a whole, of houses, boilers, valves, frames, &c.; J. Bramham & Co., Liverpool, for the best boiler, practically and scientifically considered.. The judges also recommend the Award of the Society's Medal to J. Matthews, Weston-super-Mare, for a collection of decorative and useful Jardeo pottery; and to H. Inman, Stretford, for a collection of rustic summer-houses, bridges, seats, &c.; the Society's Medal to Leech Bros. & Hoyle, Manchester, for the best garden seat; and Elliott, Alston & Olney, Manchester, are Highly Commended.

THE BANQUET.

This took place in the Town Hall, was presided over by the Mayor, and was attended by the Earl of Derby, the Bishop of Manchester, and numerous representatives of the gardening fraternity. The Bishop hoped that one lesson of the exhibition would be to imitate the gardeners, and try to make the world brighter, purer, and happier. The Earl of Derby, in proposing prosperity to the exhibition, alluded to the enormous labour entailed by such exhibitions, a great deal of which was not obvious to those who only saw the result, and took the opportunity of paying a well turned and deserved compliment to Mr. Bruce Findlay and his colleagues. He alluded to the services which the botanist and the cultivator had rendered to mankind, and speculated what the world would be without such products as Wheat, Tea, Tobaccos, Potato, and Cotton, whose discovery and development were due to the botanists and the cultivators of bygone ages; concluding his remarks by saying that by promoting botanical science his hearers would be doing something useful and valuable for industry, as well as productive of directly intellectual results.

Royal Horticultural.

Fruit and Vegetable Committee.—Meeting at Chiswick August 19. P. Crowley, Esq., in the chair.

The collection of Potatos was examined, the following varieties being highly approved for cropping qualities and handsome appearance:—

Lye's Prolific	Lord Mayor
Garnett's Seedling	American Seedling
The Druid	Bedfont Prolific
No. 1 (Fenn)	Matchless
No. 3 (Fenn)	White Emperor
Avalanche	Criterion
Alderman	Manhattan
No. 6 (Fenn)	No. 5 (Fenn)
Surrey Gate-post	Mr. Bresee
Beauty of Kent	Alpha
Farren's No. 1	Triumph
Foster's Seedling	No. 30. Rand's Seedling (Bliss)
Standard (Fenn)	

First-class Certificates.

On being subjected to the test of cooking, the following were awarded First-class Certificates:—

Garnett's Seedling, a large flat white kidney.
Standard (Fenn), a medium-sized round white.
Lord Mayor (Dean), a very handsome rough-skinned white.
Foster's Seedling, a large white round rough.
No. 5 (Fenn), a large very handsome pale red kidney, resembling Mr. Bresee, remarkably fine in quality.
Matchless (Bliss), a half round, very handsome pale pink American variety.

Floral Committee: *Aug.* 23.—J. McIntosh, Esq., in the chair. The few who attended this meeting seemed astonished to see one another, and wondered how it was they had not gone to Manchester. Nevertheless, the faithful few found, as they generally do at these meetings, that there was a good deal to interest them; for, in truth, the meeting, small though it was, confirmed the statement often made, that to the plant-lover these smaller meetings are more instructive than the larger ones. There is not the same high cultivation, it is true, but there is relatively more novelty, more interest, and greater leisure to see and study what there is. We cannot pretend to take note of all that was brought under notice on this occasion, but some things were too remarkable to be passed over without some comment. Those, and we are of them, who like single Dahlias, would have been pleased with White Queen as shown by Mr. Ware. It is not new—it is none the worse for that—but the flowers are large, flat, the ray florets broad, white, the disc florets relatively small and yellow. For decorative purposes this is a fine variety. Mr. Rapley showed Gloxinia Frederici of a rich claret-crimson colour, but the tube was too slender in proportion to the limb. Mr. Riches showed a collection of cut flowers of fifty hardy perennials. Though not nicely staged and set up, this was a very interesting collection, comprising many beautiful species. Among them we noticed Dracocephalum Ruprechti, with lilac flowers; D. canescens, with hoary leaves and lilac flowers; Castilleja indivisa, with its magnificent crimson bracts—how this is grown it would be useful to know, for we believe the plant is partly parasitic in its habit; Veronica longifolia subsessilis, with its long massive spikes of deep flowers, is one of the very best herbaceous plants; Geum coccineum, the double-flowered variety; Senecio niveus, with hoary oblong leaves and yellow flower-heads; Geranium armenum, with lustrous rosy-lilac flowers, &c. Messrs. Veitch showed a hybrid Lælia, called L. Sedeni ×, said to be a hybrid between C. superba and C. devoniensis—as shown it had much the appearance of Lælia elegans. From the same firm came a very attractive and novel Ixora under the name I. Westii ×, and stated to be a cross between I. odorata and I. amboinensis. The flowers are relatively small, of a beautiful pinkish-cream colour. Wistaria japonica, a novelty from Japan, was sent by Messrs. Veitch as a new hardy plant. It is apparently very free-flowering, but the specimens shown were not sufficiently expanded to show their character. The flowers are greenish-white, and the habit is good, so that we trust to see it under more favourable conditions. Coleus Edith Sentance, exhibited by Mr. King, is a variety of good habit, with bold leaves, the disc of which is a brilliant claret-red, bounded by an irregular band of dark brown, outside which is a crenated border of green. Lobelia compacta bella, shown by J. McKenzie, is compact, as its name implies, and bears a profusion of relatively large white flowers. Mr. Balchin sent a fine pot of his proliferous Mignonette—a very remarkable variety, already alluded to. Mr. Bull showed a fine variety of Lilium auratum, called cruentum, with a broad purplish-brown band on each segment. From the same exhibitor came a plant of Mormodes armeniaca (see *Gardeners' Chronicle*, Sept. 27, 1879, p. 390), with closely-set racemes of deep orange very fragrant flowers, the segments of which are lanceolate acuminate, the column also is acuminate. Professor Reichenbach compares the colour to that of Apricots, whence the name. Under the dreadful name of Mascarenhaisia Curnowiana, Messrs Low & Son exhibited a new, remarkable, and very interesting Apocynaceous plant. It is a climber, with slender dark stems, opposite, oblong-lanceolate acuminate shortly stalked glabrous leaves, and terminal trusses of rosy-pink flowers, each about 2 inches across, and with lanceolate undulate segments. The plant is a native of Madagascar, and if not killed by its dreadful name, has a future of much promise before it. Begonia ascotensis × was sent from Chiswick to show how well it is adapted for outdoor culture. Several varieties of Ceanothus were also shown — the more remarkable after the slaughter of the past winter: the best appeared to be Gloire de Vait, blue, and Le Géant, pale pink. From Mr. E. Russell came a useful variety of Centaurea ragusina called Russelli, of dwarf compact habit, and tufted leaves of great substance, snowy-white on both surfaces. It looks as if it would be very serviceable for bedding purposes. For the prizes offered by Messrs. Ewing, of Norwich, for cut sprays of hardy shrubs and trees two collections were staged—one from Mr. Morse, of Epsom, which contained decidedly the best and most interesting selection; but looking to the terms of the schedule, wherein hardiness was especially mentioned, the judges had no option but to award the 1st prize to Mr. Moorman's collection. Both collections were good, but it is a pity there was not a brisker competition.

The following are the awards made on this occasion:—

First-class Certificates.

To Mr. W. Bull, for Lilium auratum var. cruentum, and Mormodes armeniacum.
To Mr. J. Russell, for Centaurea ragusina Russelli.
To Messrs. H. Low & Co., for Mascarenhaisia Curnowiana.
To Mr. J. King, for Coleus Edith Sentance.

Second-class Certificates.

To Mr. W. Rapley, for Gloxinia Frederici.

Cultural Commendation.

To Mr. W. Balchin, for Mignonette, proliferous variety.
To group of plants from Society's garden.

Votes of Thanks.

To Mr. J. T. Riches, for collection of hardy flowers.
To Mr. J. McKenzie, for Lobelia compacta bella.

Fruit Committee.—H. J. Veitch, Esq., in the chair. The labours of this committee were not of an exhausting character. A few Peas and Potatos, Ecklinville Seedling Apple and Duchess of Oldenburg from Chiswick, several Melons—none of which satisfied the requirements of the committee—constituted the staple of the show. In addition, we may note some bunches of Ollerhead's White Seedling Grape with much of the appearance of Foster's Seedling, if not identical with that variety; the shoulders are, however, bigger than is usual in that variety. No award was made, but the committee requested to see the Grape again. This Grape obtained the 1st prize at Manchester. Mr. Woodbridge showed, from the Duke of Northumberland's garden at Sion, St. Margaret's Cherry, a late black variety of good flavour, and specially valuable for its lateness. A vote of thanks was awarded.

Foreign Correspondence.

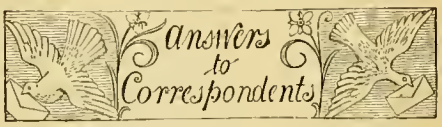
Lindenthal, near Cologne, Rh. Prov., *Aug.* 20.—*The Phylloxera on the Rhine.*—There is sad news from Neuenahr, in the Rhine provinces—the Phylloxera is there! It has already laid waste 8000 square metres of vineyards. It is inconceivable how, in spite of all the foresight and precautions taken by the Government this Vine-pest can have spread so rapidly. Attention was first attracted by the miserable condition of some of the plants, which, however, had not suffered from the drought, but had now a sickly appearance. The Burgomaster of Neuenahr at once appealed to the Garden Inspector Ritter, of Engers, Phylloxera Commissioner in this district; but in the meanwhile Dr. Bödicker, of Neuenahr, had already secured a specimen of this terrible scourge, which was pronounced as the Phylloxera by Inspector Ritter. Besides the beadquarters of the insect, there are also isolated places infested by it, just as there are in France. Every means of exterminating it must now be taken. Investigations have proved that the pest was imported some years ago with the "Blue Portuguese" from Kloster, Neuberg, Austria. I will forward further particulars in due time. *Dr. Kalender.* [Last year, as we noted at the time, we saw evidences of the Phylloxera on the opposite bank of the Rhine, not far from Konigswinter. Eds.]

Enquiries.

He that questioneth much shall learn much.—Bacon.

French Beans.—Will some correspondent oblige by stating the best means of preserving French Beans, so that they may be available after Christmas? *A. B.*

The Marguerite.—Does this plant (Chrysanthemum frutescens) ever bear seed in this country? *W.*



NOTE.—Owing to the pressure on our space numerous contributions are crowded out, and many correspondents must remain unanswered till next week.

Diseased Grapes: *J. W. T.* The disease in your Grapes is known as "scalding." It is generally attributable to deficient ventilation. Some varieties, especially Lady Downe's, are more subject to it than others.

Geranium Cuttings: *J. T.* No.

Insects: *G. M. B.* Not the Gooseberry Caterpillar, but the Pine Sawfly. Cut off the affected shoots, and burn them.—*H, C.* One of the Pine Sawflies. See next week's number.—*C. D.* The larva of the Buff-tip moth, Bombyx bucephala. *I. O. W.*

Names of Fruits: *R. C. E.* The Gooseberries were too much damaged on delivery for us to make anything of them.—*Geo. Gilbert.* We do not recognise the Plum you have sent, and which is largely grown in the neighbourhood of Harwich.

Names of Plants: *V.* Panicum capillare—a common United States species.—*F. B., Uxbridge.* Diplacus glutinosus.—*R. Y.* Linaria purpurea.—*H. J. R.* Phalænopsis Mannii.—*F. T.* Rhus Cotinus (the Wig plant).—*H. J.* Abelia rupestris.—*A. Y.* Chrysanthemum segetum; Nigella damascena.—*D. R.* Helosciadium nodiflorum.—*J. H. B.* 1, Epidendrum ciliare; 2, We not recognise.—*J. R.* Lonicera sempervirens.—*C. E. S. L.* Mandevilla suaveolens, but you do not send a flower.—*W. A.* Sollya heterophylla.—*C. U. R.* The Euphorbias sent are not in a condition to name. No. 1 is, perhaps, E. palustris. Send when in flower.

New Pea: *S. F. & Co.* The pods received were not in a condition to warrant us in giving any opinion of the merit of the variety.

Royal Horticultural Society: *A. A. J.* Apply to Mr. Dick, Royal Horticultural Society, South Kensington.

Sycamore and Maple: *X. Y. Z.* A reference to any Catalogue would have shown you that these are two quite distinct species of Acer.

University of London: *W. A. T.* Apply to the Registrar of the University, Burlington Gardens, London; and to the Secretary, Science and Art Department, South Kensington, London.

CATALOGUES RECEIVED.

Sutton & Sons, Reading—Bulb Catalogue.
Webb & Sons, Wordsley, near Stourbridge — Bulb Catalogue.
Thomas Kennedy & Co., Dumfries—Bulb Catalogue.
James Veitch & Sons, King's Road, Chelsea—Hyacinth and other Bulbous Roots.
Louis de Smet, Ledeberg, Ghent — Supplementary Plant Catalogue.
Ottolander & Hooftman, Boskoop, Holland — Hardy Trees and Shrubs, Roses, &c.
Alfred Legerton, 5, Aldgate, London, E.—Dutch and other Flower Roots, Wholesale.
B. Fadderjahn, 16, Ritter-Strasse, Berlin — Laced Bouquet Papers, &c.
Jules de Cock, Faubourg St. Liévin, Ghent—Trade List of Stove and Greenhouse Plants.
F. C. Heinemann, Erfurt—Seeds and Plants for Winter and Spring Flowering.
Tait & Co., Dublin—Bulbs.
Drummond & Sons, Stirling—Bulbs.
T. S. Ware, Hale Nurseries, Tottenham—Bulb Guide, Hardy Perennials, &c.
R. Veitch & Son, Exeter—Dutch Bulbs.
J. Laing & Co., Forest Hill, London—Bulbs, &c.

Communications Received:—P. G.—H. W. W.—J. H.—T. R. J. P.—M. J. B.—A. O.—J. M.—H. E.—J. S.—W. H.—W. A. T.—J. B.—N. E. B.—W. T. T. D.—D. A.—G. B.—H. A. B.—The High Commissioner of Canada—T. S. W.—W. D.—T. B.—R. D.—J. D.—J. C.—C. M. O.—T. W. W.—A. Y.—H. J.—G. B.—G. M. B.—J. Weeks & Co.—W. A. T.—F. G.—H. E.—M. J. B.—Geo. Maw (enclosure).—W. H. F.—H. E.—J. C.—W. H.—W. H. H.—Enquirer.—Hugh Low & Co.—J. V. & Sons.

Markets.

COVENT GARDEN, August 25.

Trade very quiet. No alteration since our last report.
James Webber, Wholesale Apple Market.

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 6– 3 6	Kent Filberts, per lb.	0 6– ..
Apricots, per doz.	1 6– ..	Lemons, per 100	4 0– 6 0
Currants, red, ½-sieve	3 0– 4 0	Melons, each	2 0– 3 0
— black, ½-sieve	6 0– ..	Peaches, per dozen	3 0–10 0
Figs, per dozen	3 0– ..	Pine-apples Eng., lb.	2 0– 3 0
Gooseberries, ½-bush.	2 6– 3 6	Plums, per ½-sieve	4 0– 7 0
Grapes, per lb.	1 0– 2 6	Raspberries, per lb.	0 4– 0 6

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Horse Radish, p. bun.	4 0– ..
Aubergines, each	0 4– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
Beans, French, p. lb.	0 4– ..	— Engl. Cos, score	1 6– ..
— Broad, per busb.	4 0– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
— New Fr., bund.	0 9– 1 0	Parsley, per bunch	0 4– ..
Cauliflowers, English, dozen	4 0– 6 0	Peas, per bushel	5 0– 8 0
Celery, per bundle	1 6– 2 0	Radishes, per bun.	0 2– 0 6
Cucumbers, each	0 6– 1 0	Rhubarb, per bund.	0 4– 0 6
Endive, per doz.	2 0– 3 0	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	4 0– ..
Herbs, per bunch	0 2– 0 4	Tomatos, per lb.	0 9– 1 0
		Vegt. Marrows, doz.	3 0– ..

Potato trade very heavy, and prices much lower, as follows:—Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatt's, 100s. to 120s.; Magnum Bonums, 90s. to 110s.

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 2– 0 4	Mignonette, 12 bun.	1 6– 3 0
Asters, 12 bunches	3 0– 6 0	Pelargoniums, 12 sprays	0 9– 1 0
Bouvardias, per bun.	0 9– 1 6	— zonal, 12 sprays	3 0– 6 0
Carnations, 12 blms.	1 0– 2 0	Primula, double, per bunch	0 6– 1 0
Cornflower, 12 bun.	1 6– 3 0	Rhodanthe, 12 bun.	8 0–12 0
Dahlias, 12 bunches	4 0– 6 0	Roses (indoor), doz.	1 0– 3 0
Eucharis, per doz.	2 0– 6 0	— (outdoor), 12 bun.	4 0– 9 0
Feverfew, 12 bun.	3 0– 6 0	Stephanotis, 12 spr.	4 0– 6 0
Gardenias, 12 blms.	3 0– 8 0	Sweet Pea, 12 bun.	3 0– 6 0
Gladioli, 12 sprays	0 9– 1 6	Sweet Sultan, 12 bun.	4 0– 8 0
Heliotropes, 12 sp.	0 6– 1 0	Tropæolum, 12 bun.	1 0– 3 0
Lapageria, white, 12 blooms	2 0– 4 0	Tuberoses, per dozen	0 9– 2 0
— red, 12 blooms	1 0– 3 0		
Marguerites, 12 bun.	4 0– 6 0		

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d
Aralia Sieboldii, per dozen	18 0–42 0	Foliage Plants, various, each	2 0–10 6
Asters, per dozen	4 0– 6 0	Fuchsias, per dozen	3 0– 9 0
Arbor-vitæ (goldeo), per dozen	6 0–18 0	Ivy Geranium, doz.	4 0– 6 0
— (common), dozen	6 0–12 0	Lilium lancifolium, per doz.	12 0–36 0
Begonias, per doz.	4 0–12 0	— auratum, p. doz.	24 0–60 0
Chrysanthemums, per dozen	9 0–12 0	Lobelia, per dozen	4 0– 6 0
Cyperus, per dozen	6 0–12 0	Marguerite, white, per dozen	18 0–24 0
Dracæna terminalis	30 0–60 0	— Yellow, per doz.	12 0–30 0
— viridis, per doz.	12 0–24 0	Mignonette, per doz.	3 0– 6 0
Euonymus, various, per dozen	6 0–18 0	Myrtles, per doz.	6 0–12 0
Evergreens, in var., per dozen	6 0–24 0	Palms in variety, each	2 6–21 0
Ferns, in variety, per dozen	4 0–18 0	Pelargoniums, doz.	9 0–18 0
Ficus elastica, each	1 6– 7 6	— scarlet, per doz.	3 0– 6 0
		Rhodanthe, per doz.	6 0–10 0
		Solanums, per dozen	9 0–12 0

SEEDS.

London: *Aug.* 24.—To-day's market was poorly attended, and there was not much business doing. The recent unpropitious weather prevents the land being cleared, and consequently delays the sowing demand which usually prevails at this time of the year. For Trifolium incarnatum there is, accordingly, for the moment, less inquiry. In Tares and Rye the tendency of values is adverse to the buyer. The extreme rates demanded for Italian Rye-grass probibit business. Mustard and Rape seed realise former terms. For Blue Peas and Haricot Beans more money is asked. Bird seeds are firm. Feeding Linseed keeps steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the Wheat trade opened with factors asking 1s. more than on Friday, and, although business was restricted, this rise was partially obtained, the advance since Monday se'nnight being eventually quoted as 4s. on English, and 4s. to 5s. on foreign Wheat. Flour ruled 2s. to 3s. per sack higher, and the top price of town was further raised 4s., or to 50s. per sack. Grinding Barley was quoted 1s. 6d. to 2s.; Beans and Peas, 2s.; and Oats fully 1s. dearer on the week. In the floating trade Maize was not so firm—there were sellers of American mixed October-November shipment at 6d. under last Friday's best price.—On Wednesday, although the demand for Wheat was not active, a pretty general advance of 1s. per cwt. on Wheat was established. Flour realised further slightly enhanced rates; Barley and Oats were quiet at the late advance; Maize dull, and barely so firm; and Beans and Peas were fully as dear as on Monday.—Average prices of corn for the week ending August 20:—Wheat, 48s. 10d.; Barley, 28s. 5d.; Oats, 22s. 11d. For the corresponding period last year:—Wheat, 43s. 9d.; Barley, 29s. 8d.; Oats, 24s. 5d.

CATTLE.

At the Metropolitan Market on Monday the beast supplies were moderate, and the few really prime on offer sold quite as dear as of late; but the general trade showed no improvement. Sheep brought about previous rates, and a fair clearance was effected. The demand for lamb showed a further falling off, and rates were lower; calves barely supported late value. Quotations:—Beasts, 4s. to 5s. 2d., and 5s. 4d. to 5s. 8d.; calves, 4s. 8d. to 5s. 8d.; sheep, 5s. to 5s. 8d., and 6s. 2d. to 6s. 8d.; lambs, 6s. 4d. to 7s. 4d.—Thursday's trade was quiet at about Monday's prices. There was no foreign stock on offer, and the wet weather caused sales in both beasts and sheep to progress very quietly.

HAY.

Tuesday's Whitechapel Market report states that with some increase of supply trade was dull for new meadow hay. Quotations:—Prime old Clover, 105s. to 135s.; new, 100s. to 130s.; inferior, 80s. to 90s.; prime meadow hay, old, 100s. to 132s.; new, 100s. to 120s.; inferior, 60s. to 85s.; straw, 30s. to 52s. per load.—On Thursday a rather large supply of hay and straw was on sale. There was a dull trade, owing to the wet weather, but prices were unaltered.—Cumberland Market quotations:—Superior old meadow hay, 115s. to 126s.; inferior, 80s. to 100s.; new hay, 90s. to 126s.; superior old Clover, 120s. to 132s.; inferior, 90s. to 110s.; new, 90s. to 126s.; and straw, 48s. to 54s. per load.

Government Stock.—The closing prices of Consols on Monday were 99⅞ to 100 for both delivery and the account On Tuesday's the final record was, for delivery, 99¾ to 97⅞, and 99 13/16 to 99 15/16 for the account. Wednesday's closing quotations were, for delivery, 99⅞ to 100, and 100 to 100⅛ for the account; and those of Thursday were, for delivery, 99¾ to 99⅞, and 99 13/16 to 99 15/16 for the account.

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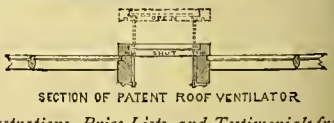

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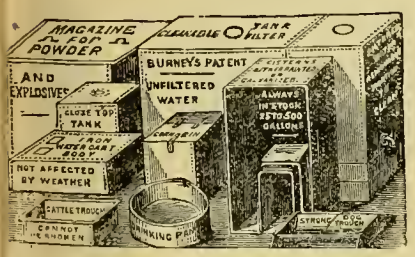

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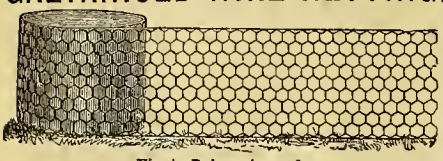

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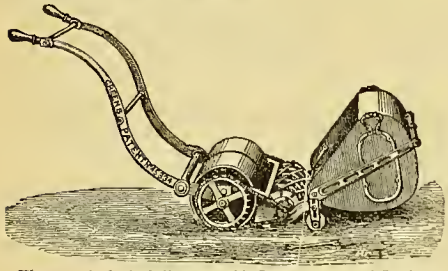

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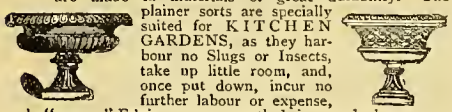

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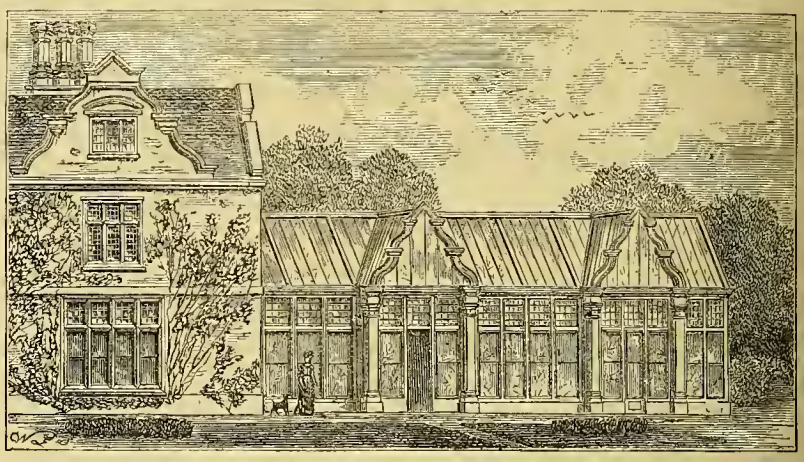

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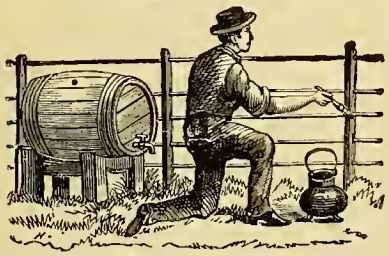

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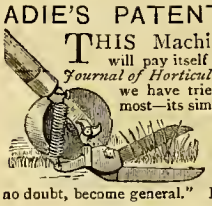

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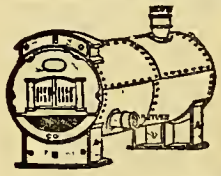

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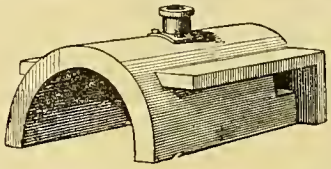

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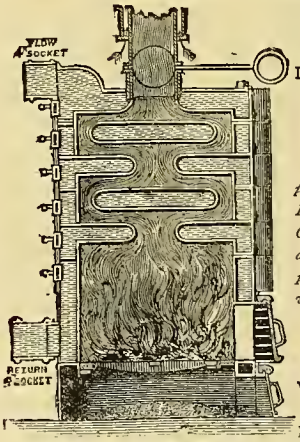

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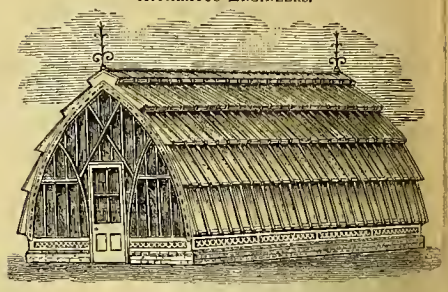

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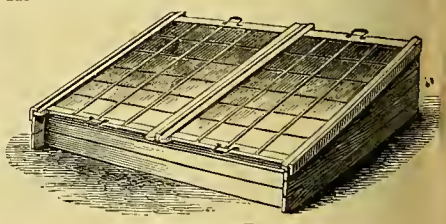

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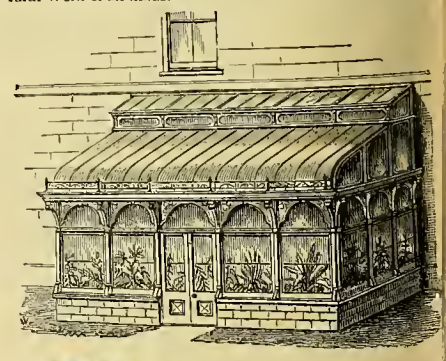

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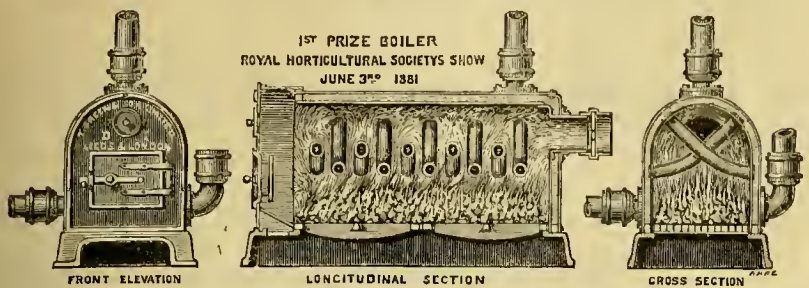

The "Journal of Horticulture" of June 9 says:—

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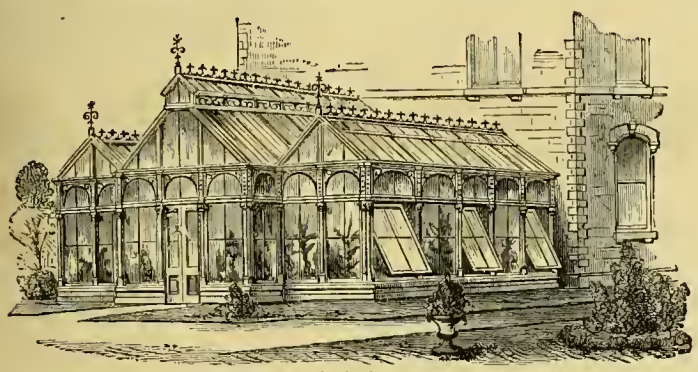

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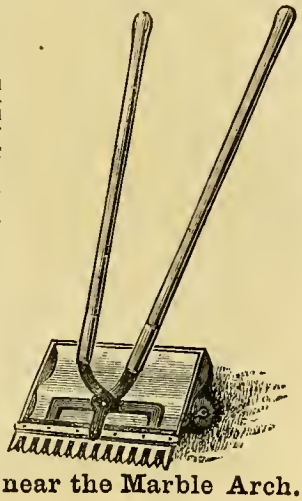

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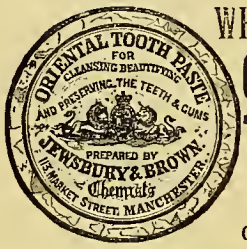

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MAIRIS AND CO., Weston-in-Gordano, Bristol.

Bulbous Flower Roots, finest quality, carriage free.
JAMES DICKSON AND SONS have just received, in excellent condition, their first large annual consignment. Priced CATALOGUE post-free.
108, Eastgate Street, Chester.

To the Trade.
CARTERS' WHOLESALE CATALOGUE of DUTCH and other FLOWER ROOTS, EVERLASTINGS, and HORTICULTURAL SUNDRIES, has been Posted to all Customers. A Duplicate Copy will be forwarded immediately on application to any Customer who has not already received it.
JAMES CARTER, DUNNETT, AND BEALE, 237 and 238, High Holborn, London, W.C.

Forest Tree Seedlings.
MESSRS. PETER S. ROBERTSON AND CO., NURSERYMEN, Edinburgh, are now preparing for their English journey, and they will have much pleasure (on receiving notice) in showing their samples to any Nurserymen in any part of England, who may be requiring the above.

STRAWBERRIES.—Strong roots for fruiting next year. 4*s.* per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

The Finest White Bedder Extant.
SOW NOW.
GOWER'S NEW GIANT WHITE POLYANTHUS. New Seed, 1*s.* 6*d.* per packet. Bulb CATALOGUE ready, to be had gratis on application.
WM. HUGH GOWER, The Nurseries, Tooting.

Fruiting Plants of
PEACHES, NECTARINES, APRICOTS, and GRAPE VINES.—A large and fine stock now offered for sale.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

To the Trade.
RAPE SEED and WHITE MUSTARD.
H. AND F. SHARPE will be pleased to submit SAMPLES of the above-named SEEDS, of the finest quality, and at very moderate prices.
Seed Growing Establishment, Wisbech.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

GARDEN POTS — GARDEN POTS. — From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

To the Seed Trade.
CORRY, SOPER, FOWLER AND CO. (Limited) beg to claim special attention to their Season's Assortment of DRIED FLOWERS and GRASSES, of excellent quality, made up in Bouquets, Wreaths, Crosses, &c., and suitable for the autumn and winter trade. Price Lists on application to
18, Finsbury Street, E.C.

SALES BY AUCTION.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.
On view the mornings of Sale, and Catalogues had.

Monday Next.
DUTCH BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, September 5, at half-past 12 o'Clock precisely, a large consignment of first-class Double and Single HYACINTHS, of all colours, for Glasses, Pots, and Borders; TULIPS, CROCUSES, NARCISSUS, SCILLAS, and other BULBS, just arrived from well known farms in Holland, and lotted to suit the Trade and private buyers.
On view the morning of Sale, and Catalogues had.

Wednesday and Saturday Next.
DUTCH BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, September 7 and 10, at half-past 12 o'Clock precisely each day, an importation of first-class Double and Single HYACINTHS of all colours, for glasses, pots, and borders; TULIPS, CROCUSES, NARCISSUS, SCILLAS, and other BULBS, just arrived from well known farms in Holland. In lots to suit all buyers.
May be viewed the mornings of Sale, and Catalogues had.

SALE ON THURSDAY NEXT, SEPTEMBER 8, 1881.
LÆLIAS and CATTLEYAS.
Lælia harpophylla.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 8, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, St. Albans, a splendid and extensive importation of
LÆLIA HARPOPHYLLA.

After a search of eighteen months we have at last succeeded in finding this splendid Lælia. It inhabits a cold district in the Brazils, and grows on low trees. Hitherto it has been extremely rare, being in one or two collections only. Its brilliant colour and durability of flower-spike makes it one of the most showy and valuable of the genus. It is illustrated in the *Floral Magazine*, September, 1879, where it states, "This fine and striking Orchid is a rare Brazilian species, bearing handsome spikes of rich bright orange-scarlet flowers, brilliant in hue and imposing in appearance."

This Sale will also contain a very extensive importation of CATTLEYA LABIATA, in finest possible condition; also the lovely LÆLIA PINELLI (oumila), CATTLEYA SCHILLERIANA, LÆLIA CRISPA, CATTLEYA AUREA, LÆLIA PERRINI, CATTLEYA ACKLANDIÆ, CATTLEYA INTERMEDIA, CATTLEYA DOWIANA, CATTLEYA MOSSIÆ, CATTLEYA GIGAS, and other LÆLIAS and CATTLEYAS.
On view the morning of Sale, and Catalogues had.

Monday Next.
SPECIAL UNRESERVED TRADE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, an extensive consignment of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, specially lotted to suit the Trade and other large buyers.
Catalogues at the Mart, and 8, New Broad Street, E.C.

Burnt Ash Nursery, Lee, S.E.
ANNUAL SALE.

MESSRS. PROTHEROE AND MORRIS beg to announce that they are instructed by Mr. B. Maller to hold his ANNUAL SALE of WINTER-FLOWERING HEATHS AND OTHER STOCK on the above Premises, on TUESDAY, September 20, further particulars of which will be advertised next week.
Auctioneers' Offices, 8, New Broad Street, E.C.

Brunswick Nursery, Tottenham.
ANNUAL SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Maller to conduct his ANNUAL SALE of WINTER BLOOMING HEATHS, and OTHER STOCK, on the above Premises, on THURSDAY, Sept. 22.
Further particulars will appear next week.

WANTED, to RENT, about ½ Acre of LAND, with DWELLING-HOUSE and three or four GREENHOUSES attached, within 12 miles of London.
J. WOOD, Post-office, Blindley Heath, Redhill, Surrey.

Tunbridge (5344).

FOR IMMEDIATE SALE, an Excellent NURSERY BUSINESS, doing a good local Trade. One acre of Ground, Glass Erections, House and Shop. Lease twenty years. Rent low. No charge for Goodwill and Lease. Stock and Fixtures at a Valuation, about £500.
Full particulars of PROTHEROE AND MORRIS, 8, New Broad Street, E.C.

TO BE DISPOSED OF, the Old-established NURSERY and SEED TRADE of the late Mr. Henry Baker, Atherstone. The Nursery (about 8 Acres) is in an excellent neighbourhood, and close to a Market Town, in full working order, and every facility for doing a large trade. Liberal terms to an immediate purchaser. For particulars apply to
Mrs. BAKER, The Nurseries, Atherstone.

Gray *v.* Gray.
To NURSERYMEN and OTHERS.

TO BE SOLD, by Tender, by order of the High Court of Chancery, the surplus NURSERY STOCK, upon Box Nursery, Chertsey, Surrey, comprising 1700 Standard and Dwarf Roses; 3700 Maiden Apples, Peaches, Plums and Cherries; 200 Dwarf-trained ditto; 150 2-yr. old Apples; 100 Standard Plums, and other stock. All the best sorts and true to name.
May be viewed any day, on application to Mr. GILHAM, Foreman at the Nursery, and detailed particulars with conditions of Tender may be obtained of Messrs. R. AND J. WATERER AND SON, Auctioneers, Chetsey, to whom Tenders must be sent on or before September 20, 1881.

TO BE SOLD, a small but good SEED, FLORIST, and JOBBING BUSINESS. Twenty-one years' Lease. Apply,
A. MIDMORE, Thurlow Hill, Lower Norwood, Surrey.

TO BE DISPOSED OF, a thorough good going NURSERY BUSINESS, in Warwickshire; 4 Acres well stocked, with a large New Greenhouse. Stock, &c., at a valuation, or per agreement. Further particulars apply to NURSERY, Messrs. Nutting & Sons, 60, Barbican, E.C.

TO BE LET, with Immediate Possession, DWELLING-HOUSE with SHOP, and about an Acre of NURSERY GROUND, close to the Market Town of Hemel Hempstead, where there is a good opening for a Nurseryman and Florist. Rent £38, Fixtures £20. Apply to Mr. N. W ROBINSON, Estate Agent, Hemel Hempstead.

TO LET, near to Upton-on-Severn, Worcestershire, a FARM of about 123 ACRES—70 Acres of Meadow and Pasture, useful Dairy Land; 53 Acres Arable, 6 Acres of which is Fruit Plantation; and the remainder well adapted for Market Gardening. Possession at Michaelmas. Apply Mr. ALBERT BUCK, Land Agent, Worcester.

TO BE LET, an Old-established NURSERY, FLORIST, and SEEDSMAN'S BUSINESS, with immediate possession, on account of the death of the late proprietor, who has carried on a successful business for the last thirty years. The Premises comprise a convenient Dwelling-house, Seed Shop and good Storage. There are 8½ Acres of deep rich Soil, and all the necessary Glass-houses, &c., for carrying on a large business. For particulars apply to
J. WATSON, 38, Crown Street, Bury St. Edmund's.

J. CROUCHER, F.R.H.S. (from Royal Botanic Gardens, Kew), GENERAL HORTICULTURAL AGENT and ADVISER, The Excelsior Nurseries, 64 and 65, Brook Green, Hammersmith, W. The above having had large experience in scientific management of all classes of plants, and general construction of Horticultural Structures, Hot-water Aparatus, &c., is open to give such advice to Gentlemen, which if followed is certain to lead to success. Especial knowledge of Orchids and their growth. I also have a general collection of Natural History Specimens on sale. Terms upon application.—J. CROUCHER.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

Early Cabbage Plants.

SHAW'S IMPROVED NONPAREIL.—3*s.* per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

PRIMULAS and CINERARIAS.—Excellent strains, healthy plants, in small pots, 1*s.* 6*d.* per dozen, 8*s.* per 100.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

QUEEN PINES for SALE, CHEAP.—Forty Fruiting, Succession—strong plants. Giving up growing cause of selling.
W. JINKS, Gardener, Wydriogton's, Church Road, Edgbaston, Birmingham.

Raspberry Canes.

MR. BATH is now booking orders for his noted FASTOLF, for delivery during October and November. 4*s.* per 100, packing included.
Crayford, Kent.

Dutch Flower Roots.—Season 1881.

MESSRS. DICKSON AND ROBINSON beg to announce that their Priced and Descriptive CATALOGUE, containing select Lists of Hyacinths, Polyanthus, Narcissus, Tulips, Crocus, Liliums, and other Bulbous Roots, is now published, and will be forwarded post-free on application.
THE OLD ESTABLISHED SEED WAREHOUSE,
12, Old Millgate, Manchester.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2*s.* 6*d.* each; larger, 3*s.* 6*d.* to 10*s.* 6*d.* each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

F. W. AND H. STANSFIELD (Successors to Tom Stansfield, formerly of Todmorden) beg to announce that their new CATALOGUE of British and Hardy Exotic FERNS, for 1881—1882, is now ready, and will be sent post-free on receipt of 1*d.* stamp. This List contains more novelties and genuine rarities than any other trade list of British Ferns.
Nurseries, Sale, near Manchester; and Pontefract, Yorkshire.

SPECIAL OFFER TO THE TRADE.
50,000 ERICA HYEMALIS, in 60-pots, at 20*s.* per 100.
30,000 ,, GRACILIS AUTUMNALIS, at 15*s.* per 100.
10,000 ,, WILMOREANA, at 15*s.* per 100.
The above are all fine healthy plants.
GREGORY AND EVANS, Effingham Nursery, Lee, S.E.

CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1*s.* 6*d.* per dozen, 10*s.* per 100.
CINERARIAS, 1*s.* 4*d.* per dozen, 8*s.* per 100.
CYCLAMEN, 1*s.* 6*d.* per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

Trade Offer.

HOME-GROWN SEEDS.—A large quantity of Barlow's Giant and Walker's SWEET WILLIAM, Dean's Spotted FOXGLOVE, Dean's Fancy POLYANTHUS, Clevedon Yellow and Mixed PANSY, at very low rates. TEA ROSE Bloom-buds, nice quality, 7*s.* per 100, for cash.
W. CAUDWELL, F.R.H.S., The Ivies, Wantage.

HUGH LOW AND CO. have pleasure in informing their friends and the Public that their stock of WINTER and SPRING FLOWERING PLANTS is this season unusually extensive and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the plants, which comprise amongst other things:—
Many thousands of ERICA HYEMALIS, of various sizes, a large quantity extra large.
Many thousands of ERICA MELANTHERA.
Many thousands of ERICA GRACILIS, of various sizes.
Many thousands of ERICA CANDIDISSIMA.
Many thousands of ERICA VENTRICOSA COCCINEA MINOR, and other choice varieties of ventricosa.
Many thousands of ERICAS of the best varieties, including alopecuroides, colorans, ceriothoides, coronata, caffra, Cavendishii, barbata major, grandinosa hybrida, Hyemalis superba, perspicua nana, persoluta alba, assurgens, Wilmoreana, mammosa, rubens, ovata, intermedia, &c.
Many thousands of HARD-WOODED ERICAS, in numerous fine varieties.
Many thousands of CYCLAMENS.
Many thousands of GENISTAS.
Many thousands of EPACRIS.
Many thousands of GARDENIAS.
Many thousands of AZALEA INDICA in variety, of various sizes.
Many thousands of AZALEA INDICA ALBA, Fielder's white, narcissiflora and other white-flowering varieties.
Many thousands of AZALEA AMŒNA, of various sizes.
Many thousands of CAMELLIAS, with flower-buds, various sizes.
Many thousands of GREVILLEA ROBUSTA, and others.
Many thousands of SOLANUMS, well berried.
Many thousands of BOUVARDIAS, red, white, and pink.
Many thousands of CLIMBERS, Stove and Greenhouse.
Many thousands of the best GREENHOUSE PLANTS, such as Aphelexis, Acacias in variety, Acacia armata, Chorozemas, Correas, Daphnes, Eriostemons, Genetyllis, Boronias Leschenaultias, Tremaudras, Pimeleas, &c.
Also on hand a very large stock of ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, BEGONIAS, DRACÆNAS, FICUS ELASTICA, FICUS RUBIGINOSA, ARALIA VEITCHII and others, CROTONS, PANDANUS, &c., suitable for table decoration.
OTAHEITE ORANGES, in fruit; LAURUSTINUS, on stems, fine white variety, full of buds.
AMPELOPSIS SEMPERVIRENS (Cissus striatus) new evergreen Virginian Creeper.
FERNS in immense numbers. Many of the leading kinds can be supplied by the thousand, such as Adiantum cuneatum, Adiantum decorum, Asplenium fœniculaceum, Lomaria gibba, Pteris cretica alba-lineata, Pteris serrulata cristata.
FRUIT TREES of good quality, consisting of Peaches, Apricots, Nectarines, Plums, Cherries, dwarf-trained and dwarf maiden.
Clapton Nursery, London, E.

The Cape Flora.

JOHNSON AND HARMAN, The Metropolitan Nurseries, Rondebosch, Cape Town, have much pleasure in announcing to the Horticultural World that, having commenced business as Nurserymen and General Exporters of Cape Plants, they are now prepared to execute in quantity orders for the following:—CAPE BULBS, ORCHIDS (Terrestrial), including DISAS of sorts, SUCCULENTS, FERNS &c. J. & H. would further respectfully solicit the attention of the Trade (Continental please note) to the fact of their having at a very considerable expense, recently taken over from Mr Joseph Upjohn, of Rondebosch (for the last fifty years the well known collector and exporter of Cape Bulbs), his entire collection of this beautiful but as yet comparatively little known class of plants. This unrivalled collection, the only established one of its kind in South Africa, comprises upwards of 150 distinct species, each with its endless varieties, being all accurately named. The extensive nature of this collection enables J. & H. to make special offers to the Trade on very advantageous terms for collections varying from £1 to £50 and upwards in value—prompt attention, liberal terms, and quick dispatch being guaranteed.
In addition to the foregoing J. & H. have now for disposal many extra fine clumps of STRELITZIA REGINA, NYMPHÆA SCUTIFOLIA, APONOGETON DISTACHYON, WATSONIA ALBA and ODORATA, and RICHARDIA ÆTHIOPICA—this last, in immense cultivated crowns, by the 100 or 1000.
CAPE EVERLASTING FLOWERS a speciality.

Polyanthus Seed, just Harvested.

GOLDEN GEM Hose-in-Hose, large Single Yellow, large Dark Self, and Dark Hose-in-Hose, the strain of W. A. WOOLER, Esq., Sadberge Hall, which was shown for the first time at the Royal Horticultural Gardens, South Kensington, in June, 1880, awarded a Certificate of Merit and a special First Prize, when many of the Plants Sold from 5*s.* to 10*s.* 6*d.* each. Per Packet, 2*s.* 6*d.* and 3*s.* 6*d.* Trade supplied.
AQUILEGIA HYBRIDA, Striped and Double varieties, 1*s.* 6*d.* per packet.
E. B. SPENCE, Seed Merchant and Nurseryman, Darlington.

GREEN HOLLY, 2-yr. Seedlings, 5*s.* 6*d.* per 1000, or £5 per 20,000, nett cash.
RICHARD MASON, Nurseryman, Windlesham, near Bagshot, Surrey.

JULES DE COCK'S SPECIALITIES.—AZALEA, indica, mollis, and pontica; CAMELLIAS, DEUTZIA GRACILIS, HELLEBORUS NIGER; SPIRÆA, japonica, variegata, and palmata. Many thousands are for disposal at
JULES DE COCK'S Nurseries, Ghent, Belgium.

MUSHROOM SPAWN.—Now ready for delivery, in excellent condition, and of our usual good quality, a fine stock of new Spawn, price 5*s.* per bushel (exclusive of package). The Trade supplied. Price on application.
OSBORN AND SONS, The Fulham Nurseries, London, S.W.

Farm Seeds for Autumn Sowing.

NEW TRIFOLIUM INCARNATUM, RAPE, Italian RYE-GRASS, Winter TARES, RYE, mixed Pasture GRASSES, &c. Fine samples and quotations on application.
THE LAWSON SEED and NURSERY COMPANY (Limited), 106, Southwark Street, London, and Edinburgh.

Hyacinths, Tulips, &c.

BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B. have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

DUTCH and FRENCH BULBS.

PAUL & SON,

"THE OLD NURSERIES," CHESHUNT, N.,

Have now received their supplies of

CHOICE HYACINTHS and OTHER DUTCH BULBS.

ALSO

ROMAN HYACINTHS, DOUBLE NARCISSUS, and other FRENCH BULBS.

Descriptive List, comprising also Lists of

AZALEA INDICA, CAMELLIAS, EARLY SPRING-FLOWERING PLANTS,

AND

DESCRIPTIVE LIST of STRAWBERRIES, with TIME of RIPENING,

POST-FREE ON APPLICATION.

ORCHIDS A SPECIALITY

HUGH LOW & CO.

Have recently received, in excellent condition,

MANY THOUSANDS of PHALÆNOPSIS

AND

ODONTOGLOSSUM ALEXANDRÆ (CRISPUM).

Amongst the plants are many of unusual size, and very varied in appearance, giving promise of good varieties. The Stock of these lovely Orchids is by far the largest hitherto seen in Europe, and the same remark applies to the General Collection of Orchids, which is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

Hugh Low & Co. very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether Purchasers or not.

JUST TO HAND, LARGE QUANTITIES OF

CATTLEYA MENDELII, C. LEOPOLDI, C. TRIANÆ,

LÆLIA PURPURATA,

ALL OF WHICH ARE ON SALE AT MODERATE PRICES.

CLAPTON NURSERY, LONDON, E.

DUTCH AND OTHER BULBS.

OSBORN & SONS

Beg to announce that they have received their First Consignment of the above from the Principal Bulb-growing Establishments in HOLLAND and FRANCE, and will be pleased to forward their Catalogue of the same post-free upon application. It contains a Descriptive List of

HYACINTHS, TULIPS, NARCISSUS, and MISCELLANEOUS BULBS;

ALSO OF

VEGETABLE and FLOWER SEEDS for Autumn Sowing, &c.

As an evidence of quality they may mention that they were awarded the HIGHEST HONOURS for HYACINTHS, TULIPS, and NARCISSUS at the Royal Botanic Society's Exhibition in Regent's Park last March.

OSBORN & SONS,

THE FULHAM NURSERIES, LONDON, S.W.

Winter Blooming Plants.

J. MALLER, Brunswick Nursery, Tottenham, begs to announce that his usual AUTUMN SALE will take place on THURSDAY, September 22. The Plants are in excellent condition, and consist of a very large Stock of ERICA HYEMALIS and other usual varieties, Double PRIMULAS, CYCLAMEN, BOUVARDIAS in variety, SOLANUMS, beautifully berried, Tree CARNATIONS, ACACIAS, GENISTAS, CAMELLIAS, AZALEAS, &c.

An inspection is invited. Close to the White Hart Lane Station, Great Eastern Railway.

GLOXINIA GRANDIFLORA GRASSIFOLIA, in separate forms; ERECTA, HORIZONTALIS, PENDULA, 60s. per ounce, 9s. 1-8th of ounce; 10,000 Seeds, 1s. 10d.; Mixed, 58s. per ounce, 8s. 1-8th of ounce; Strong Bulbs, mixed, 16s. per 100, 150s. per 1000; Numbered Flowers, 100 pieces in 25 sorts, 40s. BEGONIA, tuberous-rooted, mixed, 150s. per 1000, 16s. per 100. Cash.

FRIEDRICH SPITTEL, Arnstadt, Germany.

LAKE DISTRICT FERNS.—Virida, 6s. per 100; Ceterach, good plants, 2s. per dozen; Royals, strong roots, 5s. per 100, small roots, 3s. 6d. per 100; Lobatum, large plants, 2s. per dozen; Scolopendrium, 3s. per 100; Oak, 3s. 6d. per 100; Beach, 3s. per 100; Angulare, strong roots, 5s. 6d. per 100. Carefully packed on rail. Address

JAMES STEPHENSON, 43, Fell Croft, Dalton-in-Furness.

ATHYRIUM f.-f. ACROCLADON (Moore).—See description by E. J. Lowe, Esq., at p. 74, vol. ii., of *Our Native Ferns.*

The undersigned can now offer a few good plants of this magnificent rarity, at 10s. 6d. each; extra strong specimens, One Guinea each. We believe this most beautiful of all Crested Ferns is now offered to the public for the first time.

F. W. AND H. STANSFIELD (Successors to TOM STANSFIELD, formerly of Todmorden), Sale, near Manchester, and Pontefract, Yorkshire.

NARCISSUS, Double White, Single POETICUS, and Double DAFFODILS, &c. Special low offer to the Trade on application.

GEORGE REID, 20, Castle Street, Long Acre, W.C.

A B C Bulb Guide for 1881.

I have pleasure in announcing that this CATALOGUE is now ready, and contains most complete collections of Hyacinths, Tulips, Liliums, Narcissus, Gladiolus, &c. Fine selections of Hardy Orchids, Primula Sieboldii and Helleborus; Hardy Perennials for autumn planting; also Climbing Plants, Aquatic and Bog Plants, Herbs, &c. Gratis and post-free upon application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

HEDERA HELIX MADEIRENSIS VARIEGATA.

First-class Certificate, Royal Horticultural Society of London.

First-class Certificate, Royal Botanic Society of London,

First-class Certificate, Royal Botanical and Horticultural Society of Manchester.

The *Manchester Guardian*, in its report of the late magnificent exhibition, says the above plant was considered by some to be "the most charming plant in the exhibition."

Price 7s. 6d. each.

Trade Price on application.

OSBORN & SONS,

THE FULHAM NURSERIES,

LONDON, S.W.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

CRANSTON'S NURSERY and SEED CO. (Limited),

KING'S ACRE, near HEREFORD.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Fernseries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

PRIMULA. **CINERARIA.** **CALCEOLARIA.**

Wm. Cutbush & Son's

Strain of these cannot be surpassed. They are sold in Packets, 2s. 6d., 3s. 6d. and 5s. each; but quality is the same.

HIGHGATE, LONDON, N., and BARNET, HERTS.

SPLENDID DOUBLE TUBEROSES

(*Crop* 1881).

These are of African growth. The few tried last year proved to be unusually vigorous, throwing up in some cases several flowering stems from one bulb. They may be brought into flower in November and December. First consignment just arrived in fine condition.

Price per 100 or 1000 on application to

HOOPER AND CO., Covent Garden, W.C.

To the Trade.

FERNS—FERNS—FERNS.

	Per dozen. s. d.	Per 100. s. d.
PTERIS CRETICA	2 6	18 0
NEPHRODIUM MOLLE	3 0	20 0
PTERIS HASTATA	3 0	20 0
" TREMULA	3 0	20 0
" CRETICA ALBA LINEATA	3 0	20 0
LOMARIA GIBBA	3 0	20 0
PTERIS SERRULATA CRISTATA	3 6	25 0
" LONGIFOLIA	3 6	25 0
NEPHRODIUM MOLLE CORYMBIFERUM	3 6	25 0
LYGODIUM SCANDENS	3 6	25 0
DOODIA MEDIA	3 6	25 0
GYMNOGRAMMA ARGYROPHYLLA PERUVIANA	3 6	25 0
GYMNOGRAMMA MARTENSI	4 0	28 0
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THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 3, 1881.

FLOWER LORE OF SEPTEMBER.

THE present month brings with it unmistakable signs of autumn, one of its chief beauties consisting in the change which takes place in the tints of the foliage of trees and plants. Thus, as Akenside says:—

> "Autumn tinges ev'ry fertile branch
> With blooming gold, and blushes like the morn."

Vegetation, too, now begins to assume a somewhat ragged appearance, many of our summer flowers having already ceased to blow. The flora, however, of this month, if not so extensive as that of the preceding ones, is not without interest, numerous flowers taking the place of those that have died off. Thus a favourite flower that cheers the garden in the autumnal evening is the "Evening Primrose," or, as it is sometimes called, the "Evening Star," because its petals burst open and expand in the evening, generally between 6 and 7 o'clock—a peculiarity thus noticed by Dr. Langhorne:—

> "The evening Primrose shuns the day,
> Blossoms only to the western star,
> And loves its solitary ray."

Another of its names is the "Tree Primrose of Virginia," having originally come from Virginia. Its roots, which are eatable, were in days gone by taken after dinner to flavour wine, just as Olives are now-a-days. It has been made the emblem of inconstancy, and is, therefore, says Phillips in his *Flora Historica* "seldom worn by the fair, except by those gay belles who loved to coquet with and tease their smitten swains."

The Meadow Saffron (Colchicum autumnale), not unlike the purple Crocus, presents now in many places a very showy appearance. From its being destitute of foliage it is nick-named by our country peasantry the "Naked Lady." For the same reason, too, it is often called "Upstart;" and the French, on account of its poisonous character, have named it "Kill-dog," or "Dog's Death." It has been associated from the earliest times with a most extensive folk-lore, and its scientific name is derived from the ancient Cholcis, where it grows abundantly, rendering it "interesting to the classic reader, from its connection with the legends of ancient Greece, and the expedition of the Argonauts." It is mentioned by Horace, who speaks of it as the

> "baleful juice
> Which poisonous Colchian glebes produce."

The Swiss peasants still regard it with a superstitious veneration, and tie it round the necks of their children, under a firm conviction that it will render them invulnerable to diseases of every kind. It is a popular medicine for gout, and as such has a special interest for this class of sufferers, of whom Shakespeare in his *Cymbeline* thus speaks:—

> "One that's sick o' th' gout, had rather
> Groan so in perplexity than be cured
> By th' sure physician Death."

The Passion-flower, which is styled by Bosia

the "Flower of the five wounds," has, from a remote period, been an object of admiration, owing to its marvellous structure. According to a well-known couplet, we are told how—

> "The Passion-flower long has blowed
> To betoken us signs of the Holy Rood."

It is said that when the Spaniards settled in South America, and for the first time saw this lovely flower in bloom, they recognised it as a symbol of Christ's passion, and hailed it as a token that Christianity would eventually prevail over heathenism.

In many counties of England one of the prettiest sights in autumn is the Hop field. Centuries ago old muses sang the praises of the Hop thus :—

> "The Hop for his profit I thus do exalt :
> It strengtheneth drink, and it flavoureth malt !
> And being well brew'd, long kept it will last,
> And drawing abide, if ye draw not too fast."

There is a curious piece of superstition prevalent in some places, that between the nightingale and the Hop there is a mysterious connecting link. Thus in the *Worcester Herald* of May 17, 1862, we are informed that "there is a tradition of Hops having been planted many years ago near Doncaster, and of the nightingale making its first appearance about the same time." There is no truth whatever, however, in this bit of folk-lore, and a correspondent of *Notes and Queries* writing on the subject says that in Huntingdonshire there is a large field by the side of the Great Northern Road, which still retains the name of the "Hop-grounds," and helps "to remind us of a time when this country was described by Bede and William of Malmesbury as 'the garden of England,' and was rich in Vines and Hops, and yet there is not a Hop-yard within a very extensive radius of this locality, nor has been for centuries ; nevertheless, the nightingales abound in every direction, singing night and day." Hops have highly narcotic properties, and hence persons troubled with chronic sleeplessness are frequently recommended to visit the Hop fields, and to sleep on pillows stuffed with Hops. The word "Hop" was adopted from the Netherlands with the culture of the plant, and is possibly, says Dr. Prior, connected with words that mean "head." One species of Clover is known as the "Hop Clover," from the resemblance of its fruiting capitules to little heads of Clover.

A flower that has justly earned for itself a widespread popularity is the Heath, clothing as it does with its gorgeous array of blossoms our open lands, and shedding a delicate purple hue over the mountains of our northern districts. In days long gone by Heath flowers were adopted as the badges of some of the Highland clans, and at the present day the Highlanders still thatch their cottages and make their beds of its sprays. The Ling (Calluna vulgaris), which is included among the plants which compose the Heather, is especially the plant of the Highlanders, and as a writer has observed "is associated so strongly with his country in all its legends and poetry, that it appears almost as exclusively the child of the mountain fastnesses as the national music of the bagpipe." It has various uses, being in request for fuel, and is considered a good material for making brooms. Its branches, too, when freshly gathered and arranged in such a manner that the elastic tips of the shoots form a level surface, form a couch such as described by Sir Walter Scott in the following lines :—

> "Before the Heath had lost the dew
> This morn a Couch was pull'd for you,
> On yonder mountain's purple head."

Again, the Lavender is a plant at all times in demand on account of its delicate and sweet perfume ; indeed, the very mention of this charming plant at once recalls Walton's pleasant picture of "an honest ale-house, where we shall find a cleanly room, Lavender in the windows, and twenty ballads stuck against the wall, and my hostess, I may tell you, is both clean and handsome, and civil." It owes its name to the Latin *lavare*, to wash, as having been the plant in former years very much used to scent newly-washed linen, whence originated the expression "laid up in Lavender," implying anything put away with great care. Things in pawn, or persons in hiding, are said to be in Lavender. It was also used at baths in washing the body, and the bedgown of our laundress was "*à lavendre*." It is alluded to by Shakespeare in his *Winter's Tale* (act. iv., sc. 3), where he makes Perdita say :—

> "Here's flowers for you—
> Hot Lavender, sweet Mints, Savory, Marjoram."

A pretty and not uncommon plant is the red Hemp-Nettle, growing in chalky corn-fields. One of its popular names is "Iron-wort," from its being supposed to heal wounds caused by iron weapons. The woody Nightshade, which blossoms in shady moist situations, has been popularly styled the "Felon-wort" from its being often used for the cure of whitlows, which are called in Latin *furunculi*, little thieves—that is, felons. It is also known as the "Bitter-sweet," from the rind of its stalk, which, as Turner remarks, "when it is first tasted is bitter, and afterwards sweet." Another name for it is the "Blue Bindweed"

An interesting plant is the Houseleek, to which various nicknames have been applied. Thus, from its massive inflorescence, it has been termed "Jupiter's Beard." It is also known as "Jupiter's Eye" and "Bullock's Eye." On account, too, of its conspicuous tuft of evergreen leaves it has been called "Aye-green." There are various superstitions associated with this plant. Thus many of our peasantry consider it lucky to have their roof covered with it, regarding it as a preservative against thunder and lightning. The juice of the Houseleek, when mixed with cream, is considered an excellent remedy for burns and other external inflammations.

We must not omit to mention the Thistle, several varieties of which blossom throughout the summer and autumn months. The beautiful "Cotton Thistle" is generally considered to be the Thistle of Scotland, and tradition reports that it became the emblem of Scotland in the following way :—When the Danes invaded Scotland it was deemed unwarlike to attack the enemy in the darkness of the night instead of in a pitched battle by day. On one occasion, however, the invaders resolved to avail themselves of stratagem, and in order to prevent their tramp being heard they marched barefooted. They had just succeeded in reaching the Scottish camp unobserved, when, unfortunately, a Dane stepped upon a Thistle, which caused him to cry out. This quickly aroused the slumbering warriors, who ran to their arms and defeated their foe with great slaughter. The Thistle was at once, after this circumstance, adopted as the emblem of Scotland. By some antiquarians the Musk Thistle (Carduus nutans) is supposed to be the Scotch Thistle. One species of Thistle is known as the "Melancholy Thistle," from its supposed virtue in the cure of melancholy ; and another has been nicknamed the "Spear Thistle," from its prickly involucre. The "Milk Thistle" is said to have derived the colour of its leaves from the milk of the Virgin Mary having fallen upon them as she nursed the infant Jesus—a fable, says Dr. Prior, suggested by the similar one of the Lily having been whitened by the milk of Juno as she nursed the infant Hercules. The "Carline Thistle" has a curious legend belonging to it, explaining how the name took its origin from the Emperor Charlemagne. It is related that a terrible pestilence broke out in his army, carrying off many thousands of his men. Whereupon he prayed to God, and in his sleep there appeared to him an angel, who shot an arrow from a cross-bow, telling him to note the plant upon which it fell, as with that plant he would be able to cure his army of the pestilence. The Thistle is not without its folk-lore. Thus it appears to have been used in rustic divinations :

> "Upon the various earth's embroidered gown
> There is a weed upon whose head grows down,
> Sow Thistle 'tis y'clept, whose downy wreath
> If any one can blow off at a breath,
> We deem her for a maid."

The disease known among the poorer classes of Poland as "Elflock" is supposed to be the work of evil demons, one very common remedy for it consisting in burying Thistle seed.

The Michaelmas Daisy derives its name from the festival of Michaelmas, the association of flowers with the religious festivals of the Church being of frequent occurrence. Thus, according to an old couplet, we are reminded that—

> "The Michaelmas Daisy, among dead weeds,
> Blooms for St. Michael's valorous deeds."

It has various popular nicknames, such as "Blue Daisy," "Blue Camomile," "Sea-Starwort," &c. It was believed by our forefathers that this flower changed its colour three times a day—being white in the morning, purple at noon, and crimson in the afternoon. The Hemp Agrimony is so called from the resemblance of its leaves to those of Hemp ; and from its having been supposed to have yielded the rope with which Christ was bound, it has been termed "Holy Rope."

HAMPTON COURT.

To write of the history of Hampton Court would be to repeat a very old and familiar story. Its horticultural history is, however, not so well known, nor the great facilities it affords to thousands of visitors, especially during the summer months, of enjoying themselves in true English fashion upon the green-sward under the boughs of giant Oaks and Elms, and surrounded on all sides by a gorgeous display of floral art, which must add immensely to their gratification and enjoyment.

Most Londoners are well acquainted with the grand Chestnut avenue in Bushey Park, which attracts thousands of visitors from the metropolis when the trees are in flower upon what is called "Chestnut Sunday," a day which is looked forward to with great pleasure and interest, and which comes earlier or later in the season, according to the state of the weather and its influence upon vegetation. Then there are the budding and development of the various trees; the fragrance of the flowering Hawthorn ; the rich display of flowering bulbs which perfume the air with a strong odour ; and, later in the season, the summer bedding, which at the present time approaches as nearly as possible to perfection.

The principal display of bedding is produced by the side of the long promenade from the Kingston Road to the Thames, in a series of oblong figures, which are so varied in arrangement as to afford fresh interest to the visitor at nearly every step. Indeed, the principle upon which Mr. Graham arranges his bedding is to have every bed you come to different from the one you have passed. The promenade, which is over half-a-mile in length, and runs parallel with the Palace, is 12 yards wide, and the sub-tropical border upon the Palace side is a great relief to the eye from the rich display of colour in the carpet and other beds.

Whatever may be the future of carpet bedding, it is an undoubted fact that at the present time it is incomparably the popular style of the day. Upon addressing a question upon the subject to Mr. Graham, he rejoined, "Sit down for ten minutes, and the British public will answer your question in a way which will not admit of your entertaining any doubt upon the subject." And so the action was suited to the word, in order to verify the accuracy of the statement, which was clearly demonstrated by the groups who flocked round the lovely mosaic designs so elaborately and tastefully executed in front of the Palace.

Yes, carpet beds attract fifty admirers for every one attracted by any other style of garden em-

ellishment; and so those who are responsible for he management of our public gardens and parks, vith great judgment, do not run counter to public pinion, but provide a variety of rich combinations of olour and designs, which are most in accord with the ublic taste. But Mr. Graham, as we have said, aries his style so as to afford variety. For example, here is a bed of Pelargonium Bijou carpeted with Viola Blue Perfection, and edged with Cannell's Dwarf Ageratum—a variety of such dwarf habit that it may be employed in mosaic or mixed bedding, as occasion may require. This bed has a very pleasing effect, and is much and worthily admired. Another striking example of a mixed bed is one planted with Abutilon novum maculatum, Verbena venosa, and Iresine Lindeni, with a band of Iresine Lindeni round the edge. This makes a grand autumn bed.

Mr. Graham uses a great many Violas, and gives his reason thus. He says, if we have a wet season the Violas are a great acquisition to the garden; while, upon the other hand, by striking a safe balance, and having plenty of Pelargoniums should there be a dry summer, there is no fear of having sufficient colour to brighten up such a vast area of green, where a preponderating number of plants of sombre hues would be almost lost to the vision in the distance.

We noticed a fine mass of Ageratum Imperial Dwarf, edged with Iresine Herbstii, which had an imposing effect from a distance, but upon closer scrutiny it would not bear comparison with a fine bed of Pelargonium Daybreak, carpeted with Viola Favourite, and edged with Pelargonium Golden Harry Hieover.

But the startling bed of the whole garden remains to be described in a few words. The bed is 30 feet long and 10 feet wide, and is planted with Pelargonium Henry Jacoby, surrounded by a band of Pelargonium Black Douglas, and edged with Alyssum saxatile variegatum. No one who has not seen this Pelargonium planted upon a large scale could have any idea of its noble and striking appearance. The colour is deep crimson, the trusses are large, and produced in great profusion, while it is as free a bloomer as the old favourite Vesuvius either in summer or winter.

Another good example of the mixed style is a bed of Pelargonium Flower of Spring carpeted with Viola Tory, and edged with Coleus Verschaffeltii. Then comes a carpet bed, either an oblong or circular figure, laid out with taste, with every line so clearly defined, and the colours so tastefully blended that no one can help being struck with admiration. I shall describe what I think the finest bed in the garden first, laid out in the carpet style. The bed is an oblong, with a raised oval in the centre, planted with Pachyphytum bracteosum, and having a narrow band of Alternanthera versicolor grandis between the Pachyphytum and the Echeveria secunda glauca which is used for marking the lines. At either end of the oval are two figures planted with Leucophyton Brownii, and next in order comes two figures (raised) of Sempervivum montanum, which in turn are succeeded by two small circles planted with Alternanthera versicolor grandis. This completes the central row of figures. Upon either side the oval are two curving figures planted with Alternanthera magnifica, and parallel with these, and bordering the groundwork of Mesembryanthemum cordifolium variegatum, are two handsome bands of Leucophyton Brownii. Two corresponding figures at either corner of the bed of Abutilon vexillarium variegatum, splendidly coloured, completes the design, which is edged with two rows of Echeveria secunda glauca mixed with Sedum glaucum.

I wish to notice especially the improvement effected by the raised figures, which, together with a bold groundwork of the Mesembryanthemum and the glaucous edging, gives the whole design an appearance which is not soon forgotten.

I will next take a circular bed as an example which is cut into four quarters by four anchor-shaped figures radiating from a circle in the centre. The circle is planted with Kleinia Haworthii—a succulent which, as far as I am aware, has not been much used in carpet bedding before. The anchor-shaped figures are planted with Abutilon vexillarium variegatum, and the figures "raised" in the spaces between are planted with Echeveria Peacockii—a distinct and very effective variety, which is destined, when it becomes better known, to have a history in outdoor decorative gardening. The colour is intensely glaucous, slightly tinged with pink at the points of the leaves, and taken altogether it must be considered a novelty among carpet bedding plants. I should state that having seen it at Hampton Court before, I was not so much struck with the effect it produced when only a few plants were used as I now am after seeing it grouped in "raised masses," as Mr. Graham has employed it with such marked effect this year. There is a narrow band of Pyrethrum aureum round the Echeveria, and a bold groundwork of Alternanthera amabilis, which is finished off with Sedum glaucum.

Another example of how Mr. Graham treats a circular form of bed in the carpet style is by laying down a double Grecian cross from a small circle in the centre, and then, by describing four semicircles round the margin of the bed, an equal number of wavy triangular figures is formed between the half-circles, thus disposing of the whole bed in a simple and tasteful way, which leaves ample space for condensed masses of representative colours, which is the true principle of arrangement by which to produce a really pretty and striking effect. The centre, a small circle, is composed of Pachyphytum bracteosum, the four wings of the cross Alternanthera paronychioides major, the figures connecting themselves with the centre and the cross, as well as with the triangles, being planted with Mesembryanthemum cordifolium variegatum.

The day upon which I visited the Palace there were gardeners and others talking in different dialects, and expatiating upon the merits of bedding, busily employed (notwithstanding the jostling crowd) taking notes in a variety of clumsy ways, evidently not being aware that Mr. Graham has published a little book, which can be bought for a few pence, and which gives the names of the plants corresponding with the numbers in the beds, which renders the work of note-taking a comparatively easy task, and enables gardeners, by referring to the diagrams given in the book, to cut their own coat according to the quality of the cloth in their possession.

Having now disposed of the beds by the side of the long promenade, I must notice the beds by the side of the ornamental canal, which are planted with Pelargoniums of different colours, and which have a grand appearance from a distance. The row of fine Limes by the canal side, and the broad expanse of green carpet upon the other, has the effect of softening down the tone of so many bright colours, which, grouped together in a smaller space, would be too glaring to be very beautiful. The garden, in reality, is a huge semicircle cut in two by a broad walk, and having a fountain playing in the centre, and also intersected by other walks running obliquely from the main promenade in front of the Palace.

But to return to the beds of Pelargoniums which struck me so much by the canal side. One of the first that attracts the eye has a centre of Pelargonium Bijou carpeted with Viola Blue King, with a band of Pelargonium Golden Harry Hieover, and edged with Euonymus radicans variegatus. Then there is a bed of Pelargonium Vesuvius, edged with Pelargonium Crystal Palace Gem, and one of Lucius (a grand bedding Pelargonium), edged with Pelargonium Golden Harry Hieover. We next come to a fine pink Pelargonium (Amaranth), banded with Pelargonium Flower of Spring and Viola Tory, and edged with Euonymus radicans variegata. There are other beds of Pelargonium Warrior and Henry Jacoby, edged with Pelargonium Black Douglas; and the last of which I have taken note, and not by any means the worst of this fine row of beds, has a bold centre of Pelargonium Bijou carpeted with Viola Blue Perfection, surrounded by a telling band of Iresine Lindeni, and edged with Stellaria graminea aurea.

I noticed several beds close to the fountain planted with Cannas and other sub-tropicals, which is a very appropriate situation for them — an imitation of Nature, having groups of the common Iris by the side of a river or lake. There are many other features of flower gardening carried out at Hampton Court, such as mixed beds of Roses and other flowers, and the nucleus of a collection of herbaceous plants, which Mr. Graham is about to form in contradistinction to the groups and masses of choice foliage plants and flowers already so extensively used and elaborately arranged. *Special Reporter.*

Strawberries.—It is estimated, says the *New York Tribune*, that during the "Strawberry month" Chicago receives 10,000 bushels of this fruit per day.

CULTIVATION OF VIOLETS UNDER GLASS.

The present will be a good time to pot up the necessary number of plants for yielding a good supply of these ever acceptable and much sought after deliciously-scented flowers through the autumn, winter, and spring months. And the fact of their being had out of season—a circumstance which, like all garden produce, greatly enhances their value—renders them all the more acceptable. In order to attain success in this respect the plants should have been previously prepared for this purpose by thinning out the runners (which those planted out individually in April or May send out freely when they commence to grow) to four or five of the strongest, and those having the most solid crowns, and the points pinched out, and all the other runners cut out as soon as they appear, the object in view being to concentrate the sap into those left, from whence eventually the flowers proceed.

In the event of the above-mentioned details not having been attended to, as described at the proper time, they should be observed when the plants are being potted, which should be in an admixture of good friable loam, decomposed cow-dung, and leaf-soil, with sufficient sand to keep the whole porous. If the plants are potted into three sized pots—viz., 24's, 32's, and 48's—they will come in very useful for the embellishment of the conservatory, &c. When the plants are being potted let the young crowns be placed regularly round the edge of the pots, and the soil pressed firmly together and watered. The plants should then be taken to the frames allotted to them, and the pots plunged to the rim in sawdust. The frames should occupy a warm corner under a south wall, and be fixed in such a way as to allow of bottom-heat being applied when necessary by means of fermenting dung and leaves, and so that the latter are not exposed to view, and therefore not objectionable in that respect. This is easily managed by measuring the length and breadth of the frame, or frames, intended for the growth of the Violet plants, and then taking out a trench a couple of feet deep, and a few inches narrower and shorter than the frames, and having some Oak posts 7 feet long driven into the ground about 3 feet 3 inches, and about 5 feet apart, the exact width and length of which should be identical with those of the frames. On these posts, which should be level, fix an Oak plate, about 2½ inches deep and 3 inches wide, for the frames to rest upon, and a piece of inch board projecting an inch above the plate or frame-ceil, nailed to the latter at the sides and ends, to keep the frames in position. The framework should be bound together by means of cross-pieces fastened to the upright posts about 3 inches below the bottom of the frames, to allow of a bottom of straight-edged slabs being made for the latter, which should then have sufficient sawdust put into them to raise the plants to within a few inches of the glass when plunged to the rims of the pots. This done, the sides and ends of the skeleton frame should be boarded up, and shutters made to fit between the posts in the back, and fastened by means of wooden nuts fixed to the former, so that they can be easily removed and replaced when necessary.

In the event of bright sunshine at the time the plants are potted shade them for a few days until the roots have taken hold of the soil, after which subject them to the full rays of the sun, and as the plants become well established in the pots by filling the latter with roots, weak liquid manure should be given them occasionally, which will enable them to throw up and develope finer blooms, and in greater profusion.

On bright days the sashes should be taken off the frames for a few hours to allow of the foliage getting dry, as also to maintain the plants (which should not be coddled) in a sturdy condition; and with this object in view they should be ventilated freely on all favourable occasions. On the approach of winter provision should be made for excluding frost from the interior of the frames, as well as conserving the heat therein that may have been imparted by the sun's rays or fermenting material underneath; and for this purpose it will be advisable to protect the ends and side of the frame and framework with a wall of dry Fern, built up as follows—viz., commence at one end of the frame, or range of frames, as the case may be, and make a row of holes in the gravel about 6 inches deep, 1 foot apart, and 9 inches from the base of the framework, and into each of these holes put a stout

and pliable bean-stick sufficiently long to reach to within a few inches of the sashes; then pack the space between the sticks and the woodwork with layers of dry Fern up to the top of the former, which should then be securely tied with strong string to a row of screws previously put in the frame within a couple of inches of the top for that purpose, and the same distance apart as the sticks. This done, the loose projecting pieces of Fern should be trimmed with a pair of shears; thus completing a neat and effectual side and end protection to the frame from frost, which, together with a covering of Fern and mats on the sashes at night during frosty weather, will be sufficient protection for the Violet plants.

Violets may also be grown and flowered satisfactorily planted out in frames within a few inches of the glass, in about 7 inches of soil, placed on a hot-bed made of three parts leaves and one of stable-dung (including the horse-droppings), and built upon half-a-dozen or so of faggots, to admit of drainage to the bed. But better still, and more satisfactory in the results, a hot-water pit, in which the floral results in quantity and quality are more in the hand of the cultivator.

In conclusion, I may remark that there is no flower that pays better for a little extra care and trouble in the cultivation than the Violet, of which the Neapolitan, Marie Louise, Belle de Chatenay, and The Czar, are the best to grow—especially the two first named varieties; but Belle de Chatenay (double white), and The Czar (dark blue), give variety of colour in addition to sweetness.

It would appear from Tennyson's line—

"Thick by ashen roots the Violet grows"—

that it was a shade-loving plant, and flourished especially under the shadow of the Ash. This, however, is not the case, as conclusively proved by the profusion of flowers supplied by the Neapolitan and other varieties, which have been planted under sunny walls for supplementing the supplies from those grown under glass in the spring.

Although the Violet has always been a favourite flower in England, there is very little popular tradition connected with it. As an emblem of constancy it has been esteemed in France from a very early period; and this signification may perhaps have had something to do with its adoption by the expectant Buonapartists. And it is stated to have been the prize bestowed upon the troubadour in olden times, and to have been subsequently replaced by its representative in gold. A golden Violet was the prize instituted by Clemence Isaure at the floral games established at Toulouse early in the fourteenth century, which have been kept up, with occasional interruptions, to the present day. Yet further back Athens was noted for its love of Violets, and the term "Violet-crowned Athens" is said to occur more than once in classical authors. And though the Violet is not mentioned in Holy Writ, its odour is spoken of in the Koran as "excellent above all other odours; it is as warmth in winter, and coolness in midsummer."

Byron, in his poem, "Napoleon's Farewell to France," makes the following allusion to the Violet:

"Farewell to thee, France; but when liberty rallies
Once more in thy regions, remember me then;
The Violet shall grow in the depth of thy valleys,
Though withered, thy tears will unfold it again."

We are told that when Buonaparte was finally conveyed to St. Helena that he gave a Violet to an English naval officer who accompanied him—an intimation, it may be, of his hope (which was never realised) of a speedy return. The revival, in a greater force than ever, in connection with the late Emperor, as manifested at his funeral, and at the mausoleum at Chislehurst, which is sometimes nearly hidden by Violets, is, no doubt, chiefly due to tradition. Its popularity, however, was, says Mr. James Britten, probably enhanced by an incident which happened at the time the late Emperor escaped from the fortress of Ham. A packet of Violet plants having arrived by diligence, the keeper was directed by Dr. Conneau to plant them in pots, and while his attention was thus occupied the escape was effected.

It is stated that the annual sale of Violets in Paris exceeds 6,000,000 bunches, realising a sum of more than 577,000 fr. *H. W. Ward, Longford Castle Gardens, Salisbury.*

PICKLING ONIONS.—The *New York Tribune* states that the aggregate length of the Onion rows on a pickle farm near Chicago is 320 miles!

New Garden Plants.

SENECIO STENOCEPHALA, VAR. COMOSA.*

This remarkable herbaceous perennial was shown at one of the recent meetings of the Floral Committee by Mr. Bull, and on comparison with the specimens from Japan in the Kew herbarium we have no doubt as to the identity of the plant. It is an erect growing glabrous herb, with a thick root-stock and fibrous roots, the lower leaves are on long stalks (8 or 9 inches in length), with roundish or broadly ovate-acute leaves about 5 inches long by 6 inches on greatest breadth, deeply cordate, or hastate at the base, acute or tail-pointed at the apex, and coarsely toothed at the margins. The fluted flower-stalks are about 2 feet in height, with stalked leaves, the stalks dilated and sheathing, near the base ovate-acute. The flower-heads are borne in erect, oblong spikes about 6 inches in length. The bracts are linear. The involucre cylindrical, three times longer than broad. The yellow oblanceolate 3-toothed ray-florets are female only, solitary in the species, three in the variety comosa, here figured (figs. 55, 56), and ultimately bent downwards; florets of the disc hermaphrodite, twice as long as the greyish-brown pappus; achenes glabrous. It is a native of the hillsides near Hakone.

The variety comosa, here figured, differs from the type in the longer bracts and the presence of three ray-florets, instead of one. Franchet and Savatier

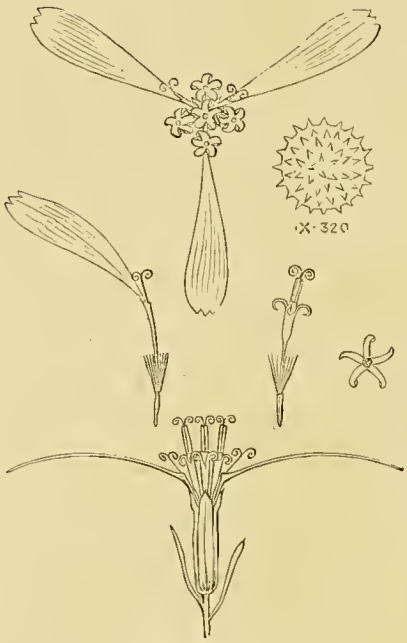

FIG. 55.—SENECIO STENOPHYLLA.
Floral details natural size; pollen magnified 32 diam.

speak of it as cultivated only, but Mr. Dickins informs us that he has met with it in a wild state near Hakone. The pollen cells, as examined by Mr. W. G. Smith, are globular, and covered with spine-like processes.

Senecio stenocephala forms one of a small group of very curious species of Senecio natives of Japan, all of which would be worthy of cultivation as herbaceous perennials if, as is most probable, they should prove hardy here. Our figure and description were taken from Mr. Bull's plant. *M. T. M.*

AMORPHA CANESCENS.—This is a hardy deciduous shrub, which is but rarely met with in nurseries, and yet it is a decidedly handsome and desirable plant. It is not such a tall grower as the "False Indigo," A. fruticosa, and flowers, too, later on in the season; the whole of the plant is covered with a whitish tomentum, and the dark purple-blue blossoms are produced freely in panicles at tips of its shoots. According to Dr. Asa Gray's *Manual* it is a native of Michigan and Wisconsin, &c., where it is found on prairies and in crevices of rocks. It is called "Lead Plant" in the United States, from its being supposed to indicate lead-ore. In the Kew Arboretum it has been flowering freely, and a figure will by-and-bye appear in the *Botanical Magazine*.

* *Senecio stenocephala*, Maximowicz. *Diagnoses Plant. Nov. Japon.*, dec. ix., p. 10; *Melanges Biologiq.*, t. 8. Var. β comosa, Franchet et Savatier, *Enum. Fl. Jap.* i., p. 247.

HARTLEBURY CASTLE.

No garden lover who is travelling in the rich and picturesque county of Worcestershire can spend a more enjoyable hour than by visiting the ancient palace and gardens of the Bishop of Worcester. Of course, I am now referring to visitors who, like myself, can be interested and even amused at a great many things, but whose especial interest is centred in things horticultural. Well, upon a fine morning of a day that for a wonder kept dry till evening I found myself at Hartlebury Junction upon my way to visit the gardens of this ancient palace, which is but a short distance from the town of Kidderminster, and about half-way distant between Stourbridge and Stourport. The palace is approached from Hartlebury by a fine avenue, with a noble row of trees upon either side. The palace is of great antiquity, the manor having been given to the see of Worcester in 850 by Burthred, king of the Mercians. The ancient castle, commenced by Bishop Cantilupe, was completed and fortified by Bishop Giffard in 1268, with the exception of the gate-house, which was added by Bishop Carpenter (Henry VI.) It was garrisoned for Charles I., but surrendered without a shot being fired, dismantled, and sold. The present edifice was built principally by Bishop Hough, of red sandstone, with embattled parapets, having a quadrangular court enclosed by walls. The library, 84 feet long, was added by Bishop Hurd, who bequeathed to his successors a valuable collection of books, including those of Bishop Warburton and Alexander Pope. The hall contains portraits of George III and Queen Charlotte, whose gift of them to Bishop Hurd is perpetuated by an appropriate inscription. Within the quadrangle there is a fine circular drive leading to the front door, the circular lawn in grass being closely shaven—in fact, a splendid carpet of green, contrasting with rich borders of flowers, very tastefully varied in arrangement in a situation where bright colours are required to light up such a large expanse of green, and walls of somewhat sombre tone, and not particularly showy in colour.

Immediately outside this enclosure upon the south side is the "moat garden" and lake, rendered attractive by groups of Lilies and other aquatics, which are very pretty when viewed from a distance. The garden is in itself a striking novelty; perhaps there are very few, if any, of its kind in the country. It is an oblong piece of ground, formal at the first look, but at a second glance there is something so novel in the conception of its outline that one is lost for the moment in admiration. If the reader can picture a wall draped with shrubs and creeping plants, and a fine bold terrace of grass overlooking a flower garden some 20 feet below, then a second terrace—a bold strip of green, with a flower-border laid out in diamonds and triangles—a tolerably fair idea of the picture may be imagined. The grass slopes down to the garden are over 20 feet in depth, and the garden itself is very tastefully broken up with groups and scrolls of flower-beds, with a small sheet of water in the centre, overhung by a Weeping Willow and surrounded with appropriate flower-beds, very effectively planted with colours suitable to the situation. The east end of the garden has a double row of terraces opposite to which is the lake, already mentioned. But the striking feature of the garden is undoubtedly the flower border upon the south terrace. The idea is bold in conception and you hesitate, as it were, whether to look down upon the graceful curving scrolls of flowers and bright gravel walks, or across upon the terrace opposite, which confronts the eye and has an unusually dazzling effect and brilliancy, not so much because of the plants employed as from the nature of the situation, which seems to show off colours to the best advantage. The scenery, too, is very fine, the district abounding in fine trees, and the landscape generally both pleasant and cheerful to look upon.

In the kitchen garden I noticed the fruit trees were bearing good crops of all kinds, and good order and cleanliness seemed to be religiously observed in every nook and corner. There are many old-fashioned relics of past gardening still left in these gardens, such as quaint old trees and arches and hedges of Beech of a rather antiquated appearance. Several new hot houses were in process of being built, others renovated and provision being made for an extension of plant culture and the improvement of the fruit crops under glass. The garden is under the superintendence of Mr. Payne, whose heart is evidently in his work, and whose capabilities are well exemplified in the excellent condition of everything under his charge. *W. H.*

OCKENDEN.

The Sussex seat of T. W. Boord, Esq., M.P., is easily reached by the London, Brighton, and South Coast railway, and is situated in a district of unsurpassed beauty, about 12 miles from Brighton, 38 miles from London, and but a short distance from the Hayward's Heath Station. The landscape of the district is very beautiful, and in bright weather the drive from Hayward's Heath to Ockenden is rendered interesting by the vast tract of country which the eye traverses, including the Sussex Downs, presenting a variety of landscape scenery which at once rivets the attention of even the most casual observer. The district, too, is dotted with quaint old villages, built partly of wood and partly of bricks, many of which are said to date back some centuries.

A short drive of less than 3 miles brings you to the village of Cuckfield, a model English village, from which place the drive to Ockenden is but a short distance.

At the entrance to the house the visitor will find the walls draped with lovely climbers, both evergreen and deciduous, and some grand old Fig trees in full beauty of foliage; a very good way of combining the useful with the ornamental, as the trees are bearing nice crops of fruit. The house is said to be over 700 years old, its Ivy-clad walls and curious architectural features bearing marks of great antiquity. One wing of the building appears to have been an abbey at one time, and is not the least interesting portion to look upon. The principal part of the building, however, appears to have been built in the Early English style of architecture. Upon one of the lawns close to the house are some noble trees of Weeping Ash with seats at their base affording grateful shelter.

The flower garden, which is on the south-west side of the house, is laid out in a series of terraces having a bold border of shrubs, sub-tropicals and flowering plants, for a background. I may here state that the grounds are only in process of making, and are being extended in order to have sufficient lawn for general recreation ground, with plots of flowers promiscuously laid out to enliven and beautify the lawns. The improvements are being carried out in the most substantial way, and upon the most liberal scale, by Mr. Boord, who, together with Mrs. Boord, takes the most lively interest in the welfare of the garden. The heavy labour and anxiety entailed upon a gardener in carrying out a work of renovation becomes a pleasure when such ample facilities are accorded.

But to return to the terraces, which extend lengthwise in a westerly direction from the house, No. 1 is laid out in a series of oblong carpet-beds, which style of flower gardening is much appreciated at Ockenden. Terrace No. 2 is dressed with round sub-tropical beds, and No. 3 with oblong carpet-beds; the sub-tropicals in the centre terrace making a nice break between the carpet designs of Nos. 1 and 3. I noticed a masonic design laid out in one of the carpet-beds by Mr. George with much taste and good effect. Several banks of grass beautifully clad with green from seeds only sown seven weeks ago, are quite a feature in the time, considering the adverse nature of the weather but a short time ago.

The next feature of interest that I have to record is the "dell," at the west side of the flower garden, composed of rustic (raised) beds, and slopes of rockwork planted with Ferns and other suitable plants. There is a grass walk closely shaven at the back of the dell, which makes a charming place for retirement—a place where philosopher or poet may pose unseen, and meditate in quiet retirement to their heart's content.

From the flower garden you enter the rosery, which takes the form of a parallelogram, and which is better sheltered than most roseries in the country—a fact that is clearly attested by the health and vigour of the plants after a period of such unparalleled heat and drought which has killed more Roses (exposed) in light soils than were even placed *hors de combat* through the effects of the late severe winter. The rosery has a fine evergreen Oak for a centre, and the collection of Roses includes the newest and finest kinds in cultivation. It is enclosed upon one side by a wall, the south side of which is planted with promising young Pears of the variety Catillac, which Mr. George considers one of the best stewing Pears for that climate. Leaving the rosery by a door opposite the centre of the garden you enter an orchard, which is quite a picture, to say the least of it, of Pear and Apple trees, some of which are borne to the ground by the weight of their crops.

At the bottom or west side of the garden are some fine specimen Conifers, including Cupressus macrocarpa. The collection of Pears and Apples, although not very extensive, is yet numerous enough to give one more proof of the fact that we pay too much attention to variety and too little to selection in regard to our choice of hardy fruits. Here, as elsewhere, are some half-dozen kinds bearing abundantly, while others are carrying but scanty crops. Irish Peach, Lord Suffield, Stirling Castle, and Tower of Glamis, are, as I have already said, borne to the ground with crops of fair size and excellent quality. A fine Pear (Louise Bonne of Jersey), lifted and root-pruned last autumn—a standard—has a grand crop, which proves the benefit of skilful root-pruning when performed at the proper time, and the tree receives the necessary attention in staking, mulching, and watering at the roots in such dry weather as we have experienced this summer, which has left an ugly legacy to gardeners, and will require some time to get rid of. The kitchen garden, of the usual size, is well stocked with vegetables. Mr. George adopts (compulsorily) the double system of cropping in order the better to cope with the great demand for vegetables, of which both quantity and quality are all that can be desired. The garden is enclosed by brick walls, which are chiefly occupied with Pears and Morello Cherries; Plums, too, are bearing the very best crops I have seen for many a year, of average size, and from general appearances the quality will be good also. The crop upon the south-west wall is exceptionally good of Winter Nelis, Williams' Bon Chrétien, Marie Louise, Brown Beurré, Duchesse d'Angoulême, Glou Morceau, &c. I noticed 1000 fine Strawberries in pots for next year's forcing in a very promising state, forming plump crowns and fine leaves of the healthiest description.

Fig. 56.—Senecio stenocephala, var. β comosa: much reduced, flowers yellow. (see p. 300.)

Having now disposed in a brief way of the chief attractions out-of-doors as well as the more useful culinary departments, I come to a pleasing part of my task, which is to describe the new hothouses, recently erected by Messrs. James Boyd & Sons, of Paisley, which are excellent in point of construction and utility. Divided into the necessary compartments, efficiently heated and ventilated, with every sash-bar guttered, in order to carry off all condensed moisture, it would be difficult to find better appointed ranges of forcing and plant-houses. The mains (flow and return) are placed under the centre stage of each house, with gratings over them instead of the common foolish way of having them either outside the houses altogether or covered over with bricks or flags, by which plan much valuable heat is lost, but which according to the plan here adopted is economically utilised and turned to practical account. The first structure I have to describe is a detached span-roofed house, used for growing Melons in summer and autumn, and Cucumbers in winter. The house is 48 feet long, by 11 feet wide, and is efficiently equipped with hot-water piping both for top and bottom-heat. The ventilators are adjusted by means of a lever, and are very simple to work. The house contains a fine crop of Melons, at present consisting of Blenheim Orange and a seedling of Mr. George's own raising, as yet without a name. The fruits are beautifully netted, and weigh from 5 to 7 lb. each. The first fruit was cut on April 30, and from 7 to 8 cwt. of Melons have been cut up to the present time from the same house, together with those cut out of pits and frames. The walks leading to and around the fruit and plant-houses have been excavated to a depth of 3½ feet, and surfaced with Croydon gravel.

Upon the south wall of the kitchen garden is the new Peach case, 150 feet long, in three divisions, and planted in March of the present year. There is a stage at the front of each division, containing a miscellaneous collection of useful well-grown decorative and other plants. The three divisions are each heated with hot-water piping. The late division is planted with young trees of great promise, possessing vigour, equality of growth, and clear bright green foliage. The varieties are Lady Palmerston, Walburton Admirable, Nectarine Peach, Victoria Nectarine, Lord Palmerston and Princess of Wales Peaches. The second division has a crop of fruits ripe upon trees established before the new houses were built. The crop of Bellegarde Peach and Stanwick Elruge Nectarine I have never seen supassed as a crop; and in point of size, colour and flavour, no artist could have painted the fruits a deeper or richer colour. Two of the trees which were in a weakly state have greatly improved since the new case has been erected, the cause of failure beforehand being insufficient ventilation. In this division I observed a batch of Globe Amaranths and late Balsams intended to keep the show-house gay in the autumn.

The third division, which is to be the early house, is planted with Stirling Castle Peach, Stanwick, Elruge Nectarine, and other suitable kinds. The front stage of this division was filled with Anemone Honorine Jobert in pots, Coleus, Begonias, Linum trigynum, and other winter flowering plants of useful sizes for winter furnishing. The next range consists of plant-houses, lofty span-roofed structures, 160 feet long and 18 feet wide inside, divided into four compartments, with tiled paths and the centre stages in two tiers, which prevents the necessity of raising the centre row of plants by means of inverted pots and other clumsy devices. House No. 1 is used as a stove, having a mixed collection of plants, but is ultimately to be used as a cool Orchid-house. There is a rod to each of the top ventilators, so that ventilation can be given to either side the house in case of boisterous weather—an advantage of considerable importance to plants. Upon the centre stage are some specimen Ferns, one of Adiantum formosum, 5 feet across, and a Pteris incisa 7 feet across. In addition to these there are Caladiums, Adiantums for furnishing, and some of the old-fashioned foliage Begonias. The side stages are filled with the nucleus of a collection of Orchids, which are making rapid progress—the collection being of a somewhat medley nature. There are some nice pieces of Masdevallias, Lycastes, Odontoglossums, and good specimens of Dendrobium nobile and D. densiflorum in grand health. Among other varieties of Dendrobes I noticed Devonianum, suavissimum, chrysotoxum, thyrsiflorum, Wardianum, and crassinode. The front row of the side stages was rather prettily arranged with small Adiantums, and seedling Gloxinias raised from a very good strain.

The second division, also a stove, has some good specimens of Allamanda cathartica, Pandanus Veitchii, Dracæna terminalis, highly coloured; Allamanda Schottii, Cissus discolor, Allamanda grandiflora, Croton angustifolius, superbly coloured; C. Youngii, C. Queen Victoria, Weismanni, and irregulare; Aralia leptophylla, an excellent plant for grouping for effect; Hibiscus variegatus, Tabernæmontana coronaria fl.-pl.; Mussænda frondosa, Ixora Williamsii, Hibiscus Colleri, Dracæna hybrida and Tellingii; Croton Disraeli, Artocarpus Cannoni, Clerodendron fallax, C. splendens, and Alocasia macrorhiza variegata. The side stages are filled with good samples of Anthurium, Cyanophyllum magnificum, and Dracæna Goldieana; Hibiscus schizopetalus, Pancratiums, Gardenias, &c. The side stages in this house are again neatly arranged with Orchids and a variety of other plants. The Orchids include Phalænopsis Schilleriana, grandiflora, and amabilis; Zygopetalum Mackayi, Vanda suavis, tricolor, and teres; Aerides Fieldingi and A. suavissimum, Cattleya Mendelland C. Mossiæ; a nice plant of Sobralia macrantha; Odontoglossum vexillarium and O. Roezlii, and giant bulbs of Calanthe Veitchii in small pans (shallow), which have produced growth over 3 feet from the rim of the pot to the tip of the leaf, and 7 inches across the leaf. The bulbs are growing in a mixture of peat, loam, and burnt cow-dung.

The third division of the range is a cool house with a central row of trained Abutilons, Palms, Ferns, Coleus, grand bushes of Pelargoniums and tuberous Begonias, fine named sorts. What magnificent flowers some of these named sorts are! I measured a flower of B. rosea grandiflora over 4 inches across; B. intermedia, intense scarlet, is also a splendid variety. The fourth and last division of the range is likewise a cool-house with specimen Lantanas, Abutilons, choice Pelargoniums, Balsams, Begonia Wettenhallii, nearly 4 feet in diameter; Dracæna congesta, D. indivisa, and D. lineata; Gladiolus, Palms, Statice profusa, and Lapagerias alba and rosea, trained over the end of the house, and growing and flowering as freely as the commonest plant in the collection. Here also are some fine specimens of Begonia Ingramii, and a great variety of other plants, all of which are in the pink of condition. The shading of these houses is very expeditiously performed, and each strip, 40 feet in length, works in the simplest way possible by means of pulleys fastened to a strip of wood, which can be removed when shading is no longer required.

We next come to a range of vineries over 100 feet long and 20 feet wide, having an east aspect. These houses are to be rebuilt at an early date, and when this is completed the glass department will certainly bear inspection. The range is divided into three compartments, the first of which has not been replanted with young Vines as yet. The second division is planted with a double set of Hamburghs, and since the time they were planted (May 11) have made marvellous progress—the canes are stout, short-jointed, and in every respect as promising a lot of young Vines as could be desired. These houses are furnished with staging, which is doing duty with plants for winter flowering, such as Epiphyllums, Acalyphas, &c. The third division is also planted with young Vines, equally strong, of Lady Downe's, with Black Hamburgh as supernumeraries for early fruiting. The compost for the borders contains no high or rich manurial elements, save and except a good selection of loam, bones, and lime rubbish, and the young roots have penetrated through the whole of the border made for them this season, and it is quite interesting to gaze on their roots, like points of quills bursting through the ridge of turf which forms the outer line of the border, ready to devour more food, and so add fresh vigour and stimulate fresh action in both roots and leaves. The Messrs. Boyd have heated all the glass with a terminal-end saddle boiler, which does its work satisfactorily, with a minimum of labour and attention. The stokehole is placed at one corner of the potting shed, and a Mushroom-house is erected over it, where Mushrooms, Seakale, and Rhubarb are forced in winter, so that there is not a foot of space lost, or a particle of heat wasted in the whole arrangement, which has been conceived with much care and judgment.

I have only to notice in conclusion several ranges of pits and frames replete with plants for winter decoration, and hundreds of plants for winter forcing, including pot Roses and Azaleas, which are clean, well grown, and the former—especially Maréchal Niel and Gloire de Dijon—grown upon the single rod system, in fine condition for producing early flowers next season. Considering the short time that has elapsed since the houses have been built the results are alike creditable to all concerned, and highly satisfactory to those who have been mainly responsible for the conduct of the work. *W. H.*

PLANT GOSSIP.

EPILOBIUM VARIEGATUM AND SCARLET PENTSTEMONS.—Upon either side the walk leading to the gymnasium in Battersea Park are two borders, having two lines of the plants under notice at the back of each border. The variegated Epilobium is next the evergreen shrubs, succeeded by the Pentstemons, which are of a dark scarlet colour, changing to crimson. This is such an effect as is instructive to visitors; there is something to look at, and you know what is meant by the arrangement: in other words, there is a definite principle carried out in the arrangement of the border, which is something to be thankful for in these days of meddle and muddle gardening.

PETUNIA COMPACTA ELEGANTISSIMA.—Petunias are once more coming to the front; nor can it be wondered at if they again become more popular than they have been of late years. They are much improved generally, and are very showy—I mean, of course, the single kinds for bedding. I have seen the doubles tried, and they seem out of place; but the singles are beautiful, and when you come across a dwarf variety, such as the one above mentioned, it almost alters the wavering mind into some fixed idea of the real value of such plants for summer bedding. The name given to this variety indicates both its habit and character, and the picture is not over-painted. The flowers are rich mauve, with rose stripes.

SPIRÆA DOUGLASII.—The pink flowers of this variety, especially when the plants are tall and associated in a mixed shrubbery with variegated leaves, are very pretty at this season when flowering shrubs are few in number. There is also a dwarf variety (callosa alba) which is a very free-flowering kind in the South of England during the months of July and August, and which is well adapted for front lines of shrubbery borders, and is equally useful for supplying cut flowers for occasions when large quantities are required.

ROSA RUGOSA AS A STANDARD.—This plant is usually grown bush fashion, and well it looks when in good health and adorned with its fine rich-coloured scarlet berries. In Messrs. WOOD's nursery, Sussex, it is grown as an umbrella-standard in an ornamental border, composed of choice Conifers, and a mixture of flowering plants, including Dahlias, where, amongst many things that are pretty it is not the least effective. Novelties always take the eye, and this is a novelty indeed.

LONICEEA AUREO RETICULATA.—To have high colour in many plants it is found necessary to restrict the roots. I think most variegated plants should only have moderate pot-room. When the roots have free access into rich earth the colour is never so bright. I saw this strongly exemplified lately in a batch of the above-mentioned plants which were plunged in their pots out-of-doors, and which were of the deepest and brightest colour. We are not always happy in our treatment of wall creepers, or we might often succeed in producing much better effects.

ABELIA RUPESTRIS.—This comparatively unknown plant in many districts is one of the very first plants of the hardier type that can be employed for all purposes of furnishing. When people complain of dear flowers they do not always know how many cheap ones there are, or the wealth of hardy plants that are yet unknown to the majority of cultivators possessing all the requisite qualities of first-rate decorative plants, and cheap as they are good. Abelia rupestris is a dense dwarf-growing shrub, with white sweet-scented flowers and green Myrtle-like leaves. It is a gem among hardy plants, which, if grown from 12 to 18 inches high, renders it a suitable object to be associated with the choicest of indoor plants.

Fuchsia fulgens Out-of-Doors.—My earliest recollection of gardening brings me back to the fine bushes of Fuchsia fulgens we used to see over twenty years ago. At that time they were treated with great care by my then master; they were cherished and taken care of through the winter, and were plunged in their pots out-of-doors in summer, not in an out-of-the-way place but in conspicuous parts of the flower garden. But of late years it has been an exceptional sight to see a plant at all good, bad, or indifferent, and yet there is not a much finer plant for banks or borders, where its fine glossy leaves and clusters of long bell-shaped flowers are in distinct contrast to each other, and are so useful for breaking flat surfaces in situations where stiff-habited plants would be out of place. *H.*

Abutilon Boule de Neige Out-of-Doors.—When Abutilons were nearly exclusively grown indoors—some of them in warm houses—the gardening community were perfectly satisfied that they possessed a class of decorative plants of great utility and usefulness. But their true beauty had yet to be realised, and now nearly every one knows what grand flower-garden plants are A. Thomsoni, A. niveum maculatum, and A. Darwinii tessellatum, and how beautifully they are coloured in the autumn. But the gardening public are slow to use the numerous other varieties as flower-garden plants. They only want a trial like their predecessors, and ere long they will be as freely used out-of-doors as Pelargoniums or Verbenas.

Pothos celatocaulis.—For the embellishment of damp walls in stove or intermediate houses we have in this plant an acquisition among creeping plants. The leaves are large, of a lively green, and overlap each other with such regularity that one would almost think they had been subjected to some mechanical manipulation. On closer scrutiny, however, the adhering qualities of the plant are fully seen, and its usefulness becomes more apparent. We want a creeping plant with large bold leaves to cover unsightly places rapidly, and in this plant the right material will be found to effect such a purpose. It might also be used to clothe the stems of Tree Ferns for house furnishing, where it would have a good appearance in winter.

Croton Evansianus.—This is one of the best Crotons in cultivation for almost any purpose of decoration. It has been sent out about two years, and is undoubtedly a gem of its class. The wood of the stem is not so hard as in most other varieties, and the consequence is that the plants are furnished with finer leaves towards their base than most other kinds, and the colour is bright in the extreme.

Thunbergia fragrans.—This is a plant worthy of extended cultivation. The fragrance of its flowers, and its adaptability to any form of training, together with its rapid habit of growth, should be sufficient commendation to those who are not provided with the best modern appliances for cultivating sweet-scented flowers. What a singular fact, that so many sweet-scented flowers are white, and this is no exception to the rule. With care it will last a couple of days in a cut state, and as it is almost a continuous bloomer a spray or two taken from a plant is hardly missed. Cuttings struck early in the month of March will make nice plants by the autumn, while good plants may be raised from seeds in a twelve-month. To see a plant of it loosely trained with clusters of its rich white flowers hanging over its glossy green leaves, is a sight which all true lovers of flowers must admire.

Seedling Gloxinias.—What a grand show these lovely flowers make during the summer and autumn months. They are an especial boon to the plant-stove, where so many sombre hues preponderate; either Ferns or foliage, or a mixture of both, are the usual occupants of these houses. The cultivation of the plants may be of the first order, but the eye wants relief, something to brighten up the scene. Gloxinias in small pots offer the desirable facilities for beautifying the side stages of plant-stoves, and they are equally useful, especially the bright coloured kinds, for purposes of furnishing either for grouping in jardinettes, or perhaps a more effective way of employing them would be to "dot" them in a carpet of Selaginella Kraussiana, intermixed with plants of feathery habit, which would be a relieving contrast to the formal habit of the Gloxinias.

Polygonum cuspidatum compactum. — For grouping upon banks or as dot plants in isolated positions the above variety is the best of its species, and in most situations is now at its best. The leaves of the plant are at all times rather more striking than the ordinary run of common things, but it is when the white Spiræa-like inflorescence becomes visible all over the plant from the axils of the leaves that it grows really attractive. The plant is liable to be cut down by late spring frosts, but it is the hardiest of the hardy, and shoots away with increased vigour after undergoing the most severe ordeal of frosty weather.

Gipsy Queen Clematis.—Of Clematis of the Jackmanni type the variety under notice is one of the very best. The colour is rich deep purple, of a velvet texture, and is so distinct and striking as to be easily recognisable in a large collection. Such a variety intermixed with the pale violet or lavender-coloured kinds would be very effective on walls, and make many an ugly corner bright during several months of the year.

Sambucus nigra aurea and S. laciniata.—These are two of the most attractive shrubs in our shrubbery beds or borders at the present time; the silver variety, though not so showy at a distance, makes a grand companion for the golden one, and as seen in Messrs. Wood's nursery, Maresfield, Sussex, a few days ago, in fine health and rich in colour, are very handsome objects.

Agapanthus umbellatus in Groups.—If this lovely Lily-like plant were but better grown what a feature it would make in the flower garden! Nurserymen sometimes (I was going to say very often) hit upon the right way of disposing plants by mere accident. The Agapanthus in a general way is starved in pots. When it is employed otherwise it is either in vases out-of-doors or hidden in some corner to fill up with, as gardeners call it, or, to use a more fashionable London term, it is used as "packing stuff." It deserves better treatment, and no plant that I know of is better calculated to give relief or produce a display—I mean a distinct display—in the flower garden. For instance, what a glorious sight a bed of Agapanthus mixed with Zea japonica variegata would make! Tall plants bearing blue flowers so well thrown up above the leaves are not so numerous that we can afford to discard, in a way, so fine a plant as the blue African Lily. It is not quite hardy, but nearly so, and in the South of England, or even in the North, if well protected it would survive moderate winters. But there is no reason why the plant should not be increased and generously cultivated in pots and plunged out in the flower beds for the summer, where it would give a colour which is sadly wanting, except in dwarf plants. These remarks have been suggested by seeing two groups of the plants plunged in their pots out-of-doors, in a London nursery, where flower gardening is, I dare say, not much thought of, but where all kinds of plants are thoroughly well cultivated. *H.*

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

Involucrati—fibro-membranacei *continued* (*from p.* 235.)

Vernal.

14. ‡*C. Imperati*, Tenore; C. Imperatonius, Herbert.—Corm $\frac{3}{4}$ inch broad and $\frac{5}{8}$ inch high; tunic fibro-membranous, slightly reticulated upwards. Sheathing leaves falling short of proper spathe. Proper leaves appearing before the flowers, glabrous, $\frac{1}{8}$ to $\frac{3}{16}$ inch broad, produced after flowering to a length of 8 or 9 inches. Proper spathe of one or two valves, reaching within an inch of the throat. Perianth: throat glabrous; segments $1\frac{3}{8}$ inch long and $\frac{3}{8}$ inch broad; the outer segments externally buff, with purple feathered markings, or self-coloured; the inner segments bright purple, rosy red, or pure white. Anthers pale orange, longer than the filament, and generally falling short of the stigmata; the style dividing at about the middle of the anthers, and produced into a compact mass of orange, branching stigmata. Seed buff.

One of the earliest vernal species; abundant in the district south of Naples, and said to extend into Calabria. It is very variable in the colour and markings of the flower; and also in the amount of subdivision of the stigmata, which are occasionally almost entire, like the stigmata of C. suaveolens, to which it is closely related.

15. ‡*C. suaveolens*, Bertoloni; C. minimus, var. italicus, Gay.—Corm oblate, $\frac{3}{4}$ inch wide; tunic of subparallel fibres, intermixed with membrane. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, $\frac{1}{8}$ inch wide, reaching to the level of the flower, and afterwards produced to a length of 7 or 8 inches. Proper spathe monophyllous. Perianth: throat glabrous, orange; segments narrow, acute, about $1\frac{1}{4}$ inch long; the outer segments externally buff, with three unbranched purple lines; the inner segments purple. Anthers yellow, twice the length of the yellow pubescent filaments; the style dividing at the middle of the anthers and produced into unbranched, toothed, yellow stigmata on a level with the summit of the anthers. Seed buff.

A native of the environs of Rome, Terracina, Fundi, and Itri; flowering in February.

16. ‡*C. versicolor*, Gawl; C. fragrans, Haworth.—Corm pyriform, $\frac{3}{4}$ inch wide; tunic of parallel fibres. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, reaching to the throat at the flowering time, about $\frac{1}{8}$ inch broad, and 8 or 9 inches long at maturity, the lateral channels containing two or three ribs. Proper spathe monophyllous. Perianth: throat glabrous; segments about $1\frac{1}{2}$ inch long, varying from purple to white, self coloured, or externally feathered or veined with purple; the inner and outer set of segments are nearly similar in their markings. Anthers yellow, twice the length of the white, slighly glandular filament; the style dividing near the summit of the anthers, and produced into entire orange stigmata, which are not divergent. Seed orange-red, with a glabrous polished surface.

C. versicolor was one of the earliest species introduced to cultivation, and from its inherent tendency to vary in its colour and markings has given rise to a host of horticultural varieties. It is easily distinguished from the allied South Italian and Corsican species by the nearly uniform colouring of the inner and outer segments, which in C. Imperati, C. suaveolens, C. etruscus, C. corsicus, and C. minimus, are different in colouring, the outer segments having a buff coat and purple featherings, which are not repeated on the inner segments.

C. versicolor has a restricted area in the Alpes Maritimes, extending along the seaboard from Mentone to Toulon, and up the neighbouring mountains to an altitude of about 4000 feet; it also extends inland northward, through the mountainous district, as far as Grenoble.

17. ‡*C. Biliottii* (new species), Maw. — Corm from $\frac{1}{3}$ to $\frac{1}{2}$ inch broad; tunic membranous, splitting up into narrow fibroid divisions at the base. Basal tunic of short flat radiating fibres, and without annulæ. Sheathing leaves falling short of the proper spathe. Proper leaves three to a corm, about $\frac{1}{12}$ inch wide, reaching to the level of the throat at the flowering time, glabrous, the lateral channels ribbed. Basal spathe much exceeding the ovary, and nearly as high as the proper spathe. Proper spathe monophyllous. Perianth-segments about 1 inch long and $\frac{1}{4}$ inch broad, rich purple, with a darker blotch near the throat. Anther yellow, about twice as long as the filament, and falling a little short of the stigmata; the style dividing above the base of the anthers into slightly fringed, sub-entire, orange stigmata.

C. Biliottii was discovered in full flower on May 28, 1880, by a native of Kroom, near Stauros, who had been sent out to collect for me by Mr. Alfred Biliotti, H.M. Consul at Trebizond, after whom I have much pleasure in naming it. In general aspect the species is scarcely distinguishable from C. aërius, but the presence of a basal spathe and the fibro-membranous corm-tunic without annulæ separate it from C. aërius and from any other known species.

18. ‡*C. Malyi*, Visiani.—Corm from $\frac{3}{4}$ to 1 inch broad, and broader than high; tunic of fine parallel fibres slightly tending to reticulation upwards. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, falling short of the throat at the flowering time, $\frac{3}{16}$ inch broad, produced at maturity to 1 foot in length. Proper spathe diphyllous foliaceous, reaching nearly to the throat. Perianth: tube yellow; throat orange, bearded; segments white, about $1\frac{3}{4}$ inch long. Anthers orange, about twice the length of the orange filament; the style dividing at the level of the summit of the anthers, and produced into a spreading bunch of slightly branched, orange stigmata.

C. Malyi was discovered by Herr Maly, at an altitude of about 7000 feet, in the mountains above Cattaro, in Dalmatia. In cultivation it flowers early in March.

19. ‡*C. minimus* DC.; C. insularis, Gay, in part. — Corm about $\frac{1}{2}$ inch broad and of similar height; tunic cartilaginous upwards, splitting at the base into flat parallel fibre-like divisions. Sheathing leaves falling

short of the proper spathe. Proper leaves glabrous, very narrow, scarcely $\frac{1}{12}$ inch wide, preceding the flowers, exceeding the flowers at flowering time, and produced to 8 or 9 inches in height at maturity. Proper spathe diphyllous. Perianth: throat glabrous, violet; segments barely 1 inch long, rich violet, the outer surface of the outer segments coated with buff, and variously striped and feathered with deep purple. Anthers pale yellow, of equal length to the white filament; the style dividing at the level of the summit of the anthers into slender yellow (rarely orange), divided, spreading stigmata, which overtop the anthers. Seed scarlet.

An abundant species, occurring at low elevations near the seaboard on the western coast of Corsica, the neighbouring islets, and also in Sardinia, but never I believe occurring on the mountains, where it is replaced by C. corsicus, a very distinct reticulated species, with which all previous writers have confounded it. C. minimus commences to flower in January; the flowers are very variable in their markings, occasionally self-coloured, and sometimes pure white.

20. ‡*C. Boissieri* (new species), Maw, exsic. Herb. Boissier.—Corm unknown. Sheathing-leaves half the length of the proper spathe. Proper leaves about four to a corm, 4 inches long at the flowering time, and reaching nearly to the summit of the flowers, glabrous, $\frac{1}{6}$ inch broad, keel nearly half the width of the blade, margins of blade revolute, the lateral channels containing three low ribs. Basal spathe short, scarcely reaching to the ovary. Proper spathe monophyllous, reaching to within $\frac{3}{4}$ inch of the throat. Perianth: tube and throat white, probably glabrous; segments pure white, ovate-lanceolate, very narrow, about $1\frac{1}{4}$ inch long, and $\frac{1}{4}$ inch broad. Anthers pale orange, barely $\frac{1}{8}$ inch in length; filaments twice the length of the anthers; the style dividing at the base of the anthers, and produced into expanded, fringed stigmata, on a level with the summit of the anthers.

C. Boissieri is only known from a single imperfect specimen in the herbarium of M. Boissier, gathered by M. Tchihatchef on June 30, 1853, near the Cave of Corycus (modern Korghoz) in Cilicia. The great length of the filament and extremely narrow limb are distinctive features. There is no other species in the East to which it has any near affinity; in the character of the stigmata and the spathes it somewhat approaches C. vernus. As the corm tunic is unknown, I place it between the sections Fibromembranacei and Reticulati of the division Involucrati.)

(*To be continued*)

FRUIT NOTES.

The Frogmore Prolific Apple, and Others.—The idea of devoting a special column to fruit notes in the autumn is very welcome. I notice my friend, Mr. Ingram, of Belvoir, commends Frogmore Prolific as being one of his best Apples this year. This variety is not nearly so widely known as it ought to be. It is of the Hawthornden type, large, and of the first quality as a cooking Apple. The tree is a most prolific bearer either on the Paradise or Crab. I would strongly advise all my friends to obtain trees from Mr. Turner, of Slough, who, I believe, is the only nurseryman who includes it in his list. I observe Mr. Greenfield, of Warwick, speaks of an Apple called "Pomma Russet" as being good this year. I have looked in vain for it in *Hogg's Fruit Manual* and *Scott's Orchardist:* perhaps Mr. Greenfield will favour us with a detailed description of it. [Leroy gives it as a synonym of Boston Russet.] Among the rare and new Apples I have found the following very good:—Welford Park Nonsuch, Worcester Pearmain, Coole's Seedling, First and Last, Jacques Lebel, Reinette Grise, Reinette Diel, Galloway Pippin, and Bridgewater Pippin. Can any of your readers boast of any success in the cultivation of either the Melo Carlo or Esopus Spitzenberg Apple? I have not as yet been able to obtain a fruit. Mr. Paul, of Waltham Cross, has a very nice looking Apple called, I think, Harold Pippin: is it known outside his nurseries? *W. Carmichael.*

Hardy Fruits.—The display of these at Manchester last week, though large, could hardly have been satisfactory to any one. Only a few dessert Apples and the earlier kitchen Apples were well shown, whilst Pears generally wanted both size and ripeness. Of course these defects were attributable to the time of the year at which the show was held, and are not to be placed to the account of the fruit crops, which of these respective kinds are so good. That a season which bids fair to produce in fine form and rich colour so many Apples and Pears should be permitted to pass without some other and more suitable opportunity being offered for a public exhibition of them, would be indeed a misfortune. It is not often that through a favoured combination of conditions these standard kinds of hardy fruits can be shown in truer character than they may be in the autumn, and still less often is it that so many representative kinds can be found in such excellent form. Exhibitions of hardy fruits are something more than pure competitions or mere display of garden produce. They are eminently educational alike to the gardener and to the general public, whilst at all times they possess unbounded interest. Cannot these fruits find some few admirers having the same public spirit and devotion to their culture and improvement which the Potato has found, and are willing to band themselves together to hold annual autumnal shows of these important products? If the Royal Horticultural Society were more alive to its interests and its duties, it would feel that no more important work devolved upon it than by means of annual shows fostering a taste for home-grown hardy fruits. It is not yet too late to take the matter in hand and to hold early in the month of October, somewhere in London, a great show of hardy fruits. *A. D.*

The Damson Crop in Kent.—No one taking a drive through the roads skirting the fine fertile fruit gardens about Maidstone can fail to be struck with the heavy crop of Damsons seen on every hand. All the varieties are this season bearing well; even the old Round Sweet Damson, which has not produced a good crop in Kent for ten years past, is this season in many instances laden with fruit. This variety is now but little planted by the growers, owing to its being such an uncertain cropper; yet it is one of the best of Damsons. The Farleigh Prolific, Cluster, or Crittenden Damson, which is always a reliable bearer, is this season producing an enormous crop, the small fruit being produced in thick clusters, and it is a very lucrative market sort, because so certain a cropper. So large has been the demand for it of late, that it is difficult to procure trees in quantity. In orchards by the roadsides this variety can now be seen with branches bending low towards the earth with their clusters of fruit. The Cheshire Damson, as it is termed, a fine large late variety, bearing good oval-shaped fruit, is cropping well this year; and the Prince Damson, also a late and richly flavoured variety, though not so large and generally good as the Cheshire Damson, is heavily cropped this year. The Frogmore Damson, a comparatively new sort, is one that will be largely planted when sufficiently increased; it is a valuable fruit, and a good cropper, with a flavour like to a Green Gage Plum, also a distinct grower. It is cropping thoroughly well this season. It will be observed in many of the fruit plantations that the Damson trees are planted on the outside, which is done to form shelter for the choice Plums or orchard fruits. The demand for Damsons for culinary, and especially for preserving purposes is so large that heavy contracts are being made for the supplies of fruit; quantities of 40 and 50 tons are bargained for. Plums generally are a very heavy crop in Kent, and fine weather is much needed for fruit crops and cereals.

Pears and Pear Trees.—We notice that Mr. Barnham has followed a good example by reading a paper on this subject before the Heigham Horticultural Society. It is greatly to be desired that local societies should commission competent lecturers to make known and explain the best methods of cultivation and to bring under notice the best varieties or those most suitable for particular localities, the best stocks to employ, and so forth. A great deal of time and labour are ill-expended from want of knowledge. "Those," says Mr. Barnham, "who can remember when a few decent sorts, with the Swan's-egg and the Windsor, formed the staple of our Pears—at a time when the Marie Louise, raised in 1809, and the Winter Nelis, raised in 1848, were hardly in common cultivation—can appreciate the labours of Knight, whose Althorpe Crassane dates from 1830, and whose Monarch from 1850, and of the great Belgian and French growers, Van Mons, Esperen, Bivort, Leroy, Goubault, and others."

Apple Growing for Profit.—No one who visits the gardens of J. Corbett, Esq., M.P., of Impney Hall, Worcestershire, at the present time can doubt the future of Apple growing for profit in a soil and climate which is congenial to the growth of hardy fruits generally. At Impney Mr. Temple planted a long row of Lord Suffield Apple three years ago, the plants costing 1*s.* each. The trees are now from 6 to 7 (some of them more) feet in height, as pretty specimens of the pyramid type as any one could wish to possess. They are bearing good crops of fine-looking large fruits, and also bore well last year. The trees are planted as a background to secure privacy for a certain portion of the garden, so that they are not only useful but profitable, and one can only wonder why more fruit trees are not planted where they would answer a double purpose.

Grapes and Peaches in the Same House.—In the garden at Impney Grapes and Peaches are grown in the same house; not because they have been planted years ago and been retained for any ornamental purpose, but because fine Grapes and Peaches can be grown, and well grown, in the same house. The houses at Impney are all new, constructed of iron, and are both light and substantial. The fact of there being no heavy rafters of course contributes much to the success of the Vines. The Peach trees are planted against the back wall and upon a trellis in front, and there is a single Vine planted between every two lights of the roof. The Peach trees have borne heavy crops, and the young Vines are bearing bunches from 3 to 6 lb. in weight. If such results are to be produced only for a few years, it is certainly a wrinkle in the way of making the best of new houses, many of which are kept half empty for the first three or four years of their existence. A sketch of one of these houses will be found in a recent number of the *Florist and Pomologist.*

Flower of Kent Apple.—Those who care for quantity of Apples instead of size, should plant extensively of the above variety, which is a wonderful cropper, and, what is better, a certain cropper also. In the gardens at Witley Court the trees have to be supported, so great is the weight of fruit borne upon each tree. There seems to be no lack of free-bearing varieties of Apples to suit all climates and localities, as well as consumers, whose tastes and opinions differ as much as the Apples vary in size and quality in different soils and situations.

The Large Vine at Speddock.—At Speddock, near Dumfries, there is a very remarkable specimen of the Black Hamburgh Vine. It is distinguished for its size, but not more so than for the splendid Grapes it bears annually. As far as we are aware, it has no equal in this country, if its size and the quality of its produce are considered. The Vine at Hampton Court, as well as those at Cumberland Lodge and Finchley, are all larger, but the produce of these is not so fine as that of the Speddock Vine. This Vine is about eighty years old, and until a few years ago it occupied a much smaller vinery than the one it has now nearly filled, and which is something over 60 feet long and 20 feet wide, with a lofty back wall, and consequently a long rafter. The Vine is planted at the extreme east end of the house, so that its growth is entirely to the west. Last year it bore 600 lb. of Grapes of superb quality both as to size and finish. This year it has fully 700 lb., every bunch from end to end and top to bottom being a model one; and while some are quite 3 lb. weight, they will average at least 2 lb. each. They are large in berry, conical in shape, and jet black. Mr. Smith, who manages all his Vines in four vineries with great care and skill, wings all the bunches, so that they are all remarkably uniform in shape. This grand Vine is in a most vigorous condition, and if the vinery were added to 60 feet to the east, it would soon fill it all; but the nature of the ground prevents extension in that direction. *The Gardener.*

American Peaches.—We learn from an interesting pamphlet on the *Garden Farm Lands of the Peninsula*, that from the best information obtainable there are about 5,000,000 Peach trees of all ages between the Delaware and Chesapeake, and the Brandywine and Cape Charles. These trees cover 50,000 acres of the best and most productive land enough to make 500 farms of 100 acres each. Represented in money, there is an aggregate invested capital of 2,750,000 dols. From the official reports there were shipped in 1871, by rail, 2,456,876 baskets; by water, the number is estimated at 543,124 baskets; making an aggregate of 3,000,000 baskets. But all the Peaches are not exported. Many are canned and dried. So far as known, there are six canneries in Delaware, and perhaps as many in Maryland, turning out over 1,000,000 cans of fruit.

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 236.)

32. MASDEVALLIA FASCIATA, Rchb. f., *Gard. Chron.*, n.s., xv., p. 202.—Colombia, Schmidtchen. Introduced for Mr. Sander.

33. M. FLORIBUNDA, Lindl., *Bot. Reg.* 1843, Misc., 112; Rchb. f., *Gard. Chron.*, n.s., viii., p. 616; *M. Galeottiana*, A. Rich. and Gal., *Ann. Sc. Nat.* 1845, p. 17; *M. myriosigma*, E. Morr., *Belg. Hort.* 1873, pp. 359, 361, 384, with a figure.—Mexico. Cultivated by Mr. J. Rogers, Sevenoaks, in 1843.

34. M. GARGANTUA, Rchb. f., *Gard. Chron.*, n.s., vi., p. 516.—New Grenada, Wallis. Introduced for Messrs. Veitch, with whom it flowered in 1876. "Flowers leather-yellow, the inferior part of the tube light, sordid velvet-purple, with three pale whitish stripes on each side; about two-fifths of the size of those of M. elephanticeps."

35. M. GIBBEROSA, Rchb. f., *Gard. Chron.*, n.s., v., p. 8.—New Grenada, Wallis. Introduced for Messrs. Veitch, with whom it flowered in 1876. Flowers inconspicuous. Hort. Kew.

36. M. GRACILENTA, Rchb. f., *Gard. Chron.*, n.s., iv., p 98.—Costa Rica, Endres. Produced flowers in the gardens of Messrs. Veitch, and in the Hamburg Botanic Garden in 1875. Flowers blackish-purple, very much like those of Pleurothallis atropurpurea, though only half as large.

37. M. GUSTAVI, Rchb. f., *Gard. Chron.*, n.s., iii., p. 461.—New Grenada, Gustav Wallis, Shuttleworth.

38. M. HARRYANA, Rchb. f., *Gard. Chron.* 1871, p. 1421: *Flor. and Pomol.* 1873, p. 169, with a coloured figure; *Gard. Chron.*, n.s., ii., p. 488; *Belg. Hort.* 1873, t. 21; *M. Lindeni*, var. *Harryana*, *Ill. Hort.*, série 3, t. 142; *M. Lindeni*, *Bot. Mag.*, t. 5990 (*fide* Rchb. f.); *Fl. des Serres*, t. 2250.—New Grenada. The original of this species flowered in Messrs. Veitch's establishment in 1871. It differs from M. Lindeni in having a yellow instead of a white tube, and is probably a variety of the same species. There is a figure in the *Floral Magazine*, t. 555, bearing this name, with a green tube. Hort. Kew.

Var. LÆTA, Rchb. f., *Gard. Chron.*, n.s., xi., p. 716.—A rosy-purple variety, cultivated by Sir Trevor Lawrence in 1879.

Var. VERSICOLOR, Moore, *Gard. Chron.*, n.s., xvi., 306.

39. M. HENDERSONI, Henderson's Catalogue.—Cultivated by Henderson & Son. I find no deserip- of this plant.

40. M. HETEROPTERA, Rchb. f., *Gard. Chron.*, n.s., iii., p. 590.—New Grenada, Patin. First flowered in the garden of Rev. J. B. Norman, Edgware, in 1875. An inconspicuous species, remarkable in the upper sepal being quite different from the lateral ones.

41. M. HIANS, Lind. et Rchb. f., *Bonplandia*, ii., p. 283; Walp. *Ann.*, vi., p. 189; *Gard. Chron.* 1871, p. 1421.—New Grenada, at 6000 feet. Wagener.

42. M. HOUTTEANA, Rchb. f., *Gard. Chron.*, n.s., ii., p. 98; *Flore des Serres*, t. 2106.—New Grenada, 6000 to 10,000 feet; Patin, Lalinde. This has long narrow leaves and solitary flowers on short stalks. The latter are white, spotted with crimson, and have thick crimson tails.

43. M. HYPODISCUS, Rchb. f., *Gard. Chron.*, n.s., x., p. 234.—Habitat not recorded. Collected by F. C. Lehmann for Stuart Low, in whose garden it flowered in 1878. A handsome species, allied to M. gracilenta, but having much larger purplish-violet flowers.

44. M. IGNEA, Rchb. f., *Gard. Chron.* 1871, p. 1482; 1872, p. 545; 1873, p. 1079; *Bot. Mag.*, t. 5962; *Flor. and Pomol.* 1873, p. 169, with a coloured figure; *Ill. Hort.* série 3, t. 333 (fig. 57).—New Grenada. Sold in Stevens' Rooms in 1870. A very handsome species of the ecaudate group, with orange-scarlet flowers of great brilliancy.

FIG. 57.—MASDEVALLIA IGNEA: FLOWERS ORANGE-SCARLET.

Var. BODDŒRTII, Lind., *Ill. Hort.*, série 3, t. 357.—Flowers yellow and rose.

Var. MARSHALLIANA, Rchb. f., *Gard. Chron.* 1872, p. 571.—A yellowish variety, cultivated by Mr. W. Marshall, of Clay Hill, Enfield.

Var. STOBARTIANA, Rchb. f., *Gard. Chron.*, n.s., xv., p. 136.—A fine variety, cultivated by Mr. W. C. Stobart, Leeds, in 1881.

45. M. INÆQUALIS, Rchb. f., *Gard. Chron.*, n.s., i., p. 372.—New Grenada. Collected by Patin for Mr. Williams. Inconspicuous whitish flowers.

46. M. INFRACTA, Lindl., *Gen. and Sp. Orch.*, p. 193; *Gard. Chron.* 1871, p. 1422; *Belg. Hort.* 1873, p. 357, t. 22; *Gard. Chron.*, n.s., ii., p. 488; *Flore des Serres*, t. 2389; *M. longicaudata*, Lemaire, *Ill. Hort.* 1868, misc., p. 109, with a figure.—Organ Mountains, Brazil, Lamarche. Flowers whitish, dotted with brown, and furnished with yellow tails.

47. M. IONOCHARIS, Rchb. f., *Gard. Chron.*, n.s., iv., p. 388; *Bot. Mag.*, t. 6262.—Peru. Collected by Mr. Davis for Messrs. Veitch, in whose establishment it flowered in 1875. Flowers whitish-yellow, blotched and dotted with violet. Near M. Estradæ, but having shorter tails, &c. Hort. Kew.

48. M. KLABOCHORUM, Rchb. f., *Gard. Chron.*, n.s., v., p. 720.—Western South America, the brothers Klaboeh. "Flowers white inside, blackish-grey outside; tails, petals, lip, and column yellow." I have found no record of its having flowered in Europe. *W. B. Hemsley.*

(*To be continued*)

CUCUMBER GROWING AT THE PRESCOT NURSERY.

If a good reputation were always indispensable to favour, it would be hard to see how Cucumbers could ever have been held in much estimation. But much as they have been condemned by the doctors [?], they still are liked and used by far the greater number of people, and their use is ever on the increase. Consequent upon the short, indifferent summers we have had of late, outdoor Cucumbers have been of little account, and through this the demand for such as are cultivated under glass has not so far been interfered with, and the price has been fairly maintained through the autumn. There is at all times of the year, to some extent, a demand for them, but during the autumn and winter they are not nearly so much in request. Even if they could be grown and sold at the same prices in the winter as in the summer, when the sun plays such an important part in their cultivation, it is doubtful if so many people would care to have them, except those who seem to possess a natural craving for that which is scarce and out of season.

In the manufacturing districts the quantities that are consumed is all but incalculable, as also of the Onions and vinegar that go with them. Mr. Whitaker, the present proprietor of the Prescot Nursery, did not begin life as a nurseryman or a Cucumber grower, but, like a good many other individuals who have gone largely into the cultivation of some speciality or other, only commenced in a small way, growing them for a sort of hobby, such as not a few men in Lancashire have done and still continue to do with different kinds of plants. His first attempt was on a limited scale, which gradually got bigger, until, after one or two removes for increased room, he ultimately obtained his present place, and turned most of the houses then existing, and many since erected, to the growth of the succulent Cucurbit. The houses are span-roofed, and stand in a position where they get every ray of sun. Only one house, some 80 feet by 15, is kept bearing through the winter, at which time there is little demand and a good deal of cost in production even in a locality like this, where coal is near at hand. The house is about 8 feet high from floor to ridge, with four rows of 4-inch pipes for top-heat and one under the beds, which occupy each side of the house; this is the only house in which a second lot of plants are put in to replace the first that come into bearing. There are four more houses in this block similar in size and general character to the one described.

The next lot of houses are seven in number; each 150 feet long; then comes another group of six, five of which are 50 feet and one 150 feet long: these houses are nearly all of a width, and similar in height to that previously instanced. In addition to these another—600 feet long—was built last year, and has been in use the present season. It does not take long to pen the dimensions of such a number of long houses as these, but it takes a little time to think about the materials used, such as soil for making the beds and top-dressing, and the water daily required to support a crop so thirsty as that under notice. To meet the water requirements of the very long house the main land drain from a considerable extent of adjoining land has been brought into the house, so as to keep three large tanks that are sunk below the floor at intervals filled. A tramway is laid the whole length down the middle of the floor; on this is placed a low four-wheeled truck carrying a tank that holds a ton weight of water, which requires to be three times filled for a single watering: the same contrivance is used for bringing in soil, manure, &c., and also for carrying the Cucumbers as they are cut. The establishment produces an average of from 3 to 4 tons per week through the best part of the season. The sort grown is a nearly smooth one raised by Mr. Whitaker, that runs about 16 inches long and is very prolific.

The houses have no side-lights or shutters for the admission of air, simply consisting of brick walls and glazed roofs, which are fixed and immovable from end to end. There has been no small amount of discussion on the principles of different methods of ventilating plant-houses, in addition to the volumes that in some shape or other have been written on the subject, but Mr. Whitaker, after a good many years' experience, has, so far as his own practice is concerned, cut the matter short by doing away with it altogether, for except at the single door with which

each house is provided at one end there is no means of letting the external air in or the internal air out. True, the glazing is not quite so tight as when the glass is put in in the usual way, for here the method is to run a narrow groove in each sash-bar that will just admit the glass without any laps, the squares being simply slipped in from the top and abutting each other, but the whole is so tight that with no more than ordinary pitch to the roof there is no drip. Under these conditions there is no difficulty in coming to the conclusion that the houses will have been pretty hot during such weather as we have had in the past July; but an opportunity of seeing the plants a week or two after enables me to say that the whole were perfectly healthy. Mr. Whitaker attributes the absence of red-spider to the non-admission of air. It looks like a complete contradiction to preconceived notions, but there the facts are to be seen as well as the result.

Thousands of Chrysanthemums are annually propagated and planted out in prepared beds during the summer, and in the autumn after the Cucumbers are cleared out they are taken up and put in closely on the beds and floors of the houses. These are followed by Rhubarb, which is thus forced. *T. E.*

Orchid Notes.

ORCHIDS IN FLOWER AT MESSRS. VEITCH'S.—The following Orchids are now in flower at Messrs. Veitch's:—Phalænopsis violacea (new), a free grower, after the type of Phalænopsis Lüddemanniana; Epidendrum Wallisii, Odontoglossum Roezlii and Roezlii album, Dendrobium philippinense, in a small basket, quite a show; Saccolabium Blumei, Vanda suavis, and the beautiful Cattleya Dowiana; also Lælia elegans and Cattleya Eldorado, a sweet-scented variety; Phaius grandiflora, Dendrobium formosum, and Cypripedium Pearcei, a species from Peru.

DENDROBIUM INFUNDIBULUM and JAMESIANUM.

The Dendrobes of the nigro-hirsute section, of which the two above-named are conspicuous examples, have the credit of being difficult to grow. The fact is, they grow freely enough when they get the conditions they require. They are closely allied to D. formosum, but require cooler treatment, and the rock on which many growers have been wrecked seems to be this, that they have treated them as they have done the latter species. Now D. formosum requires resting in a temperature not lower than 55°, and to be kept with the warm-house Orchids during the growing season; while D. infundibulum and D. Jamesianum require to be kept constantly in the coolest and dampest house; thus treated they grow vigorously and flower with the greatest freedom. These two reported species are no doubt varieties of the same type, the chief difference between them being that infundibulum has the spot at the base of the lip yellow, while in D. Jamesianum it is of a bright cinnabar-red. Both are very lovely Orchids, and their large white flowers endure for several weeks in full beauty. The flowers of D. formosum are very similar in character, but, unlike those of the sorts above-named, soon become spotted and lose their beauty if kept in a cool damp atmosphere. *T. M.*

SOBRALIA MACRANTHA.

A fine specimen of this grand Orchid is now in flower at Enville Hall, Staffordshire. The plant is over 4 feet across, and is the picture of health and flowering profusely. Orchid growers need not be told what a fine plant this is for a collection, or of the tone and character which a plant of it in flower gives to a group when staged for exhibition. Its flowers are equal in point of beauty to many Cattleyas, and the habit of the plant is something so distinct among Orchids that it is a real pleasure to find one or two good specimens of it in a private collection.

STANHOPEA GRANDIFLORA.

The present species is now flowering nicely at Kew, and is a singularly handsome member of a very showy and interesting genus. It has large wavy white fragrant flowers, and seems to be quite a rare plant in Orchid collections. Some years ago it was sent to the Royal Gardens from Trinidad under the name of S. venusta.

MASDEVALLIA HARRYANA VERSICOLOR.

This very fine variety of M. Harryana was obtained amongst the original importations of that species made by Messrs. Veitch and Sons, and passed with others of the same batch into the hands of Mr. Stevens, of Trentham. In habit of growth, stature, and size of flower, it resembles the best forms of the species, but differs remarkably in the colouring of the flowers. The eye, as usual, is yellow; the narrow dorsal sepal is of a pale magenta colour, and the two broader lateral sepals are marked in a varying manner with rich intense maroon-crimson, or blood colour, on the usual deep bright magenta of the type. Sometimes the deep rich sanguineous or crimson blotching forms a conspicuous band along each of the outer margins, while in other cases the inferior margins are marked with this colour, so that a crimson blotch is formed just below the eye. No two flowers are marked exactly alike, but in all cases the contrast of colour is striking and effective. It is, in fact, a very beautiful variety of one of the finest of all the Masdevallias yet introduced to our gardens. A plant or two of it may be looked for at Stevens' Rooms shortly. The colour of the deep crimson blotches in this variety is the same, or nearly the same, as that which pervades the whole flower in the richly tinted form known as the "bull's-blood," variety, but in the case of the versicolor variety the presence of the two colours in the flower adds another element of beauty. *T. M.*

RENANTHERA LOWII.

Professor Asa Gray paid a visit with me to Mr. Williams' nursery a short time since, and we were amply rewarded by seeing the magnificent flowering specimen of this plant (which I am informed is the same as that upon which *Bot. Mag.* 5475 was founded) in the greatest perfection. The writer in the *Gardeners' Chronicle* (vol. xvi., p. 108) apparently accepts the theory that Renanthera Lowii affords a case of sexual dimorphism in the flowers, and speaks of the two yellow ones which are said to be always produced at the base of the spikes as female, and the remaining brown-spotted flowers as male. A recent writer, however, in the *Journal of Horticulture* (Aug. 4, 1881, p. 110) mentions that "an eminent authority, having subjected the flowers to a careful examination, states that there is no appreciable difference in the structure of the two sets of flowers," and Mr. Darwin, in the second edition of his work on the *Fertilisation of Orchids* (1877), makes no reference of any kind to Renanthera Lowii—on the contrary, he expressly states (p. 207) that, with the exception of Catasetum and Cycnoches, "the separation of the sexes is unknown amongst other Orchids." The present case may, however, have eluded his notice or his attention may not have been drawn to it.

Besides the striking difference in colour the writer in the *Journal of Horticulture* mentions that the yellow basal flowers differ from the rest in having "a much stronger and more pleasant odour." As he remarks, "this may have some bearing on the subject," and it would certainly look as if the gayer colour and stronger scent were intended as direct invitations to the visits of insects pollen-laden from the other flowers. My object in writing this note is the hope that it may catch the eye of some one in the East who has more frequent opportunities under more natural conditions than we possess in this country of watching the plant in flower. It would be interesting to learn whether the yellow or brown-spotted flowers produce capsules; or, if both do, which are most frequently fertilised.

I may add here that in 1873 Mr. R. Jamie wrote to Kew from Singapore to say that he had imported from Borneo a number of plants of Renanthera Lowii, and after describing the treatment he gave them he proceeded:—"Before showing any signs of recovering themselves all the large living plants flowered. One large plant had *three* entirely distinct forms of flowers on the same spike." This would incline one to believe that Renanthera Lowii really affords a complete parallel to what occurs in Catasetum. The yellow female flowers would correspond to Monachanthus viridis, the male brown-spotted to Catasetum tridentatum, and Mr. Jamie's third form to the hermaphrodite Myanthus barbatus. Mr. Jamie very generously sent us this interesting plant; but though it reached Kew alive, it did not eventually survive the effect of its travels. *W. T. Thiselton Dyer.*

WORK IN THE HOUSES.

The work in this department is at the present time mostly of a routine character, one day's treatment being so much like the one that has preceded that but little change will need to be given. It is, however, very essential that the work that is done should be performed with care and judgment, with a quick eye to discern any change in the appearance of the plants that may not be of a satisfactory character. The daily round of watering, syringing, ventilating, and shading when necessary must still be attended to.

It will now be a much more pleasant and easy task to manage the Odontoglossum-house, for during the intense heat of mid-summer, in most cases accompanied by strong sunlight, and of necessity a dry state of the atmosphere, it cannot be said that plants of this class always progress as well as may be desired. Do what we will yellow thrips will put in an appearance, leaves turn yellow, and some have a sickly hue upon them; this perhaps is not so hurtful as we may imagine, but from the present time onward during the autumn and early winter the growths push up very freely, of a good colour, and the plants regain their wonted healthy appearance again. These must have good supplies of water, and occasionally a sprinkling overhead will be beneficial. Oncidium macranthum, now in many cases in flower, must be watched to see if the lengthened spike is robbing the plant of its strength, and causing the flowering bulb and the one preceding it to shrivel. If such is the case, cut off the spike and push the end into the soil, it will there keep fresh for a week or ten days longer, and the plant will have an opportunity of plumping up its bulbs before it commences to break again. It is not wise to let the spikes remain on until the flowers fade and fall off; for the length of time the spike is in forming, then the development of the buds, and the perfecting and retaining of the flowers, will often be from four to six months, and unless the plant is unusually strong and making a new shoot—as it will sometimes do whilst the spike is growing—the probability is that the enfeebled state the plant will get into will be such, that twelve or eighteen months may elapse before anything like the same vigour is observable in it; and so, instead of a spike being produced every year, it may happen that two years or more will run round ere another spike will appear, and then probably it will be of diminished strength. The same remarks may be applied to such species as O. serratum, æmulum, O. zebrinum, &c. *W. Swan, Fallowfield.*

Garden Operations.

FLOWER GARDEN.

PICKING-OVER OF FLOWER BEDS.—The variableness of our climate sorely puzzles those who undertake to give hints as to work required to be done at certain seasons. For instance, a month ago in these parts the ground was parched for want of rain: now we have had it so abundantly that nearly all kinds of vegetation is suffering from it, and nothing in the garden more so than the floral parts of it; indeed, Violas, Pansies, Ageratums, and Heliotropes excepted, there are literally no flowers but what have been "washed out" by the heavy rains. Therefore whatever may be the prevailing character of the weather for the next week or two, the work required to be done will to a certainty be the picking off of bad flowers and foliage, and this, combined with a few days of dry warm weather, will conduce to the production of another crop of flowers. When the flower beds have got so washed out as at present is the case, one has sometimes noted the disposition there is to let the worst happen and continue—that is, no steps are taken to mend matters—a procedure much to be reprobated, for oftener than not such labour is well repaid by a second full display of flower; and even if it were not, one has the satisfaction of enjoying a neat if flowerless bed; therefore pick and repick, cut edges, and keep turf well swept and rolled. The beds that have been planted with succulents and bright-leaved plants for foliage effect only are as bright as before the rain, and were it not for variety's sake, and the affection that all have for flowers, one would be disposed to advocate for parterre planting the use of these alone. The most brilliant beds here at the present time (Aug. 30) are made up of the following plants:—Sedum glaucum, S. Lydium, and S. acre elegans; Saxifraga rosularis, S. hirta, and S. hypnoides; Mesembryanthemum cordifolium variegatum, Pyrethrum Golden Feather, Veronica incana, Gnaphalium lanatum, Herniaria glabra, Sempervivum calcareum and S. montanum, and the tall growing greenhouse kinds as "dot" plants; Echeveria glauca and E. secunda glauca for marginal lines, and the larger growing kinds for "dot" plants; a few Alternantheras, Coleus, and Iresine, together with a few of the brighter coloured

Pelargoniums, such as Sophie Dumaresque Mrs. Laing, Flower of Spring, Lady Plymouth, and Rev. W. F. Radclyffe.

Propagation.—All Pelargonium cuttings should by this time be in, any that are still to be propagated should be put in boxes or pots at once, and be left to winter in the same; they will strike best if fully exposed to the sun, but it will be necessary to take steps to prevent them from getting saturated with water. The softer wooded and more tender plants that are being struck in frames will need daily examination, to remove all decaying leaves that are likely to engender damp or mildew. Pansies, Violas, and Calceolarias should also now be propagated—cold frames are the handiest contrivances in which to strike and winter these Cuttings of tender kinds should be got in at once—bottom-heat is necessary to a successful strike of this class of plants. Where winter quarters are of a restricted nature, not more should be struck than will ensure a good supply of cuttings in the spring, a dozen pots of each of the more tender kinds will generally be found ample for the production of abundance of spring cuttings. Most kinds of succulents are most readily increased by offsets, they strike freely in a moderately dry soil and a temperature of 50°—no bottom-heat necessary. Some kinds reproduce themselves from seeds, which may be sown now, and be grown on and kept in a temperate-house throughout the winter. Offsets of Echeveria secunda, Sempervivum montanum and S. calcareum, will winter well on a south border, or at the foot of walls, or built up against the front walls of pits and frames; damp rather than frost is their greatest destroyer. The best of the other bedding succulents are Sempervivum arboreum variegatum, S. tabulæforme, Echeveria secunda glauca, and E. metallica: Aloes, Agaves, Yuccas, Phormiums, Dracænas, &c., are all appropriate for intermixing with succulents, and their propagation should be seen to forthwith.

Rockwork, Fernery, and Mixed Borders.—Weeding and the removing of dead and seeding flowers is the order of the day here; many rock plants have grown amazingly since the rain, and if new rockwork is in progress or contemplation plants can well be spared wherewith to furnish it. Many Ferns already begin to look weedy, and should have the rusty fronds cut off, and be kept clear of the rampant growth of the common Bracken. In herbaceous borders tie up Phloxes, Solidagos, Asters, and all other tall growers, and fill in vacant spots with annuals to stand the winter, or by planting the old bulbs of Hyacinths, Tulips, and Crocus that were forced last year.

Roses and Climbers.—Roses have benefited by the rains, and there is a prospect of a fine second bloom. Keep standards tied to supports, remove suckers, and keep the headsevenly formed by cutting back any strong shoot that is taking the lead. Those newly budded should have the ties loosened, if not entirely removed, and any shoots produced by stocks should be rubbed off as soon as perceived. Climbing Roses, Clematises, Wistarias, and the like, should all be kept neatly trained to trellises or walls; a good training-in now will last throughout the season. Ivy that has not as yet got a firm grip of the wall should have the leading shoots tacked; this done the lateral shoots are sure to cling naturally to the wall, and no more training will be necessary. *W. Wildsmith, Heckfield, Hants.*

KITCHEN GARDEN.

Cardoons.—Take advantage of fine weather when the plants are dry to get the earliest planted earthed-up. This is done by bringing the leaves carefully into an upright position, in which they should be held by one person while another fastens the hay-bands—of which a sufficient number for the row has been previously well twisted—round the bottom of the plant, winding away until the whole of the stalk is bound round, and the end of the rope secured; the stalks should be brought closely together, but not too much compressed. Proceed in this way until the row of plants is finished, and then earth-up till the bands are covered with the soil, which should be pressed tightly round the plant at the top, to exclude air and moisture as effectually as possible, and in like manner proceed with the remaining trenches until all are finished.

Autumn Cabbage Planting.—Assuming that the ground from which the spring-sown Onions have been removed has been manured and trenched, as recommended in our last Calendar, the plants which have been raised from seed sown on July 25 and subsequently pricked out in nursery beds, will now be ready for planting in drills 3 inches deep, 2 feet apart, and the same distance between the plants in the row. The plants in each succeeding row should be planted anglewise; and when the ground is moist, before drawing the drills it will be necessary to tread the ground a foot wide immediately under the line, and to re-strain the latter before proceeding with the former operation, as it is advisable to have the ground moderately firm before the plants are put in, the soil being also well pressed round the plants with the dibber when being planted. After this, the Cabbage maggots, which are sometimes very destructive to the roots and base of the stems by eating passages in them which causes them to rot in consequence, must be looked after and destroyed, and the blanks thereby caused made good from the nursery-beds. The whereabouts of these insect enemies is generally indicated by the plants becoming flabby and sickly looking. We confine ourselves to two varieties of Cabbage, Wheeler's Imperial and a selected variety of our own, the individual heads of the latter frequently weighing from 15 lb. to 20 b., and of these varieties we alternately save a small quantity of seed annually, always selecting plants which produce the finest and best-shaped heads for that purpose by putting a stick to the selected plants lest the heads should be cut. Now will also be a good time to make a planting of red or pickling Cabbage; when this is sown and planted at the same time as the Cabbages in the autumn of the preceding year, the heads become much larger and finer than those obtained from plants raised in heat in the beginning of the current year.

Ordinary Work.—Where a sufficient breadth of Parsley for winter and spring use was not sown as recommended in your issue of July 23, now will be a good time to supplement the sowing then made by transplanting an adequate quantity of young plants therefrom. From sowings of Endive made on July 25 make good plantings under south and west walls, as also on warm borders; 1 foot apart for the curled varieties, and 15 inches each way, will be none too much for the Batavian varieties, which, being stronger growers, require more room to develope their growth. In the event of dry weather (which is much needed) at the time of planting, the plants should be watered, and this repeated until they have established themselves. Plants sufficiently advanced for blanching should be tied up forthwith. Thin out the plants for winter Spinach to 6 or 9 inches in the rows and Dutch-hoe between the latter, and where the crop has not already been sown no time should be lost in doing so, and in this case it will be advisable to steep the seeds for four or five hours before sowing, in order that they may germinate more speedily. Make successional plantings of Lettuce in warm situations, and tie up plants as they become fit for blanching. Cut down the old stems of Globe Artichokes, and attend to the thinning, stopping, and nailing of Tomatos out-of-doors, so as to prevent overcrowding of the leaves and shoots, and the breaking of the latter by the wind. Provision should now be made for protecting the latest sowing of French Beans from the effects of early frosts, by constructing a temporary framework, and covering at night with mats or old sashes when the sky indicates the approach of frost.

Forcing Department.—A batch of French Beans should now, if not already done, be sown in pots for use in November. The pots should be only half filled with soil, which should be of a rich though somewhat light description, to allow of the young plants being subsequently earthed-up to the rims of the pots. *H. W. Ward, Longford Castle.*

FRUIT HOUSES.

Peaches and Nectarines.—Early houses from which the sashes have been removed (as directed in a former Calendar) will have derived great benefit from the recent heavy rains, and pretty well completed their growth. Such trees as it may be desirable to move, or that require root-pruning, may be attended to any time in September, or early in October. Put some fresh fibry loam about the roots, and keep them well up to the surface. I consider this work is always best done before the trees lose their leaves. The present is a good time for selecting trees from the nurseries, and as to varieties, as a rule I stick to the old ones. Some of the new ones are doubtless very fine, but lack flavour. I find Hale's Early is one of the earliest and best of them, but it is very tender-skinned, and requires careful handling in packing. Stirling Castle is one of the best we grow here—a sure cropper, and good in all points. Equally good are Grosse Mignonne, Violette Hâtive, Royal George, Bellegarde, Noblesse, Barrington, Téton de Venus, and Walburton Admirable. Raymacker is a nice-looking Peach and a free cropper. Princess of Wales is a fine-looking, handsome fruit, but worthless as regards flavour. Sea Eagle will be a great acquisition as a late Peach, being very handsome, large, and good in flavour. Of Nectarines Lord Napier is the earliest and best; Hunt's Tawny is early and good, but rather small; Elruge, Violette Hâtive, Pine-apple, Pitmaston Orange, Downton Impératrice, and Victoria are all good, and no one can do wrong in planting them for indoor work. If we have a continuance of dull, wet weather, succession-houses from which the fruit is gathered may have a little fire-heat put on, with the ventilators still left open night and day; it will assist them in ripening their wood, for we have had very little sun to do it the last fortnight. Bring on or retard late houses as they are required. *J. Wallis, Keele Gardens.*

Melons.

In a general way it is a pity that Melons are not more extensively cultivated during the autumn. It is not because they are so difficult to grow that they are found in so few gardens after September, but because there is an existing prejudice that the quality is inferior after a certain date. It is, of course, impossible to secure the same flavour in fruits in November that is obtained two months earlier in the season; but relatively very fair flavoured fruits can be produced up to the end of November. When I write thus hopefully I am assuming that there are average facilities for bringing forward such crops, and that cultivators will make some allowance for the weather. There are some who affirm that success hinges entirely upon the weather about the time the fruits are ripening. Of course solar heat is indispensable in securing flavour, but at the same time there are other elements which play an important part in keeping the plants in good health, without which it is impossible to have fruits worth sending to table. When I was at Otterspool, the earliest and latest crops were more prized than those that came in naturally and required little or no skill to bring them forward. I always found in dealing with late crops (for they are more critical to manage than early ones) that the plants that received most attention during the months of September and October invariably turned out the best in November. Plants that droop and hang their leaves after a period of sharp weather are those that have been kept in a close moist atmosphere during the earlier stages of their growth, and are soft in tissue and substance, and liable to disease from various sources; but in reality the main cause is want of constitution. Plants that are soft in the rind and feeble in constitution are often attacked with damping at the base of the stem as if they were suffering from some inherent disease. Now is the time to obviate these unhealthy symptoms by keeping up a uniformly dry atmosphere warmed to a mean of 70°. Give abundance of air, taking care that the plants do not suffer from a sudden fall of temperature. Plants should make short-jointed growth, have moderate-sized leaves, thick to the touch, and have no more water supplied to their roots than is absolutely necessary to sustain them in good health. I have in a previous chapter recommended the use of small bodies of earth for late crops, so that the growth made as the bines lengthen will be stocky and firm in texture. When the plants are syringed overhead it should be done early in the afternoon, so that the leaves will not be saturated with moisture during the night, and in dull weather syringing should be discontinued altogether. Plants that are ripening off their fruits will require careful management in dull weather. No water should be given to the roots except what is sufficient to keep the foliage erect, and a dry atmosphere is essential both night and day while the fruits are colouring. *W. Hinds.*

Cucumbers.

Taken at an average the best supply of winter Cucumbers is obtained when planting is performed about the first week in September. In former Calendars I have endeavoured to discuss the question in order that general information might be gathered from the remarks which I then made. In large establishments where two or more houses are planted, it is a simple matter to commence planting early enough, and to keep on planting as long as there is any hope of obtaining a crop. But in small places, where there is but one house for Cucumber growing in winter, the best has to be made of the circumstances, which are frequently not of the most hopeful description. In many instances a crop of Melons, or some other crop, has to be ripened before the plants can be finally planted out, and this, to say the least of it, is not a happy arrangement. In case anything has interfered with arrangements to impede final planting out, the safest way will be to give the plants a shift into a large pot, and to keep them growing on in order not to lose time. If a mild autumn should succeed the present sunless period we are passing through, plants that are intended for late fruiting would very likely come in useful about Christmas. In any case where space is of no particular object it is a safe plan to make a planting about the first week in October, and these should be kept barely moving through the winter, and at the turn of the year they would rush along under skilful treatment, and would be a most useful as well as profitable crop in February—the worst month in the whole year for producing Cucumbers in quantity. Plants that have been planted for early winter fruiting should be encouraged by generous treatment, which amounts to regular attention to watering, mulching the roots to keep them on the surface, and syringing early in the afternoon of bright days. Give air freely, and let the atmosphere of the house be kept on the dry side in dull weather. Plants in bearing will now require an increase of temperature to induce fresh growth, and a proportionate increase of fruit. *W. Hinds.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 5	Special Trade Sale of Dutch Bulbs, at the Auction Mart, by Protheroe & Morris.
WEDNESDAY,	Sept. 7	Floral Fête at Bath (two days). Royal Caledonian Horticultural Society's Show (two days). Glasgow and West of Scotland Horticultural Society's Show (two days).
THURSDAY,	Sept. 8	Royal Horticultural Society of Ireland's Autumn Show. Flower Show in Rothamstead Park.

WE have read of many marvellous things in the vegetable kingdom that we have not seen. Thus, soon after the earlier experiments with carnivorous plants, a wag described a very ferocious carnivorous tree, the home of which he imagined in Madagascar. To approach this tree was certain death, for it would stretch out its branches, grasp the unfortunate wight, and, closing down over him, absorb him as a sea-Anemone does its prey. This was written to provoke a laugh, and possibly, too, in ridicule of the theory that any plants are capable of feeding on animal matter. But what shall we say of a BONE TREE that by some mysterious means picks up bones and bedecks itself therewith—a tree that is capable of clearing away the bones left from the traveller's luncheon? Yet, on the testimony of Lieutenant DE HOGHTON, in a recent communication to the *Standard*, such a tree actually exists, or did exist a short time ago; and should, for instance, a too confiding itinerant bone-merchant be passing that way and place his barrow beneath its shade in order to indulge in sweet slumber, he might, on awaking, find that his bones had been filched and were bleaching on the tips of the branches of this remarkable tree! A learned botanical author has written a little book entitled, *How Plants Behave:* what would he say, we wonder, to the behaviour of Lieutenant DE HOGHTON'S extraordinary tree? There seems to be no doubt that Lieutenant DE HOGHTON really believes what he has written, partly from what he himself saw, and partly from what a certain resident "white man" told him. Furthermore, he refers us to Mr. MOGG, of Plymouth, for confirmation of his statement. It would be interesting to have Mr. MOGG'S opinion on the subject, if only to ascertain whether there are two persons living in this nineteenth century who believe a tree capable of dealing in bones in the manner described. Bones make excellent manure; but this wholesale appropriation of bones does not appear to be connected with nutrition—it looks more like a playful trick contrived in order to surpass all previous performances by members of the vegetable kingdom. Or can the bones be those of some unfortunate who had got "up a tree" and failed to get down again? As for the "white man" in that remote island, we suspect him. On first reading Lieut. DE HOGHTON'S statement we were reminded of the passage in the narrative of TIM CLADPOLE'S adventures, where he declares his intention of going to the land "where dollar-trees do grow." However, assuming that "white man" innocent of all trickery, it is probable that the supposed bones were seed-vessels, and the tree bearing them a member of the Leguminosæ, or, maybe, of the Bignoniaceæ. We append Lieut. DE HOGHTON'S statement, so that our readers may judge whether we have done justice to his credulity. The name of his ship, the *Beagle*, recalls to mind another expedition in Southern waters, but then there was a naturalist on board.

"Whilst writing of Torres Straits, I should like to mention a somewhat curious tree I saw on one side of the islands there, which, though probably known to science, would, I think, be new to most of your readers. While lying in Her Majesty's schooner *Beagle* off the island in question, I was told by a white man, resident there, that there was a tree there which took bones up to its upper and all its branches; and, walking over one afternoon to see this tree, I certainly saw a large tree—I suppose quite 30 feet or more in height, with the extremities of all its branches and twigs covered with bones, apparently adhering to them.

"My informant told me that as the tree stood close outside some huts, they noticed that bones thrown under it were taken up (by, I believe, its leaves) in some way; so they always threw bones there afterwards, and the result was the tree was laden with them when I saw it. It was quite impossible they could have been placed there by human agency, I think, as many were on the extremes of too slender branches to bear any weight, and I have no reason to doubt the statements of the white men residing on the island, and should Mr. MOGG, of Plymouth, son of a warrant officer residing there, see this, I am sure he would confirm it."

—— HABROTHAMNUS FASCICULATUS.—This is a very ornamental greenhouse shrub, native of Mexico, very well adapted for a pillar plant in conservatories. Its surface is downy, the leaves ovate-acuminate, the orange-red flowers borne in tufts at the ends of the branches, as shown in our illustration (fig. 58). It was introduced from Mexico by Hartweg in 1845, but is not so common as its merits would justify. It does best planted out, but if grown in pots it should be in rich open soil, and liquid manure should be liberally applied during the growing season.

—— THE LATE EXHIBITION AT MANCHESTER.—We are pleased to hear from Mr. FINDLAY that on Saturday afternoon last the sun shone for a few hours, and 14,000 visitors entered the gardens. The total number of visitors to the exhibition during the four days was 40,000, but had the weather been fine there is no doubt the total would have been nearer 100,000. However, the Society is fortunate in this, that the subscriptions received will pay the expenses, so that the receipts at the gate will be all to the good. —A few errors crept into the necessarily hurriedly written report of this great show, published in our last number, which we take the earliest opportunity of correcting. Messrs. HALLIDAY & Co., of Middleton, were awarded the Society's Medal for the best collection as a whole of houses, boilers, valves, frames, &c., and not simply Highly Commended. Mr. JOHN SUTHERLAND, Lenzie, N.B., telegraphs to say that he obtained the 1st prizes for show and fancy Pansies; and Mr. GILBERT writes from Burghley, that we have given Mr. WALLIS, of Kirby Hall, York, the credit of showing the best twelve Apricots instead of him. Mr. JOHN HOUSE, of Peterborough, reminds us that we have omitted to mention that he took the 2d prize for the best-flavoured twelve Pears.

—— VICHY.—We learn that the Horticultural Society of the Allier propose to organise a great International Horticultural Exhibition and Botanical Congress at Vichy, from August 15 to 20, 1882. The co-operation of horticulturists of all nations is invited, and horticultural societies are requested to send delegates. M. DOUMET ADANSON is the President.

—— THE PELARGONIUM SOCIETY.—In the report of the committee for the year 1881 it is stated that the Society is in a thriving state, and owes its success to the steadfastness of its devotion to the cause in behalf of which it was established. It has become abundantly evident that special efforts and organizations are needed in certain special departments of floriculture to ensure full representation of important classes of flowers, as well as to promote their improvement and vindicate their position in the English garden. The exhibition held at South Kensington, June 28 and 29, was in every respect satisfactory, and in a few of the classes a great advance was manifested, while in others there was at least average excellence and spirited competition. It seems to be generally acknowledged that on this occasion double zonals were shown in finer condition than they have ever been at any previous public exhibition. The amount paid in prizes was £124 10*s.*, being £15 10*s.* in excess of the amount paid last year. The following particulars will illustrate the progress of the Society:—In 1875 the amount paid in prizes was £40; in 1876, £36 10*s.*; in 1877, £87 2*s.* 6*d.*; in 1878, £78 7*s.* 6*d.*; in 1879, £90 10*s.*; in 1880, £109; in 1881, £124 10*s.* The statement of accounts shows that the Treasurer has now a balance in hand of £41 9*s.* 1*d.* The critical inspection of seedling Pelargoniums and the awarding of certificates to varieties deemed worthy of formal approval are very important parts of the duties of the committee. On June 14, June 28, and July 12, certificates were awarded by judges appointed for the task.

—— EFFECTS OF GRAFTING.—At one of the late meetings of the Massachusetts Horticultural Society, Mr. STRONG, the chairman of the meeting, is reported to have said that "every nurseryman knows that the character of roots is changed, and that the roots of a row of Baldwin Apple trees in the nursery will be alike, and the roots of a row of Roxbury Russets will be alike, and will differ from those of the Baldwins. Each row can be told by its roots." Another speaker confirmed the Chairman's observation as to the "influence of the grafts on the roots of stocks. If part of the same lot of Pear stocks are grafted with Bartlett, and part with Onondaga, the two varieties can be distinguished by the roots." We should be glad to know from some of our nursery foremen and others whether they have noticed similar changes in the character of the root as a result of grafting.

—— A NEW CHINESE RHODODENDRON.—The *Journal of Botany* for August contains a description of a new Rhododendron, described by Dr. HANCE under the name of R. Henryi. The species is described as "extremely handsome," allied to R. barbatum. The flowers are lilac or pale rose coloured. It was discovered near a Buddhist temple, or, query, restaurant (*cœnobium*), on the North River, in the province of Canton.

—— FLOWERS IN SEASON.—Mr. WARE sends us flowers of his White Queen Dahlia, a single variety of great beauty, with pure flowers nearly 4 inches across; the ray-florets snow-white, broadly ovate, and of good substance, with a bright yellow disc. This is one of the flowers which will certainly help on the rising fancy for single Dahlias. Anemone japonica is sent to show how well it has withstood the pelting storms. Harpalium rigidum is quite one of the best of the yellow flowered autumn flowering Composites. Helianthus multiflorus, single and double, are handsome varieties for the shrubbery borders, bright and effective without the coarseness of the larger varieties. Helenium autumnale is another of the better autumn flowering Composites, and was figured by us at p. 725 vol. x. With these came flowers of Lilium tigrinum, speciosum album, L. Krætzeri, and L. elegans var. venustum.

—— DATE COFFEE.—We see the Ceylon planters are beginning to cry out against the so-called Date Coffee, and no wonder; but if people prefer ground Date stones to ground Coffee seeds, as they say they do, we do not see that Government can interfere further than to insist upon things being called by their right names. Date stones, as we believe, contain not an atom of the peculiar alkaloid on which the value of Coffee as food depends. One enthusiast—or is he a wag?—fired by the success of the Date Coffee, proposes to grind the Orange pips, which are as plentiful as Blackberries in Spain, into "Orange Pekoe"!

—— THE RICHMOND HORTICULTURAL SOCIETY.—We understand that Mr. EYLES, formerly Superintendent of the Royal Horticultural Society's Gardens, has been appointed to succeed Mr. CHANCELLOR as Secretary to this flourishing suburban society.

—— CINCHONA.—Many will remember the disputes as to whether this should be spelt Cinchona or Chinchona, and the almost universal agreement come to that the preferable and most expedient way is to spell the word as we have done at the head of this note. This point settled, then comes the question how to pronounce it. A Bolivian *cascarillero* says we should sound the *ch* as we do in "chick," not as if it were written *k*; but another writer in the *Tropical Agriculturist* says that in Castile the word is pronounced "Thinchona."

—— BRAZILIAN RUBIACEÆ.—The last part of the great *Flora Braziliensis*—the eighty-fourth—contains the tribes of the Rubiaceæ having solitary or germinate ovules, elaborated by Dr. J. MÜLLER, of Geneva. It consists of about 250 pages and 67 plates. Not much now remains to be done to complete the work, if we except the additions to the orders published long ago, some of which, on a revision, would show twice as many species.

—— AGAVE AMERICANA.—The very unusual spectacle of a couple of American Aloes in flower at the same time may now be seen at Richings Park, Colnbrook; and if any gardeners should desire to see these curious specimens Mr. AITKEN will give them a cordial welcome. This brace of unwonted inflorescence stand in tubs on the lawn, and are a worthy pair,

both being now some 25 feet in height, one having fully expanded flowers of bright yellow, whilst the other is evidently a few days later. It is believed that these Agaves are about seventy years of age.

—— Lagerströmia indica.—A plant of this somewhat rare stove evergreen is now in charming bloom in a cool-house at Richings Park, Colnbrook, the residence of Mrs. Meeking. It is indeed a beautiful thing, for the trusses or spikes are some 6 inches in length, and consist of numerous wondrously frilled rosy-pink flowers. The plant is hard-wooded, and bears in wood and leafage no inconsiderable resemblance to the Mock Orange. It strikes fairly freely from cuttings made from side-shoots put into a gentle bottom-heat in the spring. It seems also to possess the special merit of flowering twice; as Mr. Aitken, the gardener, mentioned that it bloomed freely in June, and that having cut the plant back when that was over, it broke again, producing blooming wood freely. It is no exaggeration to say that this elegant plant, when in good bloom, presents far more of merit than a score of Coleus and other greenhouse foliage plants can do.

—— Grafting.—Professor Budd says that in the Iowa College graft-room they graft not only Apple and Pear, but Plum, Cherry, Apricot, and Peach, successfully on seedling roots—preferring seedlings of the Miner Plum for the stone fruits—using it even for Cherries. They graft quite early in the winter, on roots stored in November, and then immediately plant or store them closely together in a bed of sand in a cellar with humid air, but with floor and sand never more than damp. Only the roots and the lower end of the scions are covered by the sand. For the stone fruits care is taken not to let the wax wrapping of the union of graft and stock be in actual contact with the bark. A light coat of moist clay is first applied over the cuts, and over that is closely wrapped a strip of muslin from a roll which has been soaked in a melted mixture of white rosin, linseed-oil, and a small quantity of Wheat flour. This is a rather novel recipe, dispensing with the generally-used beeswax. The flour is stirred into the hot mixture to prevent the hardening and drying of the cloth which should hermetically seal the wounds. The planting should be done very early, on the first practicable day, and the grafted roots must be kept entirely dormant, but entirely fresh, until planted.

—— "The Tropical Agriculturist."—The proprietors of the *Ceylon Observer* have issued the first number of a publication which it is proposed to issue monthly under the above title, and which is devoted to such subjects as the cultivation of Cinchona, Tea, Cacao, Liberian Coffee, India-rubber, Tobacco, Vanilla, Fig, Aloe, &c. The Ceylon planters are complaining against unfair competition on the part of the Government of India in sending bark to the London market under conditions as to capital, &c., which private growers cannot possibly hope to equal. The Ceylon folk think the Indian and Jamaica Government, having recouped their original outlay with interest, should confine their operations in India to the manufacture of febrifuge

Fig. 58.—Habrothamnus fasciculatus. (see p. 308.)

for the army and the population generally, and not enter the general markets of the world as traders There is another way of looking at the matter, and that is, to consider the greatest benefit of the greatest number—how and when Government aid should be applied, and when it should cease. It is certain that in this case private enterprise would not have been so successful in initiating this vast and most beneficent enterprise, and it is not unnatural that those who have borne the heat and burden of the day should like to see the practical results of their labour. Payment by results has become a principle of action, and if the Government officials were forbidden to prove thus practically the value of their efforts their superiors would scoff at their efforts, and the tax-payer would decidedly object to pay for prolonged experiments from which no appreciable result was obtained. As things are, however, we presume it is only a question of time, and the Cinchona department having once unmistakably proved the profitable nature of the enterprise, will resign its future development to private hands, retaining only those experimental departments for which there will probably always be a need. Government interference may, however, become necessary in other ways—for instance, in the case of the leaf disease, there can be no question as to the propriety of the recommendation to destroy affected leaves so far as possible, but, unless the work is done thoroughly, the result will be comparatively unimportant; and in such a case as this—as with the Potato disease nearer home—private enterprise may be trusted *not* to do the work thoroughly. Looking at the matter without reference to the future, the remedy is, if not worse than the disease, at least not much better, and private enterprise of this character does not trouble itself about posterity.

—— THE NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—In the last number of the *Journal* the most important paper is one by M. PRILLIEUX, and describing in detail the effects of frost on the parts of plants. M. JOLY inserts a note on the prospects of horticulture in Algeria.

—— RUDBECKIA NEUMANNI OR NEWMANI.—In a recent note on Rudbeckia speciosa we mentioned that there were specimens of it in the herbarium at Kew bearing the name Rudbeckia Newmani. This name is perhaps more correctly R. Neumanni, and has been taken up in STEUDEL'S *Nomenclator Botanicus* and other works, though we cannot find that it was ever published with a description; and it is sometimes applied to R. speciosus and sometimes to R. grandiflorus. Centrocarpha acutifolia is quoted by STEUDEL as a synonym of Rudbeckia Neumanni; it is also included in SWEET'S *Hortus Britannicus*, but there is no description. It would seem, therefore, that the name Rudbeckia Neumanni does not represent an independent species.

—— THE MASSACHUSETTS HORTICULTURAL SOCIETY.—Two parts of the *Transactions* of this flourishing society are before us, containing reports of meetings for discussion. Among the more important of these are those whereat Mr. S. PARSONS' paper on the most promising new hardy ornamental trees and shrubs was read and discussed, in which the great value of the Japan Maples is insisted on. The stock on which to graft is A. polymorphum. Dr. STURTEVANT'S paper on the influence of the stock and graft consists chiefly of an enumeration of recorded instances of the reciprocal effect of stock and scion—an enumeration which might probably have been considerably extended by further search through the literature of the subject, especially in our volume for 1872. The discussion which followed was remarkable for the considerable difference of opinion manifested, but perhaps the most astonishing statement came from the lips of Mr. HOVEY. "Mr. HOVEY had never known a variation of any kind in quality, or any other respect, in all his experience of grafting." We are tempted to ask Mr. HOVEY why, if that is the case, he avails himself at all of the grafting process. But Mr. HOVEY'S words, as quoted, probably do not fully convey his meaning, for at another page we find him credited with the observation that a Pear tree grafted on the Quince gives entirely different growth from one on the Pear, and Pears are highly coloured from such a tree." On another occasion Mr. HOVEY illustrated his opinions by the statement that all Roses do best on their own roots—an opinion challenged by several other speakers, who admitted that grafted or budded Roses make plants sooner, and produce better flowers than plants on their own roots.

—— HAWS.—We have thought in some past years that the crops of haws were remarkable ones, but the present season's produce beats hollow all previous records. Even if we lug in that famous chronologist, the oldest inhabitant, it will still remain doubtful whether he could assert, with any regard for truth, that the Whitethorn had ever borne a heavier crop of fruit than it does this year. Of course, it will be said that this indicates a wise provision of Nature for the wild birds during the coming winter, and all that sort of thing has been said by the knowing ones scores of times, but the cynic may in response ask whether it would not be wiser on Nature's part to make full provision for our feathered friends every winter rather than to feed them to fatness in one season and starve them the next. When we are over-hasty in drawing conclusions from what Nature does we generally make a mess of it. It would be safer to say that whether the present heavy crop will provide the song birds with a well-stocked winter larder or not, at least it presents a fine opportunity for the abundant reproduction of its kind, and no doubt our nurserymen will duly avail themselves of it. Still further, apart from the edible or reproductive value of the haws we may well regard them as presenting for our admiration and delight a very pleasing and unwonted sight, for their rich vermilion hues glisten in the sunlight and through the rain, and give charm and life to the dullest and most monotonous rural scenery. Then we may draw a moral from this big crop of haws, and apply it to other fruits. We find that the heaviest crops hang on growth that has for several years escaped the trimming hook. Perhaps if we pruned some of our hardy fruits less we might now and then, in favourable seasons, gather better crops from them. Lastly, we perceive that Nature, to our poor intellects apparently somewhat erratic in the giving us fruit crops, seems to possess something of feminine wilfulness, "For when she will, she will, you may depend on't; and when she won't, she won't, so there's an end on't."

—— THE FERNS OF JAMAICA.—Mr. G. S. JENMAN, who has very successfully investigated the Fern flora of Jamaica during the past few years, has now published a list of all the species hitherto observed by himself and other explorers in the island. This list contains 427 species, besides 64 varieties, or 117 species above the number assigned to Jamaica in GRISEBACH'S *Flora of the British West Indies*. Mr. JENMAN'S additions include many new species, which have been described from time to time in the *Journal of Botany* and elsewhere. If all the colonial botanists were as active as Mr. JENMAN, we should soon obtain a better knowledge of the vegetable productions of our colonies. Mr. JENMAN has been removed from Jamaica to British Guiana, where he holds the appointments of Government botanist and Superintendent of the Botanic Gardens, and where he displays the same energy in investigating the vegetation.

—— DESTRUCTION OF VINEYARDS IN FRANCE.—It is estimated that the Phylloxera has destroyed 558,605 hectares—about 1,256,800 acres—of vineyards in France; on the other hand, considerable areas have been planted with Vines in other Departments than those which have suffered most severely from this scourge.

—— THE UTILITY OF SMALL FORCING HOUSES.—In large forcing establishments, where very early and late supplies of fruits are in request, it is no small advantage to have a few divisions, say large enough for a single Peach tree or half-a-dozen Vines, where a supply of early fruits could be brought forward without subjecting the occupants of larger houses to the ordeal of early forcing. All who are acquainted with the practical details of early forcing know how little is gained by artificial means before the turn of the year. A week, or, at most, ten days, is all that under ordinary circumstances is gained by starting a house of Grapes or Peaches early in November. By waiting six weeks later it would be better for the crop, and also for the permanent health and condition of the trees. The object sought after in most cases would therefore be more economically and successfully accomplished if we curtailed our early forcing operations, and subdivided many of our large forcing-houses into a number of useful compartments, which could be worked individually as required by circumstances. A single tree will keep up a fair supply of any kind of fruit for three or four weeks in the early part of the year, and there is no reason why such a system should not be generally adopted in gardens. The hint is thrown out now, when there is time and favourable weather for executing improvements or making alterations. It is a debatable question whether forcing operations are not still looked upon too much as a mechanical business, in which engineering, stoking, and an unlimited supply of fuel are considered of more importance than a careful selection of suitable kinds of early fruits possessing constitution and free-fruiting properties, such as never fail except through accident or mismanagement. Another point of vital importance in early forcing is to observe that it is "time" and not the "pressure" of any mechanical force that brings about satisfactory results. By imitating the natural habits and conditions under which trees produce their crops in season we succeed in fruiting them out of season, but the change should be brought about gradually, and the experienced forcer will always be able to calculate beforehand the date at which the crop should come in by noting the conduct of certain varieties of fruits and the different changes they undergo in the different stages of their growth.

—— RUDBECKIA GRANDIFLORA.—This species is allied to R. speciosus, though scarcely equal to it as an ornamental plant, being considerably taller. It was first published by DON in SWEET'S *British Flower Garden*, second series, pl. 87, from plants cultivated by R. BARCLAY, who received it from NUTTALL. Centrocarpha grandiflora is the name DON gave it. The ray-flowers are more numerous, broader and longer than those of R. speciosus, and they are recurved, as in most species of the genus, instead of horizontal, as in R. speciosus. R. grandiflora inhabits Arkansas.

—— EPIGÆA REPENS WITH DOUBLE FLOWERS.—W. W. BAILEY records in COULTER'S *Gazette* the discovery of Epigæa repens with double flowers. It was found by Miss S. L. MANN in Rhode Island, and had three perfectly gamopetalous corollas, one within the other, as in the familiar case of doubling in Datura, &c. In the changes, the stamens have entirely disappeared, or are perhaps represented only by certain aborted, hood-like appendages to one or more of the lobes of the inner whorl.

—— EVOLUTION OF FRUITS.—Mr. G. S. BOULGER has reprinted from the *Transactions of the Epping Forest and County of Essex Naturalists' Field Club* an abstract of a discourse on the evolution of fruits, *i.e.*, seed-vessels. When we explain that the whole subject of the evolution of seed-vessels is dealt with in this abstract in three or four pages, supplemented by a table of pedigrees, it will be understood that the author generalises pretty comprehensively. We should have preferred something that assumed less knowledge on the part of the audience. The Club must have attained an enviable degree of efficiency in botanical knowledge if its members were able to follow the discourse. Mr. BOULGER'S examination led him to recognise four great groups in dicotyledons, namely, Thalamifloræ, Disciflorae, Perigynæ, and Bicarpellatæ; and of these he thinks the second is undoubtedly a branch-"phylum" from the first, and the fourth probably from the third. We have not space to enter into the merits of the results, which the author states have far exceeded his original hopes, but we may quote one of his paragraphs, which throws some light on the direction of the author's researches and the nature of his theories:—"The Glumifloræ I consider merely as reduced from the last-mentioned type [Coronariæ], their one-seeded caryopsis illustrating a general principle which should have been before stated—that when numerous small flowers form a crowded inflorescence (as also in Compositæ and Umbelliferæ) we have a reduction in the number of carpels, answering to a reduced need of them."

—— ESCHSCHOLTZIA CALIFORNICA.—Dr. ENGELMANN writes as follows to COULTER'S *Gazette*:—"The different forms of this common and extremely variable plant deserve to be studied more carefully at their homes, where they are found in such untold abundance. It is quite possible, as indicated in the *Flora of California*, that the several species into

hich they have been divided may be sustained by liable characters. All the forms, however, are said be annuals with colourless juice. Now, on the ndhills of the ocean, quite close to the well-known iff-house, near San Francisco, I found last October form with long perennial roots, half an inch thick, ounding in orange coloured juice, and bearing veral stems: leaves shorter than the internodes, en opposite; flowers 1 inch wide; torus broadly rgined; capsule about 2 inches long; seeds reti-lated. In most respects it represents the typical m of E. californica. . . . It is barely possible at Eschscholtzia californica is one of those peren-ls which flower as seedlings in the first year, and t then the aridity of the climate in many instances ls it, root and all; but if so, why has this occa-nally (?) perennial character not been observed fore." We have observed that this plant has a ndency in this country to become perennial, but hough it will bear considerable frost without in-y, yet the cold and wet together soon kill it. With ard to the colour of the juice, we have only seen it low in this plant.

— SARRACENIA PURPUREA AND FLIES.—SEPH JACKSON, Massachusetts, in COULTER'S *tanical Gazette*, states that when out herborising he s surprised on drawing aside the petals to look at stamens, to see the whole cavity formed by the petals l the peltate expansion of the style filled with flies, large as the common house-fly, all busy as could be, ing the pollen, of which scarcely a grain could be n. Fourteen flies were counted in one flower. arly every plant examined was filled in the same y.

— TREELESS PRAIRIES OF NORTH AMERICA. For a long time many persons believed that the ence of arboreous vegetation in the prairies was either to adverse climatal conditions or to some uliarity in the soils, whilst others have contended t trees grew there in ancient times, but they had a burnt off and kept burnt off by annual fires. Mr. OS. MEEHAN has collected all the evidence he could, ring on the subject, and publishes the results in *Proceedings of the Philosophical Academy of erica*. Mr. MEEHAN says it is evident climate ld have nothing to do with it, because in these iries there are often large belts of timber lands jecting like huge cones into the grassy regions, h precisely the same climatal conditions over both. at the soil is not unfavourable, is proved by the ficial plantations everywhere successful. Another g, since the annual firing by the Indians has n discontinued by the advance of civilisation, the ber has been everywhere encroaching on them. e Shenandoah Valley in Virginia was clear of trees, is stated, in the early history of Virginia, whereas w it is heavily timbered. Mr. MEEHAN says that isputable evidence proves that within historical es the prairies have been kept treeless by the nual fires of the Indians, and he thinks it is a fair rence that the same cause has acted to prevent oreous vegetation ever existing there.

— CHOISYA TERNATA.—We are again reminded his handsome shrub by a figure in the *Monatsschrift*. igure was published in this journal, new series, xiii., 526, and in the same volume, p. 693, is a note n Mr. ELLACOMBE, stating that it was quite hardy Bitton, and easily propagated. Whether it with-d the first winter we do not know, but it is l flourishing at Kew, and there can be no bt of its value for the greenhouse and con-atory. Its fragrant white flowers are employed Paris as a substitute for Orange blossom. HUM-DT and BONPLAND were the first to make it wn in Europe from specimens they obtained from dens in and around Mexico.

— BOTANICAL NOMENCLATURE.—Dr. SAINT-ER, of Lyon, has written another lengthy essay, lished in the *Annales de la Société Botanique de n*, on the purification of botanical nomenclature. essay is very instructive reading, no doubt, but fear the only satisfaction the learned author will ive from it is that felt in the labour of drawing it It is a pity that botanical nomenclature is en-bered by innumerable barbarisms, but we had er endure them than reform to the extent pro-ed by Dr. SAINT-LAGER. What would the glish language — or, for that matter, any other language—be like if the purists set to work at it? It may be urged that this is not a parallel case, but, if not, it is in many respects an analogous one.

— HELIOTROPE ALL THE YEAR ROUND.—Those who crave after "Cherry-pie" all the year round should cultivate it as Mr. GREEN does at Enville. It is planted at the back wall of an inter-mediate-house, and when you want a basketful of flowers you have only to go and cut them any day in the year.

— PAULOWNIA IMPERIALIS.—At Witley Court this plant is used with good effect by cutting it down annually. Mr. WESTLAND has a grand mixed bed with a Paulownia, treated as above, for a centre, and surrounded with dark coloured Castor-oils and a broad band of Anemone alba, which in turn is bordered with golden Pelargoniums, which is a very happy combination of flowers and foliage, and is instructive because of the wide field there seems to be for all who choose to prosecute experiments and still further expand the art of flower gardening.

— CISSUS DISCOLOR TRAINED OVER ARCHES.—There are few stove creepers more ornamental for covering back walls or rafters in plant stoves, but trained in conspicuous situations over arches it seems even more beautiful. If the arches are thrown over or span the pathway of a house, and the richly-marked leaves of the Cissus are brought into contact with silvery foliage, the effect is charming. An old stager who knows his way about at an exhibition will not put his black Grapes (if they are a little deficient in colour) in the brightest part of the room or tent, but in a corner where the light does not reflect upon them. So in like manner, if we were to exercise more dis-crimination in the disposition of our beautiful creep-ing plants we should often be more successful in pro-ducing a better and more telling effect.

— AMERICAN VINES FOR AUSTRALIA.—Baron MUELLER writes:—"May I ask you to insert that in Victoria are wanted large quantities of seeds of such American Vines as are proof against the Phyl-loxera, or as are fit to cope with that dreadful insect if used as stocks for grafts of the various sorts of supe-rior European Vines." A list is appended from PLAN-CHON'S *Vignes Américaines*. Seeds of such would find a ready and remunerative sale, or if sent to the Baron direct seeds of other valuable plants would be sent in exchange. Seeds fresh this autumn should be secured in America from the Grapes indicated. The Scuppernong in two varieties was raised many years ago in the Botanic Garden, Melbourne, from American seeds, as it is such a remarkable gigantic variety, and yields an excellent wine of its own.

"1. *Vitis vulpina:* Scuppernong, Mich., Thomas.—Tender pulp: Richmond, Pedor. No Phylloxera vastatrix on the root, Phylloxera galls on the leaves very rare, but stock not readily serving for grafting of European Vines.

"2. *Vitis æstivalis:* Herbemont, Cunningham, Nortone, Virginia, Hermann, Jacques Lenoir, as well as some other varieties.—Phylloxera on the root, but not destructively; galls rather rare on the leaves; stock fit for grafting.

"3. *Vitis cordifolia:* Clinton, Taylor, Marion, and other varieties.—Phylloxera on the root, but not destruc-tively; galls frequent on the leaves, but without ill effect; stock fit for direct grafting.

"4. *Vitis Labrusca:* Concord, Ive's Seedling, Dracut Amber, Lozaella, Martha, Christine, York, Madeira, or Vorlington.—Phylloxera on the root, but not destructively; galls rare on the leaves; stock fit for grafting.

"Besides these some Phylloxera-proof hybrids exist, originating from V. vitifera crossed with American species; these, as recorded by Dr. FOCKE and some other writers, are fertile; hence their seeds ought also to be secured for trial culture."

— THE FLORAL DECORATION OF HOLYROOD HOUSE AND GARDENS, on the occasion of the recent visit of HER MAJESTY to Edinburgh, was entrusted to Messrs. THOMAS METHVEN & SONS, by whom the work was, we are informed, carried out with good taste, and in such a way as to increase in no small degree the amenity of the house and grounds. In the centre of the court a group of Palms, Tree Ferns, and other graceful foliage plants was arranged, with a few flowering plants interspersed, and the whole sur-rounded with a band of Selaginella. Several fine specimens of choice Conifers flanked the piers of the colonnade, to relieve the architectural details of the building. The parterres, which were laid out in front of the QUEEN'S apartments five years since, and which formed part of a design submitted to the late PRINCE CONSORT many years ago, when the Palace gardens were remodelled, were entirely replanted. The plants required for this purpose were transferred in full bloom from Messrs. METHVEN'S nurseries in Leith Walk and Inverleith Row. The shrubberies skirting the gardens were also freshened up and trimmed, and generally the Palace and its precincts wore a bright and pleasing aspect, not altogether un-worthy of the occasion.

— ADDITIONS TO THE NATIONAL HERBARIUM AT KEW.—Among the larger collections of dried plants lately received at Kew is one of consider-able interest from Jeddah, on the Arabian coast of the Red Sea, made and presented by Mr. ZOHRAB, already known to botanists as a large collector of plants in Armenia and elsewhere.

— BEGONIA FUCHSIOIDES AS A WALL PLANT.—Whatever may be said of the great strides that have been made of late years in the improvement of nearly all classes of flowers, and particularly among some sections of the Begonia tribe, there are still old favour-ites which possess some good property which renders them indispensable for certain purposes, as, for example, in the case of the plant under notice, which makes a grand covering for the back walls of conser-vatories, greenhouses, or other structures which do not fall below a mean temperature of 45° in winter. The plant will grow a length of from 20 to 30 feet, and when covered with its scarlet drooping blossoms, has a very handsome effect as a wall creeper.

— TEA CULTIVATION IN JOHORE.—In order to test the capabilities of his country for the produc-tion of Tea, the Maharajah of JOHORE has had a small garden formed, which at the end of last year was visited and reported upon by a gentleman experienced in such matters. The little garden is described as being in charge of a Chinaman, who does not treat the plants as is done in India, but apparently *more Sinico*, and his mode of manufacture varies similarly. The soil of the estate is of a reddish-yellow colour, soft, without clay or stone, and of a friable nature, so that the frequent showers of rain easily percolate through it. When their age is taken into considera-tion, the growth of the plants is most rapid and luxuriant. The seed was sent from Assam by Dr. BARRY, and is, no doubt, what is known as Assam hybrid. The leaf of the plant is soft and bright, and most healthy in appearance, being almost entirely free from blight of any description. The climate of the district is apparently all that could be desired for Tea. Provided prices are only tolerably favourable, it is thought that Tea cultivation in Johore will prove remunerative. A great element in its favour is that the labour supply, both Chinese and Malay, is good, fairly abundant, and to be relied on. By a late mail from Singapore we (*Colonies and India*) learned that the Maharajah of JOHORE was making a tour in Java for the purpose of making himself acquainted with the methods adopted there in the cultivation of Tea, Coffee, &c., with a view to the improvement and development of his own little state. He is stated to have been received wirh much distinction by the Governor-General of the Netherlands India.

— PHYGELIUS CAPENSIS.—One of the showiest of all the herbaceous plants now in bloom in the Kew collection is this South African Scrophulariad. Both against a wall and in the open border it has successfully passed through last winter. It has a pyramidal panicle of drooping, funnel-shaped, fine deep red tubular blossoms. It was first discovered by DREGE on the sides of streams at Witbergen, in Caffreland.

— PUBLICATIONS RECEIVED.—*The Diseases of Dogs*, a new and revised edition, by HUGH DALZIEL (*Bazaar* Office, 170, Strand).—*Note sur l'Horticulture en Algerie*, par M. V. CH. JOLY. Paris.

— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 29, issued by the Meteorological Office, London:—The weather during this period has been exceedingly wet and unseasonable, very heavy rain being experienced in all parts of the country, accom-panied in several places by thunder. The tempera-

ture has again been below the mean in all districts, the deficit being from 4° to 6° except in the south of Ireland. The highest reading recorded was 71° (in London on the 23d), while at Alnwick Castle the highest reading during the period was only 58°. The minima were very low in all places; at Cirencester on the 28th the sheltered thermometer fell to 32°.5, and at Landale to 34° on the 29th. At our other central and northern stations the minimum readings varied between 37° and 40°. The rainfall has been in excess of the mean everywhere. In the N.W. and N.E. the fall was as much as five or six times, and in all other districts two or three times, greater than the mean value. Bright sunshine was deficient, the percentages ranging from 47 in "England, S.W." to 15 in "Scotland, W." Depressions observed:—Barometric pressure has varied greatly, several depressions having passed in an easterly or north-easterly direction across our islands. The most important appeared off the south-west of Ireland on the 25th; at 8 A.M. on the 26th its centre was shown near Edinburgh, and by the 27th it was travelling away over Norway. During its progress strong southerly to westerly winds were felt in the south of Ireland, strong south-westerly winds or gales over England, and strong winds or gales from N.E. or E. over Scotland and the north of Ireland. The wind then became westerly and north-westerly on all our coasts, but at the close of the period the barometer was again falling in the west, and a new depression was approaching our western coasts.

—— GARDENING APPOINTMENTS.—Mr. ROBERT STANLEY, for the last six years Foreman to Mr. WOODBRIDGE at Syon, has been engaged by General PITT RIVERS as Gardener and Forester at Rushmore, Salisbury.—Mr. JOHN BOTTERILL, of Trentham Gardens, has been appointed to succeed Mr. W. HARRIS as Gardener to Lord VERNON, at Sudbury Hall, near Derby.

BRITISH ASSOCIATION.

SIR JOHN LUBBOCK'S Presidential address at the jubilee meeting of the Association was, as was fitting, a song of triumph—triumph at what has been done by science in the last fifty years, and at the limitless possibilities of the future. We cannot follow him in his general survey of the whole field. Familiar as we are now-a-days with the results of scientific labours, the feeling of wonder is still prominent, and equally so the "lesson which," as Sir John said in his closing words, "science teaches—how little we yet know, how much we have still to learn." Subjoined are some detached extracts from the address:—

EVOLUTION.

Fifty years ago it was the general opinion that animals and plants came into existence just as we now see them. We took pleasure in their beauty; their adaptation to their habits and mode of life in many cases could not be overlooked or misunderstood. Nevertheless the book of Nature was like some richly illuminated missal, written in an unknown tongue; the graceful forms of the letters, the beauty of the colouring, excited our wonder and admiration, but of the true meaning little was known to us; indeed, we scarcely realised that there was any meaning to decipher. Now glimpses of the truth are gradually revealing themselves; we perceive that there is a reason—and in many cases we know what that reason is—for every difference in form, in size, and in colour; for every bone and every feather, almost for every hair. Moreover, each problem which is solved opens out vistas, as it were, of others perhaps even more interesting. With this great change the name of our illustrious countryman, Darwin, is intimately associated, and the year 1859 will always be memorable in science as having produced his great work on the *Origin of Species*. In the previous year he and Wallace had published short papers, in which they clearly state the theory of natural selection, at which they had simultaneously and independently arrived. We cannot wonder that Darwin's views should have at first excited great opposition. Nevertheless, from the first they met with powerful support, especially in this country, from Hooker, Huxley, and Herbert Spencer. The theory is based on four axioms:—"(1) That no two animals or plants in Nature are identical in all respects; (2) that the offspring tend to inherit the peculiarities of their parents; (3) that of those which come into existence only a small number reach maturity; (4) that those which are, on the whole, best adapted to the circumstances in which they are placed are most likely to leave descendants." Darwin commenced his work by discussing the causes and extent of variability in animals, and the origin of domestic varieties; he showed the impossibility of distinguishing between varieties and species, and pointed out the wide differences which man has produced in some cases—as, for instance, in our domestic pigeons, all unquestionably descended from a common stock. He dwelt on the struggle for existence (which has since become a household word), and which, inevitably resulting in the survival of the fittest, tends gradually to adapt any race of animals to the conditions in which it occurs. While thus, however, showing the great importance of natural selection, he attributed to it no exclusive influence, but fully admitted that other causes—the use and disuse of organs, sexual selection, &c.—had to be taken into consideration. Passing on to the difficulties of his theory, he accounted for the absence of intermediate varieties between species, to a great extent, by the imperfection of the geological record. But if the geological record be imperfect, it is still very instructive. The further palæontology has progressed the more it has tended to fill up the gaps between existing groups and species, while the careful study of living forms has brought into prominence the variations dependent on food, climate, habitat, and other conditions, and shown that many species long supposed to be absolutely distinct are so closely linked together by intermediate forms that it is difficult to draw a satisfactory line between them. The principles of classification point also in the same direction, and are based more and more on the theory of descent. Biologists endeavour to arrange animals on what is called the "natural system." No one now places whales among fish, bats among birds, or shrews with mice, notwithstanding their external similarity; and Darwin maintained that "community of descent was the hidden bond which naturalists had been unconsciously seeking." How else, indeed, can we explain the fact that the framework of bones is so similar in the arm of a man, the wing of a bat, the fore-leg of a horse, and the fin of a porpoise—that the neck of a giraffe and that of an elephant contain the same number of vertebræ? Strong evidence is, moreover, afforded by embryology; by the presence of rudimentary organs and transient characters, as, for instance, the existence in the calf of certain teeth which never cut the gums, the shrivelled and useless wings of some beetles, the presence of a series of arteries in the embryos of the higher vertebrata exactly similar to those which supply the gills in fishes, even the spots on the young blackbird, the stripes on the lion's cub; these, and innumerable other facts of the same character, appear to be incompatible with the idea that each species was specially and independently created; and to prove, on the contrary, that the embryonic stages of species show us more or less clearly the structure of their ancestors. Darwin's views, however, are still much misunderstood. I believe there are thousands who consider that according to his theory a sheep might turn into a cow, or a zebra into a horse. No one would more confidently withstand any such hypothesis, his view being, of course, not that the one could be changed into the other, but that both are descended from a common ancestor. No one, at any rate, will question the immense impulse which Darwin has given to the study of natural history, the number of new views he has opened up, and the additional interest which he has aroused in, and contributed to biology. When we were young we knew that the leopard had spots, the tiger was striped, and that the lion was tawny; but why this was so it did not occur to us to ask; and if we had asked no one would have answered. Now we see at a glance that the stripes of the tiger have reference to its life among jungle grasses; the lion is sandy, like the desert; while the markings of the leopard resemble spots of sunshine glancing through the leaves.

The science of embryology may almost be said to have been created in the last half century. Fifty years ago it was a very general opinion that animals which are unlike when mature, were dissimilar from the beginning. It is to Von Baer, the discoverer of the mammalian ovum, that we owe the great generalisation that the development of the egg is in the main a progress from the general to the special—in fact, that embryology is the key to the laws of animal development. Thus the young of existing species resemble in many cases the mature forms which flourished in ancient times. Huxley has traced up the genealogy of the horse to the Miocene Anchitherium. In the same way Gaudry has called attention to the fact that just as the individual stag gradually acquires more and more complex antlers, having at first only a single prong, in the next year two points, in the following three, and so on; so the genus, as a whole, in Middle Miocene times, had two-pronged horns; in the Upper Miocene, three, and that it is not till the Upper Pliocene that we find any species with the magnificent antlers of our modern deer.

A HOLIDAY IN SHROPSHIRE.

(*Continued from p. 232.*)

IT is sometimes well that strangers should not know what one knows one's-self, although if one knows one thing it is strange that some people think one must know almost everything. The writer of this was appealed to for an explanation of the meaning of the word "ventriculatoris" (*sic*) after certain persons' names in old church registers (perhaps some *Gardeners' Chronicle* scholar will explain), and the expected to advise a railway station official as to the best sort of "spinners" for catching Shrewsbury trout.

During the day an extremely rare British plant was brought to the fore, viz:—Epipogium aphyllum, Sw. This may perhaps be considered the rarest plant in the British flora, and hitherto only once recorded in British. It is, therefore, much scarcer than the rare Lizard Orchis, Orchis hircina, and throughout Europe the Epipogium is everywhere very rare. Professor Reichenbach terms the plant Epipogium Gmelini—a harsh-sounding name for such a beautiful and curious plant. It has been admirably figured by Mr. Fitch in the *Botanical Magazine*, fig. 4821. One of the botanists at the Church Stretton meeting of archæologists confidentially mentioned the finding of this plant of late in England, not once only, but on several different occasions. No secret was made of the circumstances of finding or the localities, and with the communication I send, *for the Editors' use only*, the exact positions where the plant grows and the finder's name—not for publication. If published, the certain result would be that the whole tribe of youthful botanical "extinguishers," or "exterminators," whatever they are called, would be down upon it at once, and wipe it clean out. When the first specimens were found (several years ago now) they were pronounced by a local luminary to be abortive specimens of the Bee Orchis.

At the evening meeting on Tuesday the Rev. J. Touche, the author of the racy Woolhopean paper termed "Why we Should Not Eat Fungusses," read a learned archæological essay on Stokesay Castle, and Mr. J. G. Dyke, of Church Stretton, read a good paper on "Ancient Plough-marks on the Hills." In this paper the author gave a list of places where plough furrows to his knowledge still exist. He thought from his examination of ploughed hill-tops that about 1 inch of the surface had on the average been burnt, as a suitable means of preparing the soil for crops. He also thought the positions more suitable for growing Oats and Rye than Wheat. In this no doubt, he was right, as we now see the hills; but it must be remembered that the cultivation of Wheat is infinitely more ancient than Oats and Rye. Oats were not known till the Bronze Age in Switzerland, whilst Rye was entirely unknown amongst the lake dwellers. Wheat, Oats, and Rye reached Britain from Eastern Europe through Switzerland and France. Every kind of corn came from the countries of the Mediterranean. Wheat came at a very early period, Oats much later, and Rye in historic times. Bread was made only of Wheat; bread made of Barley or Oats has never been found.

On Wednesday morning the parish church of Church Stretton was visited. The church has no special architectural or archæological interest: it is dedicated to St. Laurence, and in honour of this saint a gridiron has been carefully carved on the font. In the churchyard there are several curious inscriptions upon gravestones. The local poet, in one instance, bursts out with the following inspired effusion:—

> "On a Thursday she was born,
> On a Thursday made a bride,
> On a Thursday her leg was broke,
> And on a Thursday died"—

i.e., her leg. Two other persons are made to cry out to visitors from their last resting place—"Prepare yourselves to follow we."

After the visit to the church, the whole party went ff to Ludlow; here they were delighted to meet the ngological Messrs. Forty, who have so often fortified e Woolhope Club. Botany, geology, and archæ-logy, clearly go hand in hand—for these two ad-irable gentlemen were quite as happy in explaining e points of the church, castle, and museum, as they re every autumn in showing the localities of choice nguses. Modern sports of racing in sacks, &c., were oing on in the castle grounds, and these amusements r a short time unfortunately diverted the smooth ow of archæological study. At the town, and, indeed, t Shrewsbury and elsewhere, the Society had the great dvantage of the presence of Mr. R. Kyrke Penson, rchitect, of Dinham House. This gentleman also kindly ntertained the President, the Treasurer, the artist, Ir. Gore of Melksham, and several others, at dinner n the evening. Mr. Penson has a good garden, with ne long greenhouse devoted almost entirely to Pelar-oniums, single and double, and new and old, of lmost every known variety. At the time of the visit hese plants were in full flower, and a more gor-eous sight than the dense masses of crimson, scarlet, nd rose, it is impossible to imagine. The iteration f form and colour was here the great charm. In ront of the windows the flower-beds are laid out in eometrical patterns, the flowers selected being small n size and subdued in colour. This no doubt is ight: a garden should not resemble a woodland valk; a wild garden is an excellent thing, so is a bog, nd rocky cliffs—there are many wild gardens amongst he hills, moors and woodlands of this country—but a garden belonging to a gentleman's house should every-vhere suggest Art in its best sense as well as Nature. Mr. Penson entertained the party pleasantly and well, nd very properly gave the archæologists Indian lucks.

On Thursday the writer ascended the hills by Caer Caradoc, the stronghold of Caradoc, at this season studded with one of the great Puff-balls known as Lycoperdon cælatum. Here and on the Long Mynde hills numerous interesting wild plants grow, notably Drosera rotundifolia and Pinguicula vulgaris, both said to be "carnivorous;" and here, though remark-ably short of meat—unless a few minute midges might in compliment be so termed—remarkably large and robust growing. There is a botanical guide to Church Stretton, arranged on the Linnean system, and sold in the town; this is a very useful little book, though awkward to refer to, and plentifully sprinkled with errors both in the Latin and English names. Caer Caradoc is popularly supposed to be the last place held against the Romans under Ostorius Scapula by Caradoc (Caractacus), the British hero. This is undoubtedly an error, as the place disagrees with the description of Tacitus; the Breidden Hill was more likely the last standpoint of Caradoc. It is often asked why the Romans termed Caradoc, Caractacus. The reason is that probably the Romans could not imitate the guttural sounds of British words. Cæsar terms Caswallon, Cassivellaunus; and Cynfelyn, Cuno-belinus. Fancy Cæsar trying to pronounce Cynfelyn like a Welshman—he could not have done it. Some of these ancient British and Hiberno-Celtic names are very puzzling, and require to this day the most careful decipherment. In 1878 an Ogham stone, 6 feet long, was turned up on Pentre Poeth farm at Capel Llanilid, near Trecastle. The farmer at once used it as a stone gate-post; he did not care a rap for the sculptured face, or the Ogham inscription. Mr. G. E. Robinson, architect, of Cardiff, happening to see the stone, read the Oghams as Magotroni Salo-codni, helped to save the antiquity, and aided in its presentation to the British Museum at Bloomsbury. It is now in the first sculpture gallery on the left of the entrance, the first of two tall Ogham stones. It is well mounted—as all the British Museum sculptures are—but by a grim error of judgment it is mounted *upside down*. Ogham notches and lines are, of course, read from the bottom of the stone upwards, so that if any *Gardeners' Chronicle* reader goes to the Museum for a first lesson in Oghams, he must re-member the whole affair is inverted. This is very provoking, the subject being obscure and the Museum light bad.

Is the memory of Caradoc well preserved in the borders? Perhaps it is; but the following true anecdote will show that this knowledge is not ex-tended to all the natives:—Visitor asks rustic the name of the great hill. Rustic replies, "It is the Caradoc Mountain." Visitor goes on, "Why is the great hill known by such a singular name as the Caradoc Mountain?" Rustic says, "I'll tell you the truth, sir. Some years ago there came an Irish gent to Church Stretton of the name of Murphyson (meaning Sir Roderick Murchison); he went up the hill, and when he came down again he said some of the stones were Caradoc fossils; ever since then the hill has been called the Caradoc Mountain." After breakfast the party went by rail to Wenlock, to see the ruined Priory. Here the time allowed was quite insufficient, and the place was really only partly seen; several of the party did not see the church at all. This hurrying through places is a fatal mistake, and all such visits are worse than useless; it tends to give people wrong impressions, and is the fertile cause of mistakes. The visitors go from place to place and get a lot of imperfect and useless ideas, whereas if they could only remain a moderate time and get a few correct notions the knowledge would be useful to them through life. From here a rush was made to Buildwas Abbey, a structure I was very anxious to see, as the very first drawing I was set to make by my master when I began studying for the profession of architec-ture was Buildwas Abbey. I was made to be very precise, and copy every stone and its exact setting. This pre-cision of my early days ought still to keep with me. The first thing I saw at Buildwas was a notice-board intimating—"No admission on Sundays, and no eating and drinking allowed." Fortunately I was permitted to draw Buildwas from the south, but before I had half finished a sketch of the chapter-house, and roughly noted the Chelidonium, the Rowan, the Wallflowers, the wild Mignonette, the Sedums, and the Ferns, I was hurried off again to the

Fig. 59.—CONJOINED OAKS AT LE BOTWOOD.

train to join in the discussion on Dr. Beddoe's paper on the shrinkage of human heads in Britain during the last century. All the Cambrian archæologists have such large heads that hats have to be specially made for them, and if the people of Bristol, as sug-gested by Dr. Beddoe and his hatters, are really suffering from a shrinkage of the skull, the ailment is no doubt local. Perhaps it is owing to the Bath waters, or to the effeminate residents of past times. If the shrinkage of the human skull in Britain is general, as Dr. Beddoe's paper seems to indicate, then the case is clearly a "survival of the unfittest," and deserves the immediate notice of Mr. Darwin.

The party went by carriages from Wenlock to Acton Burnell, where the church and castle were visited, but the whole party nearly came to a collapse from the extremely bad roads and the jibbing horses. No doubt the horses were tired and angry; they had been up all night, were driven in the night from Shrewsbury to Church Stretton, and now the whole progress to Le Botwood railway station was kick-ing, biting, jibbing, and backing; one horse fell down and pretended to be asleep, and the driver, with a horrified face, said he had "Lost the lid of his oil-box." From Acton to Le Botwood there was more walking up hills and over stones and jumping brooks and watercourses than riding. One lady went straight off to Hereford by rail, and Mr. Leighton said it was the "Devil's Causeway."

Close to the Le Botwood railway station, on the east side, are two remarkable conjoined Oaks (fig. 59). Examples of conjoined trees have several times been illustrated in the *Gardeners' Chronicle*, but the Le Botwood specimens are perhaps more singular than any hitherto figured. The natural brace connecting the two trees is 3 feet 6 inches round, and though not far removed from the roots seems doubt-fully to belong to them; there are two clear open-ings beneath the brace, and through the upper one a child could easily creep. Through similar openings ruptured children were at one time passed by their superstitious parents for the cure of hernia.

Friday, August 5, was the last day of the excursions, and the members went by road to Haughmond Abbey under the direction of the Rev. W. A. Leighton; from there they drove to Uriconium, the Roman town at Wroxeter. Mr. Leighton was still the conductor, aided by Mr. William Phillips, of Shrewsbury, who amongst other things said he had some time before brought the Rev. M. J. Berkeley to the spot and he spoke of the deep interest taken by this gentleman in archæological matters. The different ruined courts and rooms, steps, hypocausts, &c., were well traversed, and Mr. Leighton, a true Nestor, showed where the human skeleton was found still clutching the money coined by Tetricus, Valens, Constantinus, and Helena; where the burnt Wheat was found, where bones of Bos longifrons, where the toys, where the pottery, where the glass. Then to Wroxeter Church with a font made from a Roman capital from Uriconium. At the east end of the church at Wroxeter is a monument to a gentle-man who "dyed" in 1610; the inscription says he was a true professor of the Christian doctrine "according to the best reformed Churches, in the tyme wherein he lived, ever hating and detestynge the Impostures and Abhominations of the Church of Rome as now it standeth." Roman pillars for gate-piers to the church: this church and the neighbour church of Atcham is largely built up of stones taken from the buildings of the ruined and buried Romano-British city. From Atcham the party drove by road to Shrewsbury once more to look over the Museum, the large collection of objects found in the Roman city having been arranged by Mr. Leighton. This gentle-man was in the Museum during the whole time of the visit answering questions and giving explana-tions of the objects under exhibition. Mr. Leighton well earned the hearty thanks of all the Cambrians for his extreme care in explaining all he knew about Shrewsbury and its neighbourhood. One thing was especially admirable (to the writer) about Mr. Leighton. Some botanists—and espe-cially cryptogamic botanists—who devote themselves to botany, pure and simple, are terrible dry-as-dust, jealous, disagreeable fellows, deep in hyphæ, asci, sporidia, nuclei, protoplasm, and bathos. Mr. Leighton is not one of this sort: these notes show what he can do for archæology, but he is also learned in Potatos, corn, Broccoli, succession Peas, the best Beans, the best fruits, and similar subjects, and, best of all, he said he had the *Gardeners' Chronicle* (bound) from the first number. How much better, how much more useful is this knowledge than information as to which way the little hairs point on the stem of a Chickweed, how many varieties of little red Pezizæ there are peculiar to cow-dung, and how many dis-eases blue-bottles are afflicted with. Professor Bab-ington's aid, too, was of the most valuable kind, his familiarity with the places and his ready explana-tions were most acceptable. Many thanks were also due to the Rev. E. L. Barnewell, of Melksham, who appears to be as familiar with every church, castle, and antiquity in the Border counties as he certainly is with every place and thing, whether large or small, in Wales.

No public luncheons or dinners formed part of the programme of the Cambrian this year, and in this respect the Cambrians have been the same with the Royal Archæological Institute. In some respects this is a good thing; scientific work is rather hindered than advanced by public receptions, mayors, chains, maces, and illuminated addresses of welcome and fashionable lunching and dining. Hospitality is of course welcome and grateful, and should be thankfully received, but there is danger of its being overdone. As a rule, the lunchers, the diners, and the dancers, are not the workers. The pickaxe, the spade, and the heavy boots, do not always go well with the dress-coat, the eye-glass, and the patent slippers. Too often the diners and dancers belong to the Apathetics. An attempt was made to establish a society specially for the reception of the Apathetics, but no one attended to aid an inaugural meeting, and so the society collapsed before it was really born. A new and very robust society is now about to be started in connection with all artistic and scientific societies. It is to embrace the Apathetics, and be termed the "Society of Peripatetic Lunchers and Diners:" it will

include also the numerous body of "Luncheon Skirmishers"—those ladies and gentlemen who suddenly spring into existence like fungi (nobody knows from whence—they are strange to every one) whenever there is any eating and drinking and time-wasting going on. There is, however, perhaps no evil without some slight counterbalancing good. How many times can it be remembered that when there has been some cromlech to draw, some inscription to decipher, some work to be done, that a score or two of Apathetics, all in the way, have clustered close to the object, and done their best to frustrate work. A crimson velvet man-servant appears to announce that luncheon is ready, and the Apathetics are off in a twinkling, and the work proceeds. All the best drawings, rubbings, measurements, and notes are made whilst the Peripatetic Diners and Skirmishers are at the table. Whilst speaking of dinners and dining it may as well be recorded here that at one of the first Church Stretton dinners a large fruit pie was produced. "What is it made of?" asked a visitor. "Blaeberries, sir," said the first waiter. "Blueberries," said the second. "Whinberries," said the pretty running-maid. "Bilberries," said Professor Babington. "Whortleberries," said another botanist. Here the first waiter in despair came to the writer, and said, "Sir, they say you are a good herbalist; what is the correct name of these berries?" "Vaccinium myrtillus," was the answer. During the rest of the week the terrible waiter persisted in calling Bilberry tarts, "Vaccination murderers."

On Saturday 6 one or two members, at the kind invitation of R. Jasper More, Esq., drove over to Linley. As this place has quite recently been described and illustrated in the *Gardeners' Chronicle* for December 11, 1880, and February 19, 1881, nothing need further be said. Mr. and Mrs. More very pleasantly received the visitors, and Mr. More went over the property with them. Here and there Epipactis latifolia was seen, together with the rare Melittis Melissophyllum. *W. G. Smith.*

COLONIAL NOTES.

Jamaica.—An exhaustive and very valuable *Handbook of Jamaica* has lately been published, containing historical and statistical information relating to the island, and essays on economic plants. It is difficult to say what matter relating to Jamaica is not included. The articles on the climate of the island, on the timber supply, the Ferns, of which a complete list is given by Mr. Nock; on the Orchids of the island, by Mr. Syme; on the poisonous plants of Jamaica, by Mr. Bowdrey, are very interesting; while those on the system of land tenure, and on the agricultural resources, such as Sugar-cane, Cinchona, Banana, Cacao, and Pine-apples, with the statistical details relating to them, will be read with profit by all interested in the cultivation of tropical plants and the development of the resources of the island. It is not generally known that immense tracts of virgin forest land, most suitable for Cinchona, Coffee, Cacao, are still available. The climate, except in a few spots, is anything but the fatal one usually supposed, but is, on the contrary, very healthy, and the labour difficulty is getting less felt year by year.

Home Correspondence.

Plumbago capensis.—As a plant for general decorative purposes to flower at this season few surpass the Cape Leadwort (Plumbago capensis), which is alike valuable for pots to grow as neat dwarf bushes, standards, or pyramids, or for planting out to train up pillars and under the roofs of greenhouses or to train and furnish walls in conservatories, for each and any of which purposes it is well adapted, so readily does it lend itself to either mode of treatment. The way it looks best, however, is in the loose natural form, which, by a little assistance in getting up the main branches, it soon assumes, as the side shoots, or spray, are quickly emitted, which growth, if left alone, becomes studded with a profusion of blossoms. In cases where a plant is required to cover much space it should be planted out in a prepared border, that it may have plenty of root-room, as on that depends in a great measure the quantity of shoots it makes and the healthy condition it keeps. Although the Plumbago capensis will grow in any kind of soil, that which suits it best is peat, or a mixture of that and tough fibry loam, which should have a good sprinkling of sharp sand to keep it open and porous. The planting out may be done at any season, but the proper time is in spring, just before the plant starts to grow, as then it may be shaken out and the roots distributed regularly, intead of being left coiled up in the ball. As the plants flower on the young wood, the treatment they require is to be pruned in annually, so as to shorten back all growth made the previous year, except such as may be required for laying in to fill up any vacant space which may be left to the entire length. Plants grown in pots for the embellishment of greenhouses during the summer do best outdoors, if plunged in a sheltered, sunny spot, as there the shoots they form come very short-jointed and firm, and emit a profusion of flowers. As soon as the beauty of these is over, the plants may be stood out again to ripen, and, as winter approaches, stored away anywhere under the stage or with Fuchsias till spring, when they should be pruned and started in heat, and as soon as they break, shaken and repotted, and then grown on in any cold frame. By the end of May or middle of June they will be hardy enough to bear full exposure, but they should be prepared for the change gradually by giving an increase of air till the lights are removed, and left off altogether. *J. S.*

Agaricus bombycinus, Shæff.—This, one of the rarest and most magnificent of British Agarics, was sent to us from Mattishall, Norfolk, last week, by the Rev. J. M. Du Port. Until the receipt of these specimens we had never seen the plant alive. Mr. Berkeley, in the *British Flora*, records it from three different positions—on Elm, Lime, and Ash. It is not given in the recently published *Mycologia Scotica*. One of the two specimens sent to us measured 7 inches in diameter; but Mr. Du Port measured one specimen that was 8 inches in diameter across the pileus. This gentleman found the plant for the first time on July 31, 1880, growing in a crack in the trunk of a leafy Elm; this year he found it first on July 12, some examples were growing near the ground, others 3 feet higher. It looks at first like a brown lump, then the volva cracks, and the pileus pushes itself out, sometimes with patches of the volva sticking to it, but not adnate. The fungus belongs to the rare and interesting subgenus Volvaria, and the plant in infancy is completely closed over by a volva or wrapper, giving the plant the appearance of a large dark brown puffball. When mature, and the cap spread out, the appearance of the fungus with its cup-like base is most beautiful; the volva at the bottom of the stem is brown, the stem itself pure white, the gills pink, at length brown, and the top yellowish-brown, covered with small yellowish silky scales. Mr. Berkeley, in the *English Flora*, says, "It is considered eatable;" but this statement has not been repeated in later works. It is probably an error, for the fungus belongs to a very suspicious group (the Hyporhodii), which is known to contain several dangerous species; its habitat is also against its being edible, and its odour when mature is most forbidding and sickening. To such an extent is this the case that I could not bear the specimens in my room; the odour resembles that of a very strong and rank Agaricus squarrosus, or like strong poisonous cheese; the smell alone is sufficient to at once condemn it. The spores are small, oval, and pink in colour. Studded over the hymenial surface are the curious cystidia, in this species very large in size, and exceedingly few in number. *W. G. Smith.*

Wall Copings.—I am of opinion that glass coping should be largely employed in all gardens where choice fruits are expected to be grown. Even if one fourth of the walls only in any place was furnished with from 2 to 3 feet width of glass copings, I am prepared to assert that more fruit may be grown on the fourth with coping, than there could be on the other three-fourths with no coping at all. In 1879 our Peach and Nectarine trees suffered so severely from frost and east winds, that they were very nearly being confined to the fire; but having at hand a spare piece of high wall, I determined to plant the rest of our trees beside it, and to use Parham's patent glass coping to cover them. As might be expected, the trees did very little last year, but this season the crop is everything that could be desired, and the trees are in condition to carry as good a crop next year. *G. Merritt, Kimpton Hoo, Welwyn.*

Origanum dictamnus.—This pretty plant is now the most attractive ornament of my rockeries. It is quite hardy, easily increased by cuttings taken at any time, and not encroaching. The delicate branches, from 1 foot to 18 inches in length, are covered from top to bottom with rose-coloured flowers, peeping from under light green bracts, presenting very much the appearance of pink Hops. A plant which has been so long in cultivation and is so easily cultivated ought to be more often seen than it is. I bought it some years ago as Origanum pulchrum. The botanical name may be intended to connect it with the Dictamnus of Virgil, and it certainly corresponds with his descriptions better than the Dictamnus fraxinella does; but it is waste of time to attempt to identify the plants indicated by the fanciful descriptions of the ancient poets. *C. Wolley Dod, Edge Hall, Malpas, Cheshire.*

Tobacco as a Window Plant.—I think the Tobacco plant is well worthy the attention of cultivators of window plants. I have grown it for this purpose successfully. I scattered some seed in a sheltered situation in the open garden about the middle of last June; the beginning of October I potted up a few plants, with a view of testing their value for growing in rooms. I did not place them in the window at once but kept them in the greenhouse, under a Vine until the beginning of January, when they were brought into a sitting-room where a fire was lit every day. The plants were then 1½ foot high, the stems being stout and firm, and the somewhat pendulous leaves large and evenly distributed. About the second week in March the flower-spike began to push up, grew rapidly, and was soon in full flower, continuing so for a considerable time. As a number of side shoots by this time had grown out I thought I would let a few pods of seed ripen, and I shifted the pots into a sunny situation in the open ground, never allowing the plants to want for water, which I supplemented once a week with liquid-manure. The seeds ripened thoroughly. I then cut the flower-stem close down to the first shoot, shifted the plants into larger pots, placing a couple of inches of thoroughly rotten horse-dung over the drainage material, filled in the space between the ball of earth and the pot with ordinary garden soil, such as the seed was sown in, settled the whole down with a good watering, and reinstated my plants in the sitting-room windows, where they are now in full flower again, and from their appearance promise to continue so for an indefinite time. The flowers are unusually rich in colour, and velvety in texture. *T. J.*

Salpiglossis.—There are few annuals more showy and useful than the Salpiglossis, which have large Lily-like flowers, and are alike valuable for the ornamentation of beds or borders, or the embellishment of greenhouses and conservatories, where, from their spare habit, they may be dropped in among other plants, and made to produce a very striking effect. During the hot weather we had them in great perfection outdoors, but the wind and rains since have somewhat knocked them about, from which they will soon recover, as they are full of growth and buds, and only waiting for sun to expand their gay blossoms. Being rather tender, seed should not be sown till the end of April, and then under glass; and if the plants are potted so as to get them strong and established before turning out, they do the better and pay well for the labour. Like most annuals they are fond of light rich soil, and should have a warm sheltered bed or border, and if grown in pots be plunged outdoors till they show flower, and be well fed with liquid manure. *J. S.*

Judging Peas.—In your report of the Manchester show at p. 280 you make the appropriate remark that it is noteworthy that the judges of Peas favoured the medium-sized marrow Peas. If this judgment were to form a precedent it would put a check on those who are trying to improve the Pea; but when we consider the merits of the case we may think the judgment very conservative in all its bearings. I think the winner was as much surprised as any one at his good luck in winning with Best of All Peas. I have had the chance of trying that Pea with Culverwell's Giant Marrow—a delicious full marrow Pea and immense cropper. In shelling a good sample of twenty-four pods of Best of All Peas with an average of eight Peas in a pod, the produce weighed 6 oz., whereas the Peas from the same number of pods of Giant Marrow weighed 9 oz. If all the Peas are in good condition such judgment cannot be right. What does the veteran Pea grower, Mr. Muir, say to it? For my part I think such judgment should not prevent the progress now being made in Pea culture. *Fair Play.*

Milla biflora.—Will any of your correspondents kindly say whether they have ever had Milla biflora with five flowers in the umbel? I have it in bloom now with that number, and it seems so unusual that it may be worth notice. It is a lovely flower, the ivory whiteness of the petals being quite unique. *A. Rawson, The Vicarage, Bromley Common, Kent.*

Wasps.—Wasps in this locality are this year conspicuous by their absence. I have not heard of a nest, and have only seen one wasp since early spring, when I killed several. Are they generally scarce this year? *Thos. Woodford, Quex Park, Margate.*

Preserving French Beans.—Your enquirer "A. B." should procure an earthenware crock, glazed inside, and fitted with a lid. The Beans to be preserved should be gathered when dry; a layer

of Beans placed at the bottom of the crock, then a layer of common salt, and so on, alternate layers of Beans and salt, finishing with salt, and cover over. The Beans will keep good for months, but require to be soaked in fresh water all night previous to using. *Thos. Woodford, Quex Park, Margate.*

—— A friend of mine who has lately returned from Germany, says that they keep French Beans over there in the following way. They gather the pods in dry weather, slice them as we do for cooking, and throw them into a small cask, strewing salt over each layer of Beans, until the cask is filled; they then close it carefully, and when the Beans are required as a green vegetable in winter, simply throw the needed quantity into cold water for a couple of hours before cooking them. I have not tried this recipe, but hope to do so. *Helen E. Watney, The Cottage, Liss, Hants.*

Yucca aloifolia variegata.—We have now flowering in the conservatory two fine specimen plants of the above, with 600 flowers on a single spike. They were planted out seven years ago in a bed of rich fibry loam, and are now a little over 10 feet high, and perfectly furnished to the ground; the flower-spike does not exceed 3 feet, and the colour of the flowers is light straw. *J. Taylor, The Gardens, Hoole Hall, Chester.*

The Fruit and Vegetable Crops.—Although the late rains have been very trying for farmers who have had their corn to harvest, they have done wonders for the fruit and vegetable crops, the latter of which looked at one time as if they would be poor, but the growth during the past fortnight has been of such a rapid nature as to make it certain that there will be a great abundance of green stuff throughout the country, and all we shall want is a mild winter to save it. Late Potatos, too, promise to be very plentiful, as the tops are free from disease and looking very healthy, but I hear complaints of supertuberating, although I do not think from what I have seen that this has taken place to any serious extent. As there appears every prospect of Potatos ripening off properly instead of losing the haulm prematurely as they have done for so many years, the tubers may be expected to be very fine in quality and in that condition to keep sound and well. Apples and Pears are more abundant than they have been for a long time past, and the swelling of the fruit of late has been most rapid. A month back it looked as if it would be small, but the wet has got so thoroughly down to the roots and the ground was so warm, that the trees felt the combined influence of both and were able to set to work vigorously and send up plenty of sap. *J. S.*

The Costmary (Balsamita vulgaris, or Pyrethrum Tanacetum).—Can any of your correspondents give any information as to the use of this plant for culinary or medicinal purposes, and why named Costmary? I have not met with it anywhere but in this neighbourhood, where it is called the Camphor-plant, but it is not for a moment to be confounded with Laurus Camphora or Camphora officinalis (the Camphor tree). *Walsall.*

Bignonia grandiflora.—I was pleased to meet with this fine old plant flowering most profusely in the nurseries of Mr. Woods, at Woodbridge, Suffolk, the other day (Aug. 18). Mr. Woods kindly gave me the following information. He has known this plant in its present position growing on a south-west wall over sixty years; it covers an immense space, and he attributes his success in flowering it (which it does every year very freely) to the pruning of it back hard every season. There are now hundreds of shoots from above 1 foot to 18 inches long, most of which have fine trusses of the beautiful bright deep orange flowers: a grand acquisition for a similar position or a favourable spot. *A. Outram.*

The Potato Disease.—Kindly allow me a few words on the above in reply to "A. D.," p. 246. I have made no secret of any knowledge I possess as to how Potatos can be grown free from disease; and the Editors will free me of any blame that the readers of these pages are not familiar with all that I have done or can say on this subject. Should "A. D." or any other reader care to know what a cryptogamic baker has done and written on this matter, allow me to beg attention to a paper with illustrations from my pen in the *English Mechanic* for May 6 this year, pp. 110-113. I re-affirm every word of that paper, after five months' continuous observations of the same facts. My belief is that the disease of the Potato, or of any other plant, is mysterious in proportion to our knowledge of them, and that there is no more mystery about the origin of the fungus, Peronospora infestans, than there is about the leavening organisms of my bread. Peronosporæ are, according to my observation, the forms assumed by the isolated nuclei in the tissue of the Potato in either tuber, stem, or leaves, when exposed to free and moist air. *W. Adam Thoms.* [In justice to Mr. Thoms we admit his reply to "A. D.," and we can bear witness to the great pains he has taken to study the course of development of the fungus; nevertheless, if Mr. Thoms alludes to the MSS. and drawings he was good enough to forward us some time since, we are bound to express our opinion that Mr. Thoms has misinterpreted what he has seen, and that he is mistaken in his views as to the origin of the disease. Eds.]

Herbaceous Veronicas.—Some of these change their character much under cultivation. For a long time I could not believe that the garden varieties of several colours sold as V. spicata, and growing here to a height of 4 feet, really belonged to that species. The native V. spicata, as it grows wild on Newmarket Heath, is a small, delicate plant, with narrow almost linear leaves, and rarely exceeding in height 4 or 5 inches. A plant sent to me last year from Cambridgeshire ripened seed in my garden, which I carefully gathered and sowed in the open air in spring. Some of the seedlings are now coming into flower, and are more than 18 inches high, and all have the broad serrated leaves and coarse habit of the common V. spicata of gardens. It may be said that the seed was crossed, but the seedlings all agree in form and habit, though gathered from several spikes. A closely allied species, said by botanists to be a variety of V. spicata, and named V. hybrida, abounds on limestone hills near Llandudno. It grows there to a height of 8 or 9 inches, and has flowers of different shades of clear purple or rose colour; but in cultivation the colour becomes diluted, and the growth coarse. The most ornamental of herbaceous Veronicas is V. longifolia subsessilis. A plant of this in my garden, left alone since the spring of last year, is 4 feet high, and bears about ten main stalks; but young plants struck in spring are more ornamental, though less than half the height, the proportion of flowers to leaves being much larger. The tallest Veronica I have is one of several claimants for the name of V. virginica. It is 6 feet high, and has lanceolate leaves in regular whorls, and spikes of white flowers on stiff wiry stalks. These Veronicas all lose in colour as much as they gain in size by cultivation. A deep, retentive soil is not good for the ornamental qualities of herbaceous Veronicas. *C. Wolley Dod, Edge Hall, Malpas.*

Steventon Manor, Micheldever.—This is what may be termed a new old place, *i.e.*, an old estate and mansion undergoing thorough renovation, the character of which may be surmised when it is said that the old mansion is being turned into stables and a new mansion built. It was purchased some seven or eight years ago by the present proprietor, H. Harris, Esq., who very wisely determined that the gardens should have first attention, so as to be in full working order to supply the familly as soon as they came into residence. The new kitchen garden is well stocked, the trees in the new orchard are making most fruitful growth, and the wall-trees will very shortly have filled their allotted space, whilst the fruit-houses are already so well furnished that they might well be taken to have been in existence at least a dozen years instead of half that number. Certainly it would be difficult to find better examples of high culture than is afforded by the Peaches, Nectarines, and Vines; the bunches of the latter are large, 3 to 4 lb. weight, berries immense, and the finish perfection. Madresfield Court as seen here is enough to provoke the enthusiasm of the most apathetic, and the same remark will apply to Alicante, whilst the Hamburghs, Muscats, Foster's Seedling, and other kinds are much above the average. Mr. E. Crump is evidently in his right sphere as gardener at Steventon, and his doings should be seen that they may imbue others of the fraternity with the desire to go and do likewise. *W. W.*

Lilium auratum at Shirecliffe Hall, Sheffield.—This queen of Lilies is deservingly popular, and the esteem in which it is held is evidenced by the large number of bulbs annually imported from Japan, yet it rarely occurs in general cultivation that its real beauty and value as a decorative plant is seen in perfection, probably in consequence of sufficient care not being exercised both before and after the blooming season. After it has done flowering it not unfrequently happens that the bulbs are placed in some out-of-the-way corner, where they are left to take care of themselves, and of course under such conditions deterioration naturally takes place. At Shirecliffe the treatment is the opposite to this, and the result remarkable for the perfection that the Lilium auratum attains. There is one specimen now in full bloom and beauty that deserves special mention: seven or eight strong spikes well clothed with healthy foliage standing about 7 feet above the rim of the pot are laden with a profusion of most beautiful blooms and buds numbering not less than eighty, averaging about 8 inches across, seventy of them being fully expanded, filling the air for some distance around with their rich fragrance. The stately masses of delicately marked blossoms have a noble and regal appearance, and should be seen to be properly appreciated. It is now in a 16-inch pot, having been repotted from a 7-inch pot, in which it was originally planted several years ago. Great credit is due to Mr. J. Udale (the head gardener) for producing such excellent results, whose skill in perfecting many other plants and flowers is well known in this district, notably in the cultivation of Camellias, Chrysanthemums, Maréchal Niel and other Roses. *J. H. S.*

Gardeners' Royal Benevolent Institution.—The number of responses, up to and including this date, is 371; and the amount contributed is £440 19*s.* 10*d.*, giving an average of £1 3*s.* 9*d.* each. In common with every one else, I regret the deplorable weather we experienced in Manchester last week; but, notwithstanding all troubles, I am pleased to say that I did very well there. Had the weather been fine I should have had a great success, but as it is the seed has been sown for what I have reason to believe will prove a profitable harvest. *Edward R. Cutler, Secretary, Sept. 1.*

Gloxinias.—Mr. Douglas, at p. 238, writes of the Gloxinia as a hothouse plant, and no doubt it is generally so esteemed, indeed I observe in a contemporary a statement that it will not thrive in an ordinary greenhouse. I have but just seen a handsome Gloxinia growing in a cool room-window that has upon it eight good expanded blooms, and has, I think, ten others yet to expand. The foliage is strong and healthy. This plant came from a hothouse last Midsummer twelvemonths, and was then in full flower. It was placed in this same room, but the blooms soon fell, no doubt feeling the change of temperature. The plant was kept until the leaves had died away, and then was put upon a shelf in the kitchen as near the fire-place as could be, and kept through the winter. In the spring the bulb pushed growth, and the pot was then stood in the kitchen-window, and when the weather got warm it was taken into a cooler room above. There it has remained, and it now contains a plant that would be a credit to any hothouse. I think this simple fact suffices to show that the Gloxinia, if the bulbs are kept dry and fairly warm during the winter, may be successfully grown as a greenhouse plant, and it is certain that it will do well in a window. No doubt we force the Gloxinia to push it on as quickly as possible, and, perhaps, in heat the plants produce larger leaves and finer blooms than would come in a greenhouse; but as so many have greenhouses and windows only, they may well be encouraged thus to grow one of the loveliest of summer decorative plants. The plant in question produces purplish flowers. Are these dark flowered ones any hardier than the light-flowered kinds? *A. D.*

Weigela nana variegata.—As a summer decorative plant for the shrubbery bed or border this Weigelia has few equals. It is a good companion to have with the commoner kinds, on account of its denser habit and bright variegated leaves, which are very attractive at this season among evergreen trees and shrubs. *W. H.*

Lord Napier Nectarine.—I can endorse every word that has been said in favour of this variety, having fruited it for four years. There is not a single point against it. This season I gathered it before the Early York Peach in the same house, and I find it does equally well fan-trained or as a bush. I am surprised that it is so little known, as very few that have seen it here even knew it by name, but many have planted it from having seen its good qualities. *D. Walker, Dunorlan, Tunbridge Wells.*

Erythrina crista-galli.—Having seen some correspondence in your paper in reference to Erythrina crista-galli I send you a spike cut from a plant growing outside, and near the wall of the stove here. The plant has about twenty similar spikes. It has been growing in the present situation about thirty years, and always flowers freely. The only protection in winter is a few inches of cinder-ashes put on when the stems are cut down in autumn, and removed when the plant commences growing in spring. *O. Bishop, The Gardens, Stisted Hall, Braintree, Essex.* [A fine sample.]

The Clethras.—Few hardy shrubs flowering during the present mooth can compare in beauty with the subjects of this note, and yet though of easiest culture they are far from common. Indeed, in many nurseries, even where one might confidently expect to find them, they are not to be met with. C. alnifolia and C. acuminata have terminal spikes of handsome white blossoms; and C. paniculata, as its name implies, has a paniculate inflorescence. The flowers of the first-named, too, possess the extra merit of being fragrant. The species mentioned flourish well in any damp peaty border.

Reports of Societies.

Crystal Palace Autumn Show: *Aug.* 29, 30, *and* 31.—After the great and truly representative show at Manchester, "the great fruit and flower show" held here on the above days was small and tame in the extreme, and calls for but brief notice in these columns. For a collection of twelve dishes of fruits Mr. Goodacre, gr. to Lord Harrington, Elvaston Castle, was 1st; Mr. Roberts, gr. to Baroness L. de Rothschild, Gunnersbury, 2d; and Mr. Mann, gr. to Mrs. Hornsby, St. Vincent's, Grantham, 3d—all staging very creditable collections. For eight dishes Mr. Oclee, gr. to the Marchioness of Lothian, Blickling Hall, Aylsham, beat Mr. Miles, gr. to Lord Carington, and Mr. Goldsmith, Sandhills, Bletchingley, in a very fair class. For ten sorts of Grapes Mr. Goodacre came in 1st again, this time beating Messrs. H. Lane & Son, of Berkhampstead; and in a very good class of five sorts the 1st prize was well won by Mr. Nash, gr. to the Duke of Beaufort, Badminton; good examples coming from Mr. Miles and Mr. Woodbridge, gr. to the Duke of Northumberland, Syon House. Mr. Nash also staged the best three bunches of Black Hamburgh, compact and well finished bunches of good size; Mr. Jones, gr. to Lord Calthorpe, Elvetham Park, Winchfield, being 2d; and Mr. Miles 3d. Mr. C. J. Goldsmith had the best Muscats; Mr. W. Elphinstone, gr., Shipley Hall, Derby, the best Gros Colmar and Alicantes; and Mr. Crump, gr. to H. Harris, Esq., Steventon Manor, Micheldever, the best Madresfield Court. Mr. Miles took two 1st prizes for Pines, and Mr. Roberts one, his being for the best Queen. 1st prizes for Peaches fell to the lot of Mr. Goodacre and Mr. Ford, gr. to His Excellency Earl Cowper, West Park, Amphill; and for Nectarines to Mr. Goodacre and Mr. G. Holliday, gr. to J. Morris, Esq., Castle Hill, Bletchingley; while other awards in the same classes were secured by Mr. Elsworthy, gr. to A. R. Gladstone, Esq., Court Hey, Liverpool; Mr. A. Jamieson, gr. to the Earl of Crawford and Balcarres, Haigh Hall, Wigan; Mr. Mann, and Mr. Bolton, gr. to W. Spottiswoode, Esq., Combe Bank, Sevenoaks. William Tillery Melon, shown by Mr. Roberts, was the best green-fleshed variety; and Read's Scarlet-flesh, contributed by Mr. Miles, secured the highest award in its class. For Plums, in three distinct classes, the highest prizes were taken by Mr. G. Ford, Mr. Fry, gr. to L. J. Baker, Esq., Haydon Hall, Eastcote, and Mr. Dean, gr. to G. W. Leveson Gower, Esq., Titsey Place, Limpsfield. To the miscellaneous class Messrs. H. Lane & Son, and Messrs. John Laing & Co. both contributed largely of their stores of good Grapes; and Mr. Ollerhead, gr. to Sir H. W. Peek, Bart., M.P., Wimbledon House, again exhibited his seedling white Grape, which, as we stated last week, is a seedling between Foster's Seedling and Muscat of Alexandria, of which we have since learnt that it is as early as Foster's, but hangs a much longer time, and is otherwise remarkable for its free setting qualities. We have yet to learn how late Mr. Ollerhead can keep it; at present appearances are all in its favour, and should it prove, as we anticipate it will, a good white companion to the Black Hamburgh, the raiser will deserve all our thanks. Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley, staged a nice collection of Apples grown on cordon-trained trees, which are one of their specialities. Cut flowers included a very good collection of Gladioli from Messrs. Kelway & Son, who took a 1st prize for twelve spikes, and an extra for the collection; very fine stands of Dahlias from Mr. Turner, Slough, who was 1st for forty-eight show varieties; and Messrs. H. Cannell & Son, Swanley, 1st for twenty-four fancies; a showy collection from the latter firm of monster Cockscombs, Verbenas, single white Dahlias, Begonias, pompon Dahlias, and zonal Pelargoniums; very fine stands of Asters from Mr. Lunt, gr. to H. Clutton, Esq., Camden Hill, Chislehurst, and Messrs. Saltmarsh & Son, Chelmsford; and a capital lot of Dahlias from Messrs. Rawlings Bros., Romford. There were six competitors with table decorations, Mr. W. L. Buster, St. Mary Cray, Kent, having the best.

Sevenoaks Horticultural: *Aug.* 18.—The show of this Society was again held in Montreal Park, and was very successful, plants, cut flowers, and fruit being alike well represented. One important feature was the numerous groups of plants and other productions brought and arranged by various exhibitors, not for competition, but simply to enhance the character of the exhibition.

Six stove and greenhouse plants in bloom: 1st, Mr. Gibson, gr. to T. F. Burnaby Atkins, Esq., who showed a well-flowered half dozen, consisting of Dipladenia amabilis and D. Brearleyana, Allamanda Hendersoni, A. grandiflora, Ixora Prince of Orange, and Anthurium Scherzerianum. Mr. Bolton, gr. to W. Spottiswoode, Esq., Coombe Bank, was a good 2d, his best plants being Tabernæmontana coronaria flore-pleno, in the shape of a bush 3½ feet through and very well flowered; Æschynanthus grandiflorus, little smaller; and Clerodendron fallax, with eighteen spikes of flower. 3d, Mr. Burt, gr. to H. B. Mildmay, Esq., who had, amongst others, a large specimen of the white Lapageria. Six fine-foliage plants: With these Mr. Gibson was also 1st, staging in a well-grown group an unusually fine specimen of Alocasia Lowii, along with Croton majesticus and C. Youngii. Mr. Burt, who came in 2d, had a fine Croton majesticus, Anthurium crystallinum, and Areca lutescens. Mr. Bolton was 3d.

Ferns were well shown. In a close competition Mr. Bolton secured 1st honours with, amongst others, very fine specimens of Goniophlebium subauriculatum (the drooping fronds of which were 6 feet long), Dicksonia squarrosa, and D. antarctica, in good condition; 2d, Mr. Staples, gr. to H. Oppenheim, Esq., having large and well-grown examples of Adiantum cardiochlæna and A. farleyense. Six hardy Ferns: 1st, Mr. Staples, with nicely-grown plants.

Groups of plants were, as usual here, very well done, and Mr. Burt took the lead with a nice arrangement, Mr. Bolton being a near 2d, using the white-flowered form of Campanula pyramidalis, Francoa ramosa, and the old Rochea falcata; 3d, Mr. Fennell, gr. to E. Cazalet, Esq. Mr. James, of Lower Norwood, was to the fore with a collection of Orchids, his best plants being Epidendrum prismatocarpum, Aerides quinquevulnerum, and Odontoglossum crispum; 2d, Mr. Burt; 3d, Mr. Cook, gr. to D. Crawshay, Esq.

Begonias were very well done. In the class of six, Mr. Meakin, gr. to C. R. C. Pettey, Esq., came in 1st, with very large, finely-bloomed examples of Emperor, Vesuvius, Gibsoni, and the handsome-leaved metallica; 2d, Mr. Bolton. Achimenes were unusually well shown, Mr. Sears, gr. to W. J. Thompson, Esq., and Mr. Huntley, gr. to the Rev. T. S. Curteis, were equal 1st, showing well-grown, densely-flowered plants. Caladiums were better managed than usually seen; 1st, Mr. Meakin, with Triomphe de Liège, Frederic Blue, Prince Albert Edward, and Meyerbeer. Six Fuchsias: 1st, Mr. Meakin.

Zonal Pelargoniums were well shown, Mr. Bligh, gr. to Mrs. Swanzy, taking 1st, with a profusely-flowered lot, consisting mostly of old varieties, which bloom more freely than many of the larger-flowered new sorts; 2d, Mr. Meakin. Single stove or greenhouse plant: 1st, Mr. Gibson, showing the light-coloured Dipladenia regina; 2d, Mr. Meakin.

Amateurs' division.—Four stove and greenhouse plants: 1st, Mr. Vallins, gr. to J. L. Worship, Esq.—a nice collection. Four foliage plants: 1st, Mr. Talmage, gr. to A. B. Pearce, Esq.; Mr. Vallins 2d. Fuchsias: 1st, Mr. Vallins; 2d, Mr. Welch. Zonal Pelargoniums: 1st, Mr. Vallins; 2d, Mr. Lutchford, gr. to G. G. Cronk, Esq.

Cut flowers were largely shown. With twenty-four Roses Messrs. Bunyard & Co., Maidstone, were 1st, staging nice flowers of Marie Rady, Sénateur Vaisse, Princess of Wales, Beauty of Waltham, &c.; 2d, Mr. Rumsey, Waltham Cross. Twelve Roses: 1st, J. Hollingworth, Esq., a nice stand; 2d, Mr. Blundell, gr. to G. Christie, Esq. Twenty-four Dahlias: 1st, Messrs. Cannell & Son, who had good blooms of John Bennett, Hon. S. Herbert, Burgundy, J. N. Keynes, and Mons. Chauviere; 2d, Mr. W. Seale, Sevenoaks. Twelve: 1st, Mr. Read, gr. to W. C. Cripps, Esq.; 2d, Mr. Bolton. Eighteen Gladiolus: 1st, Messrs. Bunyard & Co.; 2d, Mr. Seale. Phloxes: 1st, Mr. Bolton. Asters: 1st, Mr. Blundell. Twelve bunches stove and greenhouse flowers: 1st, Mr. Gibson, fresh and nicely shown; 2d, Mr. Burt; 3d, Mr. Bolton, also a very nice selection. Three stands for table decoration: 1st, Miss Robinson, Edenhurst, with light elegant arrangements, a little out of the ordinary run; 2d, Miss Staples, a nice exhibit. Single stand: 1st, Mr. Bolton; 2d, Mr. Seale. Stand of wild flowers: 1st, Mr. Seale; 2d, Miss Goodall. Hand bouquet: 1st, Mr R. Phillips; 2d, Miss E. Staples.

Fruit.—Of this there was an unusually large display for a country show, in which the prizes necessarily are not so large as to tempt distant exhibitors. Six dishes: 1st, Mr. Fennell, with Madresfield Court and Foster's Seedling Grapes (very good), Peaches, Nectarines, Figs, and a Melon; 2d, Mr. C. Goldsmith, gr. to Mrs. Lambert, who had a nice collection, in which was a grand half-dozen Noblesse Peaches; 3d, Mr. Staples. Single Pine: 1st, Mr. Henderson, gr. to J. Deacon, Esq.; 2d, Mr. Wheeler, gr. to E. Hargreaves, Esq. There were eleven exhibitors in the class for three bunches of black Grapes, the 1st prize being taken by Mr. Henderson, with magnificent examples of Muscat Hamburgh, large, full bunches, well finished; 2d, Mr. Reekes, gr. to R. W. Smythe, Esq., Black Hamburgh, good-sized bunches, even in berry; 3d, Mr. G. Goldsmith, gr. to P. C. Hardwicke, Esq., well finished Black Hamburghs. Three bunches white Grapes: 1st, Mr. Reekes, Muscat of Alexandria, good bunches and berries, a little short of colour; 2d, Mr. J. Goodwin, very good Golden Hamburghs; 3d, Mr. Burt. There were eight competitors in this class. For three bunches of Grapes, distinct varieties: 1st, Mr. Fennell, Buckland Sweetwater, Madresfield Court, and Foster's Seedling, in nice condition; 2d, Mr. Henderson, Black Hamburgh, Muscat Hamburgh, and Muscat of Alexandria, all in good order; 3d, Mr. Reekes. In this class there were twelve competitors. Six Peaches: 1st, Mr. C. Goldsmith, showing Barrington, large and in fine order: Mr. Staples 2d, also showing Barrington. Six Nectarines: 1st, Mr. Henderson; 2d, Mr. Gibson. Three sorts dessert Plums: Mr. Staples 1st, with Green Gage, Jefferson, and Kirke's; 2d, Mr. Bolton, with Jefferson, Prince Englebert, and Washington. Melon: 1st, Mr. Bolton; 2d, Mr. Beech, gr. to Mrs. Cunningham. (*From a Correspondent.*)

Shrewsbury Floral and Musical Fête: *Aug.* 17 *and* 18.—With aids of a kind that are not horticultural, accompanied by good music, the Shrewsbury Society has in a few years attained a position that few in the country hold. In 1879 they presented the Corporation with a band-stand, costing £200, for The Quarry (the beautiful grounds in which the exhibitions are held), and this year they have spent £200 more in the erection of a set of very handsome gates, which on the occasion of the present show were handed over to the Mayor, who at the same time was presented with a suitable key enclosed in a morocco case. After doing this much the Society had over £1000 in hand, to which there will now be a substantial addition, as the attendance this year was greater than ever it has been before, 26,500 people entering the gates on the two days, the amount taken on the second day being £725. The Society also holds a spring show, for such plants as are then in bloom, including bulbs; and a Rose show in July. The exhibition on the present occasion, both as regards extent and the merits of the productions displayed generally, was a decided improvement upon anything which they have before had.

In a close competition with twenty plants, blooming and foliage, Mr. Cypher, Cheltenham, had 1st, staging an unusually fine lot, containing Lapageria rosea clothed with a profusion of its bright rose flowers; the white Lapageria in nice condition; Allamanda nobilis, well bloomed; a very good Bougainvillea glabra, with some fine Palms, Gleichenias, and Cycads. The way in which this large group of plants was staged, as regards the arrangement of form and colour, was such as to make them additionally attractive, independent of the merits of the individual specimens of which it was composed. 2d, Mr. Tudgey, gr. to J. F. G. Williams, Esq., Worcester, who also staged an excellent group, amongst which was an extraordinary example of Dipladenia hybrida, an intensely bright crimson-coloured variety with large flowers, literally smothered with bloom, the plant being 4 feet through; the bright crimson and green-tipped Erica Eweriana superba, 4½ feet through—a mass of flowers; Ixora coccinea, well bloomed; Erica Irbyana, also large and in good form, with some fine, well-grown, ornamental-leaved subjects. In the class of nine stove and greenhouse plants, Mr. F. Perkins, Leamington, was 1st, with a nice collection, including the singular Gloriosa superba, Statice Butcherii, a seedling raised between S. profusa and S. Holfordii, a very fine variety, with good habit of growth, and flowers unusually deep in colour, and Ixora Williamsii; 2d, Mr. Pratt, gr. to Lord Hill, Hawkstone, who had a good Allamanda Hendersoni, the red Bouvardia Hogarthii, a grand example of Nepenthes Hookeri, and a couple of good Crotons, angustifolius and Disraeli. Six stove and greenhouse plants (amateurs): 1st, H. Owen, Esq., the most noteworthy being Allamanda Hendersoni and a Stephanotis; 2d, Mr. Walford, gr. to Mrs. Wace.

Six Heaths: 1st, Mr. Cypher, with E. Marnockiana, E. Irbyana, E. Aitoniana, E. Austiniana, E. Turnbullii, and E. æmula, a good half-dozen; Mr. Tudgey 2d, likewise showing good plants. Nine Ferns: 1st, Mr. Cypher, a fresh, meritorious lot, in which was the handsome Alsophila elegantissima, Thamnopteris Nidus, Gleichenia Speluncæ, Adiantum cardiochlæna, and A. trapeziforme, 5 feet through; 2d, Mr. Tudgey; and 3d, Mr. Pratt, both putting up nice collections. Six Ferns: 1st, Mr. Warrender, gr. to Sir T. C. Meyrick; 2d, Mr. G. Pearson, gr. to Lord Berwick. Four (amateurs): 1st, Mr. B. Jones, gr. to L. Burd, Esq., who had nice medium-sized specimens; Mr. H. Owen 2d.

Six Palms: With these, in a near run, Mr. Tudgey came in 1st, having an excellent group, the best of which were Geonoma princeps, G. plumosa, Pritchardia pacifica, Cocos Weddelliana; 2d, Mr. Cypher, likewise a good exhibit, including Verschaffeltia splendida and Geonoma pumila; Mr. Pratt, 3d. Twelve dinner-table plants: 1st, Mr. Cypher, with an elegant lot of Aralias, Palms, and Crotons; 2d, Mr. Pratt, also showing the right description of plants; 3d, Mr. Warrender. Fifty miscellaneous plants: 1st, Messrs. Jones & Son, Shrewsbury, who had a nice selection of flowering and fine-leaved varieties; 2d, Messrs. Pritchard & Sons, nurserymen, Shrewsbury. Of a group of plants there were six exhibitions—Messrs. Pritchard & Son, in a near competition, coming in 1st. In a groundwork of Adiantums they had Dracænas, Cordylines, Aralias, Palms, Crotons, and enough colour from Caladium argyrites, pink Pelargoniums, and Bouvardias. Mr. Pratt, 2d, a very nice exhibit; 3d, Mr. Perkins. Messrs. Jones & Sons had a group that exhibited much originality, but showed too much of the pots. Messrs. J. Dickson & Sons, Newton Nurseries, Chester, likewise contributed a group in which the pretty Hydrangea paniculata grandiflora was very effective. Six Dracænas: 1st, Mr. Pratt, a healthy, well furnished half dozen; 2d, Mr. Warrender, who also staged a nice lot. Zonal Pelargoniums were shown in more natural form than usual; for six Messrs. Jones & Sons took 1st, with specimens not over-trained and full of fine bloom; 2d, Mr. J. R. Jones, who had an even well flowered six. Three (amateurs): 1st, Mr. H. Owen, who put up nicely grown examples; 2d, Mr. J. B. Hudson. Six double Pelargoniums: 1st, Messrs. Aldroyd & Co.; 2d, Messrs. Jones & Son. Three: 1st, Mr. H. Owen; 2d, Mr. J. B. Hudson. Fuchsias were in moderate condition: with six Messrs. Pritchard & Sons took the lead, having a healthy half dozen; 2d, Mr. A. J. Niven. In the amateurs' class of three the plants were better done, not so large, but possessing more cultural merit. 1st, Mr. H. Owen, whose examples were well furnished with both flowers and foliage; 2d, Mr. B. Jones.

Cut Flowers.—The Roses shown here told the tale of there having been more rain in this part of the kingdom than has fallen in the South, where the drought has much interfered with the successful flowering. Twenty-four: 1st, Mr. Colin, gr. to W. Henderson, Esq., who had a good stand; 2d, Messrs. J. Dickson & Sons. Eighteen: 1st, Mr. Perkins, good flowers for so late in the season, the best being Monseigneur Fournier, Niphetos, Thomas Mills, Beauty of Waltham, and Marie Baumann; 2d, Mr. W. Davies. Six Roses (amateurs): 1st, Mr. Gidden, gr. to C. M. Campbell, Esq., fine blooms; 2d, Mr. H. C. Clarke.

Dahlias were nicely done. With thirty-six, Mr. W. Shaw took 1st honours, having a good stand, containing, along with others, fine blooms of Royal Purple, Captain Webb, Peacock, and Gaiety; 2d, Mr. Lawrence, gr. to J. Bodenham, Esq. Twenty-four: 1st, Mr. W. Shaw, whose exhibit included good flowers of Clara, Monarch,

olly Perkins, and Royal Purple; 2d, Mr. T. Speake. hirty-six spikes Gladiolus: 1st, Mr. W. Shaw.

Twelve bunches of cut flowers: 1st, Mr. Perkins—ery well shown; Ixoras, Heaths, Dipladenias, Pancra-ums, Bouvardias, Heaths, &c.; 2d, Messrs. Pritchard Sons. Mr. Cypher took 1st with a centrepiece of owers, Mr. Tudgey 2d. Ball bouquet: 1st, Mr. Cypher; d, Mr. H. Jones. Bride's bouquet: 1st, Mr. Cypher; d, Messrs. Jones & Sons. Three buttonhole bouquets: st, Mr. Cypher; 2d, Messrs. Jones & Sons.

Of FRUIT there was a large display, most of which was ood in quality. With a collection of twelve dishes Mr. ratt was to the fore, staging Black Hamburgh and Muscat of Alexandria Grapes, a smooth Cayenne Pine, eaches, Nectarines, Apricots, Figs, Cherries, Plums, pples, Pears, and a Melon; 2d, Mr. Hanagan, gr. to . C. Naylor, Esq., Hooton Hall, who also had a eritorious lot, including Madresfield Court and Muscat f Alexandria Grapes, very good; Royal Charlotte eaches, Pitmaston Orange Nectarines, Figs, and Apri-ots. 3d, Mr. Milner, gr. to the Rev. J. D. orbet, in whose collection was the best Mus-t Grapes shown. There were six exhibitors of ine dishes, Mr. Pratt here, too, taking 1st, his best in is class being Black Hamburgh Grapes, Peaches, and Nectarines; 2d, Mr. Lambert, gr. to C. G. Wingfield, sq., who also had a nice collection; 3d, Mr. Warrender. ix bunches of black Grapes, three varieties: 1st, Mr. ratt, Black Hamburgh, Black Prince, and Lady owne's, all very good in bunch and berry, black, and ell covered with bloom; 2d, Mr. Hanagan—Mrs. Pince, adresfield Court, and Black Hamburgh. Mr. Earp, r. to F. Stamer, Esq., received an extra prize in this ass. Four bunches of white Grapes, two varieties: 1st, Mr. Earp—Buckland Sweetwater, and Foster's Seedling, oth well coloured; 2d, Mr. Hawesford, gr. to Sir V. R. orbet. Two bunches of black Grapes (amateurs): 1st, Major Patchett, with Black Hamburgh, nicely finished. wo bunches of white Grapes (amateurs): 1st, Mr. J. Vatton. Single Pine: 1st, Mr. Pratt, showing a nice ueen. Mr. Shaw took 1st for six Peaches, with fine dish of Grosse Mignonne; 2d, Mr. Pearson, gr. to Watson, Esq. Six Nectarines: 1st, Mr. Shaw, d, Mr. Lawley, gr. to A. Darby, Esq. Six Apricots: st, Mr. Earp, with Moor Park; 2d, Mr. Taylor, gr. to . Cholmondeley, Esq. With twelve light-coloured lums, and also with twelve dark ones, Mr. S. Jones, r. to W. Hazledine, Esq., had 1st.

Messrs. Pritchard & Sons exhibited, not for competi-on, a nice miscellaneous collection of flowering and ne-leaved plants. Mr. Myers, of Shrewsbury, likewise ontributed a group, as also did Messrs. F. & A. Dick-on & Sons, Chester, and Messrs J. Dickson & Sons, ho each had healthy young stock nicely arranged. rom the latter firm came a selection of Figs in small ots, little dwarf bushes full of fruit as they well could e, showing the adaptability of this esteemed fruit for ot culture in a small state. Messrs. F. & A. Dick-on, in addition, had a very attractive group of coniferous rees, consisting of all the leading kinds of these general avourites. (*From a Correspondent.*)

Ramsgate and St. Lawrence Horticultural: *ug.* 10.—This young Society, which has only been in xistence some four years, held the usual summer show in he grounds attached to Ellington, and here, as generally o be seen where the committee work in earnest, there s a marked improvement in the productions, which are rincipally forthcoming from the gardens of those who eside within the surrounding district. There was a very ne display of the more useful productions, such as ardy fruits and vegetables, which were present in large uantities, and excellent condition. The groups of lants, in which effective arrangement was the test of erit, were very well done, Mr. Chapman taking 1st; is flowering plants, which included Celosia pyramidalis, ere nicely grouped with Dracænas, Crotons, Ferns, nd Cordylines. Mr. Burley, gr. to Mrs. Warre, was a lose 2d, using the old Agapanthus, in the shape of mall plants, to good effect amongst Celosias, Caladiums, c.; 3d, Mr. Goldfinch, gr. to Sir M. Montefiore. Stove nd greenhouse plants were much better done than here-ofore: with six Mr. Wilson, gr. to W. G. Dodd, Esq., ad 1st, showing, along with others, Clerodendron fallax nd Ixora Williamsii, Cocos Weddelliana, and Areca rinita; 2d, Mr. Chapman. Six foliage plants: In this lass also Mr. Wilson took the lead, his best examples eing Pandanus Veitchii, Phœnix dactylifera, and Dieffenbachia Bausei; 2d, Mr. Burley. Caladiums were vell shown: with four Mr. Dowden, gr. to E. F. Davis, Esq., came in 1st, staging a good lot; 2d, Mr. Burley. Six Ferns, tree varieties excluded: 1st, Mr. Dowden, with a nice half-dozen, but containing too many Adian-ums; 2d, Mr. Selway. Three Ferns: 1st, Mr. Dowden. Six hardy Ferns: 1st, Mr. Selway; 2d, Mr. G. Mount. Three Coleus: 1st, Mr. Burley, whose plants were very nicely shown; 2d, Mr. Hinge; 3d, Mr. Goldfinch, with beautifully coloured examples. Three Begonias: 1st, Mr. Silk, gr. to J. Abernethy, Esq., with well flowered and good-sized plants; 2d, Mr. Goldfinch. Foliage Begonias: 1st, Mr. W. C. Barber; 2d, Mr. Ofield. Six Gloxinias: 1st, Mr. Burley—compactly grown and nicely flowered examples. Achimenes: 1st, Mr. Burley. Zonal Pelargoniums were well represented; for six Mr. Chapman, who had distinct coloured varieties, and Mr. West were equal 1st. Three: 1st, Mr. West; 2d, Mr. Chapman. Group of Pelargoniums: 1st, Mr. West; 2d, Mr. Hinge, gr. to J. Fritsch, Esq.

Cut Flowers.—Twenty-four Roses: 1st, Messrs. Kinnont & Kidd, Canterbury; 2d, Messrs. G. Bunyard & Co., Maidstone. Twelve (amateurs): 1st, Mr. Mount; 2d, Mr. Moore. Gladiolus: 1st, Messrs. G. Bunyard & Co. Twenty-four Asters: 1st, Mr. Chapman; 2d, Mr. E. J. Hortoo, gr. to W. F. Tomson, Esq. Dahlias were very well done, Mr. Miller, gr. to J. T. Friend, Esq., taking the lead with a fine dozen; 2d, Mr. Goldfinch. Six fancy Dahlias: 1st, Mr. Miller. Collection of stove and greenhouse flowers: 1st, Mr. Miller. Miscellaneous collection of cut flowers: 1st, Mr. Miller. Hand bouquet: 1st, Miss Hutchings. Hand bouquet (outdoor): 1st, Miss Hutchings. Cut flowers (ladies' division)—Stand of fruit and flowers for dinner table: 1st, Miss Mocket; 2d, Mrs. Bancroft. Basket or vase for drawing-room: Equal 1st, Miss Ashley and Miss Winn; equal 2d, Miss Williamson and Miss F. S. Penfold. Arrangement of wild flowers and grasses: 1st, Miss Ashley. Button-hole flowers: 1st, Miss G. Penfold; 2d, Miss Wardell.

Fruit was shown in moderate quantity, Grapes especially being fairly represented. Eight varieties fruit: 1st, Mr. Wilson; 2d, Mr. Woodford. Three bunches black Grapes: 1st, Mr. T. Woodford, Black Hamburghs in nice condition; 2d, Mr. Williams. Three bunches white Grapes: With these Mr. Jarman, gr. to S. Herepath, Esq., had 1st, staging Foster's Seedling; 2d, Mr. Williams, who also had the same useful variety. Three bunches Grapes, distinct varieties: 1st, Mr. Williams, with Frankenthal, Hamburghs, and Buckland Sweetwater; 2d, Mr. Selway, Foster's Seedling, Black Hamburgh and Muscat of Alexandria. Peaches: 1st, Mr. Woodford. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 24, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Aug.	In	In.	°	°	°	°	°	°	°		In.
18	29.53	—0.26	66.2	53.0	13.2	57.8	— 3.2	51.4	79	W: SW	0.00
19	29.42	—0.38	64.8	53.2	11.6	57.1	— 3.8	51.1	81	S.W.: W.SW.	1.11
20	29.76	—0.05	68.0	49.0	19.0	56.0	— 4.8	50.0	82	W: N.W.	0.00
21	29.62	—0.19	63.0	50.5	12.5	54.3	— 6.4	51.9	92	E.:S.W.	0.59
22	29.77	—0.05	68.2	48.0	20.2	57.1	— 3.6	52.7	83	W:	0.13
23	29.50	—0.32	66.2	55.2	11.0	58.7	— 2.0	53.8	84	S.E.	0.34
24	29.58	—0.25	64.2	52.8	11.4	57.0	— 3.6	48.7	74	S.W.	0.04
Mean	29.60	—0.21	65.8	51.7	14.1	56.9	— 3.9	51.4	82	S.W.	1.21

Aug. 18.—Fine, but cloudy, sun shining at times; fine afternoon; fine night.
— 19.—Dull and overcast generally; windy. A fine night; less wind; stars very bright.
— 20.—A very fine day and night.
— 21.—Fine morning, nearly calm; dull and rainy afternoon; fine night.
— 22.—Fine morning; heavy rain in afternoon; overcast and dull; fine night, but damp.
— 23.—Fine morning; cloudy, overcast, rainy afternoon; calm, damp night.
— 24.—Fine day and night.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 31, 1881.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°			In.
25	29.48	—0.35	62.8	52.5	10.3	57.7	— 2.8	56.4	96	S.W.	0.21
26	29.33	—0.51	69.0	53.5	15.5	59.4	— 1.0	51.1	74	W: NW	0.25
27	29.65	—0.20	64.2	50.8	13.4	54.8	— 5.5	49.9	84	N.W.: WSW.	0.00
28	29.94	+0.08	68.0	45.0	23.0	55.0	— 5.2	45.8	72	W.	0.00
29	29.82	—0.05	61.0	51.0	10.0	55.2	— 4.9	54.2	97	W: SW	0.32
30	29.71	—0.16	62.5	52.5	10.0	55.9	— 4.1	48.1	75	W.: WSW.	0.11
31	30.00	+0.12	56.0	49.8	6.2	52.4	— 7.4	43.0	69	N: NE.	0.01
Mean	29.71	—0.15	63.1	50.7	12.6	55.8	— 4.4	49.8	81	W.	0.90

Aug. 25.—Dull day; overcast all day. Dark, rough night.
— 26.—Generally a fine day; strong wind. Fine night.
— 27.—A fine day, but frequently dull. Fine night.
— 28.—A fine day, with a deep blue sky. Fine night.
— 29.—A dull, overcast day and night. Heavy rain in the evening and at night.
Aug. 30.—A dull, heavy morning; partially clear mid-day Rain in the evening.
— 31.—A cold, overcast day; dull dark night.

LONDON: *Atmospheric Pressure.*—During the week ending August 27, the reading of the barometer at the level of the sea decreased from 29.94 inches at the beginning of the week to 29.75 inches by 3 P.M. on August 21; then increased to 29.90 inches by 9 A.M. on the 22d; decreased to 29.58 inches by midnight on the 23d; increased to 29.86 inches by midnight on the 24th; decreased to 29.46 inches by 9 A.M. on the 26th; and was 29.96 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.74 inches, being 0.2 inch higher than that of the preceding week, and 0.27 inch below the average for the week.

Temperature.—The highest temperature in the shade in the week was 69°, on the 26th; the next in order was 68°.2, on the 22d. On August 25 the temperature did not rise above 62°.8. The mean of the seven high day temperatures was 65°.4.

The lowest temperature in the week was 48°, on the 22d; on the 23d the lowest temperature was 55°.2. The mean of the seven lowest temperatures was 51°.9.

The greatest range of temperature in one day was 20°.2, on the 22d; the smallest was 10°.3, on the 25th. The mean of the seven daily ranges was 13°.5.

The mean daily temperatures were, on August 21, 54°.3; on the 22d, 57°.1; on the 23d, 58°.7; on the 24th, 57°; on the 25th, 57°.7; on the 26th, 59°.4; and on the 27th, 54°.8; and these were below their averages by 6°.4, 3°.6, 2°, 3°.6, 2°.8, 1°, and 5°.5 respectively. The mean temperature for the week was 57°, being 0°.3 below that of last week, and 3°.6 below the average of the week for sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 130°, on the 22d, and the highest, on the 25th, was 79°. The mean of the seven readings was 74°.8.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 44°, and the mean of the seven readings was 47°.4.

Rain fell on six days, to the amount of 1.56 inch in the week, of which 0.59 inch fell on the 21st.

ENGLAND: *Temperature.*—During the week ending August 27 the highest temperatures were 72°.6 at Cambridge, 72° at Truro, and 69° at Blackheath. The highest temperature in the week at Bradford and Leeds was 64°, and at Wolverhampton 64°.4 The mean from all stations was 66°.9.

The lowest temperatures in the week were 42°.2 at Nottingham, 44° at Sunderland, and 45° at Leeds. At Brighton the lowest temperature in the week was 50°.4; at Plymouth, 49°.2; and at Bristol, 48°.2. The general mean from all stations was 46°.6.

The greatest ranges of temperature in the week were 26°.8 at Cambridge, 25°.8 at Nottingham, and 25° at Truro; at Liverpool it was 15°.5, at Plymouth 16°.6, and at Bradford 17°.4. The general mean was 20°.3.

The mean of the seven highest day temperatures exceeded 65°.5 at Cambridge, Brighton, and Truro, and was less than 61°.5 at Leeds, Liverpool, and Bradford. The general mean from all stations was 63°.5.

The mean of the seven lowest night temperatures exceeded 53° at Truro, Plymouth, and Brighton, and was less than 49°.5 at Leeds, Sunderland, and Nottingham. The general mean was 50°.8.

The mean daily range exceeded 13°.5 at Sunderland, Nottingham, and Cambridge; and was less than 11° at Liverpool, Plymouth, and Bristol. The general mean was 12°.7.

The mean temperature for the week was 58°.4 at Brighton, 58° at Cambridge, and 57°.9 at Truro; and was less than 54° at Sunderland, Liverpool, and Bradford. The general mean was 55°.5.

Rain.—The largest falls were 2.54 inches at Nottingham, 2.45 inches at Sunderland, and 2.42 inches at Bristol. The smallest falls were 0.90 inch at Cambridge, 1.09 inch at Truro, and 1.38 inch at Plymouth. The general mean fall was 1.81 inch. It fell on an average of six days in the week.

SCOTLAND: *Temperature.*—During the week ending August 27, the highest temperature was 67° at Dundee. At Leith the highest in the week was 59°.6. The general mean was 63°.4.

The lowest temperature was 39°.3, at Aberdeen; at Leith the lowest temperature was 43°. The general mean was 41°.

The mean temperature was highest at Edinburgh and Leith, 52°.8; and lowest at Aberdeen, 51°.7. The general mean was 52°.4.

Rain.—The largest falls were 3.6 inches at Edinburgh, and 3.1 inches at Leith; the smallest falls were 1.6 inches at Dundee, and 1.7 at Paisley. The general mean fall was 2.23 inches.

JAMES GLAISHER, F.R.S.

Obituary.

WE regret to record the death, on August 27, at the age of seventy-two years, of Mr. W. BUNNEY, for the last sixteen years gardener to W. H. Campion, Esq., Danny Park, Hurstpierpoint, Sussex. Mr. Bunney, who was one of the first exhibitors at the Brighton Horticultural Society's shows, and for more than twenty years a judge at the Royal Botanic Society's shows at Regent's Park, was well known to a wide circle of gardeners and nurserymen, by whom he was much respected. In 1836 he entered the service of the present Mr. Campion's father at Hitchin Abbass, and remained there till 1845, when he went to Newark Park. Here he stayed nineteen years, and left on the death of his employer, Mr. Slater. After a short period spent at Crowhurst Park, near Battle, he went to Danny Park, in 1865, under his old employer, and there ended his days.

Enquiries.

He that questioneth much shall learn much.—BACON.

BLACK AND WHITE OAK. — Black Oak timber is always being asked for by furniture dealers, and commands a large price. Is black Oak a different tree from the white? And how is one to know one from the other when growing and for future planting? *Bulmershe.*

Answers to Correspondents.

ASTERS: *H. E.* Whether or not you can show the reflexed and broad petalled Asters in one class, would depend on the wording of the prize schedule. They would not form so effective a group mixed as they would do if shown separately.

BOOKS: *F. L. Dames.* We suspect the book is out of print; but no doubt Mr. Curtis himself would tell you if such is the case.

EARLY GRAPES: *J. D.* The best you can plant are Black Hamburghs for a black variety, and Foster's Seedling for a white.

FUNGUS ON ELM: *Camjee.* The name of the fungus which you say is killing your cut-leaved Elm is Tubercularia vulgaris, one state of the Fungus known as Nectria cinnabarina. It is easy to give the name of the aggressor, but when you ask for the cause, and how the attack can be remedied or prevented, we are unable to reply. No doubt all, or the majority, of the diseases of plants are amenable to prevention or cure, but at present vegetable pathologists, however good and true their facts may be, have few or no opportunities for experiment, unless at severe loss to themselves.

FUNGUS ON PALM: *J. Hart.* Graphiola phœnicis.

GLADIOLUS DYING-OFF: *A, C.* This is a very common —too common occurrence, and we have noticed it to be very prevalent this year. There does not appear to be any reliable remedy, but it is probably favoured, perhaps occasioned, by cold, wet seasons, the Gladiolus being a native of a drier and warmer climate than ours.

GLADIOLI: ERRATUM.—In our reports of the late shows at Taunton and Weston-super-Mare our correspondents gave the Messrs. Kelway, of Langport, the credit of taking the 1st prize for Gladioli, while we are informed that at both of these shows the 1st prizes in the open and amateur classes were awarded to Mr. Samuel Dobrie, The Priory, Wellington, Somerset.

INSECTS ON VINES: *A. R., Lewisham.* Send us a sample of the insect, that we may know what it is.

MARCHANTEA ON PATHS: *Amateur.* The plant is encouraged by dampness. You should break up your path, having first scraped off and removed the Marchantea, and then put down a layer of rubble, and remake the path over that.

NAME OF FUNGUS: *R. Draper.* Phallus impudicus.

NAMES OF FRUITS: *Metcalf & Son.* The Cherry Apple, or the yellow Siberian Crab, we cannot tell which now. Send it when ripe in October.—*T. C. A.* The Fig was over-ripe and smashed. Send one that is tolerably firm, in a wooden box. — *Geo. P. Darby.* The post-office people knocked your tin canister completely out of shape, and spoilt the Apple for identification.

NAMES OF PLANTS: *Sam.* Ruscus Hypoglossum (the double-leaved Butcher's Broom). — *C. B. Green.* Abelia rupestris.—*F. Prince.* Schrophularia nodosa.—*C. E. F.* The specimens now sent are more like Cystopteris alpina, and are probably of that species, but they are very imperfect. A well developed frond is irregular in outline; that is to say, some of the pinnæ are shorter than others, so that the outline is not evenly filled out.—*W. M.* One of the varieties of the Althæa frutex, Hibiscus syriacus, known as the Painted Lady.—*A. C.* Clethra alnifolia.

"OLD MAN:" *Heinrich Schiebler.* Artemisia Abrotanum; more commonly called Southernwood.

PROPAGATING LAPAGERIAS AND CLEMATISES: *Inquirer.* Lapagerias are most readily propagated by laying down a strong or medium growth in the ground, and covering it over with about an inch of soil. It must be firmly secured with pegs. This may be done at any season. It may be six months before the buds at the base of each leaf appear above ground, which they will do at irregular intervals; and when the shoots are well ripened the plants may be removed and potted in sandy peaty soil. Clematises are also increased by layering the young shoots in the usual way. This may be done in September or October.

SIBERIAN CRAB: *Heinrich Schiebler.* Pyrus baccata and P. prunifolia.

STARRY PUFFBALL: *F. W. B.* The name of the Earth-star sent is Geaster fimbriatus, one of the commonest species, and illustrated in the *Gardeners' Chronicle* for April 19, 1873. It is quite different from the large G. Michelianus, sometimes found under Rhododendrons, and figured in the *Gardeners' Chronicle* for May 3, 1873.

STOVE FOR SMALL GREENHOUSE: *Cor.* Try the Tortoise Stove, Portway & Son, Halstead, Essex.

INSECTS: *H. J. Clayton.* Sirex gigas.—*H. C.* The insects which have attacked your young Scotch Firs are the black-headed caterpillars of the feather-horned saw-fly (Lophyrus rufus). *I. O. W.*—*J. L.* The brown blotches on Pear leaves observed at Gothenburg, are caused by minute caterpillars of the Pear-tree blister moth, a beautiful little Tinea (fig. 60; see *Gardeners' Chronicle*, 1841, p. 261), which eat the parenchyme of the leaves, leaving the two surfaces entire. *I. O. W.*

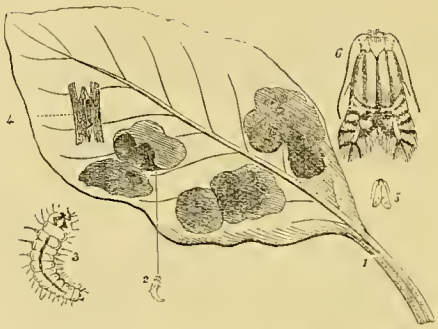

FIG. 60.—PEAR-TREE BLISTER MOTH.

CATALOGUES RECEIVED.

JAMES COCKER & SONS, Aberdeen—Dutch Flowering Roots.

STRIKE & HAWKINS, 62, High Street, Stockton-on-Tees—Dutch and other Bulbs.

F. URQUHART & CO., Inverness—Dutch Bulbs, and other Winter and Spring Blooming Plants.

THOMAS IMRIE & SONS, Ayr—Bulb Catalogue.

THOMAS BUNYARD, Ashford, Kent — Dutch Flower Roots, &c.

BARR & SUGDEN, King Street, Covent Garden, London, W.C.—Bulbs and Plants for Winter, Spring, and Summer Flowering.

SAMUEL FINNEY & CO., 35, Mosley Street, Newcastle-on-Tyne—Dutch Flower Roots.

E. G. HENDERSON & SON, Maida Vale, London, W.—Dutch Bulbs and other Bulbous Flower Roots; also Plants for Winter and Spring Flowering.

OSBORN & SONS, Fulham, S.W.—Dutch Bulbs, and other Choice Flower Roots.

E. P. DIXON, Hull—Bulbous Roots, Spring Flowering Plants, &c.

JAMES CARTER & CO., High Holborn, W.C.—Dutch Flower Roots, &c.

WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.—Dutch Flower Roots, &c.

COMMUNICATIONS RECEIVED:—M. Doumet Adanson.—W. E. G.—C. L.—M. J. B.—W. B.—G. M.—H. G.—A. D.—F. G.—S. L.—E. W.—T. S. W.—J. D.—F.F.T.D.—D. D.—J. C. & Co.—B. F.—S. & Son.—Wild Rose.—D. F. F.—Dietes.—H. J. C.—An Old Reader.—J. Smith.—R. P.—J.—W. H.—R. C. E. H.—W. S.—F. W. B.—A. B. C.—A. Reader.—S. & S.—C. W. D.—E. Cooper.—E. J.—J. H. H.—D. P.—W. C. (see p. 308).

Markets.

COVENT GARDEN, September 1.

A good supply of Peaches is still coming to market, but as there is very little demand for them they are realising low prices. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 6- 3 6	Melons, each	2 0- 3 0
Apricots, per doz.	1 6- ..	Peaches, per dozen	3 0-10 0
Damsons, ½-sieve	3 0- 4 0	Pears, Eng., ½-sieve	2 6- 3 6
Figs, per doz.	1 0- 2 0	— French, per doz.	1 6- 2 6
Grapes, per lb.	1 0- 2 6	Pine-apples, Eng., lb.	2 0- 3 0
Kent Filberts, per lb.	0 6- 0 8	Plums, per ½-sieve	4 0- 7 0
Lemons, per 100	4 0- 6 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0- 6 0	Horse Radish, p. bun.	4 0- ..
Aubergines, each	0 4- ..	Lettuces, Cabbage, per doz.	0 6- 1 6
Beans, French, p. lb.	0 4- ..	— Engl. Cos, score	1 6- ..
— Broad, per bush.	4 0- ..	Mint, green, bunch	0 4- 0 6
Beet, per doz.	1 6- 2 6	Mushrooms, p. baskt.	1 6- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bushel	5 0- ..
Carrots, per bunch	0 4- 0 6	— Spring, per bun.	0 6- ..
— New Fr., bund.	0 9- 1 0	Parsley, per bunch	0 4- ..
Cauliflowers, English, dozen	4 0- 6 0	Peas, per bushel	5 0- 8 0
Celery, per bundle	1 6- 2 0	Radishes, per bun.	0 2- 0 6
Cucumbers, each	0 6- 1 0	Rhubarb, per bund.	0 4- 0 6
Endive, per doz.	2 0- 3 0	Small salading, pun.	0 4- ..
Garlic, per lb.	1 0- ..	Spinach, per bushel	4 0- ..
Herbs, per bunch	0 2- 0 4	Tomatos, per lb.	0 9- 1 0
		Vegt. Marrows, doz.	3 0- ..

Potato trade very heavy, and prices much lower, as follows:—Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatt's, 100s. to 120s.; Magnum Bonums, 90s. to 110s.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutiloo, 12 blooms	0 2- 0 4	Migoonette, 12 bun.	1 6- 3 0
Asters, 12 bunches	3 0- 6 0	Pelargoniums, 12 sprays	0 9- 1 0
Bouvardias, per bun.	0 9- 1 0	— zonal, 12 sprays	3 0- 6 0
Carnations, 12 blms.	1 0- 2 0	Primula, double, per bunch	0 6- 1 0
Cornflower, 12 bun.	1 0- 3 0	Rhodanthe, 12 bun.	8 0-12 0
Dahlias, 12 bunches	4 0- 6 0	Roses (indoor), doz.	1 0- 3 0
Eucharis, per doz.	6 0- ..	— (outdoor), 12 bun.	4 0- 9 0
Feverfew, 12 bun.	3 0- 6 0	Stephanotis, 12 spr.	4 0- 6 0
Gardenias, 12 blms.	3 0- 8 0	Sweet Pea, 12 bun.	3 0- 6 0
Gladioli, 12 sprays	0 9- 1 6	Sweet Sultan, 12 bun.	4 0- 8 0
Heliotropes, 12 sp.	0 6- 1 0	Tropæolum, 12 bun.	1 0- 3 0
Lapageria, white, 12 blooms	2 0- 4 0	Tuberoses, per dozen	0 9- 2 0
— red, 12 blooms	1 0- 3 0		
Marguerites, 12 bun.	4 0- 6 0		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0-42 0	Foliage Plants, various, each	2 0-10 6
Asters, per dozen	4 0- 6 0	Fuchsias, per dozen	3 0- 9 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ivy Geranium, doz.	4 0- 6 0
— (common), dozen	6 0-12 0	Lilium lancifolium, per doz.	12 0-36 0
Begonias, per doz.	4 0-12 0	— auratum, p. doz.	24 0-60 0
Chrysanthemums, per dozen	9 0-12 0	Lobelia, per dozen	4 0- 6 0
Cyperus, per dozen	6 0-12 0	Marguerite, white, per dozen	18 0-24 0
Dracæna terminalis	30 0-60 0	— Yellow, per doz.	12 0-30 0
— viridis, per doz.	12 0-24 0	Mignonette, per doz.	3 0- 6 0
Euonymus, various, per dozen	6 0-18 0	Myrtles, per doz.	6 0-12 0
Evergreens, in var., per dozen	6 0-24 0	Palms in variety, each	2 6-21 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, doz.	9 0-18 0
Ficus elastica, each	1 6- 7 6	— scarlet, per doz.	3 0- 6 0
		Rhodanthe, per doz.	6 0-10 0
		Solanums, per dozen	9 0-12 0

SEEDS.

LONDON: *Aug.* 31.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that red Clover seed, owing to the bad accounts of the new crops, shows this week a further advance. Stocks of fine and useful yearling seeds are now reduced to narrow compass. There is not much doing in Trifolium. As regards Alsike, and white, the tendency is upwards. The high rates demanded for Italian Rye-grass restrict business. For Trifolium the inquiry at present is small. Rye and Tares are higher. There is an improved demand for blue Peas and Haricot Beans. More money is asked for both Canary and Hemp seed. Quotations for Linseed are easier.

CATTLE.

At Copenhagen Fields on Monday trade was checked by the weather. Prime quality beasts were scarce, and not much depressed, but fair first quality ruled rather lower, and second qualities showed a decided reduction. Sheep, though not in large supply, sold slowly at late value. Not so many lambs offered, and prices were irregular, whilst calves brought about late value. Quotations:—Beasts, 4*s.* to 5*s.* 1*d.*, and 5*s.* 4*d.* to 5*s.* 8*d.*; calves, 4*s.* 8*d.* to 5*s.* 8*d.*; sheep, 5*s.* to 5*s.* 6*d.*, and 6*s.* 2*d.* to 6*s.* 8*d.*; lambs, 6*s.* 8*d.* to 7*s.* 4*d.* — Thursday's cattle trade was very quiet. Both in beasts and sheep transactions were extremely limited, at about Monday's rates. Fine calves were firm, other breeds dull.

HAY.

Tuesday's Whitechapel Market report states that rather short supplies of fodder were on offer, and trade brisk. Straw more in demand. Quotations:—Prime old Clover, 105*s.* to 137*s.*; new, 100*s.* to 130*s.*; inferior, 80*s.* to 90*s.*; prime meadow hay, old, 100*s.* to 132*s.*; new, 100*s.* to 120*s.*; inferior, 60*s.* to 85*s.*; and straw, 30*s.* to 52*s.* per load. — On Thursday there was a moderate supply of hay and straw on sale, with a good trade for best hay, prices for which were dearer.—Cumberland Market quotations:—Superior meadow hay, 118*s.* to 130*s.*; inferior, 80*s.* to 100*s.*; superior Clover, 126*s.* to 135*s.*; inferior, 95*s.* to 110*s.*; and straw, 48*s.* to 54*s.* per load.

POTATOS.

From the Borough and Spitalfields Markets reports we learn that the supplies have been full, and the demand steady at the following figures:—Regents, 100*s.*; kidneys, 110*s.*; roses, 90*s.* per ton.

Government Stock.—The closing prices of Consols on Monday were, for delivery, 99¾ to 99⅞, and 99 15/16 to 99 7/16 for the account Tuesday's figures were, for delivery, 99½ to 99¼, and 99½ to 99⅝ for the account. The final quotations of Wednesday were, for delivery 98¾ to 98⅞, and 99 3/16 to 99¼ for the account. The final record on Thursday was, for delivery, 99 to 99⅛, and 99 to 99⅜ for the account.

WEBBS' BULBOUS FLOWER ROOTS.

WEBB & SONS

Beg to announce that they have received their First Consignment of

BULBS, in SPLENDID CONDITION,

And are prepared to Execute Orders Promptly and on the most Favourable Terms.

NOW READY,

WEBBS' AUTUMN CATALOGUE FOR 1881,

GRATIS AND POST-FREE.

THE QUEEN'S SEEDSMEN, WORDSLEY, STOURBRIDGE.

GRAPE VINES IN POTS.

Our stock of the above, including all the best varieties, is exceptionally fine this season, the Canes being short-jointed and ripening well.

Fruiting Canes .. .. 10s. 6d. each.
Planting Canes .. 5s. and 7s. 6d. ,,

And our **FIGS IN POTS**, including Osborn's Prolific, Negro Largo, Dr. Hogg, Brown Turkey, &c., are in excellent condition.

Price, 3s. 6d. to 10s. 6d. per plant.

OSBORN & SONS,
THE FULHAM NURSERIES, LONDON, S.W.

MALLER has much pleasure in again offering his usual superior stock of the following:—
RICA HYEMALIS and other varieties, EPACRIS, NISTAS, AZALEAS, CYCLAMEN, BOUVARDIAS, CANUMS, ADIANTUM CUNEATUM and other ns, GREVILLEAS; also a fine lot of VINES in Pots. An ection invited.
rade CATALOGUE forwarded on application.
he Annual SALE by AUCTION will be held in September.
Burnt Ash Lane Nurseries, Lee, S E.

Wholesale Bulb Catalogue.

VATKINS AND SIMPSON,
Wholesale Seedsmen and Bulb Merchants,
1, SAVOY HILL, STRAND, W.C.
heir Wholesale BULB CATALOGUE is now ready and may be had on application. Special quotations for large quantities of Lily of the Valley crowns and clumps, American Heroses, Double and Single Snowdrops, Winter Aconites, any sorts of Narciss, Tulips, Lilies, and Gladioli, &c.
arden and Flower Seeds, of best quality, for present sowing.

MIGNONETTE.—Miles' New Hybrid Spiral, in sealed packets bearing my name and address. Orders now being booked will be executed in strict rotation. Price 1s. per packet. Special quotations to the Trade by the dozen, 100, or 1000. Address
T. MILES, West Brighton Nurseries (close to West Brighton Station), Cliftonville, Brighton.

DOUBLE CINERARIAS.
Admirers of the above should order at once
H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and description on application. Price, the Set, £3 3s; Single set, 7s. 6d.; Seedlings, 6s. per dozen. Seed, per packet, 2s. 6d. and 5s. Usual Discount to the Trade.
CHAD VALLEY NURSERIES,
Edgbaston, Birmingham.

Dutch Bulbs direct from the Growers.

NT. ROOZEN AND SON.
HYACINTHS, TULIPS, CROCUS, GLADIOLI, at Growers' Prices, delivered entirely free to the Railway stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent, carriage paid, to any station. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents. Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.
Collections B, C, E, and F, can be had from Messrs. MERTENS AND CO., during the season; also half C and F sections, at 10s. 6d. each, against cash payment.
NT. ROOZEN AND SON, Nurserymen, Overveen, near Harlem, Holland.

EARLY WHITE FLOWERS, for Winter Blooming.
AZALEA DAVIESII, white, sweet-scented, very fine bushes, with from ten to fifty buds on each, 2s. 6d. to 3s. 6d. each.
RHODODENDRON CAUCASICUM ALBUM, nice bushes, six to twelve buds on each, 1s. 6d. to 2s. 6d. each.
ISAAC DAVIES, Nurseryman, Ormskirk, Lancashire.

Bulb Catalogues, 1881.
COMPLETE, ATTRACTIVE, and INEXPENSIVE.

GEO. BISHOP begs to intimate to the Nursery and Seed Trades that he has just Published a New Series of BULB CATALOGUES for the Season.
No. 1.—An 8-page Catalogue, with Ornamental Wrapper.
No. 2.—A 16-page Illustrated Catalogue, with Wrapper.
No. 3.—A 20-page Illustrated Catalogue, with Wrapper.
Samples and Prices free by post on application to
GEO. BISHOP, Horticultural Printer, 37, Beech Street, Barbican, London, E.C.

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W. GROVE, Tupsley Rose Nursery, Hereford, offers choice Dwarfs; the plants are very fine and strong. Order before prices advance.

EUCHARIS BLOOMS for SALE.
Apply to
E. COOLING, Mile Ash, Derby.

JOSEPH BAUMANN, NURSERYMAN, Nouvelle Promenade, Ghent, Belgium, begs to offer, in fine plants:—

			Each.
AZALEA INDICA, of sorts, with buds,	1	to 3	francs.
,, MOLLIS, ,, ,, ,,	1.50	,, 2	,,
,, PONTICA ,, ,, ,,	1	,, 3	,,
,, MOLLIS, SEEDLINGS ,,	1	,,	,,
CAMELLIAS, of sorts, good quantity, Double Whites	1.25	,, 2	,,
RHODODENDRONS, of sorts, with buds,	2	,, 5	,,
FICUS ELASTICUS, fine plants	1.25	,,	,,

SWEET BAYS and ARAUCARIAS, of all sizes. See CATALOGUE, post-paid, on application.

AMPELOPSIS VEITCHII.
A large stock of strong Plants in pots. Price per dozen or 100 on application to
WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

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COCOA-NUT FIBRE REFUSE,
3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.
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Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
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SILVER SAND.—Fine, 10s. per ton; Coarse, 11s. and 9s. per ton, by truck-loads. Kent and Surrey PEATS and LOAMS, at moderate quotations, by truck-loads, &c.—W. SHORT, Horticultural Depôt, Redhill, Surrey.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3s. (truck-load free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

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Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
Fresh SPHAGNUM, 10s. 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

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To Mr. E. G. HUGHES.

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Manufacturer, E. GRIFFITHS HUGHES, Operative Chemist, Victoria Street, Manchester.

Wasps and Flies Completely Cleared from Vineries, Greenhouses, Fruit of every description, by using

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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

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For COVERING, TYING and PACKING.
RAFFIA FIBRE for Tying.
TANNED GARDEN NETTING, SCRIM CANVAS and TIFFANY, SEED BAGS and SACKS, TARPAULINS and HORSE CLOTHS. Descriptive Catalogue post-free on application.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London.

NEW ARCHANGEL MATS.

NEW ARCHANGEL MATS, PETERSBURG MATS and MAT BAGS, are now at the lowest; the quality of all good this Season. Prices on application to
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MARENDAZ AND FISHER, James Street, Covent Garden, W.C., have received a special importation of new ARCHANGEL MATS; also a large consignment of PETERSBURG MATS, MAT BAGS and RAFFIA FIBRE.

ARCHANGEL and ST. PETERSBURG MATS, RAFFIA, SEED BAGS and SACKS, NETTING and SHADING, &c. Prices on application.

MARQUEES and TENTS, SECOND-HAND GOVERNMENT TENTS, 45 feet round, complete, 35s., suitable for the Garden, Cricket Clubs, &c.
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TILE PAVEMENTS, for Conservatories, Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.
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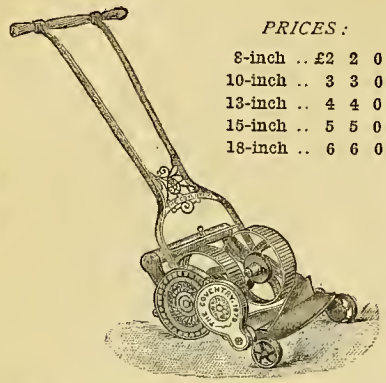

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15-inch ..	5	5	0
18-inch ..	6	6	0

Awarded the First Prize at the Sydney Exhibition.

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The great success which has attended "THE COVENTRY" LAWN MOWER during the two seasons in which it has been before the Public, enables the Manufacturers to recommend it with increased confidence as the best and cheapest yet introduced; for lightness and ease in working it cannot be surpassed.

It has all the improvements which have of late been introduced into this class of Machine, either in England or America.

It will cut wet or dry grass of any length, will turn in its own width, and is so light that a lady can use a 15-inch Machine of this make with greater ease than a 10-inch of the ordinary kind.

It is made, as it name implies, at Coventry, by skilled English workmen, and of best English Steel and Iron.

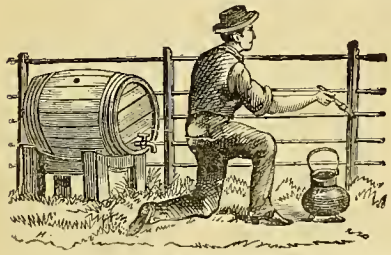
These Machines can also be supplied with ROLLERS at the same price, and with GRASS BOXES at the following extra cost:—8-inch, 6*s.* 6*d.*; 10-inch, 7*s.*; 13-inch, 7*s.* 6*d.*; 15-inch, 8*s.* 6*d.*; 18-inch, 9*s.* each.

Front Wooden Rollers for cutting verges:—8-inch, 2*s.* 6*d.*; 10-inch, 2*s.* 9*d.*; 13-inch, 3*s.*; 15-inch, 3*s.* 6*d.*; 18-inch, 4*s.* each.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone.

(*Registered Trade Mark.*)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

Large Illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c., sent free on application to

HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 180, Buchanan Street, Glasgow.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames St., London, E.C.

Under the Patronage of the Queen.

J. SMITH'S IMPERISHABLE STRATFORD LABELS.

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.

J. SMITH, The Royal Label Factory, Stratford-on-Avon.

ECONOMY IN FUEL.

Toope's Asbetos Covering Company

(LIMITED)

Manufacture an easily fitted and removable Patent Covering for Hot-water Pipes of any diameter, which effectually prevents any loss of heat in pipes passing from the boiler to the Glass-houses, no matter what the distance.

It will be found invaluable where used.

Price 10d. per superficial foot.

NUMEROUS TESTIMONIALS.

Send circumference of pipe, and length required, to the Factory,

BEN JONSON'S ROAD, STEPNEY, LONDON, E.

THOS. W. ROBINSON,

DENNIS PARK IRONWORKS, STOURBRIDGE,

MANUFACTURER OF

HOT-WATER PIPES,

IMPROVED "EXPANSION JOINT" PIPES,

BOILERS,

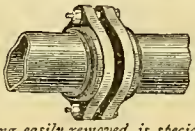
SPOUTING, PUMPS, TANKS, WROUGHT-IRON TUBING, And every description of Ironwork for Horticultural and Building Purposes.

SOCKET HOT-WATER PIPES.

	s.	d.		s.	d.		s.	d.	
Pipes (6 ft. long)—2-in.,	1	6	3-in.,	2	8	4-in.,	3	4	each.
,, (9 ft. long)— ,,	—		,,	3	9	,,	4	6	,,
Elbows (No. 12)— ,,	1	1	,,	1	8	,,	2	0	,,
Tees (No. 33)— ,,	1	5	,,	2	4	,,	3	3	,,
Syphons (No. 23)— ,,	1	3	,,	2	0	,,	3	0	,,

"Expansion Joint" Hot-water Pipes.

The "Expansion Joint."



The Best and Quickest Made.

This Joint, being easily removed, is specially adapted for Tenants.

	s.	d.		s.	d.		s.	d.	
Pipes (6 ft. long)—2-in.,	1	5	3-in.,	2	3	4-in.,	2	11	each.
,, (9 ft. long)— ,,	—		,,	3	4	,,	4	3	,,
Elbows (No. 3)— ,,	0	8	,,	0	10	,,	1	0	,,
Tees (No. 13)— ,,	0	11	,,	1	2	,,	1	4	,,
Syphons (No. 16)— ,,	1	0	,,	1	4	,,	1	6	,,

Joint complete, with Rubbers and Pins, 2-in., 10*d.* each; 3-in., 1*s.* 2*d.*; 4-in., 1*s.* 4*d.*

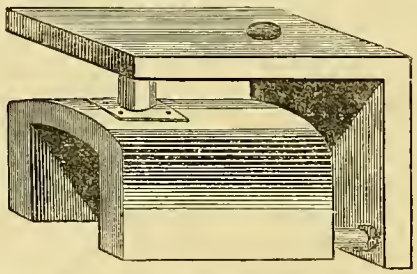
Delivered into Trucks or Boats. Illustrations and Price Lists free.

Terms—Cash against Invoice less 2½ per Cent. Discount.

Estimates for Heating given from Plans.

ALL CASTINGS SUPPLIED OF FIRST QUALITY ONLY.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1000	16	0	0
24 ,,	24 ,,	48 ,,	1400	20	0	0
28 ,,	28 ,,	60 ,,	1800	25	0	0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May* 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

When ordering Boilers please refer to the above advertisement.

GLASSHOUSES and HEATING.

A New Illustrated Pamphlet sent with Plans and Estimates f this work, on receipt of particulars.

Early Orders are requested before the busy autumn season, especially for the new

BEN'S BOILER

(REGISTERED).

PRIZE MEDAL, KENSINGTON, 188

which can be had only from

B. W. WARHURST,

Horticultural Builder and Heating Engineer,

33, HIGHGATE ROAD, LONDON, N.W

PIPES and FITTINGS,

FOR HEATING APPARATUSES.

The largest stock in the Kingdom. 4-inch pipes, 1*s.* 7*d.* per yar

SILVESTER & SAINSBURY,

Castle Hill Foundry, Newcastle, Staffordshire.

ADIE'S PATENT LAWN EDGEF

THIS Machine constantly employe will pay itself in two days. Dr. Hogg, in tl *Journal of Horticulture*, says—"This Edge Clipp we have tried, and know not which to admi most—its simplicity or efficiency." Mr. Moor in the *Florist*—"This new m chine does its work rapidly an admirably, the grass being c with precision, and" he furth adds, "the use of it will, we hav oo doubt, become general." Prices 27*s.* and 30*s.*

LAWN EDGER CO., 15, Pall Mall, London, W.

GREENHOUSE SASHES,

6 feet by 3 feet, BEST PINE, Primed and Glazed,

15-oz., 9s.,

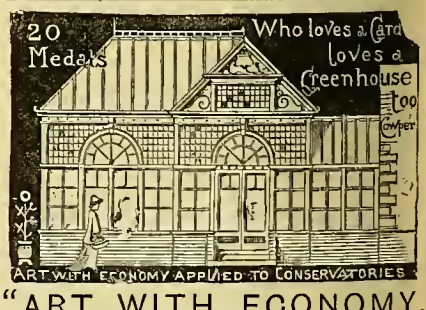
21-ounce, 10s. 6d. each.

W. RAMSEY

FARRINGDON

Glass Works

LONDON, E.C.



"ART WITH ECONOMY.

Applied to Conservatories and Greenhouses.

With Illustrations, Prices, &c.

Part I., now ready. Post-free, twelve stamp

HORTICULTURAL BUILDINGS

Of every description Made, Erected, Fitted and Heate

ESTIMATES and PLANS GRATIS.

CHEAP ART SUMMER-HOUSES

Illustrations and Prices Gratis.

Mr. Fawkes' New Illustrated Work of Reference on Hort cultural Buildings, post-free, 10*s.* 6*d.* Prospectus sent gratis.

T. H. P. DENNIS & CO.,

MANSION HOUSE BUILDINGS, LONDON, E.

WORKS: CHELMSFORD.

THE COTTAGE POULTRY HOUSE,
TENANT'S FIXTURE.

Of improved construction, can be erected in a few minutes, with Roosting House, Covered Run, Nests, Perches, &c., complete, 12 feet long, 4 feet wide. Price £6 10s., carriage paid. Write for Illustrated Catalogue, containing useful Treatise on Poultry Management, free by post.

BOULTON AND PAUL, Manufacturers, Norwich.

DAVID LOWE & SONS,
HORTICULTURAL BUILDERS
AND
HOT-WATER ENGINEERS,
GILMORE PARK, EDINBURGH.
Plans and Estimates on application for every description of Horticultural Buildings in Wood or Iron.
Garden Frames and Sashes in Stock.

THE THAMES BANK IRON COMPANY

UPPER GROUND STREET,
LONDON, S.E.,
Have the largest and most complete stock in the Trade to choose from.

HOT-WATER BOILERS, PIPES, AND CONNECTIONS,
AND all CASTINGS for HORTICULTURAL PURPOSES.

Their New Illustrated Catalogue, 12th Edition, now ready (price One Shilling).

Hot-water and Hot-air Apparatus erected complete, or the Materials supplied.
Price List on application free.

Trade Mark on WALTER MAC FARLANE & CO. GLASGOW SARACEN FOUNDRY every Casting.

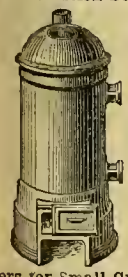
Macfarlane's Castings,
PLAIN AND ORNAMENTAL, OF EVERY DESCRIPTION.

FIRST-CLASS AWARD
AT THE
INTERNATIONAL SANITARY EXHIBITION, LONDON, 1881.

ILLUSTRATED catalogue price list plans and estimates on application.
WALTER MACFARLANE & CO., GLASGOW.
CONTRACTORS by appointment to her majesty's war department.

The Perfect Throttle Valve.
2-in. .. .. 10s. 6d.
3-in. .. .. 12s. 6d.
4-in. .. .. 15s. 0d.

Slow Combustion Boilers.



All Goods Carriage Paid.

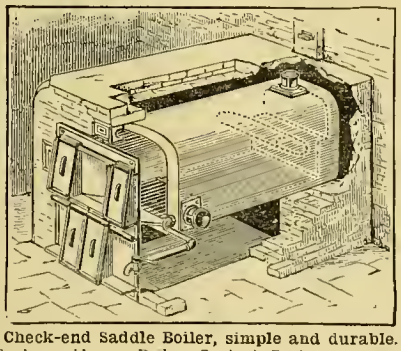
Boilers for Small Greenhouses.
Cash Prices, Carriage Paid, of boiler complete, as shown on Illustration. To heat

	4-in. Piping.	Price.
..	40 ft.	.. £3 10 0
..	60 ft.	.. 4 0 0
..	80 ft.	.. 4 10 0
..	100 ft.	.. 5 0 0

Sockets on either Side or Back.

Our Check-end Saddle Boiler is in use at Hawarden Castle, Cheshire; Chevening Park, Kent; Knebworth Hall, Herefordsh.; and in every county in the Kingdom.

BOULTON & PAUL,
HOT-WATER ENGINEERS,
NORWICH,
Manufacturers of Boilers, Valves, and every requisite for all kinds of Heating Apparatus.

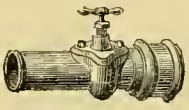


Check-end Saddle Boiler, simple and durable.
Carriage paid to any Railway Station in England and Wales, also Edinburgh, Glasgow, Dublin, Belfast and Cork.

No.	Outside Length.	Width.	Outside Height.	Guaranteed Heating Power.	Price: Boiler only.
1 ..	30 in. ..	20 in. ..	18 in. ..	300 ft. ..	£8 10 0
2 ..	36 in. ..	20 in. ..	18 in. ..	500 ft. ..	10 10 0
3 ..	42 in. ..	22 in. ..	18 in. ..	750 ft. ..	13 0 0
4 ..	48 in. ..	24 in. ..	20 in. ..	1000 ft. ..	16 0 0
5 ..	54 in. ..	27 in. ..	20 in. ..	1250 ft. ..	20 0 0
6 ..	60 in. ..	27 in. ..	22 in. ..	1500 ft. ..	23 0 0
7 ..	66 in. ..	30 in. ..	22 in. ..	1750 ft. ..	26 0 0
8 ..	72 in. ..	30 in. ..	24 in. ..	2000 ft. ..	30 0 0

Any size sent off on receipt of order, or fixed complete.

TESTIMONIAL.
"Reigate, Dec., 1880.—I am perfectly satisfied with your new Boiler. It easily heats 1600 ft. of 4-in. piping, with half the fuel consumed in the old tubular it replaced. A. M."



Screw Valves Tight under any Pressure.
2-in. .. .. 15s. 0d.
3-in. .. .. 20s. 0d.
4-in. .. .. 25s. 0d.

Large Independent Boilers

All Boilers Carriage Paid.

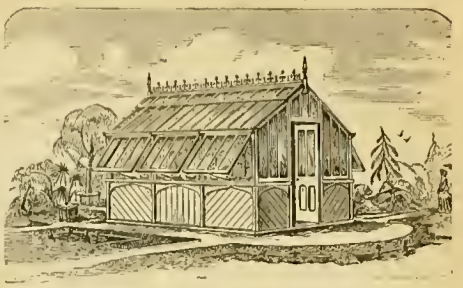
For Heating large quantities of Piping.
Cash Prices—Carriage Paid.
To Heat 250 ft. 4-in. Piping £10
" 500 ft. " 18
" 750 ft. " 26
" 1000 ft. " 34

TESTIMONIAL.
"Hingham.
"The Large Slow-Combustion Boiler is a great success. J. L."

Used by some of the principal Nurserymen and Market Gardeners.
TESTIMONIAL.
"Vineyards, Attleborough.
"The three Check-end Boilers are giving me entire satisfaction.
"T. HARWOOD."

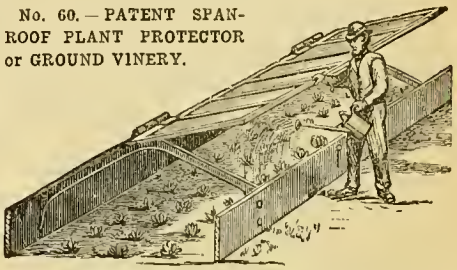
Guaranteed to Heat the amount of Piping stated. Catalogues and all particulars free on application.

BOULTON & PAUL,
HORTICULTURAL BUILDERS, NORWICH.



Portable Lean-to and Span-roof Greenhouses, with Fittings and Heating Apparatus complete in themselves. Delivered carriage paid to any Railway Station. Estimates given for any size Conservatories, Greenhouses, &c.
New CATALOGUE post-free for 12 stamps.

No. 60.—PATENT SPAN-ROOF PLANT PROTECTOR or GROUND VINERY.

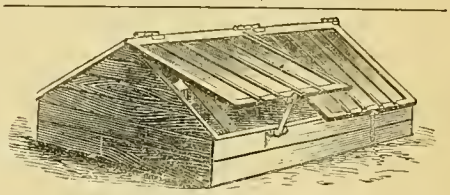


These useful frames will be found invaluable in large or small gardens for protecting plants in the open ground, or storing the same when turned out of the conservatory.
CASH PRICES—Carriage paid—including Packing Cases.

	£ s. d.	Ends per pair extra. s. d.
6 feet long, 3 feet wide ..	1 17 6	.. 7 0
12 feet long, 3 feet wide ..	3 8 6	
6 feet long, 4 feet wide ..	2 9 6	.. 8 6
12 feet long, 4 feet wide ..	4 8 6	
12 feet long, 5 feet wide ..	5 15 6	.. 10 6
12 feet long, 6 feet wide ..	7 6 6	.. 12 0

Several may be placed together, and only one pair of ends required. Descriptive LISTS post-free.
Orders amounting to over 40s. Carriage paid to any Railway Station in England and Wales; also to Edinburgh, Glasgow, Dublin and Belfast.
Any damage in transit made good if advised immediately.

PORTABLE POULTRY HOUSES
Movable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON AND PAUL, Norwich. Illustrated Catalogue sent free by post. BOULTON & PAUL, Norwich.

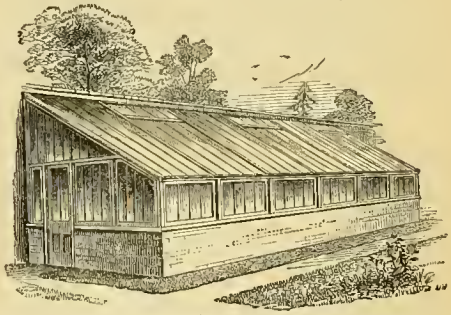


Portable Plant Frames.
R. HALLIDAY AND CO. desire to draw special attention to their Plant Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.
Prices, delivered to any station in England, also Dublin and Belfast:—

	£ s. d.
6 feet long, 4 feet wide	2 15 0
12 feet long, 4 feet wide	4 15 0
6 feet long, 5 feet wide	3 15 0
12 feet long, 5 feet wide	6 10 0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.
R. HALLIDAY AND CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.

W. H. LASCELLES,
HORTICULTURAL BUILDER,
121, BUNHILL ROW, LONDON, E.C.



W. H. LASCELLES will prepare Special DRAWINGS and ESTIMATES for GREENHOUSES, if desired, without charge, and send his Illustrated Sheets, post-free, and also Sketches of Wooden Buildings for Tool-houses, Store-houses, &c.
Horticultural Work of every description executed in the very best manner.

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Head Line charged as two.

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9 ,,	0 5 6			20 ,,	0 11 0		
10 ,,	0 6 0			21 ,,	0 11 6		
11 ,,	0 6 6			22 ,,	0 12 0		
12 ,,	0 7 0			23 ,,	0 12 6		
13 ,,	0 7 6			24 ,,	0 13 0		
14 ,,	0 8 0			25 ,,	0 13 6		

AND SIXPENCE FOR EVERY ADDITIONAL LINE.

If set across columns, the lowest charge will be 30s.

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GARDENERS, AND OTHERS, WANTING SITUATIONS.

26 words 1s. 6d., and 6d. for every additional line (about 9 words) or part of a line.

THESE ADVERTISEMENTS MUST BE PREPAID.

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

BIRTHS, DEATHS and MARRIAGES, 5s. each insertion.

Advertisements for the current week MUST *reach the Office by Thursday noon.*

All Subscriptions payable in advance.

THE UNITED KINGDOM: 12 Months, £1 3s. 10d.; 6 Months, 11s. 11d.; 3 Months, 6s.

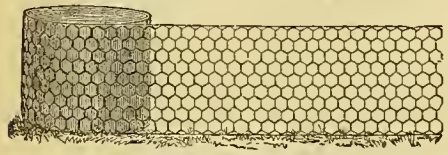
FOREIGN: 26s., including Postage for 12 Months.

P.O.O. to be made payable at the King Street, Covent Garden, Post-office, W.C., to W. RICHARDS.

PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS, 41, Wellington Street, Strand, London, W.C.

CHAMPION PRIZE

GALVANISED WIRE NETTING.



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SYDNEY and MELBOURNE,

and every International First Prize Award during the last 12 years.

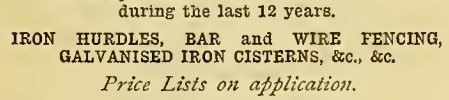
IRON HURDLES, BAR and WIRE FENCING, GALVANISED IRON CISTERNS, &c., &c.

Price Lists on application.

J. B. BROWN & CO.,

90, CANNON STREET, LONDON, E.C.

Rosher's Garden Edging Tiles.



THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c, from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

F. ROSHER AND CO., Brick and Tile Merchants.

See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

HORTICULTURAL WINDOW GLASS,

15-oz. and 21-oz., in Boxes containing 200 feet.

Carriage Paid to any Railway Station in England.

Price Lists on application.

ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 6 and 8, Pentonville Road, London, N.

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CORRY, SOPER, FOWLER AND CO. (Limited) are now prepared to offer their New Stock of Hyacinth, Specimen, and other GLASSES, in every variety and quality. Price Lists on application to 18, Finsbury Street, E.C.

T. MILLINGTON AND CO., 43, Commercial Street, E.

PLATE, SHEET, CROWN GLASS.

SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz.,	300 feet,	30s. 0d.,	if 21-oz., 200 feet,	30s. 0d.
Fourths ..	,,	,,	34s. 6d.	,, ,,	34s. 6d.
Thirds ..	,,	,,	38s. 6d.	,, ,,	38s. 6d.
Seconds ..	,,	200 feet,	42s. 0d.	,, ,,	48s. 6d.
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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*

Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

THE GARDENERS' CHRONICLE IN AMERICA.

The Subscription to America, including Postage, is $6 35 for Twelve Months.

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Now Ready, in cloth, 16s.,

THE GARDENERS' CHRONICLE,

Volume XV., JANUARY to JUNE, 1881.

W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., on TUESDAY next, Sept. 13. Admission 1s.

INTERNATIONAL POTATO EXHIBITION will be held at the Crystal Palace, Sydenham, on September 20 and 21.

Last day of entry, September 12. Schedules and all particulars may be obtained of J. A. McKENZIE, Tower Chambers, Moorgate, London, E.C.

ESSEX POTATO SHOW.—The ESSEX POTATO SHOW for the IMPROVEMENT of POTATO CULTURE will be held at Kelvedon on WEDNESDAY, September 28. Last day for Entries, September 14. Subscriptions and Entries to be sent to Mr. T. H. HILL, Secretary. Durwards, Witham.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The object of this Institution is to provide PENSIONS for *bonâ fide* FARMERS, their WIDOWS, and UNMARRIED ORPHAN DAUGHTERS. Nearly 600 persons are now being maintained, at an annual cost of £12,000, and more than 350 Candidates are waiting for Election. The Clergy are earnestly solicited to forward Collections resulting from "HARVEST THANKSGIVING SERVICES."

Particulars of the Society may be obtained of the SECRETARY, Royal Agricultural Benevolent Institution, 26, Charles Street, St. James's, London, W.

Notice of Removal.

CLAY AND LEVESLEY beg to state that, in consequence of the large increase in their Business, they have had to make considerable additions to their Premises, and to facilitate Business have REMOVED THEIR OFFICES from 174, High Street, Homerton, to their Works, TEMPLE MILL LANE, STRATFORD, LONDON, E., where all Communications should be addressed.

To the Trade.

CARTERS' WHOLESALE CATALOGUE of DUTCH and other FLOWER ROOTS, EVERLASTINGS, and HORTICULTURAL SUNDRIES, has been Posted to all Customers. A Duplicate Copy will be forwarded immediately on application to any Customer who has not already received it.

JAMES CARTER, DUNNET, AND BEALE, 237 and 238, High Holborn, London, W.C.

Strawberries.

E. P. DIXON, Hull, can offer large quantities of Strawberry Runners of the following sorts:—

PRESIDENT, | BLACK PRINCE.
SIR HARRY, | SIR JOSEPH PAXTON.

Prices, very moderate, on application.

STRAWBERRIES.—Strong roots of all the best sorts; also a quantity of SAGE and THYME PLANTS, BULBS, SEEDS, and General Nursery Stock. CHARLES H. CLISSOLD, Priory Nursery, Warwick.

STRAWBERRIES.—Strong roots for fruiting next year. 4s per 100. Descriptive LIST on application. RICHARD SMITH AND CO., Nurserymen, Worcester.

Deutzia gracilis and Dwarf Roses.

WILLIAM FLETCHER will be pleased to submit Prices of the above-named, per 100 or 1000. Ottershaw Nursery, Chertsey.

To the Trade Only.

ROSES, on own roots, extra strong, in 4½-inch pots, £2 5s. per 100, for cash. Now on offer, large quantities of Isabella Sprunt, Gloire de Dijon, and Rêve d'Or. MAIRIS AND CO., Weston-in-Gordano, Bristol.

6000 Grape Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

INTENDING PLANTERS for the ensuing autumn should visit our Nurseries at once, and inspect our unrivalled Collection of CONIFERS, Fine-foliage TREES and SHRUBS, RHODODENDRONS, FRUIT TREES, and GENERAL NURSERY STOCK. H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

CINERARIAS.—Excellent strains, healthy plants, in small pots, 1s. 6d. per dozen, 8s. per 100. THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

GLADIOLI.—Cut Spikes for Decoration, 10s. to 20s. per 100. KELWAY AND SON, Langport, Somerset.

GARDEN POTS — GARDEN POTS. — From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free. MATTHEWS, Royal Pottery, Weston-super-Mare.

To the Seed Trade.

CORRY, SOPER, FOWLER AND CO. (Limited) beg to claim special attention to their Season's Assortment of DRIED FLOWERS and GRASSES, of excellent quality, made up in Bouquets, Wreaths, Crosses, &c., and suitable for the autumn and winter trade. Price Lists on application to 18, Finsbury Street, E.C.

To Provincial Fruiterers and Florists.

WISE AND RIDES, Covent Garden, W.C., are prepared to PACK and FORWARD CHOICE FRUIT and FLOWERS. Terms on application.

WANTED, CONSIGNMENTS of Choice FRUITS, CUCUMBERS, TOMATOS, Choice CUT FLOWERS, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, Old Stools of GERANIUMS, free from Frost:—Vesuvius, C. P. Gem, F. of Spring, Master Christine, Vauchers, Tricolors, and Bronzes. State lowest price per 1000. Can EXCHANGE for the above, strong plants of CINERARIAS, of best Covent Garden strain. JAMES WALTON, Nurseryman, Lee Green, S.E.

WANTED, large quantity of PSEUDO-NARCISSUS (Lent Lily) Bulbs. Send lowest price per 1000 to GEORGE SINCLAIR, Prestonkirk, N.B.

To the Trade.

WANTED, 2000 ABIES EXCELSA or 2000 ARBOR VITÆ, 4 to 6 feet, busby plants; also CONIFER SEED. Send lowest price to H. MARSHALL, The Nursery, Barnham, Sussex.

WANTED, 50,000 to 100,000 Market STRAWBERRY PLANTS either old stock or runners. Kinds—Garibaldi or Vicomtese Héricart de Thury, Premier, President, Rivers' Eliza and Eleanor. Write, stating price per 10,000, or if old plants by weight fresh raised, free from soil, to GARDENER, 1, East Street, Leicester.

WANTED, Farmers in the neighbourhood of London, to GROW STRAWBERRIES and RASPBERRIES. Contract will be entered into for a supply at fixed prices, for 2 or 3 years. Plants and Canes of the kinds required will be supplied. All information can be obtained on application to JOHN MOIR AND SON (Limited), 148, Leadenhall Street, E.C.

FLOWERS AT CHRISTMAS' obtained by planting during September.

SUTTONS' BULBS FOR FORCING.

SUTTONS' COLLECTIONS OF BULBS, for Blooming from November to Christmas. 42s., 31s. 6d., 21s., and 10s. 6d. each.

SUTTONS' Early Roman HYACINTHS. Single White, per dozen, 3s. 6d.; per 100, 25s.

SUTTONS' EARLY NARCISSUS. Double Roman, per dozen, 2s. 6d.; per 100, 17s. 6d. Paper White " 2s.; " 14s.

SUTTONS' HYACINTHS for FORCING. 50 in 25 named varieties, £2 2s. 0d.
25 " 25 " " 1 2 6
12 " 12 " " 0 12 0

SUTTONS' TULIPS for FORCING. 100 in 10 varieties, 15s.
50 " 10 " 8s.
25 " 5 " 4s.
12 " 4 " 2s.

SUTTONS' AUTUMN CATALOGUE, Gratis and post-free on application.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN, and by special warrant to THE PRINCE OF WALES, READING, BERKS.

STIPA PENNATA (Feather-grass), finest quality, per cwt., 110s. Stock, 20 tons. J. C. SCHMIDT, Nurseryman, Erfurt, Germany.

CAPE FLOWERS.—Finest White Flowers, per 100 flowers, 12s Stock, 5,000,000. J. C. SCHMIDT, Nurseryman, Erfurt, Germany.

LILIES OF THE VALLEY.—First-rate Single Crowns, for forcing, per 1000 crowns, 36s. Stock 2,000,000 J. C. SCHMIDT, Nurseryman, Erfurt, Germany.

CAPE FLOWER WREATHS and CROSSES, in Boxes. GRASS BOUQUETS. Trade Price List on application. J. C. SCHMIDT, Nurseryman, Erfurt, Germany.

FOR SALE, daily expected, a choice assortment of ORCHIDS and FERNS, from the Andaman Islands and Straits of Malacca Apply to A. W. TONGE, 5, East India Avenue, Leadenhall Street, E.C.

TO BE SOLD, a splendid White CAMELLIA TREE, in New Box, about 14 feet high, well set with bloom. Price £18.—GARDENER, Highfield, Stamford Hill, N.

LILY OF THE VALLEY (Convalaria majalis), hardy roots, of best quality, 36s. per 1000; 10 000 at 35s 6d. per 1000; delivered free on board, Hamburg or Bremen (packing included). OSKAR KNOPFF AND CO., Erfurt, Prussia.

Berlin Lily of the Valley, &c.

A. RIEMSCHNEIDER Brandenburg on Havel, by Berlin. PRICE LIST of the above and other Roots may be had free of Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, London, E.C.

Catalogues for the Season.

CHARLES TURNER'S Descriptive LISTS of the following can be had free on application:—DUTCH and other BULBS, CARNATIONS, PICOTEES, PINKS and STRAWBERRIES. The Royal Nurseries, Slough.

Dutch and other Bulbs, &c.

THOMAS BUNYARD is now offering his first importation, at low prices. Quality all that can be desired. CATALOGUES post-free. Special prices for quantities. The Nurseries, Ashford, Kent.

Bulbous Flower Roots, finest quality, carriage free.

JAMES DICKSON AND SONS have just received, in excellent condition, their first large annual consignment. Priced CATALOGUE post-free. 108, Eastgate Street, Chester.

Bulbs of all kinds, Orchids, &c.

THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent Free on application. Lion Walk, Colchester.

Hyacinths, Tulips, Crocus, Lilies, &c.

C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

The Finest White Bedder Extant.

SOW NOW.

GOWER'S NEW GIANT WHITE POLYANTHUS. New Seed, 1s. 6d. per packet. Bulb CATALOGUE ready, to be had gratis on application. WM. HUGH GOWER, The Nurseries, Tooting.

SALES BY AUCTION.

Monday Next.
UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, and every following Monday, extensive consignments of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, lotted to suit the Trade and private buyers.
Catalogurs at the Mart, and 8, New Broad Street, E.C.

Lee, S.E., adjoining the Station.
ANNUAL SALE, to commence at 11 o'Clock punctually, their being upwards of 1000 Lots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Burnt Ash Nursery, Lee, S.E., on TUESDAY, September 20, by order of Mr. B. Maller, without reserve, 20,000 Winter Blooming HEATHS, which for vigorous growth and profusion of bloom-buds are unsurpassed in the Trade, comprising 6000 extra fine Erica hyemalis, also Wilmoreana, gracilis, autumnalis, colorans, melanthera, grandinosa, caffra, assurgens, ventricosus, and others; 10,000 ERICA HYEMALIS, and others, in large and small 60-pots, particularly promising; 6000 SOLANUM CAPSICASTRUM, beautifully berried; 3000 CYCLAMEN PERSICUM, 2000 GENISTAS, 2000 BOUVARDIAS of sorts, including a fine lot of B. TRIPHYLLA, 2000 GREVILLEA ROBUSTA, 600 remarkably fine ADIANTUM CUNEATUM, GRACILLIMUM, and other choice FERNS; extra strong Maréchal Niel, Gloire de Dijon and other ROSES; ARAUCARIA EXCELSA, CAMELLIAS, and English grown AZALEAS, PALMS, DRACÆNAS, PRIMULAS, HOYAS, and other STOVE and GREENHOUSE PLANTS.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Surveyors, 8, New Broad Street, E.C.; and Leytonstone, E.

Lea Bridge Road, Leyton.
ELEVENTH ANNUAL SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Leyton, near Hoe Street Station, on WEDNESDAY, September 21, at 10 for 11 o'Clock precisely, on account of the large number of lots, 20,000 Winter Blooming HEATHS, remarkably well grown, and including about 8000 Erica hyemalis, 2500 gracilis, 700 Wilmoreana, large quantities of regerminans, grandinosa, persoluta alba, caffra, and others; 500 EPACRIS of the choicest kinds, 1000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS, SOLANUMS in berry; an assortment of STOVE and GREENHOUSE PLANTS, fine Plants of LAPAGERIA ALBA and ROSEA, 1000 AZALEAS, full of bloom-buds; 400 early flowering and other CHRYSANTHEMUMS, 300 AMPELOPSIS VEITCHII, 200 Maréchal Niel and other ROSES, 7 to 10 feet; VINES, and other miscellaneous stock.
May be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

Tottenham.
GREAT ANNUAL TRADE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Maller to SELL by AUCTION, without reserve, on the Premises, The Brunswick Nursery, close to White Hart Lane Station, Tottenham, on THURSDAY, Sept. 22, at 11 o'Clock precisely, in consequence of there being nearly 1100 Lots, 20,000 beautifully grown Winter Blooming HEATHS, abundantly set with flower-buds, including Erica hyemalis, gracilis, Wilmoreana, and other varieties; 10,000 remarkably well Berried SOLANUM CAPSICASTRUM, unsurpassed in the Trade; 3000 particularly well grown CYCLAMEN PERSICUM, 1000 ACACIAS, 1000 handsome PALMS, 500 well furnished ADIANTUM CUNEATUM, 500 FICUS, 500 CINERARIAS, 2000 Tree CARNATIONS, 4000 BOUVARDIAS, 2000 CAMELLIAS and AZALEAS, 1500 GENISTAS, 1000 MYRTLES, 1000 Double White PRIMULAS, 200 EPIPHYLLUMS, 500 GREVILLEA ROBUSTA, several thousands of small ERICAS, ACACIAS, GENISTAS, &c., for growing on, and large quantities of other attractive stock.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 8, New Broad Street, E.C; and Leytonstone, E.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.
On view the mornings of Sale, and Catalogues had.

Thursday Next.
CATTLEYA MOSSIÆ and CATTLEYA SUPERBA, in Splendid Condition.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 15, at half-past 12 o'Clock precisely, a grand importation of the above, consisting of about 1000 plants.
On view the morning of Sale, and Catalogues had.

Two Rare and Valuable Cattleyas.
CATTLEYA ELDORADO,
CATTLEYA SUPERBA SPLENDENS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, September 23, at half-past 12 o'Clock precisely, a splendid importation of CATTLEYA ELDORADO, a rare and extremely beautiful species; sepals and petals rose, lip deep golden-yellow, margined broadly from deep rose to the darkest purple. The importation comes from the same spot where Wallis found it ten years ago, and among which were few or no bad varieties; it is extremely rare in its native country. Also a magnificent importation of CATTLEYA SUPERBA, var. SPLENDENS. This must not be confounded with the common "superba" from Demarara, from which it totally differs; its flowers are much larger, and of a deeper and far more brilliant hue. It is one of the very best of the whole genus, and a most striking and most brilliant Cattleya. Very few plants of this handsome variety of Cattleya superba exist in this country, a few only, having been collected by Wallis in 1873, since when none have reached Europe. The consignment is a very large one, and in splendid health; some enormous masses are among them. The Sale will also contain many other valuable CATTLEYAS, &c.
On view the morning of Sale, and Catalogues had.

Thursday Next.
IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 15, at half-past 12 o'Clock precisely, several importations of ORCHIDS, received direct, consisting of about 500 plants, including many specimen plants of Cattleya Mossiæ, C. Harrisonii or intermedia, C. Leopoldii, and Lælia purpurata, in splendid masses
A GRAND LOT of CATTLEYA SUPERBA;
also about 100 lots of Established ORCHIDS, consisting of Dendrobiums, Phalænopsis, &c.
On view the morning of Sale, and Catalogues had.

Fruiterers.

FOR DISPOSAL, a first-class BUSINESS.
Would suit a Gentleman's Gardener. Good position.
Address, FRUIT, care of Davies & Co., Advertising Agents, Finch Lane, Cornhill, E.C.

TO BE DISPOSED OF, a good MARKET NURSERY, within 4 Miles of Covent Garden, about 1 Acre, nearly covered with Glass; Dwelling-house, Stable, &c.
W. W., 41, Wellington Street, Strand, W.C.

TO BE DISPOSED OF, a thorough good going NURSERY BUSINESS, in Warwickshire; 4 Acres well stocked, with a large New Greenhouse. Stock, &c., at a valuation, or per agreement. Further particulars apply to NURSERY, Messrs. Nutting & Sons, 60, Barbican, E.C.

Gray *v.* Gray.
To NURSERYMEN and OTHERS.

TO BE SOLD, by Tender, by order of the High Court of Chancery, the surplus NURSERY STOCK, upon Box Nursery, Chertsey, Surrey, comprising 1700 Standard and Dwarf Roses; 3700 Maiden Apples, Peaches, Plums and Cherries; 200 Dwarf-trained ditto; 150 2-yr. old Apples; 100 Standard Plums, and other stock. All the best sorts and true to name.
May be viewed any day, on application to Mr. GILHAM, Foreman at the Nursery, and detailed particulars with conditions of Tender may be obtained of Messrs. R. AND J. WATERER AND SON, Auctioneers, Chetsey, to whom Tenders must be sent on or before September 20, 1881.

TO BE LET, with Immediate Possession, DWELLING-HOUSE with SHOP, and about an Acre of NURSERY GROUND, close to the Market Town of Hemel Hempstead, where there is a good opening for a Nurseryman and Florist. Rent £38, Fixtures £20. Apply to Mr. N. W. ROBINSON, Estate Agent, Hemel Hempstead.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

To the Trade.
RAPE SEED and WHITE MUSTARD.

H. AND F. SHARPE will be pleased to submit SAMPLES of the above-named SEEDS, of the finest quality, and at very moderate prices.
Seed Growing Establishment, Wisbech.

ROSES on MANETTI.—Good healthy stuff, in 6-inch pots. Gloire de Dijon, Madame Falcot, and Safrano, 80s. per 100; Maréchal and Niphetos, 100s. per 100.
CABBAGE PLANTS.—Reliance, Early Barm, East Ham, and Early York, 4s. per 1000. Free on rail. Cash with order.
G. FREELAND, Tunbridge.

A B C Bulb Guide for 1881.
I have pleasure in announcing that this

CATALOGUE is now ready, and contains most complete collections of Hyacinths, Tulips, Liliums, Narcissus, Gladiolus, &c. Fine selections of Hardy Orchids, Primula Sieboldii and Helleborus; Hardy Perennials for autumn planting; also Climbing Plants, Aquatic and Bog Plants, Herbs, &c. Gratis and post-free upon application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

ATHYRIUM f.-f. ACROCLADON (Moore).—See description by E. J. Lowe, Esq., at p. 74, vol. ii., of *Our Native Ferns.*
The undersigned can now offer a few good plants of this magnificent rarity, at 10s. 6*d.* each; extra strong specimens, One Guinea each. We believe this most beautiful of all Crested Ferns is now offered to the public for the first time.
F. W. AND H. STANSFIELD (Successors to TOM STANSFIELD, formerly of Todmorden), Sale, near Manchester, and Pontefract, Yorkshire.

Primulas—Primulas—Primulas.

JAMES TOMKINS, NURSERYMAN, Spark Hill, Birmingham, begs to state that he is now sending out his new magnificent PRIMULA FILICIFOLIA ALBA, The Queen, for which he obtained a First-class Certificate at the Royal Horticultural Society, at South Kensington, in March last, and a First-class Certificate from the Royal Botanical Society, Manchester. Without doubt the finest Primula in the World. Florists in this will find a profitable investment, being of a strong constitution, and a good seed producer.
Now ready, nice little plants, in small pots, 3s. 6*d.* each.
Usual discount to the Trade.

WILLIAM GORDON having this year received large importations of the following fine ORCHIDS, offers semi-established but unflowered Plants at following low prices:—

	Each.—s.	d.		Each.—s.	d.
Aerides japonicum ..	2	6	Dendrobium Freemanii	5	0
,, Lobbii	3	0	Calanthe vestita ..	2	6
,, quinquevulnerum	2	6	Cattleya Acklandiæ ..	5	0
Cœlogyne cristata ..	5	0	,, Loddigesii ..	5	0
Cymbidium eburneum..	2	6	,, Mendelii	7	6
Cypripedium barbatum	2	0	,, Mossiæ	2	6
,, Hookeræ	2	0	,, Trianæ	7	6
,, insigne	2	0	Epidendrum vitellinum	2	6
,, niveum, specially fine pieces of this grand old favourite	2	6	Lælia autumnalis ..	2	6
			,, majalis	2	6
Dendrobium aggregatum	2	6	Odontoglossum Alexandræ	5	0
,, cambridgeanum ..	2	6	,, citrosmum roseum	5	0
,, cretaceum.. ..	2	6	Oncidium crispum ..	2	6
,, crystallinum ..	2	6	Saccolabium Blumei ..	2	6
,, fimbriatum ..	2	6	,, retusum	2	6
,, formosum giganteum	2	6	Sophronites grandiflora	2	6

And nearly every other Orchid at equally low prices, on application to
WM. GORDON, City Offices, 10, Cullum Street, London, E.C.

For Autumn Planting.—Now Ready.

GEE'S superior Bedfordshire-grown CABBAGE and OTHER PLANTS; ASPARAGUS, SEAKALE and RHUBARB ROOTS; 1, 2 and 3-yr. old QUICKS; WALLFLOWERS, DAISIES, and many other Spring-flowering Plants, &c. Cheap and good.
FREDK. GEE begs to inform his many Friends and Patrons that he is again prepared to supply the above in any quantity, and which for quality and price cannot be surpassed. Large Buyers liberally treated with. LIST for present season, also General CATALOGUE, &c., on application to
FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

CABBAGE PLANTS.—For Sale, upwards of 500,000 early plants, and a large quantity of other sorts for immediate planting. Price on application.
Apply to JOHN EBENEZER KNIGHT, Whitmore Read Nurseries, near Wolverhampton.

To the Trade.—Dwarf Roses.

GEO. COOLING AND SON have a large stock to offer, extra fine Plants, and all leading varieties also TEA-SCENTED, in pots. Prices on application.
The Nurseries, Bath.

30,000 Roses in Pots.
Several thousands of CLEMATISES, Ampelopsis Veitchii, and other CLIMBERS in pots, finely grown plants.

WM. WOOD AND SON beg to solicit attention to their very extensive and superb stock of the above.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

LAPAGERIA ALBA, the finest and largest stock in Europe, strong hardy plants, which have been wintered in cold frames, from 15s. to £15 15s.
LAPAGERIA ROSEA, good specimen plants, from 21s. £10 10s. each. The Trade liberally treated, for cash.
W. HOWARD, Southgate, N.

PHEASANT-EYED NARCISSUS.—Bulbs of this sweet-scented Narciss, 10s. per bushel 6s. per half bushel, 3s 6*d.* per peck; also Double White Narcissus 5s. per peck. Terms cash with order. Package free. Post office Orders payable Walton-on-Thames.—J. E. ALDERSON, Bell Farm, Hersham, near Walton-on-Thames, Surrey.

Hyacinths, Tulips, &c.

BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B. have an immense stock of CHRISTMAS ROSES which they can strongly recommend. Prices on application.

CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6*d.* per dozen, 10s. per 100
CINERARIAS, 1s. 4*d.* per dozen, 8s. per 100.
CYCLAMEN, 1s. 6*d.* per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

SPECIAL OFFER.
TO THE TRADE.
50,000 ERICA HYEMALIS, in 60-pots, at 20s. per 100.
30,000 ,, GRACILIS AUTUMNALIS, at 15s. per 100
10,000 ,, WILMOREANA, at 15s. per 100.
The above are all fine healthy plants.
GREGORY AND EVANS, Effingham Nursery, Lee, S.E.

F. W. AND H. STANSFIELD (Successors to Tom Stansfield, formerly of Todmorden) beg to announce that their new CATALOGUE of British and Hardy Exotic FERNS, for 1881—1882, is now ready, and will be sent post-free on receipt of 1*d.* stamp. This List contains more novelties and genuine rarities than any other trade list of British Ferns.
Nurseries, Sale, near Manchester; and Pontefract, Yorkshire.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6*d.* each; larger, 3s. 6*d.* to 10s. 6*d.* each Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

Dutch Flower Roots.—Season 1881.

MESSRS. DICKSON AND ROBINSON beg to announce that their Priced and Descriptive CATALOGUE, containing select Lists of Hyacinths, Polyanthus Narcissus, Tulips, Crocus, Liliums, and other Bulbous Roots is now published, and will be forwarded post-free on application
THE OLD ESTABLISHED SEED WAREHOUSE,
12, Old Millgate, Manchester.

Raspberry Canes.

MR. BATH is now booking orders for his noted FASTOLF, for delivery during October and November. 4s. per 100, packing included.
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Early Cabbage Plants.

SHAW'S IMPROVED NONPAREIL.—3s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton

New Catalogue of Plants, Bulbs, Fruits, &c.

ROBERT PARKER begs to announce that his New CATALOGUE is now published, and will be forwarded to applicants. It contains select, descriptive, and priced Lists of Alpine and Herbaceous Plants, Aquatic and Marsh Plants, Hardy Bulbs, Chrysanthemums (summer-flowering), Ferns (hardy greenhouse and stove), Delphiniums, Iris germanica, Pæonias, Pentstemons, Phloxes, Potentillas, Pyrethrums, Rhododendrons, Sweet Violets, Ornamental Plants (hardy, greenhouse and stove), Winter-blooming and Berrying Hardy Plants.
Exotic Nursery, Tooting, S.W.

Tropæolum nanum, flore-pleno.

HERMINE GRASHOFF large flowered, extra double, firey orange scarlet—my own cultivation:—
100 Pieces .. .. 7s.
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Wholesale Seed Grower and Merchant, Quedlinburg, Prussia

SPECIAL OFFER of COLLECTIONS of CLEMATISES, in 4-inch pots, and TEA and NOISETTE ROSES in 5-inch pots, fine plants; package free. All orders to be accompanied by Post-office Order or Cheque.

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24	" " "	26	0
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100	" " "	100	0

Including many newest and rarest kinds.

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OUR DAHLIAS, which are now in full flower, Single and Bouquet varieties in particular. Alba, single white, is truly splendid, and justly compared to the Water Lily or Eucharis. Our Collection of 450 distinct kinds, ranging from the first introduced to the new ones of the present year, together with our new Hybridised Seedlings, now showing flower, forms a grand Floral Display, and certainly the most complete and interesting sight of this family ever brought together. Many thousands in pots full of flower. Price on application. The Home for Flowers, Swanley, Kent.

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Our stock of the above, including all the best varieties, is exceptionally fine this season, the Canes being short-jointed and ripening well.

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Planting Canes .. 5s. and 7s. 6d. ,,

And our **FIGS IN POTS**, including Osborn's Prolific, Negro Largo, Dr. Hogg, Brown Turkey, &c., are in excellent condition.

Price, 3s. 6d. to 10s. 6d. per plant.

OSBORN & SONS,
THE FULHAM NURSERIES, LONDON, S.W.

HYACINTHS, TULIPS, AND OTHER BULBS.

The Subscribers have pleasure in announcing their

FIRST IMPORTATION of DUTCH BULBS

OF ALL SORTS, COMPRISING

HYACINTHS (including the beautiful Forcing White Roman), NARCISSUS, TULIPS, CROCUS, and all other Winter and Spring-flowering Varieties, which are unusually fine, large, sound, and well ripened.

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THE QUEEN'S SEEDSMEN, CARLISLE.

ORCHIDS A SPECIALITY

HUGH LOW & CO.

Have recently received, in excellent condition,

MANY THOUSANDS of PHALÆNOPSIS

AND

ODONTOGLOSSUM ALEXANDRÆ (CRISPUM).

Amongst the plants are many of unusual size, and very varied in appearance, giving promise of good varieties. The Stock of these lovely Orchids is by far the largest hitherto seen in Europe, and the same remark applies to the General Collection of Orchids, which is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

Hugh Low & Co. very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether Purchasers or not.

JUST TO HAND, LARGE QUANTITIES OF

CATTLEYA MENDELII, C. LEOPOLDI, C. TRIANÆ,

LÆLIA PURPURATA,

ALL OF WHICH ARE ON SALE AT MODERATE PRICES.

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AMPELOPSIS VEITCHII. A large stock of strong Plants in pots. Price per dozen or 100 on application to

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JOSEPH BAUMANN, NURSERYMAN, Nouvelle Promenade, Ghent, Belgium, begs to offer, in fine plants:—

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AZALEA INDICA, of sorts, with buds,	1 to 3 francs.	
" MOLLIS, " " "	1.50	2 "
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CAMELLIAS, of sorts, good quantity, Double Whites	1.25	2 "
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W. GROVE, Tupsley Rose Nursery, Hereford, offers choice Dwarfs; the plants are very fine and strong. Order before prices advance.

Bulb Catalogues, 1881.

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GEO. BISHOP begs to intimate to the Nursery and Seed Trades that he has just Published a New Series of BULB CATALOGUES for the Season.

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Collections B, C, E, and F, can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10s. 6d. each, against cash payment.

ANT. ROOZEN AND SON, Nurserymen, Overveen, near Haarlem, Holland.

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Admirers of the above should order at once

R. H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and Description on application. Price, the Set, £3 3s.; Single Plant, 7s. 6d.; Seedlings, 6s. per dozen. Seed, per packet, 3s. 6d. and 5s. Usual Discount to the Trade.

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B. MALLER has much pleasure in again offering his usual superior stock of the following:—

ERICA HYEMALIS and other varieties, EPACRIS, GENISTAS, AZALEAS, CYCLAMEN, BOUVARDIAS, SOLANUMS, ADIANTUM CUNEATUM and other Ferns, GREVILLEAS; also a fine lot of VINES in Pots. An inspection invited.

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The Annual SALE by AUCTION will be held in September.

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FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.

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STRAWBERRIES. The best sorts for Forcing.

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Also strong plants of the above, from open ground, 2s. 6d. per 100, 20s. per 1000. Package free. Extra plants for carriage. Cash from unknown correspondents.

H. J. HARDY, F.R.H.S., Stour Valley Seed Grounds, Bures, Suffolk.

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J. MALLER, Brunswick Nursery, Tottenham, begs to announce that his usual AUTUMN SALE will take place on THURSDAY, September 22. The Plants are in excellent condition, and consist of a very large Stock of ERICA HYEMALIS and other usual varieties, Double PRIMULAS, CYCLAMEN, BOUVARDIAS in variety, SOLANUMS, beautifully berried, Tree CARNATIONS, ACACIAS, GENISTAS, CAMELLIAS, AZALEAS, &c.

An inspection is invited. Close to the White Hart Lane Station, Great Eastern Railway.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d. stamp.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

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To SUPPLY the TRADE.
SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, beg to announce that their Crops of HYACINTHS, TULIPS, &c., look very fine.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
☞ Please observe Name and Address.

WEBBS' BULBOUS FLOWER ROOTS

Messrs. WEBB & SONS
Beg to announce that they have received their
FIRST LARGE CONSIGNMENTS OF BULBS,
In splendid condition,
And are prepared to execute Orders promptly and on the most favourable terms.

FOR PRICES AND FULL PARTICULARS SEE

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Farm Seeds for Autumn Sowing.
NEW TRIFOLIUM INCARNATUM RAPE, Italian RYE-GRASS, Winter TARES, RYE, mixed Pasture GRASSES, &c. Fine samples and quotations on application.
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GOLDEN GEM Hose-in-Hose, large Single Yellow, large Dark Self, and Dark Hose-in-Hose, the strain of W. A. WOOLER, Esq., Sadberge Hall, which was shown for the first time at the Royal Horticultural Gardens, South Kensington, in June, 1880, awarded a Certificate of Merit and a special First Prize, when many of the Plants Sold from 5s. to 10s. 6d. each. Per Packet, 2s. 6d. and 3s. 6d. Trade supplied.
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Early White Roman Hyacinths	—	25 0	3 6	0 4
Early Blue Roman Hyacinths	—	12 6	1 9	0 3
Light Blue Neapolitan..	—	15 0	2 0	0 3
Dark Blue Neapolitan ..	—	15 0	2 0	0 3
Early Double Roman Narcissus	—	—	2 0	0 3
Early Paper-white Narcissus	—	—	2 0	0 3
Early Saffron Crocus (Autumn Flowering) ..	—	2 6	0 6	—

	Per 1000 s. d.	Per 100 s. d.	Per Doz. s. d.	Each. s. d.
Double Snowdrops, large	21 0	2 6	0 5	—
Single Snowdrops, large..	21 0	2 6	0 5	—
Duc Van Thol Tulips, red and yellow, single	—	12 6	2 0	—
Dielytra spectabilis, rosy red	—	— 6/ to 12/	/9 to 2/6	
Lily of the Valley, white, strong clumps for forcing ..	—	—12/ to 16/	1/6 to 2/	
Spiræa japonica, pure white	—	45 0	6 0	—
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Collections of the above, price 5s., 7s. 6d., 16s., 24s., 45s., and 65s.
20s. value Carriage Free. For full particulars see

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The handsomest and most useful Catalogue ever published.
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THE QUEEN'S SEEDSMEN, and by Royal Warrant to **H.R.H. THE PRINCE OF WALES,**
237, 238, HIGH HOLBORN, LONDON, W.C.

DUTCH FLOWER ROOTS.

THOS. METHVEN & SONS

Beg to intimate that their importations of the above have arrived in fine condition.

Priced CATALOGUES forwarded, post-free, on application.

15, PRINCES STREET, and LEITH WALK, EDINBURGH.

HYACINTHS, TULIPS, AND OTHER BULBS.

WM. PAUL & SON

(Successors to the late A. PAUL & SON—Established 1806)

BEG TO ANNOUNCE THAT THEIR

NEW CATALOGUE of HYACINTHS, TULIPS, and OTHER BULBS,
CAMELLIAS, AZALEAS, &c.,
Is now ready, and will be sent, post-free, on appplication.
The Bulbs this year are of very fine quality.

Collections of Bulbs from 10s. 6d. to 84s.

"Hyacinths formed the most important feature of the show, the principal exhibitor being Mr. Wm. Paul, of Waltham Cross, who was far in advance of any other in the size and beauty of the noble spikes which he placed in competition."—*Journal of Horticulture.*

"Hyacinths were again the main feature, Mr. Wm. Paul taking 1st Prize with a collection that were as near absolute perfection as, in the present state of our knowledge, we can imagine."—*Gardeners' Chronicle.*

CAMELLIAS.

WM. PAUL & SON beg to draw attention to their Collection of Camellias, which is the largest and finest in the country.

Good Plants of all the best varieties, with bloom-buds, 30s. per dozen and upwards.
Specimen Plants, from One to Thirty Guineas each.

The *Journal of Horticulture*, in alluding to the plants at Waltham Cross, say :—"Anything more thoroughly healthy, more free and more fine, could not be imagined than the large housefuls of fine plants."

PAUL'S NURSERIES and SEED WAREHOUSE,
WALTHAM CROSS, HERTS.

DUTCH FLOWER ROOTS.

B. S. WILLIAMS

Begs to announce that he has received his Annual Importation of

HYACINTHS, TULIPS, CROCUS, NARCISSUS,

Also other BULBOUS ROOTS, in fine condition.

ALSO, FOR EARLY FORCING,

ROMAN HYACINTH, PAPER-WHITE and DOUBLE ROMAN NARCISSUS.

EARLY ORDERS ARE RESPECTFULLY SOLICITED.

N.B.—The Bulbs are exceptionally fine this year.

☞ CATALOGUES, containing a Select List of the above, are now ready; also of NEW PLANTS, FRUIT TREES, ROSES, &c., and will be forwarded, gratis and post-free, on application.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, N.

LÆLIA HARPOPHYLLA.

HUGH LOW & CO.

Have pleasure in notifying the discovery by their Collector, in Brazil, of large quantities of the very lovely and hitherto rare

LÆLIA HARPOPHYLLA,

And the Plants can be offered at very low Prices, by the dozen or hundred.

ALSO ON SALE, IN FINE PLANTS;

CATTLEYA LABIATA, varieties; **CATTLEYA BICOLOR, CATTLEYA LODDIGESI, CATTLEYA CRISPA, LÆLIA CINNABARINA, LÆLIA DAYANA, LÆLIA** received as **PRÆSTANS; ONCIDIUM CURTUM, ONCIDIUM MARSHALLIANUM, ONCIDIUM FORBESI, SOPHRONITES GRANDIFLORA**, and other choice **BRAZILIAN ORCHIDS.**

CLAPTON NURSERY, LONDON, E.

TWO RARE AND VALUABLE CATTLEYAS.

CATTLEYA ELDORADO,
CATTLEYA SUPERBA SPLENDENS.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, September 23, at half-past 12 o'Clock precisely, a splendid importation of

CATTLEYA ELDORADO,

a rare and extremely beautiful species; sepals and petals rose, lip deep golden-yellow, margined broadly from deep rose to the darkest purple. The importation comes from the same spot where Wallis found it ten years ago, and among which were few or no bad varieties. It is extremely rare in its native country. Also a magnificent importation of

CATTLEYA SUPERBA, var. SPLENDENS.

This must not be confounded with the common "superba," from Demarara, from which it totally differs—its flowers are much larger and of a deeper and far more brilliant hue. It is one of the very best of the whole genus, and a most striking and most brilliant Cattleya. Very few plants of this handsome variety of Cattleya superba exist in this country, a few only having been collected by Wallis, in 1873, since when none have reached Europe. The consignment is a very large one, and in splendid health—some enormous masses are among them. The Sale will also contain many other valuable CATTLEYAS, &c.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 10, 1881.

VEGETABLE EMBLEMS.

IN all ages plants and other natural objects have furnished men and nations with emblems and devices for their shields, their pennons, or their persons—naked or clothed, as the case might be. Some of the most appropriate devices were supplied by the vegetable kingdom. The ear of corn in the temples of Ceres could not be misunderstood, nor the Palm tree as a symbol of the House of Israel; while the Melon of Melos, the Rose and Pomegranate of Rhodes, and the Parsley leaf of Selinus were symbols as appropriate.

Two of the oldest vegetable emblems are the Lotus and the Lily. The *fleur-de-lis* is of older date than any of the Carlovingian monarchs on whose sceptres and crowns it was represented. It is found in remains from Babylon and Nineveh, on the crowns of the Byzantine empresses, and in the paintings of the early Greek artists at Constantinople. The symbol of the Lily had its origin in the Lotus, each expressing the same idea in ancient as well as modern creeds. The arms of the Virgin, in Spain, were a branch of Lilies issuing from a vase with two handles. The reading of this hieroglyphic, which appears in many of the cathedrals and churches of Spain, is "deity born of a virgin,' or the incarnation. The Egyptian Lotus, or Water Lily, was used as an emblem of the fertility of the Nile, and a self-created deity was represented among its petals. Harpocrates seated in the flower with finger on lip, symbolised generation and the divine principle of life. As the symbol of fecundity, and the reproductive power of Nature, the Lotus is the most comprehensive of all vegetable emblems. It was alike the expressive emblem of Isis and of Ganga, the goddesses of those two productive rivers which fertilised the oldest civilised lands. In the Hindoo mythology Vishnu, when about to create the universe, produced a Lotus, and from its unfolded flowers the incarnate Bramah proceeded. Later mythology has reproduced these ancient ideas, and as the Lotus did not grow in Greece, the Bean (the Pythagorean Bean) was substituted by Pythagoras, to whom the mystery of the Lotus flower had been revealed by Indian priests during his travels. The idea grew in Greece, and the fervid imagination of Homer strewed the bridal couch of Jupiter and Juno with the Lotus flower. Lotis, virgin daughter of Neptune, was changed to a Lotus when flying from the love of Priapus. Juno became a mother by inadvertently touching the Lotus, and her offspring was no less a personage than Mars, the god of war. The same idea of fecundity in connection with the Lotus, descending like other errors in unscientific times, prevailed in the Middle Ages in England, when it was commonly believed that fertility would follow the eating of the common Lily. The seeds were held sacred by the Brahmins.

It is not always easy to distinguish the separate fancies of different ages, connected with the same floral emblem and symbol. To

the Hindoos and Egyptians, the Lily suggested fecundity and Nature's reproductive power, their Lily being the Water Lily which their rivers produced in great abundance.

The Lily of the Church was no doubt dedicated to the Virgin specially—for all flowers were offered at her shrine—by virtue of their purity. The Lily came to be regarded with peculiar reverence in Spain owing to the recurrence in the eleventh century of the miracle of the Ganges, worked by Vishnu. The Virgin with the infant in her arms issued from the Lily as the incarnate Bramah had done, and the King of Navarre founded the commemorative order of Our Lady and the Lily.

There is more than one legend of the Lilies of Clovis which gave to France the most ancient European coat of arms. To the heathen Clovis before conversion and baptism has been attributed a banner of toads. This banner probably was chosen for him long after his period, to typify the gross errors of Paganism. In a series of tapestries illustrating a legend of the Lily, Clovis the heathen rides forth to battle armed *cap-à-pie* attended by his standard-bearer. On the standard are emblazoned three toads, and the breast of an attendant officer is embroidered with the same device. Three toads were emblazoned on all his banners and pennons. The pure and spotless Lily of Clovis, the Christian champion, typified the purity of the faith he had embraced. The *Noble Chronicles of France* commence with a long account of the marriage of Clovis to the Christian Princess Clotilda. After his marriage he soon experienced saintly aid. A battle was impending near Cologne. St. Remy prayed for victory, Clovis and his soldiers reverently resting on their arms—keeping their powder dry. Suddenly the king, looking upwards, saw his banner miraculously altered and the arms thereon transformed — the banner became azure, the toads disappeared, and instead of them he beheld the *fleurs-de-lis*. He pushed on at once against the foe, with the miraculous standard, the *liflambe*, borne in front; but he and his soldiers struck no blows that day, for they found the enemy in dire confusion, fighting one against another. The baptism, conversion, and coronation of Clovis followed immediately at Rheims.

For many centuries the Royal House of France could proudly boast—

> "Ont porté et portent encore,
> Sur champ d'assur les trois *fleurs-de-lis* d'or."

France can never have a purer emblem, and Napoleon himself honoured the Lilies. The Mayor of Epernay having congratulated him on "trampling under foot" the Lilies, *i.e.*, the Lilies of the embroidered carpet of his own reception room, which the Emperor was then entering, Napoleon turned on his heel and left the house. On another occasion the *fleurs-de-lis* had been covered up with paper lest the "ancient emblems" should offend him. "What," he exclaimed, "the *fleurs-de-lis!* Uncover them this moment. During eight centuries they guided the French to glory, as my eagles do now, and they must always be dear to France, and held in reverence by her true children."

When Edward III. laid claim to the crown of France, he purloined the royal arms of the Kings, and introduced them into the English shield, quartering the Lilies with the lions. The same emblem and a similar claim found favour with Henry IV., who in 1405 followed the example of Charles V. of France, a quarter of a century earlier, and reduced the number of the *fleurs-de-lis* to three—the shields and royal seals of both countries having been originally *semée de lys*. The Lilies were erased from the English shield in 1801. The *fleurs-de-lis* were borrowed from France by Scotland, as a royal cognisance, at a very early period, in token of alliance.

Several families of note have borrowed and borne the Lilies upon their shields. William Patten, Bishop of Winton, founder of Magdalen College, Oxford, bore three Lilies, "slipped," (*i.e.*, stalked); and the college bears the Lily on its arms, in memory of its founder. The arms of Winchester College also bears the Lily, derived from its founder, William of Wykeham, and as that great man was a famous architect and designer of many castles and churches of the time of Edward III., when the heraldic Lily was introduced from France, it is easy to understand how he acquired his cognisance. The exact origin of the arms of Dundee may not be known; but it is not surprising that a royal burgh in Scotland should bear, "*Az.* a pot of Lilies, *ar.*" Chaucer's hero, Sir Thopas, bore—

> "Upon his head a towr,
> And therein stiked a Lily flowr."

That was the fancy of a poet in the Lily period just referred to. Shields, either *semée de lys*, or with the number of the flowers reduced to three, may be studied in Westminster Abbey. The device is now borne, without any other charge, in the shield of the Baron Digby. Ingenious speculators have imagined that the Lily of Clovis (the Frankish form of the modern Louis) may have been derived from the favourite Clove Pink, or Gillyflower. Its other derivation, from Heaven, has been already noticed. *Historicus.*

New Garden Plants.

BOMAREA CONFERTA, *Benth.**

Our knowledge of this species as a garden plant is due to Mr. Shuttleworth, who has submitted to us good materials, both dried and living, from which we are enabled to chronicle a splendid addition to our greenhouse climbers. From a thick rootstock depend very numerous tufted, slender, fibrous roots, 8—10 inches long, some of which terminate in oblong fleshy root-tubers, like Potatos, but destitute of buds. These are obtuse or rounded at both ends, of a light brown colour, and the largest measure 2½ inches in length by 1½ inch in width. They have a slightly sweet taste, which suggests the possibility of their being available as esculents. The stems are numerous, scandent, about the thickness of a quill, purplish and pubescent. The leaves are scattered, shortly stalked, the petioles flattened and twisted; the blades measure 4—5 inches in length by ¾—1 inch in breadth, and are broadly lanceolate, tail-pointed, glabrous above, lightly pubescent beneath, especially along the nerves. The very numerous brilliant crimson flowers are borne in drooping contracted tufts at the ends of the shoots, the slender peduncles are about 2—2½ inches long, intermixed at the base with broadly ovate-acute leafy bracts, each about 1—2 inches long. The individual flowers are 2—2½ inches long, elongate, funnel-shaped, the three outer segments ovate-lanceolate, about one-fourth shorter than the inner segments, which are obovate-acuminate, tapering into a long stalk, both of a rich crimson colour. The filaments are slender, glabrous, nearly equalling the inner segments in length. Anthers oblong, about ⅙ inch long. The ovary is about ¼ inch long, angular, turbinate, and downy. The style is slender, as long as the stamens, and 3-toothed at the summit. The fruit is not yet forthcoming. The plant, of which Mr. Shuttleworth has a large stock, was found at a considerable elevation on the mountains near Bogota. The original plant was described from Hartweg's specimens, gathered further north at Pichincha, but we are unable to find any satisfactory difference between the specimens from the two localities. *M. T. M.*

SPIRÆA CALLOSA. — A beautiful free-flowering plant at the present time is this Spiræa callosa. Its pink flowers are a great acquisition to the shrubbery bed or border, now rather lacking flowering material. There are some fine examples of it grouped with Hollies and other shrubs in Messrs. Mitchell's nurseries, Piltdown, Sussex, where all kinds of flowering shrubs are in fine health, and, like the plant under notice, flower well in their season.

* *Bomarea conferta*, Benth., *Plant. Hartweg*, p. 289 (1846). —Foliis lanceolatis caule que dense pubescentibus, floralibus oblongis; bracteis in umbella late lanceolatis; pedunculis numerosis unifloris pubescentibus, flore bipollicari longioribus; petalis sepala cuneato oblonga superantibus. Pichincha. *Hartweg.*

MR. CHARLES LEE.

THE announcement of the death of Mr. Charles Lee, the senior partner in the firm of Lee & Son, of Hammersmith and elsewhere, will be received with the greatest sorrow. Mr. Lee died suddenly on the 2d instant. He was in his usual health on the morning of that day, and was driving from Hounslow with a restive horse which had been badly broken, and while bidding his groom to "lead him round" suddenly fell forward and expired. Mr. Lee was the representative of one of the oldest, most extensive, and best known nursery establishments in the kingdom, and well sustained those sterling qualities which have ever characterised this firm. His conscientiousness, uprightness, and geniality endeared him to all that came in contact with him. His high principle, kindly manner, no less than his great knowledge of all matters relating to horticultural affairs, rendered him a representative man. Ever ready to help others he seemed destitute of any spark of self-seeking in the bad sense of the term, so that in his business transactions he was as cordial and high-minded as in his private relations. Charles Lee was born at the Royal Vineyard Nursery, Hammersmith, on February 8, 1808. His father, James Lee, died in 1824, and three years afterwards he joined his brother John—happily still spared to us—in the conduct of this famous establishment. The firm was conducted under the title of John and Charles Lee till 1877, when Mr. John Lee retired, and William Lee, the son of Charles, joined his father in the conduct of the business. Of late years ornamental trees and shrubs attracted the special attention of Charles Lee, who had a specially wide acquaintance with them, and lamented the apathy which the general public manifested towards this beautiful and interesting class of hardy plants. The nurseries at Feltham and Isleworth were and are specially devoted to this class of plants, while at Ealing Roses and fruit trees are a speciality. At Hammersmith, the original seat of the business, ordinary greenhouse and stove plants formed the staple, though, in consequence of the extension of buildings and the formation of new streets, the area of this establishment has been considerably curtailed. Chas. Lee was President of the London Seed Trade Association, and was almost as well known on the Continent as at home. He took part in many of the great gatherings, and was always treated with the respect and courtesy due to the reputation of his firm and his own personal qualities. In 1867 he was President of the jury at Brie Comte Robert, and in that capacity was presented to the then Emperor and Empress of France.

Mr. James Lee, who established the nursery, was born at Selkirk in 1715. When he first came to London he was employed at Syon, and afterwards at Whitton, by the Duke of Argyle. About the year 1760 he entered into partnership with Mr. Lewis Kennedy, gardener to Lord Bolton, at Chiswick, and commenced a nursery in what was called the Vineyard, at Hammersmith. About the middle of the last century this vineyard produced annually a considerable quantity of Burgundy wine. A thatched house was built in the grounds, the upper part was used as a dwelling-house and for selling the wine, and underneath were the wine cellars. The house was formerly occupied by Worlidge, the celebrated engraver, and here he executed the most valuable and admired of his works. Mr. Lee was patronised by the Earl of Islay, afterwards Duke of Argyle, the planter of Whittoo, who died in 1761, and other noblemen; he corresponded with Linnæus, and compiled from his writings an *Introduction to Botany*, published in 1760, which went through five editions, and for many years was in the highest repute. He died in the year 1795, at the age of 80 years; his partner, Mr. Kennedy, having died previously. The nursery was carried on by the sons of the two founders till 1817, when they dissolved partnership. It then became the sole property of James Lee, the second, who died in 1824, leaving it to his family. Besides an extensive correspondence, and a vigilant attention to procure every new plant as soon as it was introduced by others, Messrs. Lee & Kennedy introduced many plants into the country, through collectors whom they had sent abroad, and through foreign botanists. They maintained a collector in America, who sent home several new Oaks; and in partnership with the Empress Josephine, one at the Cape of Good Hope, who sent home many new Ericas, Ixias, and other Cape plants. To this firm

it is also we owe the first Fuchsia, and what that means with reference to the sum of human happiness, every gardener, every cottager even, can appreciate. They also had the first China Rose, in 1787.

Charles Lee was twice married; by his first wife he had six children, the second of whom, William, is now at the head of the firm; and by his second marriage there were two young children, who with their mother are left to mourn one of the best of men. The funeral took place at Brompton Cemetery on Thursday last.

NOTES FROM A LANCASHIRE GARDEN.

Sept. 2.—At last, after long days of almost incessant rain, with occasional intervals of cold bitter east wind, we have a morning of bright sunshine. I have just been tempted out from my library desk, for it is necessary to take sunny moments as they fly, and we shall probably have rain again before the afternoon. The air was pleasant enough, but with a certain crispness in it that tells of autumn, and autumn has come early upon us.

It is long since I have written any garden notes, and the year has been to me one of disaster and discouragement. It was on October 19 of last year that the first frost came, blighting the Fuchsias and killing the Dahlia blossoms. Then followed the long hard winter, which lasted exactly six months, for there was snow, if I remember right, on April 19; then we thought we were safe, but in the first week of May came another snap of cold, and the Pear blossoms were all caught. In June again there were cold, almost frosty, nights, and this time it was the turn of the Apple blossoms to suffer. In July there was the first hot weather, which, ungrateful as we were, we professed to find too hot, and since then we seem to have had little else but rain. Then I have had my own peculiar troubles with gardeners:—one man had been so negligent and inefficient that he had to be dismissed, and his successor, who worked well for a fortnight, was hopelessly drunk after the unwonted abstinence.

So on the whole my garden has never had so unfortunate a time. The great Buddleia, which I have so often mentioned, and which struggled bravely for existence during the two first cruel winters, finally gave in when the third attacked it. The beautiful Arbutus, which was the admiration of every one who entered the walled garden, and about which I spoke in my very first "Notes from a Lancashire Garden," on December 3, 1873, is all but killed. I have cut it down in some faint hope that a flickering life which shows itself at the roots may enable it to spring up again, but I can hardly believe in it; and the bare blank space which pink-blossoming boughs have shadowed for so many years looks sad indeed. The Fig trees on the wall have long dead shoots which have to be cut away, and of course they are bearing nothing. The Escallonia on the house is gone, and the Bay tree is cut almost to the roots: the Clematis showed dead wood for at least 2 feet, and then burst into leaf at the very top. My Leycesteria is dead, and others among my shrubs, for which I had a special liking.

The fruit this year is very disappointing. The blossom of Pear and Apple trees was most abundant, but the cold of May destroyed the hopes of a crop on the Marie Louise and Winter Nelis on the walls, while standard Apples have been shedding their fruit as I never saw them do before. On the other hand, Jargonelles, though small, are fairly abundant, and a Citron des Carmes has given us several dishes of its not very valuable Pears. Apricots have been an entire failure, and I doubt whether we shall have a dozen Plums. My Peach-house, too, has failed me. When the trees were in blossom the weather was so cold that the lights had to be closed, and no bee or fly, even if there were any about, could find its way in. Of course the gardener ought to have set the fruit, and as he neglected to do it we only got some five dozen Peaches from the six trees. We shall do better outside, for, oddly enough, though other wall fruit has failed, there are one Peach tree and one Nectarine which are bearing more than the entire Peach-house. Then, too, we have abundance of Grapes in our vineries, but we are getting anxious about them. The vineries of two of our neighbours have just been robbed, and we never know whether our turn may not come; however, we are taking measures to defeat any possible attempt.

Of small fruit the Strawberry crop has been less good than it should have been, and as for Hautbois I must, after a long trial of several years, give them up at last—I cannot manage them. Cherries always fail with us, but Gooseberries and Currants have done capitally, though the caterpillars were worse than ever. We have tried Hellebore powder in vain, and find ourselves reduced to the wearisome necessity of constant hand-picking. This next winter I shall try removing and burning the soil, which I see some of your correspondents recommend; but, to tell the truth, I almost despair of being able to exterminate the plague. By the way, there is one curious thing connected with a Currant bush, which I must not forget to mention; it was a bush of the champagne Currant, and on one branch several bunches had reverted to the original type, and had become ordinary red Currants.

And now let me turn to the flower garden; there is always something pleasant there whatever the season may have been; and yet, even there, I have much of disappointment. The hedge of Sweet Peas is not fairly out even now. The Lilium auratum bed showed fewer and smaller blooms. The bed of Gladiolus all turned yellow, and many blossoms refused to open just as the spikes showed colour. Roses have been poor, except the Rosa rugosa, which has flowered all summer, and bears flowers still on some branches, while others are laden with their large red hips.

On the other hand, a bed of blue Agapanthus, with the scarlet Cardinal flower surrounding it, has been most beautiful. The little Cornflower, with an edging of red Linum, has been singularly pretty, and many of the herbaceous plants have given us a noble show of flowers. Irises especially never did so well, or Potentillas, or Japanese Anemones. One annual which I have grown this year was only lately given to me—it is the Cleome, or Spider Plant, and very curious it is; close by it, drolly enough, are tufts of the old Spider-wort, some white, some blue, some richest purple. These plants are very different, of course, yet each in its own strange way recalls its insect namesake.

I have also just had some cuttings of a Rose given to me, which I do not know. Can any one tell me anything about it? It seems to be called the Rose de Marie, and has a small leaf; is it the same as the Rose of May, about which Mary Howitt once wrote? [Can the Rose de Meaux be intended? Eds.]

The Gloire de Dijon hedge by the garden-door of the house has been less good than it should have been; but close to it and leaning up against the house grows a large plant of blue Columbine, which has blossomed beautifully. It is, of course, a common thing enough, but it came there some years ago of its own accord, self-sown, and self-dependent, and it has become to all of us a real "Picciola," which we would not on any account disturb. We feel that spring has really come when we first see its curled and glossy leaf breaking up through the hard gravel in the warm corner where it has rooted itself. It is almost the first swallow among our flowers. *H.*

ROSES IN POTS IN AUGUST.

Why not as well, and easier, and better than in April, May, or June? It is difficult to say, only it does not seem to have been thought of to any extent until the Messrs. Paul, of Cheshunt, showed how well it could be done the other day at the Great International Show at the Royal Botanic Gardens, Manchester. And it is hardly too much to say that of all the things horticultural that were concentrated there through the liberality of the Botanical Society, and the energy of their Secretary, nothing excited greater interest nor gave more pleasure than the group of Tea Roses in pots, which enhanced by their beauty and perfumed with their fragrance the verdure and magnificence of the large tent—that Paradise regained but for the weather. Many considered it a bold venture of the Rose Society to hold a show towards the end of August: that succeeded, however, almost better than could have been expected, and would doubtless have been better still but for the weather. The Roses of the Messrs. Mack, of Darlington, and the Messrs. Paul, of Cheshunt, were so good, that it was difficult to say whether they were first or second blooms. A few of the other exhibits were also creditable, while a good many more bore weather stains of a very decided character. But these Roses in pots were fresh and verdant as pot Roses in May. They had also a splendid head of bloom, and yet not a few of them were in flower for the third time this year. Some of the identical plants had been shown four or five times, and there they were once more towards the end of August with heads of open flowers and plentiful succession of buds likely to carry them safely through September.

Mr. George Paul, with the modesty that belongs to most truly great men, claims little of the credit of his success in the perpetual blooming of Tea Roses. He derived the idea, he says, from Dr. Bennet, of Mentone, to whom most of us are already greatly indebted for his most interesting and instructive contributions to your pages. Mr. George Paul, consulting him on the condition and character of Tea Roses in that splendid climate, Dr. Bennet informed him that they went on flowering throughout the year; the drought sometimes arrested growth for a short time, but with the advent of rain, or by giving a good washing, away went the Tea Roses once more into fresh growth and more flower. This was enough, and the idea immediately occurred to Mr. George Paul—Why not Mentoneise our Tea Roses here? With the shelter of glass and by the aid of heat we can create and sustain a veritable Mentone climate around our Tea Roses all the year round. To think and embody in action are well-nigh simultaneous processes to such enthusiastic rosarians as Mr. Paul—a few scores of Teas in pots were at once placed under Mentone conditions, and the results have been among the greatest achievements in the cultivation of the Rose.

Not only may Rose blooms be now cut in plenty throughout the year, but Rose plants of any size or form may also be enjoyed. All that is needed is glass, heat, and a season of partial drying. The Roses shown by Mr. Paul at the International Show at Manchester have been under glass all the year; they have also been subjected at times to a brisk heat of from 60° to 70°. This quickens the start, and lessens the interval between the times of flowering. It will be obvious that to bloom a Tea Rose five or six times a year little or no time can be lost between the crops of flowers. After flowering, the dead blooms are cut off, a few of the weaker branches cut out, any other shoots that may need it cut back a little, the plants forced to rest a few weeks through a dry *régime*, and a fresh start made, the starting forces being moisture and warmth. During the flowering season the plants may stand in a cool conservatory or window garden. But changes of place, while prolonging the bloom, also tend to hasten the ripening and consolidation of the wood, and prepare the plants to respond the more swiftly to the stimulating forces applied at the end of their short rest after flowering.

Such is the theory and practice of Mentoneising Tea Roses, as I understood them from Mr. George Paul. The results all could see for themselves. Choicer groups of Tea Roses no one could wish to see; the plants were in small pots, pictures of health, and so full of verdure and of bloom right down to the surface that no one could have supposed they had bloomed before this year.

One first result of this unique exhibition of a group of Tea Roses in pots in August will be to cause classes for Tea Roses in pots to become a permanent feature in all the autumnal shows held by the Rose Society. I have not a schedule by me, but I presume the Rose Society offers liberal prizes for Roses in pots at its summer shows. Such prizes might do nicely to stimulate this new or at least hitherto little-practised feature in Rose-growing. Of course, those who have had Rose-houses filled with Teas planted out have always noticed this tendency to perpetual flowering. Unfortunately not a few Rose-houses are either unheated or insufficiently so to develope to the full this tendency towards perpetual blooming. But with the plants in pots, and heat, moisture, and drought under perfect control, the problem of the perpetual blooming of Tea Roses is solved, as the brilliant example of Mr. George Paul abundantly shows. The effect of that choice group of Tea Roses will probably prove more potent and permanent than that of any other exhibit at the show. It cannot fail to have the happiest effect on the furnishing of conservatories, window gardens, and rooms during the autumnal and winter months. Few will probably care to have so many late Fuchsias, Pelargoniums, Balsams, Cockscombs, Palms, Chrysanthemums, Chinese Primroses, or even early bulbs, when they might have Roses as full of

flowers and as fresh in foliage as in June. The groups of Tea Roses in pots at Manchester may probably develope a trade in Roses compared to which the present enormous business is as nothing; for is there not room for from one to half a dozen Tea Roses in every window of the land?—and if handy plants can begrown in 6 or 8-inch pots, carrying from six to a dozen blooms, and be offered at a reasonable rate, who would not prefer them to any or all others? Surely, too, there are not a few other Roses, notably, for example, La France and Boule de Neige, that would yield to such treatment as readily as Teas; and it is more than probable that most of our hybrid perpetuals would become so in fact, as well as name, were they Mentoneised in the same way as the Teas. Be that as it may, Mr. George Paul deserves the thanks of all lovers of the Rose for his splendid group of Tea Roses in pots at the International Show at Manchester, August 23—27. Cultivated and managed in the way he has so generously explained, there can hardly be a doubt that such Roses will speedily become the chief occupants of our conservatories throughout the autumnal and early winter months.

It is probable that all Teas, and most of the Noisette and Bourbon Roses, will yield readily to this mode of culture, but to prevent disappointment it may be well to name and describe the chief varieties exhibited by the Messrs. Paul.

President.—Fine in form and substance; rose, shaded with salmon.

Perle des Jardins.—Bright canary colour; large, and of fine form.

Niphetos.—Large and full; snowy white.

Marie van Houtte.—One of the finest plants and most freely flowered; colour a rich blending of yellow and peach.

Madame Willermoz.—Large and full; salmon and white.

Perfection de Monplaisir.—Nice compact habit, full of medium-sized deep canary-yellow flowers.

Souvenir d'Elise Vardon.—Very beautiful white, with yellowish centre.

Souvenir d'un Ami.—One of the oldest and still one of the finest of the Teas: salmon and rose.

Madame Margottin.—Very fine form, large; deep citron, with a rosy peach centre.

Madame Lambard.—Free blooming bright rose; one of the best of the colour.

Madame Charles.—Charming in bud, rather thin when open; apricot colour.

Madame Angele Jacquier.—A very sweet yellowish-white variety.

Innocente Pirola.—Very beautiful in bud, light fawn, changing to white.

Devoniensis.—White, tinged with purple, sweet and beautiful beyond compare; admirable for this purpose.

Catherine Mermet.—Very fine, light rose-coloured.

Comtesse de Nadaillac.—Very fine, large and full, flesh-coloured, with copper-coloured base to the petals; rich and striking.

Madame Bravy, or alba rosea, for they are identical. —White, with a rose centre, very fine.

Anna Ollivier.—Flesh colour, darker at bottom of petals.

Of course, though such well-known varieties as Gloire de Dijon, Bougère, Belle Lyonnaise, Bouquet d'Or, Elise Sauvage, Souvenir de Paul Néron, and Safrano were not shown, probably these and most other Teas are or will be grown for those purposes. *D. T. Fish.*

BRITISH ASSOCIATION.

THE meeting at York, to which we alluded last week, has been, in spite of the weather, a great success from first to last. It is impossible for us to give a full chronicle even of those departments in which the readers of this journal are specially interested; all we can do in the space at our disposal is to mention some of the principal subjects of discussion, and to give extracts from some of the papers read. Dr. Siemens' report on the use of the electric light in horticulture, and the use of electric agency in various farm operations has already been noticed in these columns. The following remarks on the progress of vegetable physiology formed part of the inaugural address of Sir John Lubbock, to which we alluded last week:—

"VEGETABLE PHYSIOLOGY.

"At the close of the last century Sprengel published a most suggestive work on flowers, in which he pointed out the curious relation existing between these and insects, and showed that the latter carried the pollen from flower to flower. His observations, however, attracted little notice until Darwin called attention to the subject in 1862. It had long been known that the Cowslip and Primrose exist under two forms, about equally numerous, and differing from one another in the arrangements of their stamens and pistils, the one form having the stamens on the summit of the flower and the stigma half way down; while in the other the relative positions are reversed, the stigma being at the summit of the tube and the stamens half way down. This difference had, however, been regarded as a case of mere variability; but Darwin showed it to be a beautiful provision, the result of which is that insects fertilise each flower with pollen brought from a different plant; and he proved that flowers fertilised with pollen from the other form yield more seed than if fertilised with pollen of the same form, even if taken from a different plant.

"Attention having been thus directed to the question, an astonishing variety of the most beautiful contrivances have been observed and described by many botanists, especially Hooker, Axel, Delpino, Hildebrand, Bennett, Fritz Müller, and above all Hermann Müller and Darwin himself. The general result is that to insects, and especially to bees, we owe the beauty of our gardens, the sweetness of our fields. To their beneficent, though unconscious action, flowers owe their scent and colour, their honey—nay, in many cases, even their form. Their present shape and varied arrangements, their brilliant colours, their honey, and their sweet scent are all due to the selection exercised by insects.

"In these cases the relation between plants and insects is one of mutual advantage. In many species, however, plants present us with complex arrangements adapted to protect them from insects; such, for instance, are in many cases the resinous glands which render leaves unpalatable; the thickets of hairs and other precautions which prevent flowers from being robbed of the honey by ants. Again, more than a century ago our countryman, Ellis, described an American plant, Dionæa, in which the leaves are somewhat concave, with long lateral spines and a joint in the middle, which close up with a jerk, like a rat-trap, the moment any unwary insect alights on them. The plant, in fact, actually captures and devours insects. This observation also remained as an isolated fact until within the last few years, when Darwin, Hooker, and others have shown that many other species have curious and very varied contrivances for supplying themselves with animal food.

"Some of the most fascinating branches of botany—morphology, histology, and physiology scarcely existed before 1830. In the two former branches the discoveries of Von Mohl are pre-eminent. He first observed cell-division in 1835, and detected the presence of starch in chlorophyll-corpuscles in 1837, while he first described protoplasm, now so familiar to us, at least by name, in 1846. In the same year Amici discovered the existence of the embryonic vesicle in the embryo sac, which developes into the embryo when fertilised by the entrance of the pollen-tube into the micropyle. The existence of sexual reproduction in the lower plants was doubtful, or at least doubted by some eminent authorities, as recently as 1853, when the actual process of fertilisation in the common Bladderwrack of our shores was observed by Thuret, while the reproduction of the larger fungi was first worked out by De Bary in 1863.

"As regards lichens, Schwendener proposed, in 1869, the startling theory, now, however, accepted by some of the highest authorities, that lichens are not autonomous organisms, but commensal associations of a fungus parasitic on an Alga. With reference to the higher cryptogams it is hardly too much to say that the whole of our exact knowledge of their life-history has been obtained during the last half-century. Thus, in the case of Ferns, the male organs, or antheridia, were first discovered by Nägeli in 1844, and the archegonia, or female organs, by Suminski in 1848. The early stages in the development of mosses were worked out by Valentine in 1833. Lastly, the principle of Alternation of Generations in plants was discovered by Hofmeister. This eminent naturalist also, in 1851-4, pointed out the homologies of the reproductive processes in mosses, vascular cryptogams, gymnosperms, and angiosperms.

BACTERIA.

"Only a few years ago bacteria seemed mere scientific curiosities. It has long been known that an infusion —say, of hay—would, if exposed to the atmosphere, be found after a certain time to teem with living forms. Even those few who still believe that life would be spontaneously generated in such an infusion, will admit that these minute organisms are, if not entirely, yet mainly, derived from germs floating in our atmosphere; and if precautions are taken to exclude such germs, as in the careful experiments especially of Pasteur, Tyndal, and Roberts, every one will grant that in ninety-nine cases out of a hundred no such development of life will take place. These facts have led to most important results in surgery. One reason why compound fractures are so dangerous is because, the skin being broken, the air obtains access to the wound, bringing with it innumerable germs, which too often set up putrefying action. Lister first made a practical application of these observations. He set himself to find some substance capable of killing the germs without being itself too potent a caustic, and he found that dilute carbolic acid fulfilled these conditions. This discovery has enabled many operations to be performed, which would previously have been almost hopeless. The same idea seems destined to prove as useful in medicine as in surgery. There is great reason to suppose that many diseases, especially those of a zymotic character, have their origin in the germs of special organisms. We know that fevers run a certain definite course. The parasitic organisms are at first few, but gradually multiply at the expense of the patient, and then die out again. Indeed, it seems to be thoroughly established that many diseases are due to the excessive multiplication of microscopic organisms, and we are not without hope that means will be discovered by which, without injury to the patient, these terrible, though minute, enemies may be destroyed, and the disease thus stayed. The interesting researches of Burdon-Sanderson, Greenfield, Koch, Pasteur, Toussaint, and others, seem to justify the hope that we may be able to modify these and other germs, and then by appropriate inoculation to protect ourselves against fever and other acute diseases."

In Section D., Biology, the Presidential Address was given by the veteran Prof. Owen, who related with much humour the history of his efforts in securing the erection of the Natural History Museum, at South Kensington, upon the completion of which he may well be congratulated; though as far as science is concerned there is little doubt that accommodation equal in extent and quite as convenient for the purpose, might have been obtained at half the cost. Architecturally, however, the building confers honour upon its projectors, while the veteran anatomist may justly feel proud of the ultimate success of his efforts in rousing the Government to a due sense of the importance and requirements of natural history. In this section papers were read by Sir J. Lubbock on the mode in which seeds are buried in the ground and on the colours of flowers and their relation to insects. Mr. Alfred Bennett also contributed some remarks on the same subject. Of these we shall give abstracts in a future number.

In the geographical section the President, Sir J. D. Hooker, made the "Geographical Distribution of Plants and Animals" the subject of his address. He traced the history of this branch of knowledge from the time of Humboldt, the originator of the science, who, however, owed much to his predecessors, Tournefort and Linnæus, to that of Darwin, noticing as he went on the labours of Lyell, who showed that the present inhabitants of a continent might be the descendants of immigrant races much more ancient than the continents themselves; of Edward Forbes, who divided the present British flora into five groups, corresponding to five different sources of origin; and, lastly, stating that Darwin's theory of the modification of species after migration and isolation suffices to explain all the leading facts of distribution.

Mention was then made of the importance of fossil plants in studying the past history and physical geography of the globe, with special reference to the fossil Arctic flora and the relation of the Eastern North American flora to that of Japan, as studied by Dr. Asa Gray. While the existence of intermittent glacial periods will account for some of the phenomena exhibited, Professor Blytt, of Christiana, alludes to the varying distribution of plants in Norway from alternate dry and rainy periods.

In conclusion, reference was made to Mr. Dyer's hypothesis that all the floras of the globe may be traced back at some time of their history to the northern hemisphere. The final paragraphs of the address were devoted to a brief notice of the principal books published on this subject during the last fifty years, including M. A. de Candolle's *Géographie Botanique*, Watson's *Cybele*, Wallace's *Geographical Distribution of Animals and Island Life*, Grisebach's *Vegetation der Erde*, Bentham's *Addresses to the Linnean Society*, &c.; at another time we may give portions of this address at greater length.

OLEARIA HAASTI.—Has any one noticed the great length of time that the flowers of this charming New Zealand shrub will keep quite fresh in water? The writer of this has seen densely-flowered twigs in perfect condition after having been cut about three weeks. In the Kew arboretum it is now in fine flower, and, as has already been stated in these columns, the Kew plants sustained no damage whatever from the severity of last winter. An illustration was given in the *Gardeners' Chronicle* for 1872, p. 1194.

Fig. 61.—Osborn's Golden Ribes: nat. size.

RIBES PUMILUM var. AUREUM.

In May last Messrs. Osborn showed at one of the meetings of the Floral Committee a basket of low-growing dwarf shrubs bearing this name (fig. 61). Individually the plants are somewhat scraggy, but when massed they form neat clumps of bright yellow foliage, very well adapted for rockeries and similar situations. We have not seen the flowers, but there is little doubt that the plant is a dwarf variety of the alpine Currant with golden-coloured leaves. Its full name would be Ribes alpinum variety pumilum sub-variety aureum. As there is already a Ribes aureum—and these very long names are very inconvenient—it might be well to call this in gardens Osborn's Dwarf Golden Ribes. It is, we believe, quite hardy, and is well adapted for the purpose we have indicated.

Giant Cockscomb.—We owe to Messrs. Veitch the opportunity of seeing a magnificent Cockscomb measuring 2 feet 9 inches from tip to tip, and 18½ inches in greatest breadth; the colour and texture are that of crimson-plush. It is the finest specimen we have seen. The great size is due to the same cause which produces the fasciated stems of Asparagus, Ash, Cotoneaster, &c.

FRUIT NOTES.

Frogmore Prolific Apple. — I heartily agree with Mr. Carmichael that this Apple is not grown nearly as much as it should be. I can speak in the highest praise of its productiveness, and also of the cooking qualities of the fruit; and to show its productiveness I would mention that one small pyramidal tree, not more than 5 feet in height, produced in the nurseries here this year no less than forty-two fine handsome fruits, measuring from 8½ to 10 inches in circumference (weight, nearly 14½ lb.). Mr. Carmichael is in error when he says no nurseryman but Mr. Turner, of Slough, includes it in his list. He will find it included at p. 44 of *The Orchardist*, and it has been sent out from this nursery for the last four or five years. *W. Roberts, Merriott Nurseries, Somerset.*

—— Reference to this very fine Apple was made in these columns recently as being seen in the gardens at Maiden Erleigh, Reading, where young trees of many kinds were producing good samples of fruit, but none were more striking than the Frogmore Prolific. Mr. Turton got his trees, some three years since, from Messrs. Veitch and Sons, so that it is evident it is about in the trade. I do not know upon what stock it is, but I think all the trees are on the Crab. Irish Peach Apple was very fine there. No doubt the Crab stock is the most accommodating in relation to soils. Trees, when once well in bearing, and in favourable season, seem to crop and thrive well equally upon clay, gravel, or chalk. Our subsoil is a sour gravelly clay, but Apples do admirably. *A. D.*

Large Peaches.—With all respect to your correspondent, Mr. A. T. Goodwin respecting his 18 oz. and 23¾ oz. Peaches, I must candidly confess that after having read his remarks twice over, I am inclined to think he has been weighing by some weight other than avoirdupois. However, to clear up all doubts in the matter, I would suggest that he should send to you a sample of fruit from some tree which is carrying a few dozens; and in the event of the said sample weighing, or turning the scales, at anything between 18 oz. or 23 oz., I can faithfully say that there are many practical pomologists who would be glad to take a leaf out of his book, and would feel grateful to him if he would send you for publication, a note explanatory of the course of culture he adopts. *J. Horsefield, Heytesbury.*

Pott's Seedling Apple.—I would like to mention another excellent and little known Apple—viz., Pott's Seedling, which I have found to surpass Frogmore Prolific in the size of the fruit, while equal to it for cooking purposes and productiveness. I have also found Golden Noble, Golden Winter Pearmain, Manks Codlin, and Lord Suffield, most excellent for bearing and the quality of the fruit. *W. Roberts, Merriott Nurseries, Somerset.*

Flower of Kent and Devonshire Buckland.—Your note of Flower of Kent is well deserved. In every garden of any pretensions are to be found Kentish Fillbasket and Beauty of Kent, but in very few Flower of Kent; and yet it would take a very dogmatic man to declare that any one of these three kinds was better than the other two. I am not at all surprised to hear how free a bearer it is at Witley Court. This year, with me, on the Paradise, it is quite as prolific as Stirling Castle. Again, Devonshire Quarrenden and Duke of Devonshire are justly popular varieties. But poor Devonshire Buckland is quite left out in the cold in the estimation of the nurserymen. In the excellent list of Apples published by the Lawson Company it finds a place. Although not such a useful Apple as the old Quarrenden, it is a large, handsome, and good kitchen Apple, and, excepting when in a young state, the tree is a constant and certain bearer. Can any correspondent say whether Barton Free Bearer and Barton's Incomparable are the same Apple, as Scott says they are? But if I am right, I think Barton Free Bearer is a kitchen Apple. *W. Carmichael.*

Farleigh Prolific Damson.—This wonderful cropping Damson, to which reference is made in a former number, is with me producing a great crop on young trees only two years planted, though the trees are in a most exposed position. That it is very hardy, as well as fruitful, there can be little doubt. On some of the trees there are clusters 1 foot in length, literally a mass of fruit, and of course of great weight. It seems to stand the wind well, as, though the wind has been blowing a hurricane now and then during the past week or two, only very few fruits indeed fell. This Damson should be universally planted, and a tree in all cottage gardens would indeed be a boon. It wants little pruning, perhaps none at all; indeed, my trees have not felt the knife. Had I cut them back, according to stereotyped precedent, I should perhaps have had bandsomer heads, but no fruit. We find it to be a mistake to knife the Morella Cherry also when grown as a standard. A little thinning is all that is needed. *A. D.*

Apple W. E. Gladstone.—This variety, which does not appear to have found its way into many fruit tree catalogues, is being freely grown in the neighbourhood of Maidstone, and represents perhaps the earliest large Apple grown: the skin mottled red and yellow, but often almost altogether red, of a very bright colour, and covered with a bloom like a Plum. It rivals, if it does not surpass, the Astrachan in colour, and it is a variety of decidedly good quality. The origin of this Apple is unknown, but it is supposed to have been received from abroad, or probably from Evesham, where it is said to be largely grown. It first appeared in Rivers' catalogue about 1874, and it is without doubt an excellent early market variety, of free growth, though the wood is small, and bears very freely. It is said to possess such a powerful aroma that it can be detected before one reaches the trees on which the Apple is growing. There is a large demand for this Apple in Kent, and it appears likely to be extensively planted for early market purposes. *R. D.*

Plums in Kent.—When looking through a fruit garden in Kent, a short time since, one could not help being struck with the very large crops of fruit on some Plum trees not usually found in gardens. They were the Bryanston Gage, which is considered by some the very best Gage Plum grown: like the Green Gage in appearance, but much larger and later. This was bearing a remarkably good crop. The Blue or Purple Gage is a fine and useful variety, also heavily cropped this year. It is a dessert Plum of excellent quality, hardy, and a good general cropper, and said to be less liable to crack than the ordinary Green Gage. The Bush Plum is a purple variety that is being extensively planted for market purposes. It is a wonderfully free bearer; every little spur of wood produces fruit; but from the peculiarity of its wood the tree never breaks with the weight of the crop. It is a most useful market sort. La Delicieuse, or Cooper's Large Plum, is a fine red fruit, rather late, makes a large tree, and bears profusely. The fruit is of poor flavour to eat, but is one of the most delicious of culinary Plums when cooked. Very distinct. Years ago there was a great demand for this Plum, and many hundreds of plants were supplied by Messrs. Bunyard & Son, nurserymen, of Maidstone, but of late years it has not been propagated. It appears to be one of those fine old Plums that deserves to find a place in the fruit garden, as it is a most abundant bearer. Cox's Emperor, or Denbigh, is a large red culinary Plum of the Orleans type, ready for use in mid-season, a good grower, and very productive. Denniston's Superb Gage is an American variety not much grown now, but is early, and rich in flavour, and on the whole a good bearer. Guthrie's Green Gage is a very fine dessert Plum, later than the Old Green Gage: a hardy grower and a free bearer, doing well as a standard, and also on a wall. Oullins Golden Gage is a very early yellow Plum, ripening in the middle of August; and not only is it of great value for "its exquisite flavour and handsome appearance, but for the extraordinary fertility of the tree, which has a robust pyramidal habit of growth, and is admirably adapted for every form of cultivation." This is the character given of it by Dr. Hogg in his *Fruit Manual*, and it was fully borne out in the case of the examples we saw growing at Maidstone. *R. D.*

The Early Rivers Peach.—I cannot speak so well of the good qualities or behaviour of Early Rivers Peach as Mr. Sheppard does, as its stone almost invariably cracks, imparting a disagreeable flavour to the fruit, and its quality is quite second-rate with me. If the qualities of different fruits were oftener discussed or stated in your columns from different parts of the country—not only those of recent introduction, but the older varieties—it would be of great advantage to gardeners in general, and those planting young trees in particular. For instance, that fine Pear the Winte Nelis is of no use here, either as a pyramid, an espalier or on a wall; the tree will grow for a few seasons then begins to canker, several feet of the branche dying off, and the fruit also is quite worthless. *Davi Walker, The Gardens, Dunorlan, Tunbridge Wells.*

THE LONGWORTH ROSES.

THE interesting account given by Mr. D. T. Fis of Mr. Ben. Cant's Roses at Colchester may not b inaptly supplemented by the account of a visit recentl paid to Mr. George Prince's nursery at Longworth for although his Roses have generally been known a the Oxford Roses that is somewhat of a misnomer He lives indeed there (if a constant oscillation betwee the two poles of Oxford and Longworth can be s called), but none of his Roses are grown in or nea the University city. Longworth is situated in th Vale of White Horse, and is somewhat out of the wa in these day of enlarged railway communicatioo, a he is 6 miles from Wantage Road Station, and it i here that he has carried out that system of Rose growing which has made his name famous, mor especially for the lovely class of Tea Roses, of whic he has a large and most flourishing stock.

At a time when most Rose nurseries are past thei best Mr. Prince's nursery is especially worth a visit for, owing perhaps to the stock he uses, and also t the situation of his nursery, his plants are later i coming into bloom, and so not only amongst the Tea but also amongst the hybrid-perpetuals there wa a large number of flowers to be seen, and muc interesting information to be gained.

As I have already stated, although the Trent Ros growers had used the seedlings of the wild Rose as stock for their Teas, yet the merit of introducing it i quantity and applying it to the hybrid-perpetuals a well must be given to Mr. Prince. He had to endur much opposition when he expressed his determinatio to use it for all sorts of Roses; it was thought that h was riding his hobby a little too hard—production c suckers unsuitable to most soils, and other littl matters of the kind, were hinted at; and he was fre quently told, "It's of no use, Prince; the Manetti i sure to beat you out of the field." Still he pe severed, and the result has been that not onl does he use nothing else now, but that othe Rose growers are largely following his example, an Roses on the seedling Brier are in great demanc The Manetti will, no doubt, still hold a strong plac in the affections of growers for sale, it is so muc more rapid in its growth—*i.e.*, Roses can be soone worked on it than on the seedling Brier; it is mor easy to work, and cheaper, while for light soils it i very valuable; but for many of the weaker growin hybrid-perpetuals the seedling Brier will becom every year more in demand, while Rose growe will not be content with Teas or anything else We hear of failures and of persons condemning thi stock on account of them; but "there are mor things in heaven and earth than are dreamt of in ou philosophy," and which experience is likely to mak us acquainted with. And one thing that Mr. Princ has learned is that there are wild Roses and wil Roses, and that some of these species are more suit able for stocks than others; within half a mile, o his own farm, he can pull out some that grow stron and vigorous shoots, and from these the hips ar saved for seed, while others give out a number c small shoots, and these are useless, or comparativel so. Those who have raised seedling Brier stock have not paid sufficient attention to this subject, an those who are inclined to attempt the raising of th stock from seed will do well to bear this in mind and to select only such as are likely to produc vigorous and healthy plants.

In conversation with Mr. Prince I found that h had not a very strong opinion as to the advisabilit of growing Roses on their own roots; his idea is tha the Rose is so much more tender than the stock (*i.e.* the Brier), that it is much more likely to be affecte by the severity of our winters, both as to cold an wet; that you can protect to a certain extent th shoot, but that the roots will rot and perish. I order to prove his assertion, he pointed out two row of Souvenir de la Malmaison, one on its own root the other worked on the Brier; considerable gap had been made in the own-root rows, he took up on of these with great care—a considerable number c the roots had rotted and the plant was weak: he ha considerable difficulty in pulling up one of thos worked on the Brier, and when he did so it was on

mass of fibrous roots, and the plant proportionally strong. Not having had much experience of own-root Roses I cannot say how far this observation will be borne out by others, or whether it could apply to hybrid perpetuals also, but now that there is so much said about the system of growing Roses it may be as well that this matter should be well considered.

Amongst the unusual Roses, if I may use the expression, which I saw here, were Longworth Rambler, a climbling Rose which I think is likely to be very useful; the flowers are bright cerise and produced in large clusters and in great numbers; it was raised by M. Liabaud, of Lyons, and by him presented to Mr. Prince. The demand for it has been very large and will I believe be increasingly so, as it is a perpetual bloomer, and almost evergreen. Selina, an American variety and much appreciated there for the freedom of its growth and the abundance of its beautiful pink flowers, is another fine plant that will be appreciated when better known. Of a totally different character is the little Paquerette or Daisy Rose, Anna Maria de Montreuil; it is literally smothered with flowers of a pure white colour, quite double and very dwarf in habit.

It is, however, the Tea-scented Roses which form the *pièce de resistance* of the Longworth Roses, and it must be remembered that neither soil nor situation are favourable for these—Longworth is very cold and much exposed to high winds, and it may reasonably be inferred that Roses which succeed well here will be generally useful, and will not disappoint growers. In going through this large collection I noticed in remarkable vigour the following:—

Abbé Rouslau—flesh-white, tinted with violet.

Adam—large, full, blush-rose.

Adrienne Christophle—coppery-yellow, a very peculiarly coloured flower.

La Princesse Vera—another peculiarly coloured flower, copper-coloured, edged with yellow.

Anna Ollivier—rosy-flesh, a large and fine flower.

Madame Lambard—a lovely Rose, bright salmon-rose, with a copper shading.

Perle des Jardins—one of the very yellow Roses we have, of vigorous growth.

Perfection de Monplaiser—very free and floriferous.

Safrano à fleurs rouges—rather, like the type, thin in petal.

Souvenir de Madame Pernet—light rose, shaded with yellow.

Madame François Jamin—coppery-yellow, centre copper-coloured.

Comtesse de Nadaillac—not so vigorous as some in growth, but one of the most lovely of its class, the exquisite blending of flesh, orange, peach, and copper-colour it is impossible to describe; the petals are thick and fleshy, and especially in bud it is most lovely.

Comtesse Riza du Parc—rose, changing to pink, large and well formed.

Jean Ducher—salmon-yellow, shaded with rose in the centre, large, full, and very vigorous in growth.

Allen B. Richardson—a peculiarly coloured Rose, like the Capucine or Nankin, but very vigorous in growth; a charming buttonhole Rose.

Madame Berard—a fine vigorous growing Rose, of the Gloire de Dijon type, very similar to it, but better formed, and of an equally valuable habit.

Madame Camille—delicate rose.

Madame Welch—flowers large and double, fine form, opens well, outside pale yellow, centre deep orange, vigorous in growth, distinct and good.

Madame Angele Jacquier—a new Rose, raised by Guillot, and very beautiful; it has been well exhibited this year. Mr. Prince, however, thinks it is inconstant; the colour is difficult to describe, but I have seen it as a light yellowish-white rose, with rose or pink shading.

Jules Finger—another new Rose, somewhat in the style of Catherine Mermet, rose-shaded; likely to be valuable.

Marie van Houtte—a very lovely flower, white, slightly suffused with yellow, edges of petals faintly tipped with rose; very vigorous.

Perle de Lyon—a fine yellow, but somewhat shy in opening.

Niphetos—a large and fine Rose, pure white, somewhat given to throw its petals about, and very often disappointing an exhibitor; somewhat in the same style as the new Rose, Innocenta Pirola, although not so pure a white.

Maréchal Niel.—Of course this (a Noisette) was to be seen in large numbers; every one knows and values it, but it is essentially a loose Rose. One thing Mr. Prince told me concerning it, that if well-ripened buds are taken for insertion in the stock that they will bloom profusely, not much so that the plant will not give out the vigorous roots it usually does, but will expend itself in flowering.

Souvenir de Paul Néron—a very fine flower, with thick petals, delicate French white, with rose-coloured point to the bud; a very charming Rose.

Souvenir d'Elise Vardon is one of the few Roses which Mr. Prince does not find to do well with him; when well done it is a grand Rose, but is uncertain.

Souvenir d'un Ami—a beautiful pink Rose, of good habit; very free and vigorous in habit.

Such are the Roses that most struck me in these celebrated grounds. We had a long talk together about hybrid perpetual Roses. Mr. Prince is by no means hasty in giving his opinion as to new Roses, nor does he think so highly of them as some do, but he considers Duke of Teck the best Rose either amongst French or English flowers of the last season; and amongst others he thinks well of is one not usually much liked, Madame Sophie Fropot. I saw also in fine condition Gloire de Santenay, Duc de Rohan, Duc de Wellington, Etienne Levet, Marie Finger, Mons. E. Y. Teas, a great favourite here; Princess Mary of Cambridge, Reynolds Hole, and other well-known flowers, all thriving well on the seedling Brier. There were also many other things well worth noting, but I have confined myself to the Roses, and can only say in conclusion that if any one is at all sceptical as to the value of the seedling Brier, a visit to Longworth will dispel his doubts, and will make him discontented with Tea Roses on anything else than the stock. *Wild Rose.*

BOTANICAL COLLECTORS.

Francis Masson.—Francis Masson was born at Aberdeen in 1741. He chose the profession of gardener, and, like many of his countrymen, made his way to London, and entered the service of the Royal Gardens, Kew, but on account of the early records of the gardens having been destroyed, after the death of the second Mr. Aiton (1849), the date of his entry is not known; but in 1772, at the recommendation of William Aiton (the first), he was appointed botanical collector for Kew at the Cape of Good Hope, where he remained for three years. The result of this expedition we learn from a letter to Linnæus, dated London, December 26, 1775, wherein he says, "I have been employed some years past by the King of Great Britain in collecting of plants for the Royal Gardens at Kew. My researches have been chiefly at the Cape of Good Hope, where I had the fortune to meet with the ingenious Dr. Thunberg, with whom I made two successful journeys into the interior parts of the country. My labours have been crowned with success, having added upwards of 400 new species to his Majesty's collection of living plants, and I believe many new genera." In his second letter to Linnæus (dated Madeira, August 6, 1776, he says, 'I had the pleasure of receiving yours on May 19, on which day I left England. . . . I have observed many new plants here, especially trees, which I think are new genera, but have not seen their fructification perfect. . . . I have observed that all the rare plants grow either on the high cliffs near the sea, or in horrible deep chasms, that run towards the middle of the island."

Our next information regarding his doings is derived from a letter to the younger Linnæus (date Madeira, December 12, 1778), from which we learn that he had visited the Canaries and the Azores. He says:—"I had now finished my peregrinations among the Fortunate Islands, and have found great pleasure, as well in the novelty of their productions as the singularity of the country. . . . I now wait for a passage to the West Indies; but the present war, in which my country is involved, will, I fear, render my voyage less extensive than I at first expected."

We have no account of his voyage or doings in the West Indies, but that he was there appears by the record, in *Hortus Kewensis* (1813), of two species of Cassia introduced by him, one dated 1779, the other 1781. It is presumed that he returned to England, and in 1785 was again despatched to the Cape of Good Hope, from whence we find numerous plants recorded in *Hortus Kewensis* (1813) to have been introduced by him between the years 1786-1795. In the latter year he returned to England.

During his residence at home in 1796 he published a work entitled *Stapeliæ novæ*, or a collection of several new species of that genus, discovered in the interior parts of Africa.

Being in time desirous of exploring other parts of the world—and through the recommendation of his former friend and patron, Mr. Aiton—he was again recommended to royal patronage, and was appointed to explore such parts of North America, under the British Government, as appeared likely to produce new and valuable plants.

He sailed from Gravesend in September, 1797, and in a letter to Mr. Aiton, dated, New York, January 1, 1798, he says, "After four months' passage I arrived here. Our ship was taken by French privateers, and I suffered great hardships." He arrived in Montreal in October, 1798. We have no knowledge of his further proceedings, but a letter from Mr. Vaughan to Mr. Aiton shows that he died there in December, 1805. Although he was seven years in Canada, we find no record of any plants having been introduced by him from that country. Massonia, a genus of Liliaceæ, was named by Linnæus in his honour. *J. Smith, Ex-Curator, Royal Gardens, Kew.*

THE DAHLIA.

In a recent number some reference was made to the difficulties some of the Southern growers have had to contend with this season, owing to the excessively hot weather, which not only pushed the plants into flower too rapidly, but brought in its train clouds of black aphis, thrips, and other insect pests. Besides, the exhibitions where Dahlias have been exhibited were fixed too early for them—Manchester on August 24, and the Crystal Palace on the 29th of the same month. The old exhibitors used to say that the shows for Dahlias should not be fixed before September 10. There is no exhibition for Dahlias in London after that date this year, but the Fruit and Floral Committee meeting of the Royal Horticultural Society on September 13 falls on a very suitable date, and a grand display of cut blooms is expected from the leading growers. Mr. Charles Turner, of Slough, Messrs. Keynes, of Salisbury, and Messrs. Cannell, of Swanley, will all exhibit. Mr. Turner's plants are now in capital condition, and the blooms are much better than they were at the date of the Manchester show. There are some new varieties raised by that veteran grower, the Rev. Charles Fellowes, which for their distinctness and general good quality will doubtless meet with approval. Amongst them Pioneer is very good; probably it is the blackest Dahlia yet raised. It is also of large size and good form, with a high centre.

Cardinal is a good addition to the light scarlet flowers; it is quite glowing on the plant, and when at its best is not surpassed in this colour.

Cornwallis West is another scarlet; this is a substantially built flower, with well shaped florets, and very constant.

Dragon is a very good show flower, and it also comes striped or tipped with reddish-crimson on a yellow ground; when it has the stripe it can be shown in the fancy class. Full sized, and of good shape.

The new varieties raised by Mr. Fellowes and sent out in the spring of the present year more than maintain their character. The best of them are Goldfinder, Modesty, Prince of Denmark, and Sunbeam. Amongst the varieties sent out in the spring by Messrs. Keynes & Co. Joseph Green and Walter H. Williams are very fine. Lady Wimborne does not quite come up to the expectations formed of it last year, and it is inconstant. Looking carefully over the general collection the following varieties were very fine, and the best in their various classes:—Annie Neville, Aurora, Canary, Chris. Ridley, Constancy, Emily Edwards, Ethel Britton, Flag of Truce, James Cocker, James Service, John Neville Keynes, John Standish, Joseph Ashby, Lady Gladys Herbert, Ovid, Prince Bismarck, and Thomas Goodwin. The above are all show varieties. Amongst fancies the best are Jannette, Flora Wyatt, Florence Stark, Gaiety, Grand Sultan, Henry Glasscock, Lucy Fawcett, Miss Browning, Monsieur Chauviere, Mrs. Saunders, Mrs. Purves, Oracle, Peacock, Rev. J. B. M. Camm, and Robert Burns. There are now a number of really good show Dahlias of a very dwarf habit, which are well adapted for lines or planting in masses in the flower garden. John Wyatt is a really good exhibition flower, with this dwarf habit and a rich crimson-scarlet colour. George Thomson is the best variety with yellow flowers; Rising Sun is a very brilliant scarlet. The bouquet Dahlias are now a very important section, and well adapted for cutting purposes. They have been vastly improved during the last few years. The best of them are Adonis, Amelie Barbier, Comtesse van Sternberg,

Dove, Dora, Fair Helen, Frau, Professor Klug, Lady Blanche, Little Arthur, North Light, Prince of Liliputians, Princess Sophie, Titania, White Aster, and Wilhelm Nissche.

The single Dahlias are useful for cutting, but the plants are not ornamental. The flowers last such a short time on the plants, and the seed pods are very prominent unless they are frequently picked off. Mr. Turner grows them at a respectable distance from his exhibition varieties, in case the greater potency of the pollen of single varieties should deteriorate the show blooms that were wanted for seed. *J. D.*

PLANT GOSSIP.

INDIGOFERA FLORIBUNDA.—A hardy wall creeper, very appropriately named. The plant is a rapid grower, and, as the name implies, is very floriferous. It is of Pea-like habit, and its purple flowers are produced in succession for months together when once the plant has got established. It succeeds well upon a west wall, and likes a rich open compost.

LONICERA SEMPERFLORENS MINOR.—This scarlet-flowered Honeysuckle, by no means common, makes an excellent creeper for an intermediate-house, or any structure where the temperature is kept a shade higher than a cool greenhouse. It is much after the form of the Dutch Honeysuckle, but to do it well it requires generous cultivation.

BEGONIA PARVIFLORA.—The size, form, and brilliancy of many varieties of the tuberous-rooted section of Begonias has almost squeezed the bushy-habited ones into temporary obscurity. I was therefore pleased to see a fine group of the above-named variety a few days ago laden with their lovely white flowers, any plant of which would be an ornament in a room or upon any table in the kingdom. When any one class of plants or even section of plants is grown to the exclusion of others, it is then time to call a halt.

GREVILLEA FOSTERI.—I saw this silver form of Grevillea at Messrs. Veitch's a short time ago; it will make an admirable companion for the commoner Grevillea robusta. It has a flower, too, which is not insignificant, and taken altogether it is a decided acquisition to our stock of furnishing plants. *H.*

PAVONIA WIOTTI.—This quaint-looking plant is not often seen in private gardens, where its curious flowers would be sure to draw interesting inquiries as to its history. In a small state it would come in nicely for groups of plants for rooms, &c. I have often been appealed to to try and get as much variety as possible—flowers and plants ought not to be looked upon like old China, they ought to be changed and diversified as much as possible. We often complain because we do not know half the things that would lessen our labour, and give more variety and greater satisfaction in the grouping of small plants in vases and jardinettes.

IXORA FORMOSA.—A rather distinct type (in point of colour) of this class of plants. It produces fine heads of pale buff or salmon-coloured flowers, and will make a very pleasing addition to our stock of cut flowers.

RONDELETIA SPECIOSA AS A WALL PLANT.—To see this fine old-fashioned plant trained on a balloon trellis or tied to stakes is to see a very clumsy way of using a plant which, grown in a natural way, would be a floral ornament of the first order. It is, of course, quite right that people should train plants as they choose, but acquired habit is a powerful element in gardening, and so plants that have been trained on balloons twenty years ago are treated in the same way still. There are, however, honourable exceptions, and when one sees a fine plant of this Rondeletia covering a back wall with its shoots only regulated, and its scarlet inflorescence nestling among healthy green leaves, one almost wishes balloons had never been invented.

SELAGINELLA CÆSIA ARBOREA.—A trailing denizen of the plant stove or warm fernery, it is, from the nature of its habit and colour, one of the most attractive and accommodating plants of its class. It is not half as much employed for purposes of decoration as it might be. Fancy a skeleton pot draped with this lovely plant upon the outside, and having a bushy flowering plant dropped into the skeleton; or even if it is liberally cultivated and allowed to travel amongst tree or other Ferns, its metallic-blue shades are of the most charming description. To possess such a plant, and only to see it stuck on a raised pan at a flower show or in a small pot in a plant-stove, is not making the best of a truly beautiful and more than interesting plant.

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 305.)

49. MASDEVALLIA LATA, Rchb. f., *Gard. Chron.*, n.s., vii., p. 655.—Central America, Zahn. Sent to Messrs. Veitch. Flowers dark reddish-brown, with ochre-coloured tails.

50. M. LEHMANNI, Rchb. f., *Gard. Chron.*, n.s., viii., p. 38.—Ecuador, Lehmann. Introduced for

FIG. 62.—MASDEVALLIA LINDENI.

Messrs. Low. This has a yellow-orange flower, and belongs to the polysticta group, its nearest ally being M. tridens.

51. M. LEONTOGLOSSA, Rchb. f., *Bonplandia*, iii., p. 69; Walp. *Ann.* vi., p. 191; *Gard. Chron.*, n.s., xv., p. 234.—New Grenada. First discovered by

FIG. 63.—MASDEVALLIA ROSEA (SEE P. 337).

Hermann Wagener. Cultivated by Mr. E. Wright, Gravelly Hill, near Birmingham.

(M. LILACINA: a name in Mr. Bull's Catalogue for 1880.)

52. M. LINDENI, André, *Ill. Hort.* 1870, série 3, t. 42; *Gard. Chron.*, n.s., i., p. 385, with a woodcut; Jennings, *Orch.*, t. 17; *Floral Mag.*, n.s., t. 28. (fig. 62).—New Grenada, Wallis. Introduced for Mr. Linden in 1869. Hort. Kew. See remark under M. Harryana.

53. M. LIVINGSTONEANA, Roezl, *ex* Rchb. f., *Gard. Chron.*, n.s., ii., p. 322; iv., p. 290.—Panama, Roezl. Flowered in German gardens in 1875. A species of little beauty.

54. M. MACRODACTYLA, Rchb. f., *Gard. Chron.* 1872, p. 571.—New Grenada. Imported by Messrs. Veitch, with whom it flowered in 1872. Flowers small, greenish-yellow, with a purplish-black lip.

55. M. MACRURA, Rchb. f., *Linnæa*, xli., p. 11; *Gard. Chron.* 1874, p. 40; n.s., vii., p. 12, fig. 2 (fig. 65). —New Grenada, Roezl, Patin, Shuttleworth. Flowered by Mr. Bull in 1876.

56. M. MACULATA, Klotzsch and Karsten; Rchb. f., *Bonplandia*, ii., p. 23; Walp. *Ann.* vi., p. 190; *Gard. Chron.* 1848, p. 103; *Fl. des Serres*, t. 2150.—Caraccas. Flowered in the Botanic Garden, Berlin, in 1847. A showy species, the upper sepal orange-yellow, the lower rich purple-brown, with green tails, as figured in the *Flore des Serres*. Hort. Kew.

57. M. MELANOPUS, Rchb. f., *Gard. Chron.*, n.s., i., p. 338 (*nomen tantum*); ii., p. 322; iii., p. 136; *M. polysticta*, *Bot. Mag.*, t. 6258, *non* Rchb. f.—Western South America, Roezl. Introduced in 1874. Flowers white, with purplish dots and yellow tails. Hort. Kew.

58. M. MELANOXANTHA, Rchb. f., *Bonplandia*, ii., p. 283; *Gard. Chron.*, n.s., iv., p. 58.—New Grenada, Schlim, Wagener, Bruchmüller. Flowers yellow and black.

59. M. MILITARIS, Rchb. f. and Warscew., *Bonplandia*, 1854, p. 115; *Gard. Chron.*, n.s., xlii., p. 742.—New Grenada, Warscewicz. Flowered by Messrs. Veitch in 1876. Cinnabar and yellow.

60. M. MUSCOSA, Rchb. f., *Gard. Chron.*, n.s., iii., p. 464. — New Grenada: discovered by Mr. Shuttleworth, and sent by him to Mr. Bull, but we have found no record of its having flowered. A small-flowered miniature species, remarkable in having the peduncles and ovaries clothed with moss-like rigid hairs.

61. M. NIDIFICA, Rchb. f., *Otia Hamb.*, p. 18; *Gard. Chron.*, n.s., xii., p. 456.—Western Andes of South America. A miniature species with yellow flowers, having dark tails.

62. M. NYCTERINA, Rchb. f., *Gard. Chron.* 1873, p. 1238; *M. chimæra*, Linden et André, *Ill. Hort.* xx., t. 117, 118, *non* Rchb. f.; *Gard. Chron.*, n.s., i., p. 639, fig. 134; *Fl. Mag.*, n.s., t. 150.—(fig. 64).—New Grenada, Roezl, who sent it to Mr. Linden in 1872.

(M. OCHRACEA: apparently a catalogue name. See *Gard. Chron.* 1871, p. 1421; and Williams' Catalogue for 1879.)

63. M. OCHTHODES, Rchb. f., *Bonplandia*, iii., p. 70; Walp. *Ann.* vi., p. 195.—New Grenada. Hort. Kew.

64. M. PACHYURA, Rchb. f., *Gard. Chron.*, n.s., ii., p. 322.—Western South America, Roezl. No record of its having flowered in European gardens has come under my notice.

65. M. PARLATOREANA, Rchb. f., *Gard. Chron.*, n.s., xi., p. 172.—Peru. Sent by Mr. Davis to Messrs. Veitch, in whose garden it flowered in 1878. Flowers light flesh or salmon colour outside, fine scarlet with amethyst warts inside.

66. M. PERISTERIA, Rchb. f., *Gard. Chron.*, n.s., i., p. 500: *Bot. Mag.*, t. 6159; *Flore des Serres*, t. 2346; *Ill. Hort.*, série 3, t. 327.—New Grenada, introduced by Messrs, Veitch, about 1873. "Flowers honey-coloured, with very strong green ribs outside; lip amethyst coloured." The yellow in the *Bot. Mag.* figure is deeper than honey-coloured, and that in the *Flore des Serres* is duller. Hort. Kew.

67. M. POLYSTICTA, Rchb. f., *Gard. Chron.*, n.s., i., p. 338 (*nomen tantum*); ii., p. 290; iii., pp. 40, 656, fig. 134; x., p. 189; *Bot. Mag.*, t. 6368; *Ill. Hort.*, série 3, t. 199; Regel, *Gartenfl.*, t. 869; *Rev. Hort.* 1880, p. 250, with a coloured figure.—Northern Peru, Roezl, 1874. One of the most attractive of the small flowered species, with the flowers in clusters. Hort. Kew.

68. M. PSITTACINA, Rchb. f., *Gard. Chron.*, n.s., v., p. 817.—New Grenada. Cultivated by Sir Trevor Lawrence in 1876. Flowers small and dull coloured.

69. M. PULVINARIS, Rchb. f., *Gard. Chron.*, n.s., xiii., p. 200.—A curious species, cultivated by Mr. J. Calvert, of Wood Green, in 1880.

70. M. PUMILA, Pœpp. ex Endl., *Nov. Gen.*, t. 108; Walp. *Ann.* vi., p. 190; *Xenia*, i., p. 200, t. 75; *Gard. Chron.* 1871, p. 1421.—Peru.

71. M. RADIOSA, Rchb. f., *Gard. Chron.*, n.s., vii., p. 684.—New Grenada, Wallis, who sent it to Messrs. Veitch, in whose gardens it flowered in 1877. A pretty species of the chimæra group, having however, much smaller flowers than M. chimæra.

72. M. REICHENBACHIANA, Endr., *Gard. Chron.*, n.s., iv., p. 257.—Costa Rica, Endres. Flowered by the Rev. Mr. Norman, Edgware, in 1875. Flowers red and white invarious proportions and markings.

(M. RIO-GRANDENSIS: probably a catalogue name only. See *Gard. Chron.* 1871, p. 1421.)

73. M. ROEZLII, Rchb. f., *Xenia*, ii., p. 196, t. 186, fig. ii., 1, 2; *Gard. Chron.*, xiv., p. 778.—New Grenada, Roezl, Wallis, Boxall. "A chimæroid species of a wonderful dark blackish-purple. Petals and lip light mauve, with beautiful dark eye-blotches."

FIG. 64.—MASDEVALLIA NYCTERINA.

74. M. ROSEA, Lindl., *Ann. Nat. Hist.*, xv., p. 257; Walp. *Ann.*, vi., p. 192; *Gard. Chron.*, n.s., xiii., pp. 554, 648, 681, figs. 117, 118 (fig. 63).—Peru. Discovered by Hartweg, and recently introduced by Lehmann. Flowers rosy-purple and scarlet, of the same type as M. Harryana.

(*To be continued.*)

Florists' Flowers.

SEASONABLE NOTES: AURICULAS.—We were very late in repotting the main collection this season, but the plants are now well established in their pots. The frames containing them are still on the north side of a wall, where they will remain until the end of the present month. In the South of England, especially, there is danger of the plants being unduly excited in the autumn, causing flower-trusses to appear, and injuring the plants for producing a good bloom next season. Greenfly has been very troublesome, and we have been obliged to fumigate the frames with tobacco-smoke frequently, and also to dust others with tobacco-powder. Continue to pot off any offsets that are sufficiently rooted, and also seedlings, if they are large enough, from this year's seed saved in July and sown at the same time. Remove decayed leaves before they injure the main stems of the plants, or cause decay to spread to other leaves. Water should be applied sparingly, and only to those plants that really need it.

CARNATIONS AND PICOTEES.

These are all arranged out-of-doors at present, and require no other attention than to see that they do not suffer for want of water. The rooted layers ought not to be removed from the plants until quite the end of the month; indeed, the first week in October may be early enough to do this. At that time the plants are not unfrequently saturated with wet, the leaves also being in the same state. When this is the case it is better to put the plants into a dry airy place, sheltered from wet, for twenty-four hours at least before taking off the layers.

TREE CARNATIONS

should still be carefully attended to. See that the plants are kept free from greenfly. This is a very troublesome pest. There is also a small green maggot very active at this season; it lives by eating the centre out of the young growths, or revels amongst the youngest leaves, sadly disfiguring the plants. It must be destroyed by hand-picking. Place the plants in a greenhouse, or pit, when the weather outside is too wet and cold for them.

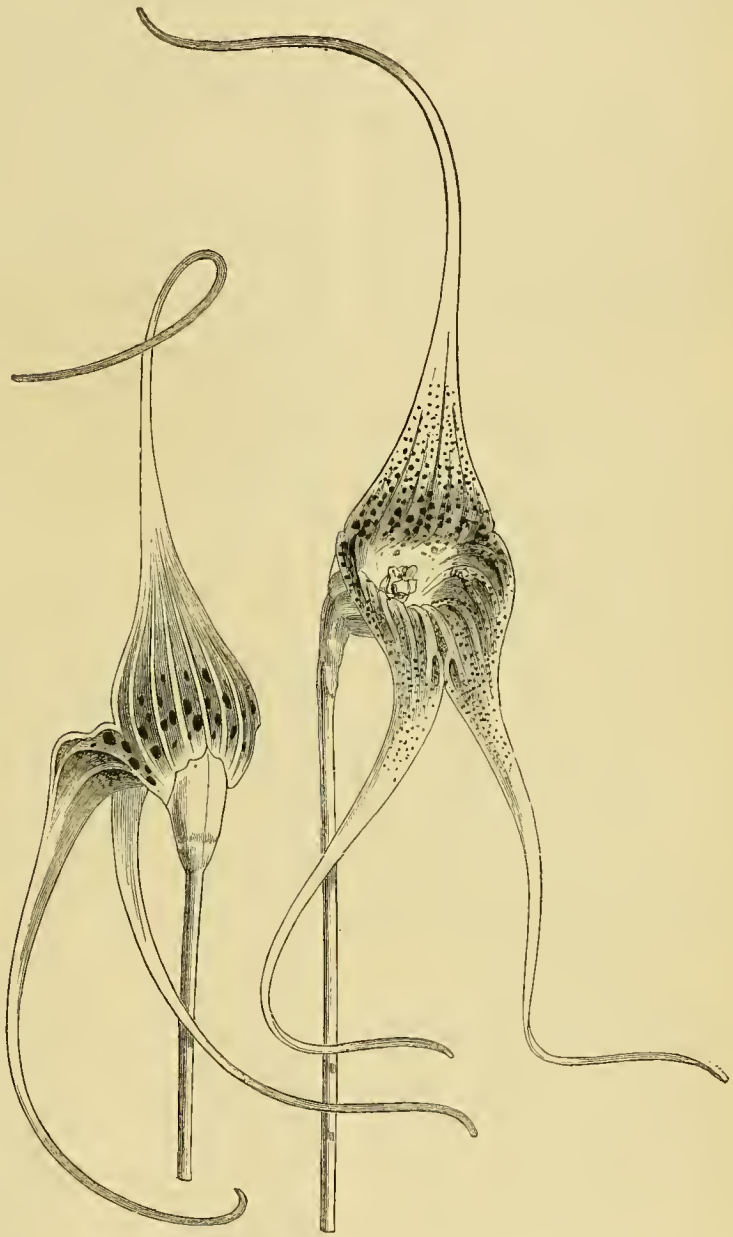


FIG. 65.—MASDEVALLIA MACRURA. (SEE P. 336.)

DAHLIAS.

The instructions given at p. 214 apply at present. Still see that too many growths are not allowed to encumber the plants, which they are more apt to do later in the season. If it is necessary to shade the bloom for exhibition or any other purpose, do not let sticks, shades, and the usual appliances, lie littering about and rendering the garden unsightly.

HOLLYHOCKS.

Not much requires to be done at present. Attend to removing decaying blooms, which very soon injure the seeds, if it is intended to save them; if not, cut off the seed-pods with the flowers. If cuttings were struck over a spent hotbed, or in boxes, and the plants are now fairly rooted, each one should be potted by itself in a 3-inch or 4-inch pot, placing the plants in a cold frame, and keeping the glass lights rather close over them until they are fairly established.

GLADIOLI.

Our stock did remarkably well last year, whereas this season they have been bad. There has not really been a good spike amongst them, and the foliage is now of a pale sickly cast, and very unhealthy. Seedlings do best; and now is the time to attend to the saving of seeds. The flowers ought to be hybridised, as I have previously advised. Young plants from seeds sown in April look very well; all of them are in pots. Water must be entirely withheld as soon as the leaves show signs of decay, else the corms will soon start into growth and be injured.

PANSIES.

The young plants propagated during the last month or six weeks will now require looking after. If the cuttings were put in close together, either in boxes or hand-lights, they should be taken up and planted in a bed 5 or 6 inches apart. In doing this see that the leaves are cleansed from insect pests by dipping them in soapy water. The plants will become established in the course of three or four weeks, and may then be planted out in the beds where they are to flower. It would now be a good time also to plant out beds of seedlings. If it is intended to flower any plants in pots it will be as well to get the plants potted into 3-inch pots this month.

PINKS.

The ground should be prepared for planting out the laced varieties. I like to get them into the beds where they are to flower not later than the first week in October. This early planting gives them a chance to become established before winter sets in with undue severity. If the varieties of the forcing section have to be planted out they should be seen to at the same time. Those intended to be forced should be potted up about the end of the month. The plants very soon become established if they are lifted with good balls of earth attached to the roots.

POLYANTHUSES.

I happened to be in the North of England about the end of September last year, and found that some of the growers had not even then repotted their plants. That was too late. I find they start into growth about the end of July or beginning of August; and the repotting of these, the same as that of most other plants, is best performed before they start into active growth. Ours were potted at that time, and had they not been done we should not delay it a day longer than this. See p. 214 for instructions.

ROSES.

The hybrid-perpetual varieties and Teas will now furnish plenty of good blooms for cutting. Keep the ground clear of weeds by hoeing it. Working the hoe amongst the Rose bushes does good, even if there are no weeds. Suckers are also troublesome, and must be removed close to the points from whence they sprung. Where buds have been inserted see that the ligature is not cutting into the wood; if it is, loosen the ties. Attend to cuttings of choice Roses that were put in under hand-glasses. Remove decayed leaves, and stir the surface of the soil, which is apt to become sour. If any plants are well rooted they may be taken up, and either be replanted or potted. Pot Roses, to bloom early next season, should be potted into their flowering-pots without any delay. See that the leaves are clear from insect pests and parasites before repotting them. Cuttings of Roses may still be put in when suitable cuttings can be obtained. *J. Douglas.*

POT CHRYSANTHEMUMS IN VICTORIA PARK.—To see a few hundreds of well-grown Chrysanthemums is nothing very unusual, but to see over 2000 plants in pots of nearly equal height and clothed with big fat leaves down to the rim of their pots is a sight not to be met with every day. Mr. McIntyre's method of cultivation is simple, and perhaps the simplicity of the system has something to do with the success which attends it. In the earlier stages of growth Chrysanthemums look sprightly enough with every one, but about August a good many naked limbs become visible in badly managed collections. The wonder of Mr. McIntyre's cultivation is the small-sized pots in which the plants are growing, the average size being 9 inches in diameter. But notwithstanding this, the health of the plants is of the first order. Our principal object is, however, to give publicity to Mr. McIntyre's system of disposing of so many plants during the hot summer months, which is done as follows:—The plants are plunged in "double lines" in an open quarter, and two rows of stakes with stout string fastened upon either side the line keeps the plants safe from the violence of the weather. The plants are placed zig-zag in the rows, as close as they can be packed together, forming a compact hedge of healthy growths, not too thick to exclude abundance of sun and air, hence the remarkable health and stubbiness of the plants. The surface of the pots, too, was thickly mulched with an open top-dressing. The collection consists of 140 varieties, including many of the very finest of the incurved kinds, recognisable from their leaves and habit of growth. Japanese sorts and pompons are also largely grown, and, of course, consist of early and late-flowering kinds. Such a collection, though at present eclipsed by the gay colours of Pelargoniums and carpet-beds, will be something to look at when the latter are cleared away, and dull November with all its horrors reveals the stern fact that out-of-door flowers are for the present year no more.

ALPINE PLANTS.

(*Continued from p. 238.*)

CULTIVATION.—From what has been previously said, the importance of a knowledge of the description of soil in which alpine plants naturally grow may be estimated. I now give a general list of the species which may be grown indifferently in either limestone soils or in those which contain no lime. These plants may be cultivated as herbaceous plants in the borders, or in flower-beds as dwarf plants. They may be utilised as edgings or otherwise, do not require any special kind of soil, and succeed very well without *humus* (leaf-mould), although that is advantageous rather than prejudicial to them. They do very well in the border, but better still on the rockwork:—

Achillea tomentosa
Aconites
Æthionema saxatile
Alchemilla alpina
Alnus viridis
Anemone montana
,, Pulsatilla
Anthyllis montana
Aquilegias (except alpina)
Arabis alpina
Armeria alpina
Artemisia alpina
,, nana
,, spicata
Aster alpinus
Aubrietia spp.
Campanula cæspitosa
,, pusilla
Cyclamen europæum
,, hederifolium
Dianthus deltoides
,, superbus
Eryngium alpinum
,, amethystinum
,, Bourgati
Gentiana lutea
,, purpurea
Geum montanum
Globularia cordifolia
,, nudicaule
Gnaphalium Leontopodium (Edelweiss)
Gypsophila repens
Hieracium aurantiacum
,, albidum
Hugueninia (Sisymbrium) tanacetifolia
Hutchinsia alpina
Linaria alpina
Linum alpinum
Moehringia muscosa
Myosotis alpestris
Petasites niveus
Pinus Cembra
Potentilla caulescens
,, nitida
,, rupestris
Potentilla aurea
,, caulescens
Primula acaulis
,, Auricula
,, farinosa
,, venusta
Ranunculus aconitifolius
,, montanus
,, pygmæus
,, Thora
Rhodiola rosea
Sagina saxatilis
Saponaria lutea
,, ocymoides
Saussurea alpina
Saxifraga Aizoon
,, capitata
,, Cotyledon
,, crustata
,, cuneifolia
,, elatior
,, gemmifera
,, Geum
,, Malyi
,, notata
,, Rossii
,, rotundifolia
Salix glabra
,, hastata
,, helvetica
,, retusa
,, serpyllifolia
,, reticulata
Scutellaria alpina
Sedum spp.
Serratula nudicaulis
Sempervivum spp.
Silene rupestris
,, Saxifraga
Teucrium montanum
,, Polium
Thalictrum alpinum
,, aquilegifolium
,, fetidum
Veronica fruticulosa
,, saxatilis

The majority of these plants occur in the subalpine region and are not difficult to cultivate. As to the plants of the higher regions, they require more care and special soil. For general use I make use of a compost of one-third peat (*terre de bruyère*), one-third leaf-mould (*humus*), and one-third boggy-peat (*tourbe*), with granitic or calcareous sand, according to the proclivities of the plant. It is needless to say that I vary and modify the proportions according to circumstances, and if, for example, a species grows naturally in the light (*frais*), moist, spongy soil of the high Alps, I allow the bog-earth to predominate. If the species is of a Heathy nature I use principally peaty soil (*bruyère*), and I add a certain proportion of sawdust, especially for Rhododendrons. If the plant is one of those clay-loving species which occur on soil composed of the *débris* of decomposed slate-rocks, I mix in my compost fragments of slate or loam. For the species which come from the high pasturages, leaf-mould mixed with boggy-peat and a little sand is sufficient. The best bog-earth is that which is met with in the swampy places on the mountains, and which is composed of sphagnum. It is broken into fragments and left exposed to the air for some months, then passed through a coarse sieve. The leaf-mould (*humus*) I obtain from the leaves of the Horse Chestnut, which I allow to decompose. The best natural leaf-mould is that which is met with in the Pine forests, and which consists of the decayed leaves of the Conifers. As to the peat (*bruyère*), it is almost everywhere of the same composition, and if it cannot be procured it may be replaced by leaf-mould mixed with sand. The sand may be granitic or calcareous. These are easily procured from the margins of streams in countries where the mountains are of a granitic or calcareous nature, but if sand of this character is not to be had it may be replaced by loam (*glaise*) in certain proportions.

POT CULTURE

Is a very desirable method of cultivation. Alpine plants so cultivated often succeed better than in the open ground. I have seen in the windows of town houses collections of alpine plants of great beauty. The pots should be well drained with crocks, mixed, if necessary, with fragments of limestone or mortar rubbish. Water must be given regularly during the period of growth, but once the cycle of growth is accomplished less water should be given. In winter time they are kept between double windows simply protected by Fern or branches of trees. They require a great deal of air whenever it is possible to give it, and only water enough to keep them alive. In early spring—that is to say, in February—when the snow is replaced by rain, the air becomes warmer and the days longer, the covering may be opened in dry fine weather, and water given more abundantly. Some of them commence to show flower, such as Saxifrage Burseriana, S. oppositifolia, Draba aizoides, Androsace Laggeri, and the little dwarf Crocus of the Alps. Then the flowers succeed one another with such rapidity that one is surprised to see in March and April a veritable carpet of flowers.

CULTURE ON ROCKERIES.

But it is as rock-plants that these plants are most effective. Deep pockets should be made, well drained at the bottom with small stones or pieces of coke. For mossy species, such as the Androsaces, some of the Saxifrages which form dense tufts, and which are liable to rot if they are not planted on the slope and in the clefts of rocks, it is necessary to make small perpendicular pockets, into which the plants must be placed and fixed with tenacious soil. In the magnificent garden of M. Boissier at Valleyres, there is a perpendicular wall completely covered with plants which do very well in this position. On the other hand, in the case of species which grow naturally in alpine pasturages in rich soil it is necessary to have flat horizontal pockets, with a good depth of soil. By way of illustration I may say that I had despaired cultivating my Soldanellas, but last year I made a large pocket, which I drained well, and which I filled with compost such as above described. In winter I gave no water, but the plants were covered over with branches of Fir. In February I gave plenty of water directly I perceived the flower-buds to be forming; I did not, indeed, give much water at a time, but applied it often—three or four times a day—with a fine rose, so as to produce evaporation. At the end of a short time the flowers instead of drying up and withering as before, raised

themselves above the foliage, and soon I had my tufts of flowers as fine or finer than they are in their native localities.

In winter I cover my rockwork with branches of Fir, not to protect it from the cold, but to avoid the inconvenience of sudden changes of temperature. Indeed, if the plants are exposed alternately to frost and thaw the first rays of the sun would cause the plants to begin to grow, and develope shoots which would be destroyed by the return of the frost. *H. Correvon, Geneva.*

Garden Operations.

PLANT HOUSES.

Stoves.—This structure will supply some of the most useful as well as choice cut flowers for weeks to come. Late blooming plants of Ixoras, Dipladenias, Allamandas, Bougainvilleas, Clerodendrons, such as C. fallax and splendens, and the old but valuable Rondeletias will come in most useful for cut purposes. These plants should now receive all the light possible. By keeping the temperature at night from 68° to 70°, these plants will all render excellent service throughout the autumn months. Another good plant for cut purposes is the Vinca, in its varieties; if the plants are in good health, supply them, and also those aforenamed, with liberal doses of manure water for a few weeks longer. Any of the stock of stove plants that may be as yet in pits, should be removed to the stove proper, before the night temperature falls too low for their well-being. This should especially apply to those intended for winter blooming. Where a good stock of Eucharis is grown, some of the plants if kept dry for a few weeks in a somewhat cooler house may be induced to throw up a good supply of spikes during November and December. Plants of the same that have recently flowered should be encouraged to make fresh growth at once. Where room can be afforded on the roof, Passiflora princeps, quadrangularis, and kermesina greatly help to make the stove gay during the autumn. I do not think it is generally known that if these flowers are cut as soon as they expand they will in most cases remain open the second day. Keep an eye on the stock of Gloxinias and Achimenes that have ceased to be of service for this season. They will be safe in a temperate house; do not dry any off too suddenly; in fact, if Gloxinias are watered occasionally they will keep better, provided they are not left to get too cold. Weed out any inferior varieties; now that such fine kinds can be obtained in a packet of seed no second-rate flower should be kept.

Ferns.—Watch these closely, to see that the more tender sorts do not become a prey to damp. Keep well thinned out the old and decaying fronds of the close-growing kinds, such as the dwarf-growing Maidenhairs. A good stock of A. cuneatum should be in every place of any pretensions where cut flowers are much in request. This Fern is often left to take care of itself until the stock becomes exhausted. Where Davallia bullata is grown, its fronds may now be cut freely; being deciduous it will soon begin to show signs of going to rest. Next to Adiantum cuneatum this is the most valuable Fern for cut purposes.

Greenhouse, &c.—Where Lilium auratum is grown in pots most of the stock will now be going out of flower; where such is the case withhold water gradually, but at no time is it well to dry them off entirely. Water given occasionally after the stems have decayed will greatly aid in preserving both the bulb and the fleshy roots, which if watched will be found to be active, even when the stem has died down. Amaryllis aulica, a most useful winter flowering kind, will now commence to make new growth: if a little warmth can be given, so much the better for the plants. The main stock of bulbs, Hyacinths, &c., should be potted as soon as received, unless they are required for very late blooming. Cultural notes are not necessary here, almost every catalogue supplying this information. If ashes are used with which to cover them after potting, be careful in the selection of them. Poisonous liquids and other ingredients sometimes find their way to the ash-heap, which if coming in contact with the bulbs will cause them serious injury. Pits that have been used for Melons, the fruit of which is cut, may now with great advantage be employed to plant out Tree Carnations and Bouvardias for winter and early spring supply. Having treated the latter in this manner last season, I can confidently recommend it to any one having a pit to spare which has a hot-water pipe running around it. The soil used for the Melons will answer well for this purpose. The return given in the abundance of flower will amply repay for the space devoted to this method of treatment. Solanums grown for their berries should be kept pinched as soon as sufficient fruit is seen to be set; this will hasten its growth towards maturity. Plants that have been turned out of pots during the summer may be allowed to remain out during this month. Richardias should be potted up soon if they are still in the open border, so should Salvias and Chrysanthemums if they have been grown in this manner. Guard against the damage likely to be done to Chrysanthemums in stormy and windy weather by keeping them securely tied to their stakes. Do not delay any longer the housing of all the Cape and New Holland plants; the rains which we are still experiencing will be prejudicial to their well-being if left exposed. Cleanse the pots, watch the drainage, and look closely for any signs of mildew as this process is carried on. As the plants are arranged bring them as near the glass as possible, the closer the better, as long as they do not touch. Give abundance of air on all favourable opportunities. *James Hudson, Gunnersbury House Gardens, Acton, W.*

HARDY FRUIT GARDEN.

The gathering of stone fruits will continue to require daily attention. The season of Peaches from the open wall promises to be a lengthy one; the earliest varieties having been hastened on by the hot dry weather in July, and the later sorts, assisted in swelling by the August rains, have not since had sufficient sun upon them to ripen off quickly. Any lateral growths must be kept closely pinched-in, and the points of shoots that are still growing may be cut off to assist the ripening of the whole of the young wood, which cannot be insured too soon now. If there is any appearance of crowding, cut out at once all bearing shoots from the interior of the trees from which the fruits have been gathered. As each tree becomes cleared of its crop, give it copious syringings at once, to check any predisposition to red-spider—acting on the adage that "Prevention is better than cure." Should there, however, be any of the pest already established, use flowers of sulphur in the water, and attend diligently to its speedy clearance, so that healthy growth may be provided for the future crop.

Apricots are now almost cleared from the trees, which will require all second growths to be pinched off. These have not been so strong or numerous with us as usual, owing to the excessive crops borne by the trees this season, and with Apricots especially this is a hopeful sign, for we have found that trees producing late growths are rarely very fruitful. It will thus be generally found that a full crop of stone fruit is the best preparation for one the following season, provided, of course, that the trees have been well sustained and not exhausted. Look carefully for the signs of the grub of the red-banded clearwing about the bole and large branches. These signs are the granules of light mahogany-coloured *débris* from the inner bark being consumed by the tiny borers, of which the outside bark gives no evidence. Where indications of them are found, we can only advise, as we have done before, to cut them out as carefully as possible, and destroy them. The foliage should be well washed with the garden engine, especially where projecting permanent copings have prevented its being effectually done by the late rainfall, and every pains should be taken to keep it clean and healthy.

Pears may be gathered in batches as they approach ripeness, in order to extend the supply of one variety until another comes in. Many sorts are bearing heavy crops, and the lower branches of pyramids will require stakes to keep the fruits from the earth. The blue-headed titmouse is very troublesome, going from fruit to fruit, taking a little piece out of each near the stalk, and in showery weather the wet gets in, and decay speedily commences. Nets of a close description will keep them off, or any nets will frighten them for a time; while for any individual choice fruits a piece of card slit half through and put around the stalk will prevent them from getting at the part of the fruit they usually affect. Late growths are pushing rapidly on Pears and Apples, in consequence of the heavy rainfall of last month, and must be cut back to an inch or two in length. Keswick Codlins and other early Apples should be gathered on the first opportunity during fine weather, as they are now liable to fall with the first wind. Let them be stored thinly, and air the room freely for a time.

Continue to remove all young Figs as they form, and keep any secondary growths pinched back, and the branches securely fastened in. As the ripe fruits are gathered let them be enveloped in Vine leaves, to prevent the tissue or other packing paper from adhering to them. Ripening Plums are occasionally attacked by small maggots, especially when hanging thickly in wet weather; if allowed to rot upon the ground they serve for the increase of the loathsome little creatures, and therefore any such fruits should be burned. Take advantage of dry weather to destroy weeds in fruit quarters, which, if left, will be more difficult to keep under later on. *R. Crossling, St. Fagan's Castle.*

FRUIT HOUSES.

Vines.—The earliest vineries, if pruned back as advised in my last Calendar, will now have the wood well ripened, and can be pruned by the end of the month, or earlier if the leaves have fallen off, but if the leaves are still green continue the use of a little fire-heat in the day-time with abundance of air, to ensure thorough maturity of the wood, for on healthy Vines the foliage will keep green for some time even when the wood is well ripened, and sometimes it is necessary, where Grapes are wanted very early, to pull off some of the leaves a few days before pruning, keeping the house as cool as possible. If most of the leaves have fallen off themselves, pulling off the remaining ones will not do any harm, the Vines can then be pruned a little earlier, and the house thoroughly cleaned and the Vines washed, tying them down in a horizontal position to induce them to break regularly. In pruning early Vines cut back to a good eye; sometimes in early forcing the best eye will be a few inches from the base of the main stem. Any borders that want top-dressing should now be seen to at once, using a compost of good loam, bones, and charcoal; for a top-dressing more bones can be used in proportion to the soil than when making Vine borders. Houses in which Black Hamburgh Grapes are hanging should be kept cool and the atmosphere dry, giving only sufficient water at the roots to keep the berries plump and in good condition. If any of the berries damp through being thick in the bunches give a little fire-heat, with abundance of air on bright days; but on dull wet days keep the front ventilators close, for if left open they will only admit damp moist air, which will prevent the fruit keeping so well.

Succession-houses of Black Hamburgh will now be ripe, and can be kept as previously advised. The fruit in the latest house should now be nearly ripe, and if at all late should be assisted with fire-heat, so as to be thoroughly ripe by the end of September, or it will neither finish nor keep well afterwards. Muscats that are ripe keep as advised in my last Calendar, and later ones that are ripening must be kept at a temperature of 70° by night, with a rise of 10° by day until ripe. Now that we are having cold sunless weather those that started their Vines early in the spring, as recommended, will see the advantage of not having to push them in the autumn to have them ripe at the proper time, and they will keep better.

Late varieties of Grapes, such as Lady Downe's, Black Alicante, Gros Colmar, or any thick-skinned kinds for keeping through the winter, should now be nearly ripe, or if ripe now all the better, for they will be well finished and certain to keep well. Newly planted vineries must now have plenty of air, and if the wood is not ripening well turn on fire-heat every morning with abundance of air, turning off the heat in the afternoon and keeping the atmosphere dry, and the roots only sufficiently moist to keep them healthy. The earliest pot Vines will now have shed most of their leaves, and if covered with litter will not require much water, only sufficient to keep the soil moderately moist; get off the remaining leaves now as soon as possible by thorough exposure to sun and air, so that they can be pruned at the first opportunity. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

The maximum temperature for fruiting plants should not exceed 95° after the houses are closed up. Keep the temperature from 85° to 90° by day, and by night it may still be kept at 75° for the present. Maintain the bottom-heat at as near 90° as possible. Succession plants that are making sturdy growths may also be kept at the same temperature for the next six weeks, which will enable them to mature their growth and to gain strength. Plants that swell large fruit as a rule have thick short leaves, and such leaves can only be got by good cultivation, such as equable temperatures and carefully adjusted ventilation. When the roots of the newly potted suckers get to the sides of the pots give a little more air and reduce the shading. Suckers or plants in hotbeds heated by fermenting materials should have the linings renewed, and if the bottom-heat is derived entirely from this source the beds should be wholly remade before bad weather sets in, and if they are well made the beds will stand through the winter without further trouble. Oak bark from the tanyard is one of the best materials for making up beds where the plants are plunged in them. Oak leaves are also good lasting materials. One of the most important conditions in making up beds is that the materials should give off heat slowly, and retain heat for the longest period. A material that combines these two qualities must be one that is very lasting, and decomposes very slowly. Any materials possessing these qualifications may safely be used. Varieties that are not prolific in suckers should, after the fruit is cut, have their leaves shortened back to about 8 inches from the stems; this induces them to form suckers. The plants so treated can be closely packed together to economise space, and plunged in a good bottom-heat of about 90°. Use the syringe very sparingly over the plants, but every other part of the house should be well damped at least twice a day. Give a little diluted liquid manure to both fruiting plants and successions on every occasion when they are watered for the next two months, as it can be applied stronger when the plants are growing vigorously. Water for syringing or watering ought not to be used under 85°. Soft water should be used if at hand, and if it cannot be got such water as is available should be exposed to the air in a tank for a few days before using it. *D. Wilson, Castle Hill, Devon.*

APPOINTMENT FOR THE ENSUING WEEK.

TUESDAY, Sept. 13. { Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.

IF beauty alone had to be considered every one would grow Lilies. As a matter of fact a large number have done so, but they have not been allowed to have their own way. It is not good that they should have. Were it not for LILY DISEASE we should not know anything of the new fungus which Mr. BERKELEY describes in this page. Some may say in such a case, "Ignorance is bliss;" this is not our creed, nor do we believe it to be that of most readers of the *Gardeners' Chronicle.* The very first step towards obtaining a remedy is to know precisely what the nature of the disease is. This known we can estimate our powers of dealing with it. Cure is seldom within our reach—prevention, more or less, almost always is. It is so with regard to the Potato disease, but no one seems to believe it, or at least to act upon it.

This apathy arises first from ignorance and next from the impression, erroneous as we think, that because it is not possible to do all we could wish, therefore it is of no use to do anything at all, and so diseased Potatos are given to pigs and rotten haulm is left to decay on the ground, or on the manure heap, to propagate and disseminate the fungus in about as perfect a manner as could be done, and all the time the growers are sneering at scientists for not finding a remedy. But our theme at present is Lily disease. Let us introduce the matter by publishing a letter from the Rev. C. WOLLEY DOD, and then give the valuable note which this letter has elicited from our veteran correspondent, "M. J. B."

"During the last few days my Lilies, planted in open borders, have suffered from the worst attack of spot which has ever come under my notice. Lilium auratum, which has hardly yet begun to flower out-of-doors, has suffered most; but no species, even the earliest flowering, has been exempt from the attack. The weather for the last fortnight has been very wet and stormy, with great variations of temperature—high winds, cold nights, now and then hot sun, or thunder-storms. The visible damage was done almost entirely between the 20th and the 26th of August, and is worst in a range of beds prepared three years ago specially for Lilies, situated on a raised terrace, dug out and drained to a depth of 4 feet, and filled with soil consisting for the most part of two-thirds peat and one-third loam. All the Lilies in these beds have been in the soil for two winters, and now even L. auratum in them which had survived has its chance of flowering entirely spoilt for this year. L. auratum is liable to suffer in two different ways—first, about the time that the buds are formed the leaves are apt to turn brown; gradually they drop off, preceded or followed by the buds, and the bare stalk is left. At least one-third of the imported bulbs usually behave in this way, especially of the early importations. Last season I bought no imported bulbs before January, and the proportion of bulbs which have gone off as described has been far less than usual. But this mode of withering, which I have always attributed to the bulb being gathered prematurely, seems quite distinct from spot, which seems to come suddenly, and to attack healthy and unhealthy plants without distinction. Rust-coloured patches come upon the leaves and buds, as if they had been burnt; if the buds are not completely destroyed, the flowers become imperfect and distorted, and the whole plant has a blighted appearance. The surface of the beds which I described is covered with Heaths and low shrubs, and the situation is dry and for the most part sunny, and the disease is decidedly worst in the beds most exposed to the sun. I have many species of Lily planted together, and cannot find that any kind has entirely escaped. L. colchicum and L. croceum, though their flowering has been over for six weeks, are badly affected. L. pardalinum—here the most vigorous of Lilies, growing to a height of 10 feet—has always been liable to spot, which attacks the stalks about the time the flowers fade, but they seem to flower no worse for it the next year. L. superbum, however, was entirely free from any symptom of spot ten days ago, when most of the plants were flowering; now nearly all of them are attacked, and the backward flowers all destroyed in the buds. The leaves of L. Humboldtii are in the habit of turning black and rotting almost before the buds are all open, owing I believe to this same disease. L. testaceum and L. chalcedonicum are both affected, the leaves having suddenly withered instead of fading in a healthy way. What I have described has happened in the range of beds in which I grow my principal crop of Lilies: but I have perhaps twenty pots of Lilies in my greenhouse, none of which are in the slightest degree affected by spot. I have also two small beds, drained and filled with the same soil as the other Lily beds, in a lower part of the garden, in each of which are about thirty L. auratum of last winter's importation, and none of these show any signs of spot. Also within 20 yards of the place where spot has been worst I have made a pit 8 feet high, with 4 feet of Lily soil, in which Lilies of many kinds were planted last winter. The lights were removed from this in the spring, and the Lilies have been fully exposed to the weather, but none of them show any symptom of spot. They are surrounded by walls of whitewashed brick, 5 feet high. As I said before, the effect of spot does not seem to be disastrous to Lilies which are not attacked till the flowering is nearly over. Last year I marked some of the worst sufferers of L. pardalinum and L. californicum, and found that they flowered as well as the others this year, but to L. auratum and L. speciosum the effects are most disastrous, and I fear that these bulbs cannot be cultivated here in the open border except as annuals, and for some reason they appear to be exempt from spot for the first year. This, however, is not the case with L. canadense, as amongst some specimens I forward are several stalks of that Lily imported last winter from America, which show evident symptoms of the disease.

"I do not venture any opinion as to the cause of the disease; though, when I look at the rusty spots on the buds and leaves, I cannot help being reminded of OVID'S address to the corn blight, beginning 'aspera robigo.' The Romans were good and observant farmers, though bad naturalists, and they attributed the blight to hot sun when the corn was wet. OVID goes on to say 'neither wind, nor rain, nor frost, does the harm,' but

'Si culmos Titan incalfacit udos
Tum locus est iræ, diva limenda, tuæ.'"

C. Wolley Dod.

FIG. 66.—OVULARIA ELLIPTICA.

Now let us turn to what Mr. BERKELEY says:—

"As Mr. DOD has sent such an abundant supply of diseased Lilies a very good opportunity of studying the malady has been supplied. The disease is by no means attributable to the ungenial weather of the present season, for it occurs in plants which have never been exposed to the outward air. Some two or three years since specimens were sent to the Scientific Committee of the Horticultural Society, but at that time the plants were not in a condition to enable any of the committee to ascertain the cause. On examining the specimens now before me I have no hesitation in asserting that it is due to a parasitic fungus, allied to Peronospora; and though I have not seen the zoospores I have no doubt that they are developed in favourable weather. I could not find any fungus in the spots which occur on the leaves, but on the buds and peduncles, where the spots seem identical with those on the leaves, was a very minute fungus with large elliptic spores, the contents of which seem ready, as in the Potato fungus, to be converted into zoospores. I find the fungus perfectly developed on the buds of Lilium auratum and L. superbum, on the peduncles of L. chalcedonicum, after the capsules are formed, and on the large blotches of the stem of Lilium pardalinum. Buds of Hyacinthus candicans have similar spots, and in all probability their condition is due to the same cause. The fungus is evidently nearly allied to Ovularia obovatum, SACCARDO, but the threads are distinctly articulated and the spores elliptic, resembling in shape and size those of many of the larger Peziza. The species may be named Ovularia elliptica,* characterised by the articulated threads, abundant mycelium, and large elliptic perfectly facile epispore. It may be a question whether Ovularia and Ramularia are well separated from Peronospora. The habit, however, of the three is sufficient to justify their separation, at least for the present. *M. J. B.*"

* *Ovularia elliptica*: floccis hic illic nodosis, sporis magnis ellipticis lævibus.

—— THE LAUREATE'S GARDEN.—The illustration (fig. 67, p. 341) represents a rustic bridge in the grounds of the Poet Laureate, as recently described by us at p. 269. It affords a private means of communication between the grounds and the glorious downs, to the beauty of which the poet has testified in verse. It forms, as our illustration shows, a charmingly pictural feature, spanning, as it does, a roadway bordered by an avenue of Elms, which cast a chequered shade all the more delightful from its proximity to the sea.

—— ROCHEA FALCATA.—This lovely succulent plant, much neglected of late years, and more frequently seen in dots or groups in carpet beds than as a greenhouse plant, is one of the most showy flowering plants in cultivation. At Burghley, at the present time, Mr. GILBERT has a small specimen of it in one of his show-houses, in a 6-inch pot, bearing six large spikes of its charming flowers—an object unequalled by any other plant of the same type at this season. The trusses are large for so small a plant—a glowing red colour, with their orange-coloured anthers peeping up sufficiently high as to look like miniature beads set in a groundwork of red. To neglect the cultivation of such a plant in pots is more than an error on the part of those who have much to do in the way of artistic decoration.

—— THE ONION CROP.—From all appearances the Onion crop this season will be generally good, and the stocks of seed abundant for next year. In Hertfordshire, Bedfordshire, and parts of Huntingdonshire the large fields of Onions in proximity to the line of railway are of the most promising description; the bulbs are hard and clean, of moderate size, and as a crop for general purposes nothing further seems to be desired. In the neighbourhood of Sandy, in Bedfordshire, where such large quantities of Onions are grown for seed-producing purposes, the crops are exceedingly even and healthy in appearance.

—— ARDISIA OLIVERI.—This very interesting and handsome species was first described in our columns four years ago, vol. viii., p. 680, where also a full-page illustration will be found. The large globular heads of pink Ixora-like flowers are showy and the bold, handsome, recurved foliage is striking. It is a native of Costa Rica, from whence it was introduced by Messrs. VEITCH. It is now in flower at Kew.

—— DWARF FRENCH BEANS.—A collection of growing specimens of these formed an interesting feature at the recent exhibition of the Maidstone Horticultural Society. They were from the trial grounds of Messrs. GEORGE BUNYARD & SONS. Among the sorts so shown, with their pods adhering to the branches to show their bearing character, were a few new types of good promise. The Monster Long pod Negro is a very fine selection from this well known variety, with long and handsome pods, and a very free bearer. For a general crop, as well as for market purposes, this variety appears unrivalled. Bunyard's Broad Pod is a very distinct type, with broad pods, in shape like those of the Scarlet Runner of medium growth and very prolific. This appears to be an excellent variety in every respect. A selection from the Canadian Wonder, bearing the name of the Paris Red, represents a very fine type, having very long and handsome pods, and very free. It may be assumed that the Canadian Wonder originated as a selection from the Red Flageolet of the Parisians and so the Bean is being surely improved. For early forcing Sir J. Paxton is one of the very best, being very early and free. Osborn's Early, Victoria (something like Sir J. Paxton), and Best of All are well worthy of cultivation.

—— BIGNONIA RADICANS MAJOR.—In one of the streets of Maidstone can be seen some capital plants of this fine plant that have covered the houses with good growth, and bearing numbers of fine scarlet trumpet-shaped blossoms. The plants are on the sunny side of the street, and from their appearance it would seem that the bitter winter failed to do them

injury. Is it not a pity this plant is not more frequently planted in suitable places in the South of England? It is one of the finest of climbers, flowers and foliage alike being of a very pleasing character.

—— Borough of Hackney Horticultural Society.—A number of the members of this Society visited the gardens of the Royal Horticultural Society, at Chiswick, on Monday last, and were much pleased and interested with their run round the different departments. This would appear to be a step in the right direction, for there are doubtless numbers of gardeners belonging to the smaller horticultural associations to whom such a boon would also be a great privilege, as at all times of the year there is something to attract the attention of the observant practitioner at Chiswick, and it is likewise the means of carrying out one of the principal objects for which the Society was established, viz., the encouraging of horticulture.

—— New College of Practical Engineering.—A new college of practical engineering has been opened at Muswell Hill, near London, under the auspices of a number of the most eminent practical engineers in the kingdom. The Principal of the college is Mr. John Bourne, C.E., well known by his works on the steam engine and other kindred subjects. The instruction given will combine the best theory with the best practice, and the establishment of this college will, it is expected, constitute an epoch in engineering history. One main distinction which its teaching will present is that there will be no cramming, and that everything taught will be permanently and practically useful. Another special feature will be that a number of treatises illustrative of engineering art will be produced at the college, forming together an engineers' library. In furtherance of this undertaking the valuable stores of practical information accumulated at the Institution of Civil Engineers will be made available, and selected students will be adopted as *collaborateurs* in this important work and their names published, whereby their attainments will be made so widely and so favourably known as to constitute a valuable credential during their whole subsequent careers.

—— The International Potato Exhibition will very fitly wind up a busy season. After so much hard work exhibitors and horticulturists generally must need a substantial dish of something eatable, and Potatos go some way towards making a meal. The exhibition announced to be held at the Crystal Palace on the 20th and 21st of this month is the seventh of the series commenced in 1875. It is important for intending exhibitors to note that entries close on Monday next, the 12th.

—— The Pensioners' Gardens at Chelsea Hospital.—It may seem a grim piece of irony to write of gardening in connection with the heroes of Inkerman, Balaclava, and Sebastopol, and yet there are few more interesting sights than the pensioners' gardens at the Chelsea Hospital, which are cultivated by the soldiers of the Crimea and others, who can tell many a thrilling anecdote of the plants and flowers they have seen in nearly every part of the world, and many other anecdotes which are not admissible in these pages. But the gardens—what are they like? Really, after one gets over the novelty of the idea that a soldier can keep a garden and cultivate it under the supervision of a soldier, there is not much to wonder at. It speaks well for the future of gardening that the soldier—who has been no lounger in his time, and has been too practical to be troubled with foibles—should take to cultivate plants and flowers in the evening of his days as a pleasure and as an amusement. The gardens are 15 feet square and 144 in number, with a corporal as head-gardener, who supervises the work, and in case of repeated neglect takes a badly cultivated plot from the careless individual, and transfers it into the charge of a more industrious horticulturist. It will thus be seen that a spirit of emulation is encouraged among the rank and file of the gardeners, which tends to foster a friendly rivalry, and promotes good fellowship in the ranks. Many of the gardens are edged with Sea-Pink, others with Box, and some with stone edgings, according to the different tastes of the cultivators. We have perhaps no right to criticise, but we liked the squares edged with the Sea-Pink (Armeria) best—it is so handsome in the spring months when in full flower, and is not so patchy as the Box or so heavy-looking as the stone edging. Many of the plots are very pretty, with Dahlias, Marigolds, Carnations, and even Roses. Others are filled with annuals, Sweet Williams, Sun-Roses, and Mignonette; while not a few go in for a mixture of flowers and vegetables combined. Here are French Beans, Cabbages, and Parsley, having as companions plots of Carnations, Musk, or Sedums, but in all cases not a weed was to be seen, or an untidy walk, though the arrangement and disposition

Fig. 67.—Rustic bridge at Freshwater. (see p. 340.)

of flowers and vegetables might not in all cases be of the happiest description. One—a professor, or architect, we think he was called—had a nice model of a tower, with loops for musketry, and he was acknowledged by his *confrères* to be a long way in advance of his comrades in originality of ideas, and undoubtedly his work bore ample testimony to the fact. We noticed one plot which had a centre of Love-lies-Bleeding, another a group of Sweet Peas, and a third a bold centre of Dahlias and Marigolds mixed. Many old-fashioned plants are to be found in most of the plots, and altogether a more interesting hour could not be spent than by paying a visit to the soldiers' gardens at the Chelsea Hospital.

—— SUMMER-FLOWERING CHRYSANTHEMUMS.—After a pelting storm, Mr. WARE, of Tottenham, sends us a boxful of these bright varieties, ranging in colour from white to yellow, violet-pink, and ruddy brown. Souvenir d'un Ami, a new variety, Mr. WARE thinks the finest of the whole. The leaves are almost glabrous, the flower-heads clear white, tinged with yellow, about 2 inches across, and produced freely. Petite Marie is a charming variety, only 6 to 8 inches high, with glabrous leaves and numerous flower-heads, each about 1½ inch across, with white florets, somewhat reflexed, and the central ones yellowish. In addition there are Andromeda, a fine bold yellow flower. Yellow Jardin des Plantes is a clearer, deeper yellow than the preceding, the ordinary form of this variety being very pale yellow. Precocité, also a yellow-flowered variety, is peculiar in habit, the flower-stalks being relatively long and comparatively destitute of leaves. Illustration is a bold, free-flowering variety, with pale pink-lilac flower-heads. Chromatella has relatively small flower-heads, about 1 inch across, and of a rich bronzy-yellow. Delphine Claboch is remarkable for its glabrous leaves, comparatively but little lobed, and reddish-lilac flower-heads on long stalks. Madame Bachon is a free-flowering rosy-lilac variety. Boisduval is an even finer kind, with larger flowers of the same colour, but brighter, and with longer stalks. Frederick Pele is a form with bronzy-red flowers of much beauty. Altogether the collection is a remarkable one, and it is interesting to notice the great variation in habit and foliage, in addition to the colour of the flowers, the more so as DARWIN somewhere remarks that in plants cultivated for their flowers principally there is generally much variety in the flowers, which have been the main object of selection, and relatively little in the other parts of the plant. The Chrysanthemums certainly furnish an exception to this rule.

—— SEDUM EWERSII.—Almost every one knows Sedum spectabile, but very few indeed know the charming little Sedum of the same type named Ewersii, a very much older inhabitant of our gardens. It is found edging a round bed on one side of the new walk at Chiswick, and is just expanding its bloom, which is in colour the same as spectabile, and is produced in heads, but which are not more than 4 inches from the ground, as the stalks are not erect. A perfect mass of bloom is formed, and during the next week or two it will be something lovely. Unfortunately if we may judge from our own experience, it does not flower freely except in hot summers.

—— STEPHANOTIS AT MESSRS. GARAWAY'S.—Nothing could better illustrate the mistake that is often made by the indiscriminate treatment given to plants in the matter of root-room than a specimen of Stephanotis covering the roof of one of the stoves here. The house is 50 feet long by 15 wide, and the roof is fully furnished with the plant, which is remarkably strong and vigorous, blooming every year for a long time, yielding quantities of flowers, yet the pot it grows in is only 18½ inches in diameter, and the roots are not in a position to receive any nutriment beyond what they get within the pot. When this plant has more root-space than needful, it frequently makes proportionately more growth than flower.

—— DOUBLE WHITE ZONAL PELARGONIUM CANDIDISSIMUM PLENUM.—The continual influx of new Pelargoniums prevents their merits being fully tested, except by the few growers who make a speciality of these plants, and try almost all that come out. The great use of pure white flowers for bouquet making at the present time is so well understood as to need no comment, and the enduring abilities of double or semi-double flowered Pelargoniums of this class are equally well known, for it is needless to say that upon their ability to last and keep fresh without flagging depends their suitability for being used in this way. Zonal Pelargoniums with white flowers have been long announced, but when they have been put to the test of full exposure to the light in a cool greenhouse they have so often turned out disappointing, by the flowers donning a pink tinge, that they have caused no small amount of annoyance to the growers. This variety, however, may be relied upon for keeping its pure white colour even when subjected to every possible ray of light by standing it all but touching the glass in a perfectly light house. If the variety turns out suitable for winter forcing by its ability to thrive and flower freely under such treatment it will be a most useful addition to bouquet and buttonhole flowers.

—— HONEYSUCKLE SCARLET TRUMPET.—This perfectly hardy variety, which flowers during August and September, is a most attractive plant, and as seen at Messrs. W. & J. BROWN's nursery at Stamford is well adapted when grown in small pots for general decorative purposes.

—— PHASKOMYLIA TEA.—Dr. XAVIER LANDERER, writing in the *Chemist and Druggist*, says one of the street cries of Athens is "Buy Phaskomylia tu bunn," or the Sage plant of the mountain, the apple-bearing Sage. The herbalists gather it, and tie it in bundles, which they sell in the market for about 10 leptas. A tea made from this herb is drunk in all chills and gripes, as a matter of course, without consulting the doctor; it is sold, too, in the coffee-houses and confectioners' shops. The plant is called apple-bearing because the puncture of the insect, Cynips salviæ, causes the growth of galls known as Gallæ esculentæ, and like little green Apples. These are collected and eaten after being steeped in water to remove the bitter and styptic constituents. The plant is very common in the mountains of the district of Maina, and the galls are collected and boiled in honey or sugar, the conserve thus made being used like other sweetmeats, or mixed with water as a beverage, a teaspoonful to a tumbler. This Sage plant is found in all houses of the poorer sort, and on board ships and on cold days Phaskomylia tea is drunk. The plant is also kept on hand in all the coffee-houses, even as far as Odessa, and its infusion is a favourite beverage. In Odessa a kind of punch is made of it with rum.

—— ADIANTUM MUNDULUM.—This is a small growing, stout, erect habited Fern, of A. cuneatum habit, wiry in its character; the pinnules are proportionately small in size, rendering it well adapted for using in small arrangements of flowers, such as finger-glasses, buttonholes, &c.

—— WOOD PULP FOR MAKING BARRELS.—The latest novelty in the application of wood pulp comes to us from America, namely, for making barrels for holding both solids and liquids. The following account of this manufacture is given in a recently issued report from America:—"Wood pulp, so conspicuous of late years as a material for the manufacture of paper, has been found to afford one of the best means of making light, cheap, and durable barrels, adapted for all purposes for which these useful packages are demanded. The barrel is made in one piece of coarse wood pulp, subjected to a pressure of 400 tons. The heads are made in the same way, giving a degree of compactness of grain that is sufficient for every use. When the barrels are put together they are very light, very strong, and very satisfactory in every way. Two kinds of barrels are made—one for fruit, flour, and other dry substances; the other for oil, lard, beef, pork, and liquids of all kinds. These latter are made impervious to the infiltration of oil and other liquids by a simple process. The flour barrels are so strong, that when filled they can be dropped from a waggon without injury, and fruit packed in them keeps a long while, being excluded from all contact with the air. These packages can be made for half the cost of ordinary barrels."

—— VALDIVIA (PICROLEMMA VALDIVIA).—In a recently published thesis on the Cedron (Simaba Cedron) and the Valdivia (Picrolemma Valdivia) Dr. A. E. RESTREPO points out the active principle of these two plants, and draws attention to their medicinal properties. It is to the Valdivia that we wish to draw particular attention, inasmuch as its active principle is a new discovery, and one, if we are to judge from the experiments of Dr. RESTREPO and other French chemists, likely to prove of great value in medicine. The Valdivia plant is found in the valley of the Magdalena River in Tropical America. It belongs to the same order as the Cedron, namely, the Simarubeæ, and has been known under the name of Simaba Valdivia. It has, however, since been placed in the genus Picrolemma, and now stands as Picrolemma Valdivia of PLANCHON. The fruit of this plant has some resemblance to that of the Cedron, except that it is pointed at one end, and is strongly marked with longitudinal ridges. Like its congener, Simaba Cedron, it has a considerable therapeutic reputation in the Central American Republics. The active principle of Valdivia is called valdivine, and it possesses poisonous properties in a high degree, 2 milligrammes being sufficient to kill a small rabbit. In intermittent fevers, chronic diarrhœa, the bites of serpents, hydrophobia, and various other diseases, valdivine is described as having a marvellous effect. Fruits of this plant are contained in the Museum at Kew.

—— "BOTANIST'S PUZZLER."—In a trade list now lying before us one of the loveliest of our native flowers is, we might almost say, insulted by the absurd and cumbrous name of "Botanist's Puzzler." How such a ludicrous appellation came ever to be thought of, seems in itself a mystery, for Parnassia palustris, the plant in question, is well known to most people under its somewhat inappropriate, though infinitely preferable cognomen of "Grass of Parnassus." In the same list some other members of the British flora are rather unceremoniously treated; it is true that the compiler has not ventured on fresh names, but some of them as printed have a somewhat novel look, viz. Verbascum Thrapsus (Thapsus), Lithospermum Arvance (arvense), Salidago (Solidago), and so on in some score or two cases.

—— TEA CULTIVATION IN AMERICA.—Successful experiments are reported on the cultivation of Tea in the United States. A tract of land has been selected in Georgia by the Commissioner of Agriculture as an experimental farm, on which the cultivation of Tea on an extended scale will be carefully and thoroughly tried. Samples of Teas already produced in America have been sent to London, and the report of a Mincing Lane firm is as follows:—"They represent Teas of a high type. The flavour, though not strong, is remarkably fragrant. In appearance they resemble Indian Teas, but the flavour is more like that of the finest Chinese black Tea, or of the high Teas of India." The cultivation of the plant has been taken up with vigour by one enthusiastic planter so satisfied is he of success in a commercial point of view, and this after fifteen years' experience of Tea cultivation in India. Fifty acres of land have been planted with Tea, which, if successful, will be at once extended to 100 acres. It is prophesied by the American Tea planter that in a comparatively short time America would be able to supply her own markets with this important article.

—— ARDISIA CRISPA.—This plant is a striking instance of the almost impossibility of replacing an incorrect name of a garden plant by its right one: once launch a name in gardens, no matter how incorrect how inappropriate, and it will stick to the plant in most gardens until the end of time. Ardisia crispa is a native of China, and was introduced into this country about 1816 by Messrs. LODDIGES, by whom it was figured in 1818 in the *Botanical Cabinet*, t. 2, under the name Ardisia crenulata, a name already given in 1803 by VENTENAT, *Choix de Plantes*, t. 5, to a Mexican species. The same year (1818) the Chinese plant was figured in the *Botanical Magazine*, t. 1950, but the name was changed to A. crenata, because the diminutive, crenulata, did not adequately express the character, or degree of the character. In 1821 it was figured in the *Botanical Register*, t. 533, and the editor having ascertained that both the names crenulata and crenata were previously occupied in the genus, named the plant A. lentiginosa. This, according to the usage of most botanists, is the name the plant should bear, because it is the first available one applied to it in the genus Ardisia; but in former days it was the practice, and it is even of some botanists of the present day, to go back to the original specific name, no matter what other change was made; therefore, in 1836, A. DE CANDOLLE, in a monograph of the order Myrsineæ, called our plant Ardisia crispa

because Thunberg, long before any of the other names were proposed, had described the plant under the name of Bladhia crispa. Some reformers would carry the revision still further, and restore the name Bladhia, because it was the first generic name proposed for any of the species now included in Ardisia. Thunberg published the genus Bladhia, for four Japanese species, in 1784, and Swartz published the genus Ardisia for four West Indian species in 1788. This is a case in which, so far as the generic name is concerned, botanists agree to forego the right of priority, because the name Ardisia came into general use and became so thoroughly established before it was ascertained that the Japanese plants referred to Bladhia belonged to the same genus. After all, rigid rules have to give way to convenience, as names are merely a means to an end.

—— Fertilisation of Thelymitra.—Thelymitra longifolia is one of the most abundant and widely-spread Orchids both in New Zealand and Australia, and it is at the same time one of the most variable. The variation is perhaps greater in size than in any other direction, though there are white, pink, and blue-flowered varieties. According to the locality and other conditions it varies from 2 inches to 2 feet in height, with a single small flower up to twenty large ones. Mr. Cheeseman, in New Zealand, and Mr. Fitzgerald, in Australia, have both investigated the mode of fertilisation in this plant, and they find that it is almost exclusively self-fertilised, like our Bee Orchis, and yet in the same flower there exist elaborate contrivances for directly opposed objects. Mr. Cheeseman states that few of the New Zealand Orchids mature seeds so abundantly as Thelymitra longifolia, almost every flower producing a ripe capsule, and he concludes with the following words:—"Most writers on the subject maintain that it is a positive disadvantage to a species to be self-fertilised for a long length of time; but here we have the case of a plant which is probably self-fertilised for many generations in succession, but which is yet a vigorous and predominant species, accommodating itself to a wide range of habitats, protecting itself against encroachment by other species, and highly successful in the battle of life."

—— Paprika.—Paprika, the fruit of different varieties of Capsicum, has become quite a national article of diet in Hungary, and is cultivated on a very extensive scale in lower Hungary, especially around Szegedin, where it gives employment to some 2500 families. The annual produce is about 125,000 strings, weighing, when dried, about 25,000 centners, and worth from 40*s*. to 50*s*. per centner. This quantity yields 18,900 centners of ground Paprika, worth from 30 to 120 florins per centner. But the price of the first quality of the so-called rose Paprika is 200 florins per centner. Two sorts of Paprika are grown in the neighbourhood of Szegedin, namely, the Turkish or Servian (Capsicum tetragonum) and the Szegedinian (Capsicum annuum szegedinense). The former produces pendulous, red, fleshy fruits ½—5 inches long, and ¾—1 inch in diameter. They are sometimes eaten green with salt, or cut fine and mixed with Potato salad. The latter kind has a spherical, scarlet fruit, and yields the celebrated Szegedinian Paprika. The ripe fruits are thickly strung together on strings or strands from 3 to 4 yards long, and these strands are hung on the south side of the houses exposed to the sun.

—— Clerodendron trichotomum.—Probably the most beautiful of all the hardy shrubs belonging to the natural order Verbenaceæ, a family which, it is true, does not contribute largely to the decoration of the shrubbery border, is the species just mentioned. It is a native of Japan, and was long ago described by Kæmpfer and Thunberg, the latter of whom states that the wood of the branches is inhabited by a larva which is used as a vermifuge for children. In the last volume of the *Botanical Magazine*, Sir J. D. Hooker states that it was introduced into this country some years ago, and has proved hitherto quite hardy, flowering copiously in September, when it has a very handsome appearance; but whether it has stood the unusual severity of the present winter remains to be seen." Its hardiness now seems thoroughly established, for the Kew plant received no injury, and is now blooming; it has long-stalked, trichotomously-branched cymes of showy flowers, with red-brown calyx and white corolla. The whole plant has, when bruised, a peculiar heavy smell, which Thunberg likens to the poisonous odour of Mandragora.

—— Gymnogramma schizophylla.—This is a new Fern of the present season, now to be seen at the Messrs. Veitch's nurseries at Chelsea. The fronds are of a drooping habit, and when the plant becomes better known it is sure to be in great request as a basket plant, for which purpose it is especially suited, and will be a great boon to decorators generally.

—— Mr. E. S. Dodwell.—In consequence of enfeebled health Mr. E. S. Dodwell, of 11, Chatham Terrace, Larkhall Rise, S.W., the leader of the Carnation and Picotee fanciers, is, we understand, compelled to exchange his suburban residence, smothered by railway traffic, for the purer and softer air of Oxfordshire, whither he will shortly remove. This renders necessary the distribution of his surplus stock of Carnations and Picotees, including many remarkably fine seedlings, and also of many seedlings yet unbloomed, raised from the most carefully hybridised seed. The Southern branch of the National Auricula and the National Carnation and Picotee Societies will greatly miss his energetic management; but fortunately the valuable aid of his co-secretary, Mr. James Douglas, will still be devoted to the interests of these associations, and Mr. Dodwell will, we understand, still render such aid as his health may permit.

—— Publications Received. — *Review of the Forest Administration of India*, 1879-80. By Dr. Brandis.

—— Notice of Removal.—Clay & Levesley have removed their offices from 174, High Street, Homerton, E., to their works, Temple Mill Lane, Stratford, London, E., where all communications should be addressed.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending September 5, issued by the Meteorological Office, London:—The weather has been very dull and unsettled over a greater part of England, but over Ireland and Scotland the sky has been much clearer and the weather dry. Thunder and lightning have occurred on some occasions at several of our S.E. and E. stations. The temperature has again been below the mean; over Ireland and the east of Scotland the deficit was 4°, while elsewhere it was as much as 5° or 6°. The maxima were low everywhere, the highest readings at our south and central stations being only 68° or 69°, while at Alnwick Castle and Shields they were as low as 55°. The nights were very cold over central Ireland, the minimum readings at Markree Castle on August 31 and September 1 being as low as 32°.6 and 32°.7 respectively, and as low as 34° at Brookeborough. Over Great Britain the minima varied from 37° at Churchstoke to 44° at our east coast stations. The rainfall has been a little more than the mean in the south-western, southern, and eastern parts of England, but decidedly less elsewhere. In Ireland, the north-west of England, and west of Scotland the amount of rain has been scarcely appreciable. Bright sunshine shows an increase in the "Grazing Districts," but a decrease in all the "Wheat-producing Districts." The percentages ranged from 11 in "England, N.E.," to 56 in "England, S.W." Depressions observed:—During the greater part of the period the barometer was highest in the west and north and lowest to the east and south, so that the prevailing winds were N. or N.E. They blew moderately generally, but at times increased to a fresh or strong breeze on our east and south-east coasts. On the 4th, however, a depression was appearing in the south-west from the west, and another was travelling to our north-east coasts from the east. The wind consequently shifted to the east at all our south and south-west stations, while in the north the northerly wind still held.

—— Gardening Appointments.—Mr. Richard Perkins, late Foreman to Mr. Stalker, Hemsted Park, Staplehurst, has been appointed Head Gardener to General Mark Wood, Bishop's Hall, Romford.—Mr. David Williams, late Foreman to Mr. Atkins, at Lockinge Park, Wantage, has succeeded Mr. Hinds as Gardener to the Right Hon. Lord Wimborne, at Canford Manor, Wimborne, Dorset.

THE PEACH WALL AT DITTON PARK, SLOUGH,

A Seat of the Duke of Buccleuch.

Amongst the common garden sights of the day, certainly that of a first-class Peach wall, well furnished and fruited throughout, is not one. Gardeners in these enlightened days would demur to the assumption that they were less clever in handling the Peach outdoors than were their predecessors. And yet it is notorious that a few decades of years since finely-furnished Peach walls were common. One thing is certain, gardeners then could not grow Peaches under glass, or if so in but a very limited way. The tax pressed heavily upon the fragile material through which light flows with such force and purity; heating methods were not so simple or so cheap, and, in fact, glass structures for all kinds of garden purposes were in their infancy. Hence Peach-houses were things to be dreamt of rather than realised, and somehow or other were but little needed. If the old gardeners did then get such fine crops of Peaches on the open wall, and kept up such healthy trees, what was it that favoured them? Was it that they were competent to grow Peaches outdoors *nolens volens*, or was it that the seasons in their days were more favourable than ours are? That a reply in the latter sense would be unsatisfactory is evident from what is done by Mr. Lindsay at Ditton Park now, and has been done by him for a generation. Will it be an awkward compliment to say of this excellent gardener that he seems to belong to the old school of Peach men?—for in the olden time of few things was any gardener more proud than of his Peach trees, and subsequent experience has shown that whatever may be found under glass, where shelter and heat with fair care will give Grapes, Peaches, Pines, or other fruits in abundance, yet there is no greater test of any man's practical ability than is his Peach wall, and to that assertion few will demur. Well, Mr. Lindsay has not, and never had at Ditton Park a Peach-house, or indeed has he much glass whatever. He has however during his long service of some twenty-seven years had to face the same seasons as others have, and seems throughout to have faced them most successfully. Perhaps the soil at Ditton is more favourable to the Peach than in other places; perhaps it is not. No doubt in plenty of other gardens it is as good—perhaps even better; indeed, our *cicerone* seems to wish us to infer that care and culture have a good deal more to do with it than have other elements, but modesty prevents the absolute enumeration.

Now the best Peach show is on the outer wall of the kitchen garden—of course, facing south; and fronting it is a border of some 15 feet in width cropped heavily up to within 3 feet of the wall with vegetables, as gardeners will do. The trees start from the end of the wall close to the garden entrance, and furnish the wall nearly its entire length of about 100 yards, some Apricots and Pears making up the remainder. The wall on this border gives a clear height of 10½ feet, and for some 75 yards length scarcely a square foot of uncovered surface can be seen. There are some thirteen trees in all, of various sizes and ages, and these begin with a sixteen-year-old Walburton Admirable, full of wood, and carrying a grand crop of fruit. No. 2 is a Barrington, really a noble tree, about 6 yards long, and covering the wall from bottom to top. This has a good crop of fruit also. A half-standard of the Violet Hâtive comes next, only three years planted. This is literally loaded with fine fruit, and will cover every inch of its allotted space next year. Indeed, from off the next, a fourteen-year-old Stirling Castle, will, in the winter, come a big branch to make more room for the younger tree. This old tree has an immense crop of fruit, and Mr. Lindsay tells us that it rarely fails to give a good one. A fine Murray Nectarine now interposes, and its deeply coloured fruits, literally studding the tree, show up in fine contrast to the paler hued Peaches. To this follows a fourteen-year-planted Late Admirable, finely furnished, and laden with fruit. Next this comes the oldest and perhaps largest tree on the wall—a half-standard Walburton Admirable, twenty years old. It is just 7 yards long, filling the wall from top to bottom with healthy wood, and carries a very fine crop of fruit. A young tree of the same kind, planted three years, is being let in to take the place of the old fellow somewhere, but except to furnish the portion of wall at his disposal does not

seem yet to be in much request. A three-year-old Lord Palmerston, carrying a grand crop of fruit, takes us to the door through which the inside garden is reached. Then we start afresh with a large half-standard Late Admirable, which has a good crop, and is pushing its branches over the door, to unite itself with Lord Palmerston. A Nectarine, nine years planted, comes next, carrying a superb crop of fruit, and the entire tree fully furnished. A nine-year planted Noblesse Peach follows, carrying truly a marvellous crop; and lastly comes a Walburton Admirable, a very favourite kind here, half-standard trained, and also carrying a great crop of fruit. These last three trees we measure, and find they extend to a length of 18 yards. A finer display of outdoor Peach culture than these show could not be found in the kingdom.

On the south wall inside the garden are some real veterans. When the mansion was rebuilt sixty-eight years since—that was in 1813—the garden wall was built at the same time. There still remains a couple of Moor Park Apricots planted then, yet bearing fruit annually, and showing that some trees have not that tendency to decay which is such a common feature; one has this year produced very fine fruit. There is also a half-standard Apricot in rude health, planted twenty years; an old kind, called here Buckingham Union, is twenty-six years old; and another Walburton Admirable, planted at the same time, is yet carrying a fine crop of fruit. These facts serve to show that not only are wall trees well cared for at Ditton, but they are also long-lived.

Both on the walls and as standards Pears do well, all the trees carrying fine crops. We noted Vicar of Winkfield, Pitmaston Duchesse d'Angoulême, Williams' Bon Chrétien, Knight's Monarch, Easter Beurré, Glou Morçeau, Beurré Diel, and Marie Louise as very fine. On some good-sized standards in the kitchen garden there are fine crops of Small's Admirable Apple, a first-rate kind either for kitchen or dessert. Prince of Wales Plum does remarkably well; half-a-dozen standard trees have carried some 14 bushels of very fine fruit. The Green Gage does well here, and the fruit is very fine. It may be of interest to state that the walls have a cement coping that projects about 2 inches on either side. This, of course, affords but a minimum of protection in the spring; still, farther, there are none of the customary means of protection to the bloom afforded. What is done is of but a very temporary kind and very partial indeed; in the past spring only the most trifling amount of protection was afforded to any of the trees. In the ordinary training and culture there is perhaps little that differs from training in all good gardens. Mr. Lindsay prefers planting standards on about 3 feet stems, as through being enabled to utilise all the wood, both above and below, the wall is more quickly furnished. In replenishing the wall it is the rule to remove all the soil 4 feet from the base and about 8 feet in length, and to a depth of 3 feet. A foundation of some 12 inches of broken bricks and brick rubbish is then laid, upon that comes rough broken turf, and then some fresh soil is introduced and mixed with other soil taken from the surface of the border. The great advantage of a good layer of drainage is found when heavy rains prevail, or when in dry weather free watering is necessary. The excess moisture percolates freely from about the roots, and leaves them in a far healthier condition than when it brings the soil into a sodden and cold condition. No doubt to this precaution is largely due the splendid condition of the Peach trees.

The Walnut thrives and crops well at Ditton, for about 40 bushels each is the estimated crop borne by a couple of fine trees. Generally, all forest trees do well, and there is about the park and pleasure-grounds magnificent Elms, Beech, Oaks, and other kinds. Yew does remarkably well, and the Tree Box almost equals the Yew in its fine growth. The mansion is of the turreted or Tudor style of architecture, and is, if not elegant, at least massive and roomy. It stands with its offices and some 20 acres of finely timbered pleasure-grounds within a moated enclosure, and is reached from the park only by a bridge, as water is abundant, and fills the moat all round. In addition to this excess of the limpid element an artesian well some 500 feet in depth sends up into a huge cistern that holds 1200 gallons an ample supply for all domestic and other purposes. This well gives up over 2000 gallons in twenty-four hours. An old kitchen garden within the moated enclosure has been devoted to the cultivation of vast quantities of flowers for cutting. Roses, Pinks, Wallflowers, Lilies of the Valley, Asters, indeed anything in bulk, for, as Mr. Lindsay says, it is not handfuls but almost cartloads that are wanted at a time during the London season. Just now that the family is in Scotland fruit is sent there in great quantities, really by the bushel, and there are several other families, offshoots of the Buccleuchs, to supply also, so that the demand on the garden is heavy. Though in no sense a show place there is usually much of interest to see, especially of flowers in the spring, when the gardens are very gay. *D.*

MESSRS. WEBB & SONS' SEED FARMS AT KINVER.

If there be any sign of returning prosperity to be seen in the horticultural horizon it will be found in the rapid expansion and development of such a business as that carried on by Messrs. Webb & Sons at Wordsley, near Stourbridge. No one who spends a few hours at the extensive farms at Kinver, or who inspects the warehouses, offices, &c., of the Messrs. Webb at Wordsley, can fail to be impressed with the scope and facilities that are there provided for carrying on an extensive seed and bulb business. Perhaps it will not be out of place here to remark that seed farming is not the only business in which the Messrs. Webb are engaged; the latter is but one branch of the many industries which are carried on at Wordsley, and which, with the exception of the agricultural department, need not be further referred to here. The great motive power—if I may so write—lies, however, in combined action, and the vigour with which the other branches of Messrs. Webb's business is conducted has been infused into the seed trade with the same remarkable results. To any one who has not had the opportunity of inspecting the extent of the warehouses at Wordsley, or who is not acquainted with the dimensions of the other branches of trade carried on there, it would seem incredible that so large a seed business could develope itself into its present proportions in such a comparatively brief space of time.

The secret of the Messrs. Webb's success lies, however, in the fact that one branch of trade is but the outcome of another, as the seed trade is no doubt the offspring of the farming and agricultural department, and is now a distinct branch, supervised by qualified heads, and extending itself annually into every part of the kingdom. But the locality, what is it like? And here I am bound to say that Wordsley has a look of thrift about it, and the surrounding country of the most pleasant and picturesque description. Where trade and thrift predominate you do not expect to find other than the elements which stimulate trade—the propelling power, as it were, of commercial enterprise, which must vary according to local circumstances, and be regulated in a measure commensurate with local requirements.

We will now have a look into the warehouses, which, as I have said, are of unusual proportions, and which I found it very interesting to examine in their respective departments. The rain poured incessantly; and while I dare say many a farmer was brooding over his hapless lot, the writer was absorbed in thought—sometimes in admiration—of the system upon which such a huge concern is so simply managed and conducted.

First of all I am shown into the clerks' offices, where the number of ledgers upon the desks is suggestive of the amount of business transacted. The comfort of the *employés* is also not forgotten, if extensive libraries and other privileges are appreciated as they ought to be.

Perhaps the great advantages the Messrs. Webb possess lie chiefly in the extent and commodious nature of their premises. The seed department is partitioned off from the bulb stores, and there is room *ad libitum* for sorting, storing, packing, and all other operations connected with the conduct of the business. Fancy a warehouse 180 feet long by 60 feet in width, with a basement for storing Potatos, which is portioned off for the different kinds, and a solid path cutting it in two in order to facilitate the removal of goods by machinery with the greatest economy and despatch. Hoists are also provided for removing the tons of seeds which must necessarily be shifted from the basement to the upper storeys during the season.

The "stock seeds" I noticed in large quantities, and these when sent out bear two labels upon each bag, one outside and the other inside. Bags of Grass seeds were pointed out to me; in this particular branch I was told an immense trade is done through the season. I make no reference to the tons of Mangel, Swede, and other Turnip seeds, which pass through these warehouses in a single season, because the farm seed department is a distinct branch of the Messrs. Webb's business, and is already so universally known as to require no further comment, the rapid increase in the trade being the best guarantee that all seeds are of the first quality.

In the horticultural department several hands were employed in cleaning and winnowing seeds, and others in the flower seed department preparing for another season. The bulb stores were being prepared for the business of the present autumn; and altogether the management of every branch is conducted with system, and everything goes on like clockwork.

But the drive round the seed farm was the most interesting part of the day's programme. The farm is some five or six miles distant from Wordsley, and the country which has to be traversed bristles with all that is lovely in English scenery—beautiful undulating surfaces alternated by rich green fields and golden-coloured crops of Wheat and corn, fine woods, and fertile valleys, with the spire of some village church peeping up from among the trees, or some palatial mansion nestling in the seclusion of its own densely-wooded park. All these sights are very beautiful, but still Kinver Edge excels them. It rises in the distance like a great stretching peak or beacon, at the bottom of which is a fertile valley which is no other than one of Messrs. Webb's seed farms.

At the first glance the cereal crops attract attention, and where Wheat and Barley produce such enormous heads as they do here it is a sure sign that there is neither poverty of soil nor defective management. To give the reader some idea of the extent of these farms, I may state that they consist of over 1200 acres, and over 7000 additional acres are devoted to seed growing in the most favourable districts in the country, the "stock seeds" being supplied from the farms at Kinver. Over 1000 acres are occupied in Pea growing alone, and all new sorts are thoroughly tested and compared with existing kinds before being sent out. Potatos are another large speciality; over 500 sorts are grown, and none but the very best sorts are sent out, or recommended to customers, unless specially ordered. By the way, I saw several new Peas and Potatos which will be heard of shortly, and which are not yet in commerce. The samples submitted for inspection, notwithstanding the adverse nature of the weather, bore every external mark of quality and fertility, and the flavour was good also.

The new Potatos—one a kidney and the other a round—are so prolific, so handsome in shape, and such moderate growers, that they are sure to find a home in every garden, whether large or small. It would be almost invidious to quote statistics of the acres of Seakale, Asparagus, and all other kinds of vegetables, grown upon trial where things are done upon so large a scale. I will therefore conclude by noticing Messrs. Webb's specialities in vegetables and flowers. Before doing so, however, I should state that the hands employed upon the seed farms are skilled in their work, especially those who are deputed to "rogue" (as it is technically called among seed growers) the crops, so that nothing but the best of everything is kept for stock, and seeds and roots cultivated upon trial have the utmost care and attention bestowed upon them, in order to secure that confidence from customers which is essential in the conduct of business to all concerned.

The following are a few of Messrs. Webb's specialities in garden roots and seeds, which will be found fully described in their printed lists, and many of which are said to be of transcendant merit as regards fertility and quality:—

Webb's Early Ashleaf Potato; Webb's Improved Schoolmaster Potato, of which a large acreage is grown; Webb's New Kinver Mammoth Broad Bean; Webb's Victoria Kidney Bean; Webb's Dark-red Beet; Webb's Extra Fine Curled Kale; Webb's Perfection and Champion Broccolis; Webb's Matchless Brussels Sprouts—a variety reputed to be of sterling merit, hardy, and a great bearer; also Webb's

Emperor Cabbage, which is a splendid variety; and Webb's Early Mammoth Cauliflower.

Among Cucumbers Messrs. Webb also claim distinction for several free-bearing kinds, such as Webb's Perpetual Bearer, which has a high reputation. In Lettuce Webb's New Summerhill, among the Cabbage varieties, and Webb's Superb Monstrous White, one of the best Cos varieties in cultivation, are acknowledged to be acquisitions of their kind. Webb's Woodfield Melon, among other kinds, is said to be the best for general purposes; while there is a long list of other popular sorts given which affords abundant variety for the most fastidious to select from. Webb's Banbury Onion is perhaps the best of all Onions for general purposes, as it is certainly the handsomest to look at; and Webb's Giant Parsley is another speciality equally useful. The Peas, to which reference has already been made, consist of Webb's Perfection, Webb's Kinver Marrow, Webb's Triumph, and several others of undoubted merit. Of Radishes Webb's Olive-shaped Scarlet is a very crisp handsome kind, and mild in flavour. Webb's Early Dwarf Red Tomato, and several kinds of Turnips, are also mentioned as possessing especial merit in their respective varieties, and deserving of extensive cultivation.

The lawn grass seeds supplied by Messrs. Webb, as also Webb's Compound Manure, so largely used by amateurs and others, and supplied in large or small quantities for the convenience of customers, is another branch of Messrs. Webb's business, to which much attention is given, and which is growing in public favour every season. *W. H.*

PLANT PORTRAITS.

Alocasia Thibautiana, Mast., *Illustration Horticole*, t. 419.—See *Gardeners' Chronicle*, 1878, p. 527.

Apple Belle de Pontoise, *Revue Horticole*, June 1.—A seedling from Emperor Alexander, large, handsome, rich in flavour, and a good keeper. Fruit globose, depressed at both ends, eye open, stalk short, slender, skin yellow, brightly coloured with red on the sunny side; flesh white, acidulous, sugary. December to March.

Chevalliera Germinyana, *Revue Horticole*, June 16.—A showy Bromeliad, with broad green leaves finely toothed at the margin, and a club-shaped or oblong spike of closely-packed, lanceolate, brilliant scarlet bracts. The origin is not known.

Clarkia pulchella, *Gartenflora*, t. 1042.

Dahlia Juarezii, *Garden*, May 7.—See *Gard. Chron.* 1879, vol. xii., p. 433.

Freesia refracta alba, *Garden*, May 7.

Gilia tricolor, *Gartenflora*, t. 1042 bis.

Jasminum pubescens, *Garden*, June 18 = J. gracillimum.—*Gard. Chron.*, p. 9, Jan. 1, 1881.

Œnothera albicaulis, *Gartenflora*, t. 1041; the same as O. pallida, of *Bot. Reg.*, t. 1142.

Pear Sanguinole, *Bulletin d'Arboriculture*, March 15.—Remarkable for the red colour of the flesh, which is, however, of only medium quality. It was known in Germany nearly four centuries ago. It was at one time imagined that a similarly coloured Pear might be produced by grafting a Pear on a Mulberry!

Rhododendron James Marshall Brook, *Florist*, June, 1881.—A form with bold leaves, and a fine truss of large bold flowers of a rich crimson colour, with a large pale blotch on the upper petal spotted with green. Raised by Mr. Anthony Waterer.

Rosa Hardy, *Journal des Roses*, June.—A yellow flowered single Rose with hooked prickles, pinnate leaves and linear leaflets. Said to be a cross between R. berberifolia as pollen parent and R. clinophylla as seed bearer. *Garden*, May 7.

Rose John Hopper, *Journal des Roses*, May, 1881.

Salvia Pitcheri, *Floral Mag.*, t. 455.—See *Gard. Chron.* xiv., p. 685, with fig.

Schismatoglottis Lavallei, Linden, *Illustration Horticole*, t. 418.—A Bornean Aroid with long reddish leafstalks, sheathing at the base, and bearing lanceolate leaves, green, mottled with silvery variegation.

Stenanthium occidentale, A. Gray, *Gartenflora*, t. 1035, f. 3.—A melanthaceous bulbous plant, from the Rocky Mountains, with linear lanceolate leaves and racemes of brownish, bell-shaped flowers, like those of the wild Hyacinth in form.

Tricyrtis macropoda, Miquel, *Bot. Mag.*, t. 6544.—A singular hardy perennial, with oblong acuminate amplexicaule leaves and erect cymes of funnel-shaped flowers, greenish outside, and with six hollow knobs at the base, yellow, spotted with red inside. Japan, East Himalaya.

Vriesia Glazioveana, *Revue Horticole*, February 1.—A noble Bromeliad of Yucca-like habit, with branching candelabra-like racemes of large white flowers, with an outer green tubular perianth and a much longer inner perianth of three narrow oblong white recurved segments and projecting stamens. The plant is a native of Brazil.

GAILLARDIA PICTA, VAR. LORENZIANA.

We have been favoured with cut specimens of the flower-heads of this peloric Gaillardia (fig. 68). It is peculiar-looking, and very handsome. The ray-florets are either wanting, or were fallen, in the examples which reached us; while those of the disc, almost to the very centre of the flower-head, were developed into larger petaloid florets, tubular below, and from three to five-lobed above, very much resembling the florets of the Corn-bottle, Centaurea Cyanus, in their general character. As to colour, two forms were sent us—one in which the crimson stain usually found at the base of the ligulate florets was confined to the tube, so that the face of the compound

Fig 68.—Gaillardia picta lorenziana.

flower was of a golden-yellow, and another in which the crimson colouring extended upwards into the lobes of the florets, and the compound flower showed an equal amount of crimson and gold. As an ornamental plant, the Gaillardia is undoubtedly improved by this process of evolution. We have received the following note from the raiser of this fine novelty, Mr. C. Lorenz, of Erfurt:—

"Gaillardia picta, though in mild climates biennial, and even perennial, is generally cultivated as an annual plant. The florets of the ray are ligulate, 3-toothed at the edge, in the upper third yellow, elsewhere purple, those of the disc insignificant, tubular, 5-toothed, blackish. In the course of time this species has produced several varieties, viz., var. grandiflora, var. albo-marginata, var. sulphurea, and others. Eight to ten years ago this species showed a tendency to transform the corollas of the circumference sometimes also those of the disc, into elongated funnel-shaped regularly 4—5-cleft tubular flowers. But only few flower-heads of this form were then to be seen, and besides, they were developed very imperfectly, mostly with only two rows of such tubular corollas. The attempts at improving this form, and raising it to a certain degree of constancy, remained for a long time without any success. Mr. C. Lorenz, of Erfurt, Prussia, the originator of Dianthus Heddewigii diadematus, Viola tricolor Emperor William, Gomphrena globosa nana compacta, and others, has finally succeeded in reaching the aim. But still more—of this new race he has bred six beautiful varieties, which show the colours of the ordinary varieties in a different arrangement:—1, Claret or purple segments tipped white; 2, amaranthine, segments tipped golden; 3, golden, throat claret; 4, golden, throat amaranthine; 5, purple, segments tipped golden; 6, pure yellow. Also these varieties are constant in a certain degree."

Home Correspondence.

Herbaceous Plants in August.—I have just come across a "Special Reporter's" remarks on herbaceous plants, and the piteous display they make during August. There are really but few months in the whole year wherein a greater variety of plants producing a great profusion of blooms may be found than in August, yet we are told that in a border some three-quarters of a mile in length the only plants were Lilies of two sections and Sunflowers. Now, a choice selection of herbaceous plants, combined with bulbous and tuberous rooted plants, will not fail, if properly arranged and managed, to make their respective borders or beds gay for the greater part of the year. I will content myself by naming only those whose vigorous constitutions adapt them for hardships, and which are capable of withstanding our severest winters with impunity. I will begin with that noble group of flowers, Lilies, which furnish our borders with flowers for at least one-third of the year. Among these may be mentioned L. longiflorum, and its many varieties, of which eximium and Wilsoni are among the best, and a great improvement on the typical species; the many single forms of the Tiger Lily, L. tigrinum, which continue for weeks in perfection, japonicum, and splendens, are among the best; besides which there is a double form of the type; the ever beautiful L. Batemannæ, introduced from Japan, with large flowers of clear orange-apricot colour; besides the many forms of L. speciosum just bursting into bloom; double white Campion (Lychnis vespertina pl.), whose flowers I have not been without for two months past—these are pure white, average 2 inches across, and slightly fragrant; the Rose Campion, Agrostemma coronaria and its varieties, with rosy-coloured flowers; Achillea Millefolium rosea, A. Ptarmica flore-pleno, alike valuable for the vase and the border; Œnothera Youngii and Œ. speciosa, the former having deep yellow and the latter large white flowers, both continuing a long while in profusion; Coreopsis lanceolata is another telling border perennial and one of the best—it is always in flower from early in July till the end of September; Catananche bicolor and C. cœrulea are two others of long duration in flowering. The many forms of Monkshood may also be mentioned, of which Aconitum japonicum, A. pyramidale, A. Napellus and its variety bicolor, are of the best. Centaurea montana and C. montana alba are two others suitable for the border. An almost endless variety of Veronicas may also be had in flower during this month. The double scarlet Geum, G. coccineum plenum, is another welcome plant, producing its highly-coloured flowers in profusion; also the well-known double scarlet Lychnis, L. chalcedonica flore-pleno, Linum arboreum, Tradescantia virginica, in many shades of colour; Campanula persicifolia alba coronata and C. linifolia alba are both attractive and continuous bloomers; C. pyramidalis and its white form; Alströmeria aurea in fine clumps is most telling, to say nothing of an endless number of Delphiniums. The double hybrid forms of Potentilla are invaluable in the border, the colours are most telling, and range from rich crimson and velvet to orange and scarlet with many shades, these continue for at least three months, commencing about the latter end of June. Anthericum Dorsetti is another free flowering plant with white flowers. Then there are the many and varied forms of Lychnis Haageana, Spiræa palmata, Monarda didyma, Scabiosa caucasica, and the variety connata; Corydalis capnoides lutea; Dielytra eximea, ornamental in foliage and flower; Michauxia campanuloides forms a pyramidal spike of white flowers, some 3 feet high; Stobæa purpurea, and Scolymus grandiflorus, the former with light purple, and the latter with orange-yellow flowers. Various forms of Liatris, together with some of the larger growing St. John's-worts; Tritoma Uvaria and Uvaria grandiflora; Hyacinthus (Galtonia) candicans; Verbena venosa; Senecio pulcher, probably one of the most telling of border plants, and certainly an acquisition. Then one might apply Hollyhocks with advantage, Sedum spectabile, Lobelia cardinalis, L. Queen Victoria, L. violacea, Veronica longifolia var. subsessilis, Veratrums, Telekia speciosissima, Tropæolum speciosum, Solidagos, Francoa appendiculata, Rudbeckia purpurea grandiflora and R. Neumanni, and a host of others. I hope sufficient has been said to guarantee a good month's flower if only half the plants here enumerated are used. If we are to take our public parks as a pattern in one thing why should they not set us the example in the other as long as there is so much space at hand? I see no difficulty other than procuring the plants, which may be had of any nurseryman who makes them a speciality. *E. Jenkins, Aug. 29.*

Silicated Labels.—I have been trying to improve the durability of wooden labels, and send you two of them, prepared by first soaking for forty-five hours in a strong solution of silicate of soda, taking out, and

allowing to drip for a few hours, then immersing for forty-eight hours in a strong solution of chloride of calcium, by this means impregnating the wood with silicate of lime. There are many other silicates the wood may be impregnated with, but the silicate of lime discolours last. Probably a further immersion in cold linseed-oil may be an improvement; I have not had sufficient time to test them. *J. K.* [The idea is a good one.]

Ranston House, the Dorsetshire seat of Sir Talbot Baker, nestling at the bottom of Hamilton Hill, famous for its Roman camps and entrenchments, and but a short drive from Blandford, is one of those places which if not exactly modern in style is none the less interesting because it is quaint. The pleasure grounds, which are rather extensive for the size of the place, and in strict harmony with the architectural features of the mansion, are very prettily laid out in a manner that is at once pleasing to the eye, natural in style, of easy flowing outline, and watered by a clear running stream, which takes a winding course through the grounds, and is spanned by two or more ornamental bridges. In the immediate locality of the house there is a giant Cedar of Lebanon, about 20 feet in circumference, and a great ornament to the lawn upon which it is growing. The tree, notwithstanding the low-lying situation, has escaped injury from the extreme temperatures of the past three or four years, and is in flourishing condition, unlike many others that have suffered in the same district. The whole valley upon which the grounds are laid out is bristling with many fine trees, and even the slope of the great hill is not without a sprinkling of single trees and clumps, to say nothing of the deep ravine, so beautifully clad with the commoner kinds of bushes and underwood. The flower garden is designed upon the simplest principle but makes a fine show, and neither lacks variety of material, arrangement, or colour. It is indeed a pleasant little spot, having many cheerful associations about it of quiet repose, mingled with sunbeams which cast their rich deep rays over the summit of adjoining hills as the sun sinks in the distant west. There is a shrubbery within the grounds 1¼ mile in length, which gives much variety and scope for introducing many kinds of plants. The kitchen and fruit gardens are in three divisions, separated by walls which are profitably occupied with fruit-bearing trees of Apples, Pears, Plums, and Morello Cherries, in large quantities. In the vineries nice clusters of black and white Grapes are either ripe or ripening, and the plant-houses are gay with summer flowering plants. If there is anything special among the plants, it is in the New Holland house, where a nice collection of these once favourite plants are enjoying the utmost care at the hands of Mr. Browning, the gardener, who takes great interest in the class. In the Peach-houses a variety of Peach called Sulhamstead is bearing a fine highly coloured crop, as were cordons at the front of an orchard-house, each plant bearing a full crop. Two better samples of the extension and restriction forms of training could not be desired, both doing equally well in their respective places. *Visitor.*

Jottings by the Way.—Visiting Scotland, and particularly parts of Perthshire, last year, I found to my surprise evidence on all sides of a warm, dry, and genial season. The brilliance of the flowers in the gardens at Birnam, and places adjacent, was quite remarkable, while the crops of Potatos, untainted by disease, were on all sides abundant. At home in Leicestershire in September the rainfall was excessive, upwards of 4 inches having been registered in one week. The flowers were blurred and their beauty sadly defaced, while the Potato crop was on heavy soils utterly lost. This was, as I have said, in 1880. Returning to the same part of Scotland this year I find that instead of the dry and hot weather which prevailed in England in the summer of this year, a record, written unmistakably in grain, fruit, and flowers, of a cold, wet, ungenial season: flowers backward, and lacking the brilliance of the year before; unripened grain crops, and hardy fruit retarded in its ripening, while Potatos are yet far from maturity, and it is doubtful if the diminishing heat of the season will give them the quality that generally commends Scotch Potatos to favour. I noticed about Blairgowrie and Kirkmichael long breadths of Potatos injured by frost, which occurred on the 28th. An improvement has taken place in the weather in this part of Perthshire; for the past week it has been fair, and often sunny. That charming creeper, Tropæolum speciosum, which is a perfect weed in some gardens in Scotland, and which at this time last year was in seed and passing out of bloom, is hardly yet in flower. In driving from Kirkmichael to Pitlochray I noticed an avenue of the Mountain Ash, each tree loaded with fruit. The trees were well shaped, and formed an appropriate colonnade to the mansion. The Mountain Ash berries are made use of by thrifty housekeepers to form a jelly which is substituted for currant jelly, and is said to be superior to it for some purposes. I find Gooseberries still abundant in some gardens; Victoria Plums still green. *W. Ingram, Birnam, Perthshire.*

The Season.—When, during the Manchester show week and some succeeding days, the rain came down with drenching persistence, the winds blew with such force, and the temperature went down to a November average, we naturally took a despondent view of things, and saw with deep concern and almost alarm the corn standing or lying in the fields sodden and spoiling. In the month of August we naturally look for fine weather, and when that is wanting then the condition of the corn crops takes precedence in our minds of all other anxieties. But no form of weather, however pleasant or miserable it may be, lasts for ever, and the worst of this now broken autumn seems to have passed. That the recent intervening fine days, with cold drying winds, have been very largely utilised by farmers everywhere there can be no doubt, and already, from amidst the general consternation over the condition of the harvest, reassuring voices are heard, telling that, after all, not so much harm has been done as was feared. That being the case we may well survey the results of the past wet weather with more equanimity, and perhaps reap from it some not inconsiderable items of comfort. We see everywhere, for instance, a magnificent herbage, and the field root crops are making a substantial growth. In gardens all winter crops are making wondrous improvement, and as compared with the general aspect in July, Nature now exhibits a change that may well be termed magical. Trees, shrubs, Roses, perennials, indeed hardy plants of all kinds, are finding new and robust life. They are full of vigour and promise us a pleasant and an extended autumn. But the chief benefits of the heavy rainfall will be found by the fruit trees, which having had the warmest and most favourable summer for the promotion of future fruitfulness and wood-maturing that has been experienced for a long time, were sadly needing such moisture as should enable them to get fresh root strength and store in the buds the needful supplies of fertile matter. Now we think we may look for a great fruit season next year with well grounded hope and reasonable anticipation. *X.*

Aerides odoratum purpurascens. — Mr. Llewelyn, Penllergare, Swansea, writes to me to say, that the information I derived principally from Mr. Nunn was not quite accurate; and that the specimen of this Orchid produced even more flower-spikes than was previously recorded. In the year 1880 it had eighty-four spikes, and in 1881 there were seventy-nine spikes of bloom. Mr. Llewelyn further says that the cut spikes last a very long time if they are cut and placed in water in the sitting room. The flowers are also sweetly scented as well as beautiful. *J. Douglas.*

To Pickle Scarlet Runners.—First make a strong brine, let it get cold, then pour it into a glazed crock, now put in your Beans (fresh gathered), add more salt every time fresh Beans are put in, have a circular piece of board to keep them pressed down, so that the brine always covers them, until the crock is full, when a cloth can be substituted and the lid put finally on. Observe, the brine is the essential part: without it they wither before the salt of itself becomes moist. *Wm. Armstrong, Ford Manor.*

American Potatos.—It was an excellent inspiration of the executive of the International Potato Show to give this year a special class to American Potatos. It is doubtful whether nearly all of these ever found here a more congenial season, as not only are the crops large but the tubers also, showing very much that size almost amounting to coarseness seen in the American-grown samples. There is also in most kinds excellent quality; indeed, Early Rose, Beauty of Hebron, Climax, Snowflake, and some others have never been better. All this goodness no doubt arises from the fact that our early summer was of that almost tropical heat which is characteristic of American summers. No doubt these American sorts are in breed tenderer than our English kinds, and we find that the foliage is more readily injured in stormy weather. Thus for once they have found a congenial season, and have made the most of it. It will be unfortunate, however, if our growers should think that size in the Americans is their chief show element, as that is never a desirable feature. Far too much of size was seen in the Potatos at Manchester, and with it consequent coarseness. In that respect, at least, average quality was far below what invariably characterises the exhibits at the International Potato Show. Owing to some unfortunate mistakes or intentional changes in nomenclature some trouble will probably be given either to judges or the committee at the forthcoming show, but the recent excellent trial of Potatos at Chiswick may have done something to clear the way. Synonyms of the most unblushing kind were far too evident at Manchester and were utterly inexcusable. It would be unfortunate if these were repeated at the Crystal Palace. As concerns new kinds it is well to point out early that Holborn Favourite is identical with the American Matchless, that Wormleighton Seedling is Magnum Bonum, that Pride of America does not differ from Snowflake, and that a seedling "Dux" is but a reproduction of Schoolmaster. *A. D.*

Disease of Tomatos.—There can be no doubt that this disease is gradually becoming more destructive every year. Practical growers long since correctly identified it by its general appearance and effects with the fungus of the Potato disease. By the kindness of Professor James Buckman, of Bradford Abbas, I have recently been able to examine some Tomato material that had been destroyed by the disease. The leaves and fruit were thickly covered with a dense growth of Peronospora infestans, intimately mixed with its old ally on Potatos, Fusisporium solani. There was as much Fusisporium as Peronospora. These two pests commonly grow in company, and both are equally able to disorganise and destroy the best plant. I had no difficulty in finding the resting-spores of both these fungi in the Tomatos. In the Fusisporium the resting spores only remain quiescent for a few weeks or even days; in the Peronospora the oospores are now globular and transparent; they, however, soon become pale brown and slightly nodular; after the lapse of several months or a year they become darkish brown, and then they germinate. The fact of their becoming brown and remaining dormant for a year before a renewal of growth takes place at once separates them from all the members of the genus Pythium, to which position a few botanists still wish to relegate these bodies. *W. G. Smith.*

Crinum Powellii roseum.—I have that fine new hardy Crinum, Powellii roseum, now nicely in bloom in my garden border, and consider it a great acquisition. I hope my other two varieties, the white, and the striped white and rose, will also soon be in bloom with me. *W. E. Gumbleton.*

Hampton Court Palace Gardens. — Your "Special," in his report upon the flower gardening at Hampton Court, mentions Kleinia Haworthii as employed in one of the circular beds. Is that the correct name of this succulent? I had it some years since from Mr. Croucher under a designation which ended with tomentosum, but I cannot now recall its full name. In habit it comes between the blue Kleinia and Pachyphytum roseum, its pointed fleshy leaves being covered with a thick woolly coating. When looking at the bedding there with Mr. Wildsmith recently, we both thought the little raised patches of Echeveria Peacockii presented the most noteworthy, and certainly most charming, novelty in the carpet bedding. The colour, a pale silver shaded with rose, is both chaste and pleasing. It is unfortunate that it should be such a very slow propagating succulent. The general public I find speak most approvingly of the marked improvement which has been made in the bedding here during the past few years, and the simple fact that it is found needful to put iron guards beside the best carpet beds tells forcibly how very popular these are with the visitors. Henri Jacoby Pelargonium, so freely employed, is certainly one of the most striking bedders of the day, and stands rain well, I am not alone in giving expression to a feeling of regret that a public garden, so eminently popular with the masses, should have its most attractive feature marred by the introduction into it of a commercial element. I refer to the publication for sale of a descriptive catalogue of the flower beds, and by putting numbers instead of names to the flowers, almost forcing those who may wish to find them out to purchase the book. I think this practice to be not only unworthy of a public garden, but peculiarly objectionable in one maintained out of the public funds. I hope also we shall soon hear the last of the penny charge to see the poor old Vine, now in its dotage. It is a disappointing show at the best, but the charge for admission is more than annoying—it is a degradation. *Correspondent.*

Apples and Pears.—Hanging in graceful festoons is an expression that can hardly be literally applied to the fruit upon hard pruned trees, but to free grown trees this season the illustration often happily applies. Some trees here are indeed fruitful, and perhaps the other but more common illustration of "ropes of Onions," would come uppermost in many minds, when the crops upon Nonsuch, American Mother Apple, Kentish Filbasket, Downton and Sturmer Pippins, Golden Noble, Norfolk Beefing, and Winter Peach, are seen: on these as far as the stout branches would permit the Apples bring them almost to touch the ground, dispensing with trainings of any kind, except such as Nature so admirably provides. The American Mother Apple, a richly flavoured kind, is colouring finely, as indeed are all others. The Winter Peach is not a commonly grown kind, the fruit is a flattish-round, of a pale green, and carries a

good bloom. On two trees of this kind growing side by side and of the same age and health, the fruits differ: one having the largest crop has much the finest fruit, the other has fruit comparatively small and somewhat spotted; possibly the stocks are responsible for the diversity. Beauty of Kent is colouring richly and is a much handsomer Apple than Flower of Kent. Fine form and high colour promise to mark all Apples this year. Some Pears also are bearing marvellously; specially so is Alexander Lambre, the long branches, loaded to the utmost, being borne quite down to the ground. Swan's Egg, so stiff and erect, yet has to give way to the clusters of its fruit; and Beurré d'Amanlis in some of the graceful curves of its long and irregular growth shows off its fruit to the best advantage. Beurré d'Aremberg also has a wonderful crop, the small trees literally laden and quite a picture. Williams' Bon Chrétien is drooping as a Weeping Willow with its weight of fruit, and several other kinds, the names of which I am unfamiliar with, have very heavy crops. Fruit gardens are just now a most enjoyable sight. *A. D.*

The Shell Creeper of Natal.—Mr. Leo Grindon suggests the probability of the creeper sent to my friend as the Shell Creeper being really the Snail Creeper, Phaseolus Caracalla, figured in *Bot. Reg.* v., t. 341, where Dr. Lindley says, the native name arises from *coracol*, the Portuguese name for a snail, which the shape of the flower somewhat resembles. *W. E. Gumbleton.*

Preserving French Beans.—I have had experience in preserving French Beans for more than twenty years, and as your correspondents do not make the thing quite clear and safe—the first says a layer of Beans and then a layer of salt, the second says the Beans should be cut ready for cooking, and then strew salt among them—our practice here, which answers well, is to top and tail the Beans, wet or dry is of no consequence, put 3 or 4 inches of Beans in the pot, then strew a very thin layer of salt, repeat the layers until the pot is full. Very little salt will preserve the Beans, the less the better; enough only must be put so that the pickle will cover the Beans when they are pressed down; too much takes the colour out of the Beans, as well as spoils their flavour. A weight should be put on the Beans to keep them in the pickle, which is formed by the Beans and salt together. They need putting into water twelve hours or more before cutting and boiling, to draw the salt out, or they will be too salt to be eaten. We keep Beans in this way the whole winter. If they are carefully done it requires an old hand to say they are not new Beans. *Wm. Culverwell, Thorpe Perrow.*

The Costmary.—Your correspondent "Walsall" asks for information as to the uses of the plant either for culinary or medicinal purposes, and also as to the origin of the name Costmary. I cannot do better than refer your correspondent to those handy little volumes, the *Treasury of Botany*, in the first part of which, at p. 119, under the article, "Balsamita," he will find that Balsamita vulgaris is a native of Italy, and was introduced to this country in the latter part of the sixteenth century. The leaves were formerly used to put into ale and negus, and it was from this fact that it derived one of its English names of Alecost. Though the plant is still common in many cottage gardens, it is seldom now grown for culinary purposes, "and even in France it is only used occasionally to mix in salads." The name of Costmary is said to be derived from the old Latin name, *Costus amarus*, or the French *Coste amère*. *J. R. J.*

Choisya ternata, &c., stood last winter unprotected in an exposed situation on the walls of our Wisley Cottage, a small plant with a west and another with a south aspect. Rosa rugosa as a standard has been grown here for some years, and is much admired; this was budded, but the Rose makes many straight suckers by rubbing off the stem buds. Of these we have several promising young standards on their own roots. Abelia rupestris has been unhurt by the last three winters fully exposed on a corner of the rootwork. *George F. Wilson, Heatherbank, Weybridge, Sept. 6.*

The Castle Street Nursery, Salisbury.—The Rose trees in the above nursery are now making the growth which they ought to have made two months since, and in the event of favourable weather ensuing the display of the queen of flowers in this far-famed Rose nursery will be a grand one a few weeks hence. I do not remember having ever before seen Rose trees making so fine an autumnal growth as they are doing this season—more especially the Teas, which are sending out fine floriferous growths from the axils of every leaf. Of course this is easily accounted for, inasmuch as the nature of the weather which we had during the greater part of June and July was such as was calculated to ripen rather than encourage growth in the trees—a circumstance to which, together with the nice rains of the present month, may be attributed their present fine condition. Dahlias: Instead of these being in their prime on or about August 20 or 24, as is generally the case, they will be ten days or a fortnight later this season. The recent rains have caused the plants, which had been somewhat stunted previously, to start into vigorous growth, so that the energies of the plants have been directed to the development of leaves rather than flowers. Amongst the seedling Dahlias not yet sent out, are some very fine and distinct varieties, conspicuous amongst which are the following:—James Stephens (self), dark orange, fine size, good form and habit, throwing its flowers well above the foliage. This variety received the premier prize at Trowbridge for a seedling last week. William Dodds (self), large bloom, wine-purple with the petals tipped with lilac, and good form. A fine yellow (the name of which Mr. Wyatt could not then remember, and I forgot to obtain it at the office before leaving), large bloom, good form, fine high centre, and constant. About a quarter of an acre of seedlings, double and single, and which ere this have been selected, had a very good effect when viewed from the south side of the piece, which slopes downward, and in which direction all the blooms were facing. The effect, had the piece been planted specially for the purpose, could not well have been better. The same may be said of the seedling Verbenas, which occupy a similar space in an adjoining field, where the softest and brightest of colours mix in pleasing harmony. In the houses the chief attraction now, as of yore, are the pot Vines, which are quite up to their usual standard of excellence—fine thick short-jointed canes, with wood of a nutty-brown, a sure indication of its being properly ripened, and the rods are of uniform size and vigour. *Tourist.*

Spray Distributor.—Mr. Wells, Earlswood Nurseries, Redhill, has submitted to our inspection a spray-producer of very simple and efficient construction (fig. 69). It is intended for the use of any liquid insecticide. It consists of a reservoir for the insecticide, and an india-rubber ball; by pressing the two together a fine spray is produced in the most effectual manner. Eds.

Fig. 69.—Wells' Spray Producer.

Rainfall at Southampton.—I enclose amount of rainfall as registered here during the month of August, taken daily at 10 A.M., the greatest amount falling for one day on August 25, 0.82 inch; the total for the month 5.32 inch, being more than fell during the four preceding months. The amount for those months was—April, 0.60 inch; May, 1.01 inch; June, 1.96 inch; July, 1.44 inch. Total, 5.01 inches. *Thos. Grant, Gr. to W. S. Gillett, Esq., Harefield, Bitterne, Southampton.*

Begonias as Bedding Plants.—Have any of your readers ever used the foliage Begonias as bedding plants? There was nothing more admired here than Begonia Rex and some of the same type, in a bed edged with Centaurea. This year we have it bedded in a mass, also mixed alternately with Flower of Spring Pelargonium, Abutilons, and Artemisia judaica. I have seen no mention made of them in bedding arrangements, but perhaps some of your correspondents may have used them before. *W. M. G.*

Insectivorous Plants in the Edinburgh Botanic Gardens.—Amongst the many insectivorous plants grown in the Edinburgh Botanic Gardens is Drosera heterophylla, the leaves of which grow on an upright stem about 6 inches high; at the base of each petiole are three or four smaller leaflets. The main leaves are about the size of those of D. rotundifolia (hardly so large), with the glands pointing downwards. The glands are not red, as in the British Droseras. It is a native of Adelaide. This beautiful little plant must be very rare, as Mr. Darwin had only seen dried specimens of it when describing it in *Insectivorous Plants*. He says the leaves form minute flattened cups, with the footstalks attached, not to one margin, but to the bottom. It was made by Lehmann into a distinct genus, called Sondera. One of the flower-stems of Drosera dichotoma is 2 feet 7 inches high, its tallest leaves being 1 foot 7 inches in length. Mr. Lindsay propagates Drosophyllum lusitanicum by cuttings, but prefers raising it from seed. The old plants become woody, and are apt to die out. Its flower-stems differ from those of most of the Droseras in having large glands on them. This plant is the only instance known in which the leaves unfold in an involute manner—*i.e.*, from the outside inwards, in the opposite direction from that of Droseras, Ferns, &c. The Drosophyllum is grown here without any period of rest and dryness (such as it is said to have in its native countries, Portugal and Morocco), though it is kept somewhat drier in winter than in summer. Mr. Lindsay finds that in cultivation it has not the very small roots mentioned, on Sir J. D. Hooker's authority, by Mr. Darwin. It and the other insectivorous plants grown here, except, of course, Nepenthes and the exotic Utricularias, stand (near the glass) in a cool greenhouse, on shelves covered with wet sphagnum. With this treatment they grow luxuriantly, and most of them flower freely. Mr. Darwin says that in the four British species, and, as he heard from Professor Dyer, in most or all of the species of Pinguicula, the edges of the leaves are in some degree naturally and permanently incurved. In Pinguicula vallisnerifolia, grown here, the edges of the leaves are folded in the opposite direction, *i.e.*, are recurved. The leaves are longer, narrower, and more upright, than in the British kinds. Much moisture is secreted on the back of the leaf, though the glands are much fewer than on the upper surface; more flies, however, appear to be caught on the latter than on the back of the leaf. Seedlings half an inch high of Sarracenia purpurea have a perfect pitcher developed between the cotyledons; so have seedlings of Darlingtonia hardly half an inch high. In seedling Darlingtonias, with pitchers about 1 inch long, the two lip-like projections are represented by one undivided central prolongation of the hood, almost half the length of the pitcher. In some of the pitchers, over 1 inch long, the two lips begin to appear, instead of the long central prolongation of the earlier pitchers. Sarracenia psittacina and S. variolaris seem to form links between the other species of Sarracenia and the Darlingtonia, not only in the hooded lid of the pitcher, but, especially in the case of S. variolaris, in the transparent patches near the top of the pitcher, but not, as in Darlingtonia, continued into the hood. *C. M. Owen.*

Gooseberry Caterpillar.—Like many of my neighbours I have suffered this season much from the ravages of the Gooseberry caterpillar, and having tried nearly all the known recipes for their destruction without obtaining any satisfactory results, I had to fall back on the old system of "Catch 'em and kill 'em," but that is very slow work and also very expensive, as the time occupied in picking the caterpillars off a tree is of more value than the crop. Every one who has had to contend with the caterpillar knows that they may be syringed or shaken from the trees—I prefer the latter, using a broom-handle for that purpose, but no sooner are they on the ground than every caterpillar turns to the stem of the tree, and if not stopped they will all be up amongst the branches and leaves eating away as if nothing had disturbed them. To prevent this I had a solution of Stockholm tar and soft soap in equal quantities mixed together and applied with a paint-brush to the stems of the trees, making a ring about 2½ inches broad, which entirely prevented their ascending, and, although many of them made an attempt to cross the band, none were able to accomplish the feat; many of them perished in the attempt, and others turned back in despair and probably died of hunger, or became a prey to the birds. One thing is certain—they never returned to their former position. The Stockholm tar and soft-soap, being of a harmless nature, does not injure the trees in the least, and as it does not become dry for some time there is an opportunity of going over the trees and giving them a second shake should any of the caterpillars make their appearance. Should this meet the eye of your correspondent, "B. T.," I have no doubt he will find the remedy an effectual one, as it has been with me; but whether the pest will return next year or not time will prove, but if they should I shall be ready for them, and I have no doubt I shall be able to save my Gooseberry and Currant trees, with very little trouble, from the pestilence of Gooseberry caterpillar without injuring my trees or rendering their fruit unpalatable. *D. Donald, Knotts Green, Leyton.*

The Potato Crop in the East and South of Ireland.—Last year I tried the experiment of planting several varieties of Potatos in mid-October, with the view of having them earlier than if spring-sown. The earlier varieties included Snowflake, Bresee's Peerless, Early Rose, and Myatt's Ashleaf Kidney. I put down seed of the same varieties in the last week of February, and both were fit for use the last week in May, with little perceptible difference in time of maturity, but with this difference in other respects—a large fraction of those autumn-sown, especially Snowflake, rotted, though protected during the unusually severe winter by fine hay. Early Rose proved the best cold and damp resistent, and came fit for table use, one of the first. The experimental plot was high-lying and maiden loam, sets covered deeply. There was no advantage either in quantity or quality. My experience I have since found to be that of several of

our most intelligent gardeners around—that, except under peculiar circumstances, not usually existent, there is no advantage in sowing before vegetation can be had—in the end of February or beginning of March. Of the more generally grown early garden varieties, in quality I am aware of none to compare with Snowflake. It is not so prolific as Early Rose, but otherwise it is superior, especially in the flavour and tenderness of the flesh. I should place the Ashleaf next, though I know some prefer some of the earlier new American varieties; and though I have only a limited experience, yet Beauty of Hebron as a heavy cropper, with unusually large-sized tubers, and of fine quality, I think will be a leading variety in the future. All the above-named, both with me, in a limited way, and as grown in gardens in the provinces, above referred to, are now wholly used up, and the medium-sized tubers exposed to the sun and "greened"—a most important point—for seed. Except where left in the ground and needlessly exposed to rot and blight, not one of those early or second early varieties need have been lost. In fact, I have already cut Cauliflowers off the ground where they grew. I should have named Fortyfold, which, when lifted early, I find unusually free from blight; but many do not like either the flesh or flavour. It is, therefore, little grown. I cannot part from the early varieties without particularly noticing one that you rarely find in England, but very generally grown in Ireland—Flounders; and not usually found in catalogues. Indeed, I do not remember having seen it in the immense collection at Manchester. It is roundish-flat—if I may coin a phrase—rather liable to disease, and of inferior quality as the season advances; but a heavy cropper on almost all soils, and very generally grown. Of the general crop, which is perhaps—except for gardeners—of most interest, the Champion is now extensively grown over the British Isles, and from this to the last week in May undoubtedly for quantity, quality, and disease-resisting properties deserves the preference. I do not know if any of your readers have noticed that after that date for table use it becomes very inferior, much inferior to either the White Rock or Magnum Bonum, both of which are the most generally grown in Munster and Leinster, and the old Skerry Blue and Black Bull, both excellent late croppers, and disease resisters, in Ulster and some parts of Scotland. It is rather surprising, remembering its superiority in many respects, that in Ireland, as a general cropper, the Magnum Bonum has not extended in cultivation so much as the Champion. Both are English raised, and therefore more suited to our moist climate, and comparatively sunless summers than those fine but heat-loving varieties from the warmer regions of the United States, that with general treatment degenerate in a few years. Since I commenced experiments with the Potato, at the Government Farming Institute, at Glasnevin, nearly twenty years ago, a pretty constant and steady observation has confirmed the opinion, that for general purposes, to have a successful variety of Potato, we must look to English raised and matured seedlings, and for the reason above stated. The tendency of the Champion to make so much haulm and foliage, often 4 feet high or more, utterly closing out sun, air, and proper atmospheric circulation, thereby rendering proper maturation difficult or impossible, must, I regret to think (unless some change takes place in the general system of cropping), ultimately end in failure and degeneracy. Its robust growth and woody tissue is, I believe, the secret of its present disease-resisting quality, but are those characteristics permanent? The answer is important, as the failure of this one variety would mean the loss of millions to the Irish. I need not particularly refer to the Potato crop in the North of England, as in a journey of 40 miles from Manchester through Lancashire, a few days ago, I saw but one square. Summing up, I should say the Potato crop, both in gardens and on farms, is, south, east, and north in Ireland, a considerable fraction better than the average; and the present beautiful weather will perfect this result. Blight has not considerably extended, and, best test of all, excellent table Potatos were to be had in market to-day here for 4*d.* per stone, and less elsewhere. *W. J. Murphy, Clonmel.*

Reports of Societies.

Royal Caledonian Horticultural: *Sept.* 7 *and* 8.—This show, as usual, brought together a considerable quantity of fruit, and especially of Grapes of first-class character. No doubt the recent great show at Manchester has eclipsed everything in that way that has taken place this season, and consequently the critical eye is more difficult to satisfy. Moreover, the weeping skies and almost boreal coldness that has prevailed in Scotland this season has been exceedingly unfavourable for developing the best qualities of fruit even in an indoor climate. Southern growers have, therefore, pretty much their own way in combating their Northern rivals. As a fruit show, however, this, barring these drawbacks, was in no way behind its predecessors.

Coming to details, we find Mr. McIndoe, gr. to J. W. Pease, M.P., Hutton Hall, Guisborough, easily took 1st position for twelve dishes of fruit. Amongst the lot were Hamburgh, Barbarossa and the Duke Grapes, good Alexandra Noblesse Peaches, and really splendidly coloured Pitmaston Duchess Pears, Best of All and McIndoe's Premier Melons—the latter a beautifully reticulated fine large obovate-formed variety, which is likely to be heard of in future trials. Mr. McIntyre, gr. to Chas. Tennant, Esq., M.P., had a very good assortment. In the class for eight dishes, Mr. McElvie, gr. to the Dowager Duchess Roxburgh, Broxmouth Park, beat Mr. McIndoe, especially with Grapes, which was the weakest point in the latter's collection, Mr. McElvie's Muscats being particularly good. Mr. McIndoe had a good lot of eight bunches. In fours, Mr. Alex. Kirk, gr. to J. T. Patin, Esq., Alloa, had specially well done Gros Colmar; Mr. M'Kinnon, gr. to Viscount Melville, having also very good fruit. In the twelve bunches, six white and six black, given by the Corporation of the City of Edinburgh, Mr. M'Kelvie won 1st place, his Gros Colmar, Alicante, Muscat of Alexandria, and Buckland Sweetwater being particularly conspicuous. Mr. M'Indoe, who took 2d honours, had good Barbarossa, Trebbiano, and Hamburgh. In the other classes, for pairs and singles, there was not the same general quality we have seen, such sorts as Alicante, Gros Colmar, Alnwick Seedling, Hamburgh, and one particularly fine dish of Muscats, from Mr. D. Calderhead, gr. to R. G. Erskine Wemyss, of Wemyss Castle, Fife, being about the best for finish and general appearance we have seen exhibited this season. Pines, Peaches, Figs, and other fruits were about an average—nothing superlative among them.

The great area of the Market Gallery always demands unusual efforts on the part of the trade to make it look clothed. On this occasion the Lawson Seed Co. did their duty as formerly, grouping a very nice lot of marketable plants on the floor at the one end of the area. Coming next were Ireland & Thomson, with their usual bright display of Crotons and other effective plants, not the least imposing being the new Croton Thomsoni, which gained 1st honours at Manchester, and seemed to be in advance of other seedlings. It is a little of the Disraeli type, but even more beautifully marked, and equally free habited. Next came Downie & Laird, with a spacious table, looking full and elegant with these graceful Palms, which are of the utmost importance in all showy decorations, with a fine assortment of Phloxes, Pentstemons, and other florist flowers cut and arranged in groups. The Messrs. J. Methven & Sons had a most imposing array of plants, very neatly arranged. Dickson & Co. followed with a good lot, mixed with flowering plants, of which Heaths and Eucharis formed the chief. Dickson & Sons, Todd & Co., and some others also had their special contributions. Not the least interesting was the exhibit of Mr. Sadler, from the Royal Botanic Garden, who had a very good assortment of medicinal plants, the modern "beefeaters," as some vulgarly call these harmless Dionæas, &c.; capitally grown Sarracenias, of which Chelsoni seems to like a front rank, some nice Droseras and Pitcher-plants, and the showy pale lilac Colchicum speciosum like a gigantic Crocus.

Next in importance were the tables of amateurs filled with miscellaneous plants, the best of which was Mr. Andrew Paul's, Gilmore Place, who had a varied assortment; his Ferns, particularly Davallias, and Orchids specially, were very fine, a form of Odontoglossum Alexandræ shining out among an otherwise well apportioned group. Mr. R. M. Reid, gr. to Mrs. Bertram, Ravenswood, had also a good table, but wanting in those gems (Orchids, &c.) to enhance and establish its importance.

The specimen plants from Mr. John Paterson, gr. to Jas. Syme, Esq., Millbank; of Andrew Paul, Esq.; and of Colin M'Farlane, gr. to D. Andrew, Esq., Moredun, were excellent examples of their kind, the Cape Heaths being about as good as one sees anywhere, Marnockiana, Austiniana, Macnabiana, and retorta major still being the best at this season. Nothing could be finer grown or bloomed than the Lapageria rosea shown by D. M'Greger, Esq., Craigrowston.

The Roses were quite a feature, the Northern growers having the best of it this season, Mr. Cocker, Aberdeen, beating some other good growers.

Vegetables were shown in quantity, and generally good.

The greatest novelty presented was a Cape Heath, from Mr. Wm. Thomson, Clovenfords, a hybrid of that veteran hybridist, Mr. Andrew Turnbull, Bothwell Castle, partaking a little of the character of Sandringham, with fleshy tube, and white corolla—a most abundant bloomer, and one that will find its way into the general market trade before many years go by. It was awarded not only a First-class Certificate, but a Medal. *Correspondent.*

Dundee Horticultural.—The annual exhibition of this Society was held in the spacious Drill Hall, Parker Square, on the 1st, 2d, and 3d inst. Plants in pots were not perhaps so numerous as we have seen them in some former years, but most of the classes were well represented. Two tables of stove and greenhouse plants, arranged for effect, attracted much attention. Mr. James Wilson, gr. to G. A. Cox, Esq., Beechwood, was awarded 1st honours, and Wm. Alison, gr. to Jas. F. Low, Esq., Sea View, was 2d. Mr. Wilson's table was furnished with some fine specimens of Cycas revoluta, Dicksonia antarctica, a fine Screw Pine, very fine specimens of the beautiful Eucharis amazonica, Latania borbonica, the variegated New Zealand Flax, Crotons, Dracænas, Ferns, &c. Mr. Alison's table was also very tastefully arranged, and contained a great variety of suitable plants for table and conservatory decoration. Among them we observed Acalypha musaica, a splendid pot of Vallota purpurea, some fine Dracænas, Caladiums and Crotons, interspersed with Ferns. Mr. Alison's arrangement was very much admired, and the two tables were very conspicuous features in the exhibition. In the same class, open to nurserymen only, Messrs. John Stewart & Sons, Dundee and Broughty Ferry, took 1st place; among their exhibits were fine plants of Clerodendron Balfourianum, Lapageria rosea, Cocos Weddelliana, Seaforthia elegans, Primula sinensis, Stewartia and some fine Heaths and Ferns. Messrs. W. P. Laird & Sinclair, Broughty Ferry, came in 2d. In their collection we noticed the beautiful Ficus Parcelli with its fine irregularly-marked white and green foliage, Acalypha macrophylla, Beaucarnea recurvata, Croton Johannis, several new Coleus, &c. There were three tables shown by nurserymen. Messrs. D. & W. Croll of the Dalhousie Nurseries, had a splendid collection of things on a table some 9 yards in length. The table of Messrs. Laird & Sinclair contained a more numerous collection of finely grown plants. That of Messrs. Stewart & Sons contained fine examples of many of the novelties of the day.

In the competition for the best six fine-foliaged plants open to gardeners only, Mr. Scott, gr. to Joseph Grimmond, Esq., Carbet Castle, easily took the 1st place. No such specimens of Croton pictus, interruptus, and Weissmanni have ever been shown at Dundee—some 7 to 8 feet high, and 4 to 5 in diameter, symmetrically trained, and in best possible colour, they were the finest feature of the show. A lecture on these subjects out of Mr. Scott's book would enlighten many of his less fortunate brethren. Ferns, British and exotic, were not numerous, but some of the specimens shown were worth going miles to see. Those collections shown by the local nurserymen were fine, notably the Gleichenias shown by Messrs. Stewart, who took 1st place, and the Adiantums cuneatum and concinnum latum in Messrs. Laird & Sinclair's lot. Among gardeners Mr. Alison was far in advance, with six, in which were a Davallia Mooreana, 24 feet in circumference, fine Lygodium scandens, and Adiantum concinnum. These fine specimens were the chief attraction in the Fern department.

In other classes of stove and greenhouse plants the display was good. For the best twelve plants for table decoration Messrs. D. & W. Croll came in 1st, with neat examples of Dracæna Goldieana, Sidneyii, and jucunda, Aralia elegantissima, Croton majesticus, &c. Messrs. Laird & Sinclair were 2d, with a healthy collection of fine things, but too large; Messrs. Stewart 3d lot also showed high treatment. The 1st prize in the gardeners' competition in this class was carried off by Mr. Williamson, gr., Tarvitt, Fifeshire. We could wish, however, to see other things fill the place of the eternal Crotons on our fashionable dinner-tables, and doubtless a revolution will take place in a few years, when all these variegated tribes will give place to graceful foliage and will be relegated to their proper place, the plant stove or conservatory, "unwept, unhonoured, and unsung." Of cut flowers there was a fair display, including Roses, Dahlias, and Hollyhocks. Of the first Messrs. Jas. Cocker & Sons, Aberdeen, had by far the finest exhibition. They took 1st for best twenty-four with fine blooms of Baroness Rothschild, Alfred Colomb, A. R. Williams, &c. Messrs. Laird & Sinclair took 1st for twenty-four Dahlias, among which were fine blooms of Charles Leicester, Charles Backhouse, Monarch, Mr. Stancomb, Flora, and Julia Wyatt. We have omitted to mention the names of a few beautiful tuberous rooted Begonias shown by this enterprising firm. Among these the best we noticed were Le Progrès, Marquise de Clapiers, Talma, Trocadero, Vesuvius, and Le Phocée.

The fruit on the whole, as was to be expected, was somewhat inferior to what we have seen. Much of it was unripe and unfit for table. Some of the local competitors who have filled the post of honour in former years did not show, but their place was worthily taken by younger exhibitors. Mr. Dickson, Mount Melville, St. Andrew's, carried away the Challenge Cup, given by the Town Council, and £4, for a collection of eight varieties. He had splendid dishes of Royal George Peaches, Balgowan Nectarines, Williams' Bon Chrétien Pears, Moor Park Apricots, Black Hamburgh and Bowood Muscat Grapes, and a Melon. Mr. Williamson, of Tarvitt, was second, 2d; and Mr. Brown, of Abercairny, a good 3d. For four bunches of Grapes (varieties) a new aspirant, Mr. Haig, gr. to Sir Thos. Munro, Lindertis House, came in 1st, with well finished bunches of Lady Downe, Buckland Sweetwater, Black Hamburgh, and Muscat of Alexandria. For the best two bunches of Black Hamburgh Mr. Dickson was 1st, with finely coloured though not heavy bunches. For two best bunches of Muscat there were eight competitors: Mr. M'Millan, gr., Angus M'Intyre, Esq., Broomhall, obtained 1st place with a beautiful example of this fine Grape from Vine sixteen months old. The best bunch for bloom was also taken by Mr. M'Intyre for a Lady Downe's bunch from the same house. There were some fine Royal George Peaches, some good Melons, and a fair display of Apples, Pears, and small outdoor fruits. Vegetables were, generally speaking, inferior to those shown last year, although there were several fine collections staged. *Correspondent.*

The Weather.

TATE OF THE WEATHER AT BLACKHEATH, LONDON

FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 7, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
pt.	In.	In.	°	°	°	°	°	°			In.
1	29.99	+0.11	55.2	49.2	6.0	51.4	− 8.0	45.9	80	N : NW	0.00
2	29.94	+0.05	58.0	49.0	8.1	53.3	− 6.0	49.0	86	N : NW	0.00
3	29.81	−0.09	56.2	49.5	6.7	53.4	− 5 7	49.0	85	N : NW	0.00
4	29.71	−0.19	60.2	46.5	13.7	54.3	− 4.5	46.1	74	N.W.	0.00
5	29.50	−0.40	61.5	51.2	10.3	55.5	− 3 1	52.1	87	N.E : N. N.E.	0.09
6	29.48	−0.43	66.2	53.5	12.7	58 5	+ 0.1	51.4	76	N.W.	0.37
7	29.51	−0.40	61.0	54.0	7.0	56.6	− 1.8	49 3	75	N.W. : N. N.W	0.06
an	29.00	−0.19	59 8	50.4	9.2	54.7	− 4 0	49.0	81	N.W.	0.52

pt. 1.—Fine, but dull and overcast. Dark night.
— 2.—Cold and dull generally; windy. A fine night, but dark.
— 3.—A dull, overcast day. Fine afternoon. Fine night.
— 4.—Fine morning, quite calm. Fine but cloudy afternoon. Fine night.
— 5.—A dull, overcast day and night. Heavy rain in the evening.
— 6.—A fine day, with a deep blue sky. Dark, rough night, with rain.
— 7.—Fine, but cloudy and overcast. Fine clear night; moon very bright.

LONDON: *Atmospheric Pressure.*—During the week ding September 3, the reading of the barometer reased from 29.79 inches at the beginning of the ek to 29.99 inches by midnight on August 28; creased to 29.68 inches by 3 P.M. on August 30; reased to 30.06 inches by midnight on August 31; creased to 30.01 inches by 3 P.M. on September 1; reased to 30.02 inches by midnight on Septem- r 1; and was 29.80 inches at the end of the week. The mean reading for the week at the level of the was 30.07 inches, being 3.3 inches higher than it of the preceding week, and 0.01 inch higher in the average for the week.

Temperature.—The highest temperature in the ide in the week was 68°, on the 28th; the next order was 62°.5, on the 30th. On September 1 the nperature did not rise above 55°.2. The mean of e seven high day temperatures was 59°.6.

The lowest temperature in the week was 45°, on e 28th; and on the 30th the lowest temperature was °.5. The mean of the seven lowest temperatures s 49°.6.

The greatest range of temperature in one day was °.2, on the 22d; the smallest was 10°.3, on the th. The mean of the seven daily ranges was 10°.

The mean daily temperatures were, on August 28, °; on 29th, 55°.2; on 30th, 55°.9; on 31st, 52°.4; September 1, 51°.4; on 2d, 53°.3; and on 3d, °.4; and these were below their averages by 5°.2, .9, 4°.1, 7°.4, 8°, 6°, and 5°.7. The mean tem- rature for the week was 53°.7, being 3°.3 below t of last week, and 5°.9 below the average of the ek for sixty years.

The highest reading of a thermometer with black- ed bulb in vacuo, placed in the full rays of the sun, s 115° on the 28th, and the highest on Sep- ber 3 was 64°.5. The mean of the seven readings s 86°.5.

The lowest reading of a minimum thermometer h its bulb placed on grass and fully exposed to sky was 39°.5, and the mean of the seven readings s 44°.8.

Rain fell on three days, to the amount of 0.44 inch the week, of which 0.32 inch fell on the 29th.

ENGLAND: *Temperature.*—During the week end- September 3 the highest temperatures were 70°.2 Cambridge, 69° at Truro, and 68°.8 at Notting- n. The highest temperature at Bradford was 61°.2, eds, 62°; and at Wolverhampton 64°.5. The mean n all stations was 66°.6.

The lowest temperatures in the week were 38° at ttingham, 39° at Truro, and 43° at Hull. The est temperature exceeded 46° at Bradford and eds. The general mean was 43°.2.

The greatest ranges of temperature in the week e 30°.8 at Nottingham, 30° at Truro, and 29°.8 at nbridge. The smallest ranges were 14°.6 at Brad- d, 16° at Leeds, and 22° at Sheffield and Liver- l. The general mean was 23°.4.

The mean of the seven high day temperatures eeded 62°.5 at Truro, Cambridge, and Plymouth, and was less than 59° at Bradford, Sheffield, and Sunderland. The general mean was 60°.7.

The mean of the seven lowest temperatures was or exceeded 49° at Leeds, Brighton, and Blackheath, and was less than 47° at Truro, Bristol, Nottingham, and Wolverhampton. The general mean was 47°.9.

The mean daily range was 19°.2 at Truro, 16°.4 at Cambridge, and 15°.2 at Bristol; and was 8°.7 at Bradford, 9°.9 at Leeds, and 10° at Blackheath. The general mean was 12°.8.

The mean temperature for the week exceeded 55° at Cambridge, and was less than 52°.5 at Sunderland, Wolverhampton, and Bradford. The general mean was 52°.9.

Rain.—The largest falls were 1.27 inch at Hull, 1.05 inch at Liverpool, and 1.03 inch at Sheffield. The smallest falls were 0.40 inch at Leeds, and 0.44 inch at Blackheath and Bristol. It fell on an average from three to four days in the week. The general mean was 0.69 inch.

SCOTLAND: *Temperature.*—During the week ending September 3, the highest temperature was 65° at Dundee. At Edinburgh the highest in the week was 59°.8. The general mean was 62°.3.

The lowest temperature was 35°, at Glasgow; at Edinburgh the lowest temperature was 38°.7. The general mean was 37°.6.

The mean temperature was highest at Paisley, 54°.6; and lowest at Glasgow, 48°.8. The general mean was 51°.3.

Rain.—The largest falls were 0.60 inch at Aberdeen, and 0.42 inch at Edinburgh; the smallest falls were at Paisley and Glasgow. The general mean fall was 0.20 inch.

JAMES GLAISHER, F.R.S.

Obituary.

WE regret to have to announce the death of Mr. WILLIAM EDGCUMBE RENDLE, of Westminster (formerly of Plymouth), who expired on the 3d inst., at Eastbourne, after a long and severe illness, and was interred on Thursday last at the Brompton Cemetery. He was born at Compton Giffard, near Plymouth, on February 10, 1820. He was engaged in several large mercantile pursuits, and was patentee and inventor of the tank system of heating, as well as of several other horticultural apparatus, including what is now known as Rendle's patent glazing, which is adopted by Her Majesty's Government and all the leading railways, his latest and largest work being the Great Citadel Station at Carlisle. He was also successful in theatrical matters.

Variorum.

SUMMER SALADS.—A salad well prepared is a charming compound, and, when taken with plenty of oil, very wholesome, attractive, and agreeable; badly prepared it is an abomination. A Spanish proverb says that four persons are needed to make a good salad—a spendthrift to throw in the oil, a miser to drop in the vinegar, a lawyer to administer the seasoning, and a madman to stir the whole together. Lettuce is generally supposed to form the foundation of a salad, but there are few fresh vegetables that may not be used; and on the Continent every known vegetable is, when plainly dressed, used cold for salads; and cold meat, fish, and game are served in the same way. Amongst the vegetables appropriate for salads may be named Asparagus, Artichokes, Beetroot boiled, Basil, Celery, Chives, Cucumbers, Chervil, Cauliflowers, Dandelion leaves, Endive, French Beans, Garlic, Lettuces of all kinds, Lentils, Mustard and Cress, Mint, Onions, Parsley, Potatos, Radishes, Shallots, Sorrel, Tarragon, Tomatos, Windsor Beans, and Watercress. Though a variety in salads is easily secured, great care is necessary in the preparation of the dish, and three or four rules must be closely observed if the salad is to be a success. First, the vegetables must be young, freshly cut, in season, and in good condition. If possible, they should be gathered early in the morning or late in the evening, and should be kept in a cool damp place. Secondly, the vegetables should not be allowed to lie long in water. If withered they may be put in for a short time to render them a little crisp, but if fresh they should be simply rinsed through the water and dried immediately. Thirdly—and this point requires most careful attention—the vegetables must be rendered perfectly dry after washing. The best way of doing this is to drain the salad and shake it first in a colander, or salad basket, and afterwards in a clean napkin held by the corners and shaken lightly till the salad is dry. Fourthly, cut the salad with a silver knife, or tear it in shreds; do not prepare it until a short time before it is wanted, and on no account mix the salad dressing with it until the last moment. It is a very usual and excellent plan to pour the liquid in the bottom of the bowl, lay the shred vegetables upon it, and mix the salad at table. A wooden fork and spoon are the best for this purpose. Salads may be garnished in various ways, and afford ample opportunity for the display of artistic taste. Boiled Beetroot cut into slices, stamped into fancy shapes, or cut into trellis-work, sliced Cucumbers, Olives, hard-boiled eggs cut into quarters or rings, Radishes, Nasturtium leaves and flowers, &c., may all be used. When these are arranged tastefully the salad presents a very attractive appearance. Of course the garniture must not entirely hide the salad. *Cassell's Dictionary of Cookery.*

Enquiries.

He that questioneth much shall learn much.—BACON.

DAMSONS.—*Constant Subscriber* asks in what localities (excepting Kent and Cheshire) Damsons are most grown, particularly in the North?

FROST AT LEICESTER.—Can any correspondent inform me the degree of frost registered in the neighbourhood of Leamington on August 29 last? *T. S.*

Answers to Correspondents.

ACHIMENES: *A. W.* The catkin-like rhizomes may be kept easily enough, either in the pots in which they are grown or shaken out and buried in sand, but neither soil nor sand must be allowed to become perfectly dry, or they will be liable to decay from exhaustion. In early spring shake them out of the sand or soil, and lay them in pans of damp leaf-mould to start into growth, when they can be potted as required, either singly or several in a pot, pan, or basket. They make very effective basket plants.

CAMPANULA PYRAMIDALIS: *A. W.* The strong plants should remain over the winter and flower freely next year. Turn them out of their pots and reduce the balls, and then repot them in fresh rich loamy soil. During winter keep them moderately dry in a frost-proof pit, where they will not suffer from confined damp. In some seasons and in some soils and some situations, they will live on through the winter out-of-doors, but they are scarcely to be trusted, and specially if, as you describe yours to be, they are in a vigorous state of growth just before winter sets in. Better keep the old plants growing on than make cuttings of them.

DOUBLE-FLORET DAHLIA: *W. Hender & Sons.* In the Dahlia blooms sent each ordinary floret has another of nearly the same size developed inside it, and growing out from the top of its short basal tube. This occurs throughout the whole of the flowers sent, and which constitutes a well-formed "double" Dahlia. The effect is very curious, giving the blooms a much more dense and solid appearance than that usually presented. We understand that the variety has kept true to this character for several years. It is, no doubt, the commencement of a new race of Dahlias, in which it seems very probable that the blooms may be more durable than those of the ordinary varieties. Whether, as you suggest, the inside "petal" may, by crossing, become elongated so as to alter the character and appearance of the flower remains to be seen; in the meantime the evolution of this new part is very interesting from a structural point of view.

DOUBLE PETUNIAS: *R. H. P.* An excellent strain, but we do not notice amongst them anything specially novel in colour or marking.

ERRATA: RAMSGATE FLOWER SHOW.—At p. 317, for "G. Bunyard & Co.," read "Thomas Bunyard, Ashford."—At p. 317, for "Stamer," read "Stanier."

FUNGUS ON GRASS: *W. M.* The fungus is the Uredo or Trichobasis condition of Puccinia graminis, the corn and grass mildew. De Bary says the spores of the Æcidium of the leaves of Berberry give rise to this fungus, but it is very desirable that further experiments should be made, as De Bary failed to produce the Puccinia from the Æcidium spores, and the Puccinia grows on grasses in countries where no Berberry is known. These facts are too often forgotten by botanists. *W. G. S.*

GRAPES CRACKING: *J. U.* Your Grapes are cracking through an excess of moisture at the roots, or damp atmosphere. Apply more heat.

HAMPTON COURT: *J. P.* Write to Mr. Graham.

JAMAICA: *Correspondent.* We do not know that it can be procured in this country. Apply to Government Printing Office, Duke Street, Kingston, Jamaica.

LACHENALIA TRICOLOR: *A. W*—This fine ornamental Cape bulb will grow better on a greenhouse shelf or in a living-room window than if plunged after potting, like Hyacinths, in a cold pit. It is a beautiful subject for decorative purposes in pots, and huge baskets full of the allied L. luteola have been exhibited, which from the quantity of flowers produced, and their graceful character, were quite a picture.

NAMES OF PLANTS: *W. J. B.* 1, Linaria vulgaris; 2, Origanum vulgare; 3, Echium vulgare; 4, Daucus Carota; 5, Bidens tripartita.—*Connon & Reid.* Anemone japonica Honorine Jobert. Propagate by division of the roots; the smallest bits will grow. —*Fitz.* 1, Achillea Ptarmica; 2, Chlora perfoliata; 3, not in flower.—*D. B.* Rhamnus Frangula.—*Right Hon. T. Chamberlain.* Oncidium carthaginense, and O. micropogon. *H. G. Rchb. f.*—*W. Cash.* 1, Brassia

Lawrenceana: 2, Silene, out of condition; 3, Polystichum capense; 4, Platanus orientalis; 5, leaf only. —*A. B.* Without flowers it is impossible to do more than guess at the names. No. 3 appears to be Pelargonium graveolens, the rose-scented; No. 1 is perhaps a variety of it; and No. 2 looks something like P. capitatum.—*H. J. C.* Celsia Arcturus.—*W. Roberts.* 1, Adiantum pentadactylon; 2, Adiantum macrophyllum; 3, Tropæolum majus flore-pleno; 4, Pteris cretica.—*Barr & Sugden.* Pentstemon breviflorus or antirrhinoides, we cannot tell which without better specimens.—*F. U.* Atriplex hortensis, purple var.—*A. C.* Saccolabium Blumei and Dendrobium eburneum.—*D. P.* 1, Geranium pratense; 2, Tunica Saxifraga; 3, Hedera Helix.—*Lady C. S. L.* Vincetoxicum nigrum. *A. O. W.* Odontoglossum sceptrum.—*J. K. A.* Cassia lævigata.

NECTARINE: *G. T.* Pitmaston Orange. Very fine.

ROSES: *Sapiens.* It does not accord with our experience that Roses on their own roots flower less freely than those worked on the Manetti stock. Feed them sufficiently to produce strong healthy growth, and they will flower according to the habit of the respective kinds. They should be pruned like others of their particular class, for which instructions are given in all the principal Rose catalogues.

SCOLOPENDRIUM VULGARE: *Gardener.* We never before heard of this as a remedy for whooping cough, and should be very sceptical as to any good result therefrom.

SENSITIVE TREE: *G. E., and several others.* Fiction; very much so—but founded on facts.

SINGLE DAHLIAS: *J. Jefferies & Co.* An interesting series of various colours, obtained, no doubt, from the white variety cultivated in the Oxford Botanic Garden, and including purples, scarlets, yellows, blush-whites, and various other shades of colour. The purples are the most attractive, but we do not think these large-flowered singles—except the pure white, which is very effective—so desirable for the flower-garden as the smaller ones derived from D. coccinea and D. gracilis, the latter having in addition very elegant foliage.

VINES: *An Old Reader.* Take away as much of the old soil as you may be able, and apply fresh soil for the roots to feed in. This to be done early in October. Then prune pretty hard, and encourage the production of young rods next year. Your Vines are weak.

CATALOGUES RECEIVED.

MARTIN & SON, Hull—Dutch Bulbs.
LOUIS VAN HOUTTE, Ghent—Camellias, Azaleas, Hardy Plants, &c.
HOOPER, Covent Garden—Bulbs.
BOOY & CRANS, Elden, Arnhem—Trade List of Fruit Trees, Ornamental Trees, Roses, &c.
JAMES DICKSON & SONS, 108, Eastgate Street, Chester—Bulbous Flower Roots, &c.
BEN REID & CO., Aberdeen—Dutch Flower Roots.
MM. VILMORIN-ANDRIEUX ET CIE., 4, Quai de la Mégisserie, Paris—Bulbous Roots and Strawberries.
STEPHEN BROWN, Weston-super-Mare—Bulbs and Flower Roots, &c.
WOOD & INGRAM, Huntingdon—Bulbs, Carnations, Strawberries, &c.
E. HOLMES, Lichfield—Bulbs.
JOHN WATERER & SONS, Bagshot—Rhododendrons.
CHARLES TURNER, Slough—Bulbs; also Carnations, Pinks, &c.
KERR & FOTHERINGHAM, Dumfries—Dutch Bulbs.
JOHN SCOTT, Yeovil, Dutch Bulbs.
BARR & SUGDEN, King Street, Covent Garden—Bulbs, &c.

COMMUNICATIONS RECEIVED:—J. S., Kew.—S. J.—H. B. G.—W. F.—J. S.—G. C.—W. B. G.—W. E.—W. J. P.—R. D.—B.—C. (Apple).—W. (Apple).—W. A.—A. D.—W. J.—A. W.—J. H.—T. G.—J. R. P.—R.—Messrs. Messenger.—D. W.—J. R.—O.—L. v. H—J. L.—Dr. Brandis.—S.—Agri-Horticultural Society of Lahore.—J. Muir (photographs).—J. R. (labels).—W. H.—H. W.—T. B.—Camjee.—W. C.—Messrs. Portway.—R. B.—W. P.—Messrs. Finney.—W. Divers.—E. J.—W. S. W.—J. A.—Rchb. f.—R. J.—Clay & Levesay.—W. C.—M. Chaber, Paris.—J. W.—R. F. D.—H. S.—H. E.—R. W. (thanks).—J. Gore.—A. Mar.—W. H.—H. B.

MARRIED—At St. Stephen's Church, Ealing, on Sept. 1, by the Rev. A. Armitage, Vicar of St. John's, Cheltenham, assisted by the Rev. B. S. Tupholme, the Rev. Professor GEO. HENSLOW, M.A., F.L.S., &c., to KATHERINE, widow of the late RICHARD YEO, of Drayton House, Ealing. No cards.

Markets.

COVENT GARDEN, September 8.

Trade very quiet, with a good supply of all classes of goods. Importations of foreign fruit light. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve..	1 0- 3 6	Melons, each ..	1 0- 2 6
Apricots, per doz. ..	1 6- ..	Peaches, per dozen..	1 0- 6 0
Damsons, ½-sieve ..	3 0- 3 6	Pears, Eng., ½-siev.	2 6- 3 6
Figs, per dozen ..	0 6- 1 0	— French, per. doz.	1 6- ..
Grapes, per lb. ..	1 0- 2 6	Pine-apples, Eng., lb.	2 0- 3 0
Kent Filberts, per lb.	0 6- 0 8	Plums, per ½-sieve..	3 6- 5 0
Lemons, per 100 ..	4 0- 6 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0- 6 0	Horse Radish, p. bun.	4 0- ..
Aubergines, each ..	0 4- ..	Lettuces, Cabbage, per doz.	0 6- 1 6
Beans, French, p. lb.	0 4- ..	— Engl. Cos, score	1 6- ..
— Broad, per bush.	4 0- ..	Mint, green, bunch..	0 4- 0 6
Beet, per doz. ..	1 6- 2 6	Mushrooms, p. baskt.	1 6- 2 0
Cabbages, per doz. ..	1 0- 2 0	Onions, per bushel..	5 0- ..
Carrots, per bunch..	0 4- 0 6	— Spring, per bun.	0 6- ..
— New Fr., bund.	0 9- 1 0	Parsley, per bunch..	0 4- ..
Cauliflowers, English, dozen ..	4 0- 6 0	Peas, per bushel ..	5 0- 8 0
Celery, per bundle ..	1 6- 2 0	Radishes, per bun..	0 2- 0 6
Cucumbers, each ..	0 6- 1 0	Rhubarb, per bund.	0 4- 0 6
Endive, per doz. ..	2 0- 3 0	Small salading, pun.	0 4- ..
Garlic, per lb. ..	1 0- ..	Spinach, per bushel	4 0- ..
Herbs, per bunch ..	0 2- 0 4	Tomatos, per lb. ..	0 9- 1 0
		Vegt. Marrows, doz.	3 0- ..

Potato trade very heavy, and prices much lower, as follows:—Kent Regents, 100*s.* to 110*s.*; Roses, 80*s.* to 90*s.*; Myatt's, 100*s.* to 120*s.*; Magnum Bonums, 90*s.* to 110*s.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 2- 0 4	Mignonette, 12 bun.	1 6- 3 0
Asters, 12 bunches ..	3 0- 6 0	Pelargoniums, 12 sprays	0 9- 1 0
Bouvardias, per bun.	0 9- 1 0	— zonal, 12 sprays	3 0- 6 0
Carnations, 12 blms.	1 0- 2 0	Primula, double, per bunch	0 6- 1 0
Cornflower, 12 bun..	1 0- 3 0	Rhodanthe, 12 bun.	8 0-12 0
Dahlias, 12 bunches..	4 0- 6 0	Roses (indoor), doz.	1 0- 3 0
Eucharis, per doz...	6 0- ..	— (outdoor), 12 bun.	4 0- 9 0
Feverfew, 12 bun. ..	3 0- 6 0	Stephanotis, 12 spr...	4 0- 6 0
Gardenias, 12 blms..	3 0- 8 0	Sweet Pea, 12 bun..	3 0- 6 0
Gladioli, 12 sprays ..	0 9- 1 6	Sweet Sultan, 12 bun.	4 0- 8 0
Heliotropes, 12 sp. ..	0 6- 1 0	Tropæolum, 12 bun.	1 0- 3 0
Lapageria, white, 12 blooms	2 0- 4 0	Tuberoses, per dozen	0 9- 2 0
— red, 12 blooms..	1 0- 3 0		
Marguerites, 12 bun.	4 0- 6 0		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen ..	18 0-42 0	Foliage Plants, various, each	2 0-10 6
Asters, per dozen ..	4 0- 6 0	Fuchsias, per dozen	3 0- 9 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ivy Geranium, doz.	4 0- 6 0
— (common), dozen	6 0-12 0	Lilium lancifolium, per doz.	12 0-36 0
Begonias, per doz. ..	4 0-12 0	— auratum, p. doz	24 0-60 0
Chrysanthemums, per dozen	9 0-12 0	Lobelia, per dozen..	4 0- 6 0
Cyperus, per dozen	6 0-12 0	Marguerite, white, per dozen.. ..	18 0-24 0
Dracæna terminalis	30 0-60 0	— Yellow, per doz.	12 0-30 0
— viridis, per doz...	12 0-24 0	Mignonette, per doz.	3 0- 6 0
Euonymus, various, per dozen	6 0-18 0	Myrtles, per doz. ..	6 0-12 0
Evergreens, in var., per dozen	6 0-24 0	Palms in variety, each	2 6-21 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, doz.	9 0-18 0
Ficus elastica, each	1 6- 7 6	— scarlet, per doz.	3 0- 6 0
		Rhodanthe, per doz.	6 0-10 0
		Solanums, per dozen	9 0-12 0

SEEDS.

LONDON: *Sept. 7.*—The market to-day was thinly attended, with but little business doing. The most interesting feature in the trade just now is the increasingly firm feeling entertained for red Clover seed. Imported Italian is somewhat easier. The stocks of Trifolium incarnatum remaining in London are light. White Mustard is hardening in value; new seed is now coming to hand. Rape seed sells on former terms. Dry samples of both Rye and Tares command full rates. Peas and Haricots are firm. Linseed steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the supplies of home-grown Wheat were small, and mostly in poor condition: best samples sold at 35*s.*, and inferior 45*s.* to 65*s.*, under Monday se'nnight, prices ranging from 42*s.* to 60*s.* for white, and 40*s.* to 56*s.* for red. Foreign Wheat was in good supply, and 2*s.* to 3*s.* lower on the week, with a slow sale. Flour was rather easier. Grinding Barley dull and barely supported. With large arrivals Oats were 6*d.* lower on the week. Beans were 1*s.* under last Monday, and Peas unaltered.—The attendance on Wednesday was small, and sales difficult to effect. English Wheat further declined fully 1*s.*, and foreign in many cases 6*d.* since Monday. Flour was unaltered. Barley, Beans, and Peas, met a slow sale at late value. Maize was unchanged on the spot, but lower forward; and Oats were in full supply and dull.—Average prices of corn for the week ending Sept. 3:—Wheat, 55*s.* 2*d.*; Barley, 32*s.* 10*d.*; Oats, 24*s.* 2*d.* For the corresponding period last year:—Wheat, 43*s.* 3*d.*; Barley, 35*s.*; Oats, 22*s.* 11*d.*

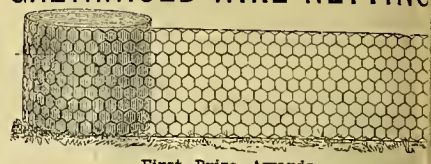
POTATOS.

From the Borough and Spitalfields Markets reports we learn that the supplies are limited, and trade fairly brisk at the following quotations:—Regents, 100*s.*; Sussex ditto, 80*s.* to 90*s.*; Roses, 80*s.* to 90*s.*; kidneys, 90*s.* to 100*s.* per ton.

COALS.

The following are the quotations current at market during the week:—Ravensworth West Hartley, 15*s.* 3*d.*; Walls End—Hetton, 18*s.* 6*d.*; Hetton Lyons, 16*s.*; Hawthorns, 16*s.* 3*d.*; Lambton, 18*s.*; Original Hartlepool, 18*s.* 6*d.*; Wear, 16*s.*; South Hetton, 18*s.* 6*d.*; Chilton Tees, 16*s.* 9*d.*; Tees, 18*s.* 3*d.*; Radford Navigation, 17*s.* 6*d.*

Government Stock.—The closing prices of Consols on Monday were, for delivery, 98¾ to 98⅞, and 98 15/16 to 99⅛ for the account. Tuesday's final quotations were, for delivery, 98⅞ to 99, and 99 1/16 to 99 3/16 for the account. Wednesday's closing figures were, for delivery, 99¼ to 99⅜, and 99⅜ to 99½ for the account: the same figures were posted on Thursday.

CHAMPION PRIZE
GALVANISED WIRE NETTING

First Prize Awards,
SYDNEY and MELBOURNE
and every International First Prize Award during the last 12 years.
IRON HURDLES, BAR and WIRE FENCING
GALVANISED IRON CISTERNS, &c., &c.
Price Lists on application.
J. B. BROWN & CO.,
90, CANNON STREET, LONDON, E.

NARCISS.—DOUBLE WHITE N. odoratus alba-ple
" PHEASANT-EYED.
" " ORNATUS (early blooming
" DOUBLE DAFFODILS.
" INCOMPARABLE.
SNOWDROPS.—DOUBLE and SINGLE, f
samples, &c. For Prices of these and all sorts of Dutch a
English Flowering Bulbs, see our Wholesale CATALOGU
WATKINS & SIMPSON,
Seed and Bulb Merchants, 1, Savoy Hill, Strand, W.C.

PRIMULA.
CINERARIA.
CALCEOLARIA.
Wm. Cutbush & Son'
Strain of these cannot be s
passed. They are sold
Packets, 2*s.* 6*d.*, 3*s.* 6*d.* and
each; but quality is the same.
HIGHGATE, LONDON, N
and BARNET, HERTS.

Ferns a Speciality.
EXOTIC AND BRITISH FERNS
IN great number and variety, suitable
Stove and Greenhouse cultivation, for Outdoor Ferne
and other purposes.
*Intending Purchasers before buying elsewhere sho
send for our SPECIAL LIST of CHEAP FERN
which will be forwarded free on application.*
W. AND J. BIRKENHEAD, Fern Nursery, Sale, n
Manchester.

STRAWBERRY PLANT
Strong Plants from open ground and in p
(guaranteed true to name) of all the leadi
varieties. LIST on application to
CRANSTON'S NURSERY and SEED CO. (Limite
KING'S ACRE, near HEREFORD.

HUGH LOW AND CO. have pleasure
informing their friends and the Public that their stock
WINTER and SPRING FLOWERING PLANTS is
season unusually extensive and fine in quality, and well w
the notice of intending purchasers, who are very cordi
invited to an inspection of the plants, which comprise amor
other things:—
Many thousands of ERICA HYEMALIS, of various size
large quantity extra large.
Many thousands of ERICA MELANTHERA.
Many thousands of ERICA GRACILIS, of various sizes.
Many thousands of ERICA CANDIDISSIMA.
Many thousands of ERICA VENTRICOSA COCCIN
MINOR, and other choice varieties of ventricosa.
Many thousands of ERICAS of the best varieties, includ
alopecuroides, colorans, cerinthoides, coronata, caf
Cavendishii, barbata major, grandinosa hybrida, Hyem
superba, perspicua nana, persoluta alba, assurgens,
moreana, mammosa, rubens, ovata, intermedia, &c.
Many thousands of HARD-WOODED ERICAS, in numer
fine varieties.
Many thousands of CYCLAMENS.
Many thousands of GENISTAS.
Many thousands of EPACRIS.
Many thousands of GARDENIAS.
Many thousands of AZALEA INDICA in variety, of vari
sizes.
Many thousands of AZALEA INDICA ALBA, Fielder's wh
narcissiflora and other white-flowering varieties.
Many thousands of AZALEA AMŒNA, of various sizes.
Many thousands of CAMELLIAS, with flower-buds, vari
sizes.
Many thousands of GREVILLEA ROBUSTA, and others.
Many thousands of SOLANUMS, well berried.
Many thousands of BOUVARDIAS, red, white, and pink.
Many thousands of CLIMBERS, Stove and Greenhouse.
Many thousands of the best GREENHOUSE PLANTS,
as Aphelexis, Acacias in variety, Acacia armata, Chor
mas, Correas, Daphnes, Eriostemons, Genetyllis, Boron
Leschenaultias, Tremandras, Pimeleas, &c.
Also on hand a very large stock of ORNAMENTAL FO
AGE and DECORATIVE PLANTS, PALMS,
GONIAS, DRACÆNAS, FICUS ELASTICA, FIC
RUBIGINOSA, ARALIA VEITCHII and others, C
TONS, PANDANUS, &c., suitable for table decoratio
OTAHEITE ORANGES, in fruit; LAURUSTINUS
stems, fine white variety, full of buds.
AMPELOPSIS SEMPERVIRENS (Cissus striatus)
evergreen Virginian Creeper.
FERNS in immense numbers. Many of the leading kinds
be supplied by the thousand, such as Adiantum cuneat
Adiantum decorum, Aspleonum fœniculaceum, Lom
gibba, Pteris cretica alba-lineata, Pteris serrulata crista
FRUIT TREES of good quality, consisting of Peac
Apricots, Nectarines, Plums, Cherries, dwarf-trained
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ALL LOVERS of AURICULAS will be please to hear that Mr. DOUGLAS, the well known and veteran prize-taken, has placed his stock of the following in our hands for distribution, and the fact of their obtaining First-class Certificates when shown against the best cultivation, stamps their value far in excess of the prices listed:—

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Flowers large, and perfectly circular; maroon, yellow centre; very neat truss, and good habit. 3s. 6d. each.

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The large black velvety-coloured self, with rather a pale yellow paste. 4s. each.

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Producing flowers measuring nearly 2 inches across, of a very fine form; colour very deep, almost approaching to black. 4s. The Set for 10s.

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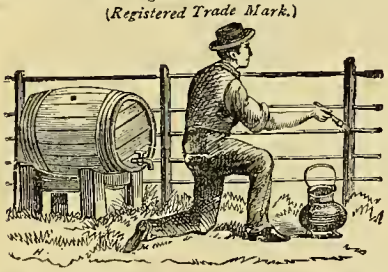

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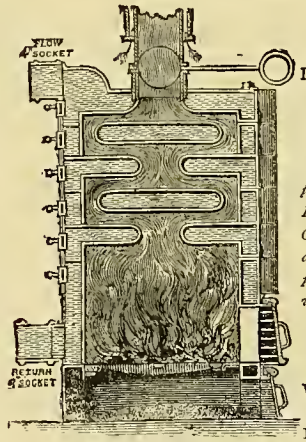

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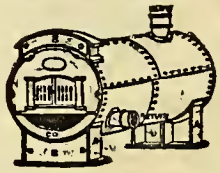

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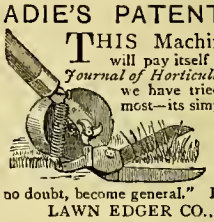

THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Cliper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Mc in the *Florist*—"This new machine does its work rapidly admirably, the grass being with precision, and" he further adds, "the use of it will, we no doubt, become general." Prices 27*s.* and 30*s.*

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The largest stock in the Kingdom. 4-inch pipes, 1*s.* 7*d.* per yard.

SILVESTER & SAINSBURY,

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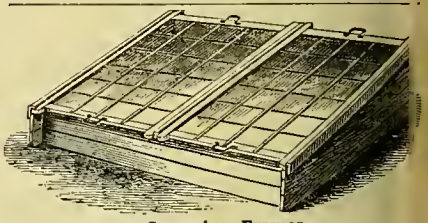

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R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England, also Dublin and Belfast:—

	£ s. d.
2-light frame, 8 feet by 6 feet	3 10 0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

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RICHARDSON'S PATENT

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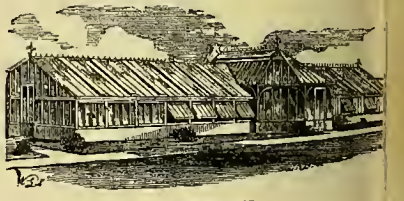

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GLASSHOUSES & HEATING.
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PRICES FREE.

GREEN'S PATENT TUBULAR SADDLE BOILER

Had the First and Highest Prize, a Silver Medal,

Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.

The "Journal of Horticulture" of June 9 says:—

HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The "Garden" of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

Descriptive Illustrated Price LIST free on application to

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SMITHFIELD IRONWORKS, LEEDS,
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FOSTER & PEARSON,

HORTICULTURAL BUILDERS.

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First Prize for Best Greenhouse, July 30, 1881,
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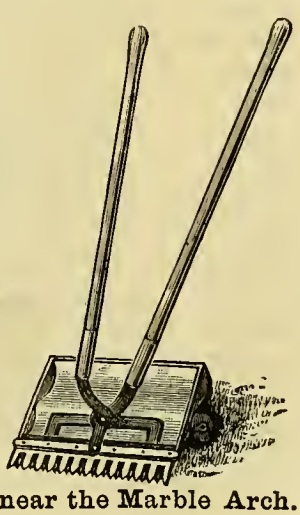

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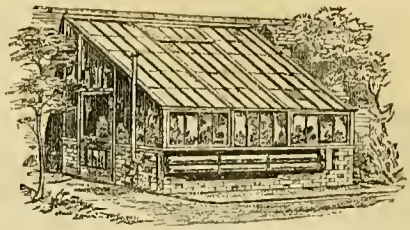

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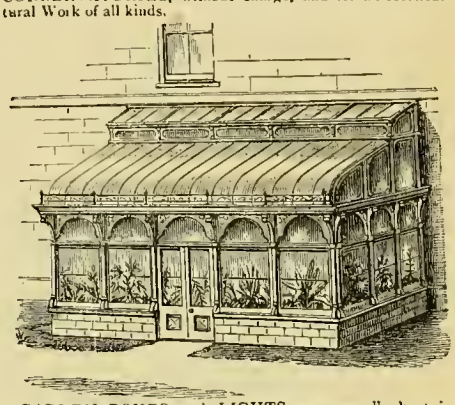

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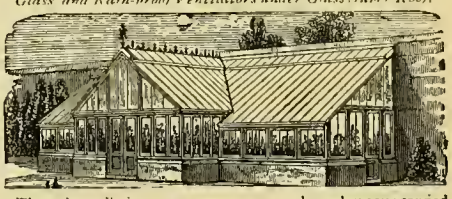

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Lee, Kent, S.E., adjoining the Station.
GREAT ANNUAL TRADE SALE, to commence at 11 o'Clock punctually, there being upwards of 1000 Lots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Burnt Ash Nursery, Lee, S.E., on TUESDAY, September 20, by order of Mr. B. Maller, without reserve, 20,000 Winter Blooming HEATHS, which for vigorous growth and profusion of bloom-buds are unsurpassed in the Trade, comprising 6000 extra fine Erica hyemalis, also Wilmoreana, gracilis, autumnalis, colorans, melanthera, grandinosa, caffra, assurgens, ventricosa, and others; 10,000 ERICA HYEMALIS, and others, in large and small 60-pots, particularly promising; 6000 SOLANUM CAPSICASTRUM, beautifully berried; 3000 CYCLAMEN PERSICUM, 2000 GENISTAS, 2000 BOUVARDIAS of sorts, including a fine lot of B. TRIPHYLLA, 2000 GREVILLEA ROBUSTA, 600 remarkably fine ADIANTUM CUNEATUM, GRACILLIMUM, and other choice FERNS; extra strong Maréchal Niel, Gloire de Dijon and other ROSES; ARAUCARIA EXCELSA, CAMELLIAS, and English grown AZALEAS, PALMS, DRACÆNAS, PRIMULAS, HOYAS, and other STOVE and GREENHOUSE PLANTS.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Surveyors, 8, New Broad Street, E.C.; and Leytonstone, E.

Lea Bridge Road, Leyton.
ELEVENTH ANNUAL SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Leyton, near Hoe Street Station, on WEDNESDAY, September 21, at 10 for 11 o'Clock precisely, on account of the large number of lots, 20,000 Winter Blooming HEATHS, remarkably well grown, and including about 8000 Erica hyemalis, 2500 gracilis, 700 Wilmoreana, large quantities of regerminans, grandinosa, persoluta alba, caffra, and others; 500 EPACRIS of the choicest kinds, 1000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS, SOLANUMS in berry; an assortment of STOVE and GREENHOUSE PLANTS, fine Plants of LAPAGERIA ALBA and ROSEA, 1000 AZALEAS, full of bloom-buds; 400 early flowering and other CHRYSANTHEMUMS, 300 AMPELOPSIS VEITCHII, 200 Maréchal Niel and other ROSES, 7 to 10 feet; VINES, and other miscellaneous stock.
May be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

The Westbourne Nursery, Harrow Road, W.
UNRESERVED SALE of SPRING and WINTER BLOOMING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises as above, on WEDNESDAY, September 28, at 11 for 12 o'Clock precisely, by order of Messrs. Woodroffe & Son, several thousands of STOVE and GREENHOUSE PLANTS, including 400 Calla æthiopica, 4000 good bushy Genistas, 1500 Aloysias, 1500 Hydrangas, 1500 well berried Solanums, 2000 double Primulas, white and purple; 1000 strong Poinsettias, 1000 Bouvardias Hogarthii and jasminoides, 2000 Chrysanthemums, extra fine Adiantum cuneatum, 200 Azaleas, 500 Fairy Roses, Palms, and other Stock.
May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone, E.

Tottenham.
GREAT ANNUAL TRADE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Maller to SELL by AUCTION, without reserve, on the Premises, The Brunswick Nursery, close to White Hart Lane Station, Tottenham, on THURSDAY, Sept. 22, at 11 o'Clock precisely, in consequence of there being nearly 1100 Lots, 20,000 beautifully grown Winter Blooming HEATHS, abundantly set with flower-buds, including Erica hyemalis, gracilis, Wilmoreana, and other varieties; 10,000 remarkably well Berried SOLANUM CAPSICASTRUM, unsurpassed in the Trade; 3000 particularly well grown CYCLAMEN PERSICUM, 1000 ACACIAS, 1000 handsome PALMS, 500 well furnished ADIANTUM CUNEATUM, 500 FICUS, 500 CINERARIAS, 2000 Tree CARNATIONS, 4000 BOUVARDIAS, 2000 CAMELLIAS and AZALEAS, 1500 GENISTAS, 1000 MYRTLES, 1000 Double White PRIMULAS, 200 EPIPHYLLUMS, 500 GREVILLEA ROBUSTA, several thousands of small ERICAS, ACACIAS, GENISTAS, &c., for growing on, and large quantities of other attractive stock.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 8, New Broad Street, E.C.; and Leytonstone, E.

Finchley, N.
CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Allen to SELL by AUCTION, on the Premises, The Buck Cottage Nursery, Friern Park, North Finchley, on SATURDAY, September 24, at 2 o'Clock, many thousands of well grown GREENHOUSE PLANTS, AZALEAS, and CAMELLIAS, BEDDING PLANTS, an assortment of recently transplanted NURSERY STOCK, FRUIT TREES, &c.
May be viewed and Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 8, New Broad Street, E.C., and Leytonstone, E.

Lower Streatham, S.W.
(Opposite Norbury Station).

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Norbury Nursery, Lower Streatham, S.W., by order of Messrs. B. Peed & Son, on TUESDAY, September 27, at 12 o'Clock precisely, the surplus stock of STOVE and GREENHOUSE PLANTS—Specimen Azaleas for exhibition, many of which have obtained prizes at the London shows this season, 50 Eucharis amazonica, Palms for decorative purposes, &c.
May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone, E.

Tooting, S.W.
IMPORTANT CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Parker to SELL by AUCTION, on the Premises, The Exotic Nursery, Tooting, S.W., on THURSDAY, September 29, a quantity of STOVE and GREENHOUSE PLANTS, in healthy and thriving condition; choice Orchids, including several rare and valuable species; Exotic Ferns, a selection of Palms, English-grown Azaleas and Camellias, &c.; also a capital Exhibition Plant Yan, in excellent condition.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

Imported and Established Orchids.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY, September 30, a splendid consignment of ORCHIDS, received direct from Mexico, for unreserved sale, including 200 Chysis lævis, 400 Cattleya citrina, 250 Odontoglossum hictoniense, 400 Epidendrum vitellinum majus, 300 Oncidium ornithorynchum, 400 Lælia majalis, and many other species, together with 200 lots of Established Orchids.
Catalogues at the Mart, and 8, New Broad Street, E.C.

South Acton.
EXPIRATION OF LEASE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery and Market Gardens, South Acton, on WEDNESDAY, October 5, by order of Mr. Day, without reserve, the whole of the STOCK and UTENSILS in TRADE, the erections of ten GREENHOUSES, with the BRICKWORK and HOT-WATER APPARATUS belonging thereto.
Catalogues at 8, New Broad Street, E.C.

Hornsey Road.
WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Tollington Nursery, Hornsey Road, Tollington, N., on FRIDAY, October 7, at 12 o'Clock, by order of Mr. G. Smith, the Erections of Eight GREENHOUSES, Four RANGES of PITS, HOT-WATER PIPING and BRICKWORK, together with the whole of the GREENHOUSE PLANTS and UTENSILS in TRADE.
Catalogues at 8, New Broad Street, E.C.

Extensive Clearance Nursery Sale.

MESSRS. LYON AND TURNBULL have been favoured with Instructions from the Curator Bonis on the Estate of the Sole Partner of Messrs. James Dickson & Sons, Nurserymen and Seedsmen, Edinburgh, to SELL by AUCTION, on the Premises of the Firm, Inverleith Nurseries, Edinburgh, on WEDNESDAY, THURSDAY, and FRIDAY, October 5, 6, and 7, at 11 o'Clock each day, in order to clear the ground required for a street about to be formed through their Nursery, a large and valuable NURSERY STOCK, consisting of several thousands of Choice Ornamental Deciduous and Evergreen Trees and Shrubs, about 1500 Golden Queen Hollies, 1500 Cupressus Lawsoniana, 1500 Picea Nordmanniana, Retinospora plumosa aurea, and other choice Coniferæ, &c.; a fine lot of Stove and Greenhouse Plants of the healthiest description, including fine half specimens of New Crotons, and other choice plants, &c.; also 4,000,000 1-yr. Seedling Larch, 50,000 1-yr. 1-yr. transplanted Larch, 5000 1½ to 2½ feet Larch, 50-000 1½ to 2½ feet Larch, 388,000 1-yr. 1-yr. transplanted Scotch Fir, 50,000 2-yr. 2-yr. transplanted Scotch Fir, 16,000 Alder, 20,000 Thorns, 18 to 24 inches; 15,000 Privets, 40,000 Poplars, various sizes; 40,000 Ash, 5000 Lilacs, 6000 Beech, and other Forest Trees. The whole fit for Immediate Planting, having been carefully reared and transplanted, will remove with perfect safety.
On view any day before the Sale, and Catalogues had on application to the Auctioneers, 51, George Street, Edinburgh; Messrs. JAS. DICKSON AND SONS, 32, Hanover Street, Edinburgh; and at the Nurseries, Inverleith Row, Edinburgh.

Calverton Limes, Stony Stratford.
IMPORTANT SALE of PLANTS, FLOWERS, G. DENING TOOLS, &c.

MR. J. MOGGS WRIGH (DURHAM, SON AND WRIGHT) has been honoured with instructions from Major CRAGG, wh leaving, to SELL by AUCTION, on FRIDAY, Septembe (Without Reserve) the whole of the very VALUABLE STO of PLANTS, the contents of Six Greenhouses, includin number of Foliage Begonias, several dozens of Coleuses, Si and Double Geraniums, Specimen and other Ferns, Dracæ Chrysanthemums, and a very large quantity of GRAPE lots; quantity of Garden Tools, Chaff Machines, Ga Ploughs, Water Cans, large quantity of Silver Sand and P 8000 Flower Pots, &c. Also a BILLIARD TABLE by Ja & Son, with Settee, Marking Board, and all requisite appliar unless sold previous to Sale
Sale to commence at 11 o'Clock.
Full particulars in Catalogues now in circulation.

Chitt's Hill House, Wood Green, N.
EXTENSIVE and VALUABLE COLLECTION of H HOUSE, CONSERVATORY, and OTHER PLAN HORSES, COWS, FARMING STOCK, and HOU HOLD FURNITURE.

MESSRS. EDWIN FOX and BOUSFIE (having Sold the Estate) are instructed to SELL AUCTION, on the Premises, Chitt's Hill House, Wood Gr N., close to the Green Lanes Station on the Great Eas Railway, and the Bowes Park and Wood Green Stations on Great Northern Railway, on MONDAY, September 26 12 o'Clock, the whole of the fine Collection of DECORAT and OTHER PLANTS, comprising Palms, Tree Fe Camellias, Azaleas, Rhododendrons, Ericas, Orange Tr specimens of Epacris, Eriostemon, Ficus elastica, Hoya, Phil dium, Erica, Lapageria, and Cytisus; a splendid assortme FERNS and MOSSES, including magnificent Maidenl Golden Ferns, and numerous other varieties, both tropical hardy; a large number of STOVE PLANTS, compri Orchids, several varieties of Begonia, Eucharis and forty F coming into bearing, Cacti, Crotons, and Caladiums; several dozens of Chrysanthemums, Cyclamen, Prim Heaths, Fuchsias, Deutzias, Gloxinias, Spiræas, Roses, Pelargoniums, three Fig trees, and 700 young Strawberry pla FARMING STOCK, including two Cows and two Heife Farm Horse, a Three-year-old Filly, Carts, Iron Roller, I making Machine, and other implements; Hay, Manure, Iron Gates and Hurdles. Also some HOUSEHOLD FUR TURE, comprising Bedstead and Bedding, Carpets, Draw room Looking-glass, Sofas, Piano, several fine Oil Painti and valuable Prints and Engravings, a fine Group in Pl by T. S. Lea, and Gas Fittings.
May be viewed on the Saturday prior to the Sale, and C logues may be obtained on the Premises, and of Messrs. EDW FOX AND BOUSFIELD, 99, Gresham Street, Bank, E.C.

Sale of Shrubs, Evergreens, &c.

MR. J. M. POTT will SELL by AUCTIO at the Chilwell Nurseries, on THURSDAY, Septe 29, a large number of extremely fine Golden YE HOLLIES, and other EVERGREENS, the whole of w have been recently transplanted, and are fit for removal. a number of LIMES, ELMS, and other TREES.
Catalogues from J. R. PEARSON, Chilwell, Notts.

Nursery Stock.

MESSRS. JOHN STEWART AND SO will SELL by AUCTION, at the Nurseries, Brou Ferry, near Dundee, on WEDNESDAY and THURSD October 5 and 6, part of the immense Stock of FOREST ORNAMENTAL TREES of all sorts and sizes, SHRU FRUIT BUSHES, and TREES, &c., partly on gr wanted for other purposes.
Catalogues will be sent on application to Exposers, or MARSHALL, Dundee.

To Gentlemen's Gardeners, Fruiterers, and GREENGROCERS.

GENUINE BUSINESS FOR SAI Large, flourishing, fashionable town, South Coast. T averages £18 weekly. Large profits. Lease twenty y Main road, immense traffic, good Shop, 1¼ Acre well-cro Garden. Lease, Fixtures, Crops, Horse and Van, only £1 BLUETT BROS., 35, Devonshire Road, Seven Sis Road, Holloway, London, N.

Fruiterer's.

FOR DISPOSAL, a first-class BUSINE Would suit a Gentleman's Gardener. Good position. Address, FRUIT, care of Davies & Co., Advertising Age Finch Lane, Cornhill, E.C.

To Seedsmen and Florists.

TO BE DISPOSED OF, with Immedi Possession, an Established SEED BUSINESS, in a l and thriving town in Cheshire. Two small Nurseries attached, and can be had if desired. A good opportunity a practical and energetic man. Terms moderate.
For full particulars apply to CHESHIRE, Messrs. W Nash, Huggins & Co., 79, Southwark Street, London, S.E.

TO BE DISPOSED OF, a thorough go going NURSERY BUSINESS, in Warwickshire Acres well stocked, with a large New Greenhouse. Stock, at a valuation, or per agreement. Further particulars appl NURSERY, Messrs. Nutting & Sons, 60, Barbican, E.C

TO BE LET, an Old-established NURSER FLORIST, and SEEDSMAN'S BUSINESS, immediate possession, on account of the death of the late prietor, who has carried on a successful business for the thirty years. The Premises comprise a convenient Dwell house, Seed Shop and good Storage. There are 8½ A of deep rich Soil, and all the necessary Glass-houses, &c., carrying on a large business. For particulars apply to
J. WATSON, 38, Crown Street, Bury St. Edmund's.

To Florists.

TO BE LET, a First-class FLORIST in one of the best leading thoroughfares at the West-en London. A first-rate opportunity for adding the Fruit Busines Z., Lambert's General Advertising Offices, Westbourne Grove

PROTHEROE AND MORRIS, HOR CULTURAL, MARKET GARDEN and ESTATE AUCTIONE and VALUERS, 8, New Broad Street, E.C., and at Ley stone, E. Monthly Horticultural Register had on applicat

HUGH LOW AND CO. have pleasure in informing their friends and the Public that their stock of WINTER and SPRING FLOWERING PLANTS is this season unusually extensive and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the plants, which comprise amongst other things:—

Many thousands of ERICA HYEMALIS, of various sizes, a large quantity extra large.
Many thousands of ERICA MELANTHERA.
Many thousands of ERICA GRACILIS, of various sizes.
Many thousands of ERICA CANDIDISSIMA.
Many thousands of ERICA VENTRICOSA COCCINEA MINOR, and other choice varieties of ventricosa.
Many thousands of ERICAS of the best varieties, including alopecuroides, colorans, cerinthoides, coronata, caffra, Cavendishii, barbata major, grandinosa hybrida, Hyemalis superba, perspicua nana, persoluta alba, assurgens, Wilmoreana, mammosa, rubens, ovata, intermedia, &c.
Many thousands of HARD-WOODED ERICAS, in numerous fine varieties.
Many thousands of CYCLAMENS.
Many thousands of GENISTAS.
Many thousands of EPACRIS.
Many thousands of GARDENIAS.
Many thousands of AZALEA INDICA in variety, of various sizes.
Many thousands of AZALEA INDICA ALBA, Fielder's white, narcissiflora and other white-flowering varieties.
Many thousands of AZALEA AMŒNA, of various sizes.
Many thousands of CAMELLIAS, with flower-buds, various sizes.
Many thousands of GREVILLEA ROBUSTA, and others.
Many thousands of SOLANUMS, well berried.
Many thousands of BOUVARDIAS, red, white, and pink.
Many thousands of CLIMBERS, Stove and Greenhouse.
Many thousands of the best GREENHOUSE PLANTS, such as Aphelexis, Acacias in variety, Acacia armata, Chorozemas, Correas, Daphnes, Eriostemons, Genetyllis, Boronias, Leschenaultias, Tremandras, Pimeleas, &c.
So on hand a very large stock of ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, BEGONIAS, DRACÆNAS, FICUS ELASTICA, FICUS RUBIGINOSA, ARALIA VEITCHII and others, CROTONS, PANDANUS, &c., suitable for table decoration.
TAHEITE ORANGES, in fruit; LAURUSTINUS, on stems, fine white variety, full of buds.
AMPELOPSIS SEMPERVIRENS (Cissus striatus) new evergreen Virginian Creeper.
FERNS in immense numbers. Many of the leading kinds can be supplied by the thousand, such as Adiantum cuneatum, Adiantum decorum, Asplenium fœniculaceum, Lomaria gibba, Pteris cretica alba-lineata, Pteris serrulata cristata.
FRUIT TREES of good quality, consisting of Peaches, Apricots, Nectarines, Plums, Cherries, dwarf-trained and dwarf maiden.

Clapton Nursery, London, E.

CABBAGE PLANTS, LETTUCE PLANTS, from selected seed stocks.—Fine autumn-sown Early Offield Market, Early Rainham, Shilling's Queen, Sugarloaf, Incomparable, Drumhead, Thousand-headed, Drumhead SAVOY, Green Curled SCOTCH KALE and ASPARAGUS KALE, per 100, 2s. 6d. per 1000. Bath Cos, White Cos and Immense Hardy Green LETTUCE, 6d. per 100, 4s. per 1000. BRUSSELS SPROUTS, CAULIFLOWER, Early and Late BROCCOLI, Red Pickling, &c. Send for LIST.
N.B. Plants guaranteed free from club. Well packed. Delivered on to rail.
EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

Dutch Bulbs direct from the Growers.

ANT. ROOZEN AND SON. HYACINTHS, TULIPS, CROCUS, GLADIOLI, &c., at Growers' Prices, delivered entirely free to the Railway Stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent, carriage paid, to destination. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.
Collections B, C, E, and F, can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10s. 6d. each, against cash payment.
ANT. ROOZEN AND SON, Nurserymeo, Overveen, near Haarlem, Holland.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to
GRANSTON'S NURSERY and SEED CO. (Limited), KING'S ACRE, near HEREFORD.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS, IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.
Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

PRIMULA. CINERARIA. CALCEOLARIA. — Wm. Cutbush & Son's Strain of these cannot be surpassed. They are sold in Packets, 2s. 6d., 3s. 6d. and 5s. each; but quality is the same.
HIGHGATE, LONDON, N., and BARNET, HERTS.

NARCISS.—DOUBLE WHITE N. odoratus alba-plena.
" PHEASANT-EYED.
" " ORNATUS (early blooming).
" DOUBLE DAFFODILS.
" " INCOMPARABLE.
SNOWDROPS.—DOUBLE and SINGLE, firm samples, &c. For Prices of these and all sorts of Dutch and English Flowering Bulbs, see our Wholesale CATALOGUE.
WATKINS & SIMPSON,
Seed and Bulb Merchants, 1, Savoy Hill, Strand, W.C.

WEBBS'
BULBOUS
FLOWER ROOTS

WEBBS' 21s. COLLECTION

For Outdoor Cultivation contains 654 selected Bulbs:—

36 *ANEMONES, double.*
25 " *fine single.*
200 *CROCUS, choice varieties.*
1 *CROWN IMPERIAL.*
20 *HYACINTHS, mixed*
30 *IRIS, Spanish, mixed.*
12 *JONQUILS, Campernelle.*
1 *LILIUM candidum.*
25 *NARCISSUS Poeticus.*
12 " *double white.*
25 " *Van Sion.*
6 *POLYANTHUS Narcissus.*
50 *RANUNCULUS, double.*
25 " *Turban, scarlet.*
100 *SNOWDROPS, double and single*
6 *TULIPS, Duc Van Thol.*
6 " *early double, mixed.*
6 " *La Candeur, double*
6 " *Parrot, fine mixed*
12 " *single, mixed.*
50 *WINTER ACONITES.*

Other Collections from 10s. 6d. to 105s.

FOR PRICES AND FULL PARTICULARS SEE

WEBBS' AUTUMN CATALOGUE,

A most reliable Guide to the Successful Cultivation of Bulbous Flower Roots,
Gratis and Post-free.

5 per cent. discount for cash. 20s. value carriage free.

THE QUEEN'S SEEDSMEN,
WORDSLEY, STOURBRIDGE

ODONTOGLOSSUM CRISPUM (ALEXANDRÆ).

SHUTTLEWORTH, CARDER & CO.,

Having recently received large importations of the above, can offer Plants in extraordinary fine masses, including among them the best varieties obtainable; also many thousands semi-established, in vigorous health.

O. PESCATOREI, O. PHALÆNOPSIS, | O. VEXILLARIUM, and CATTLEYA MOSSIÆ;
Recently imported; all in the best possible condition.
Price on application.
An inspection respectfully solicited.

191, PARK ROAD, CLAPHAM, S.W.

For Autumn Planting.—Now Ready.

GEE'S superior Bedfordshire-grown CABBAGE and OTHER PLANTS; ASPARAGUS, SEAKALE and RHUBARB ROOTS; 1, 2 and 3-yr. old QUICKS; WALLFLOWERS, DAISIES, and many other Spring-flowering Plants, &c. Cheap and good.
FREDK. GEE begs to inform his many Friends and Patrons he is again prepared to supply the above in any quantity, and which for quality and price cannot be surpassed. Large Buyers liberally treated with. LIST for present season, also General CATALOGUE, &c., on application to
FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

NEW PLANTS.

We beg to announce that our
ILLUSTRATED AUTUMN CATALOGUE of the above is now ready and sent post-free. It also contains just what is required for the choicest and best kept Gardens and Greenhouses, &c. We simply mention with the exception of Strawberries (with which we are surrounded by many fields), our Business is strictly confined to the production of Flowers and their Seeds, and of these it is well known we have the best and cheapest stock, and sent to all parts of the world in the best manner possible. The *Journal of Horticulture* says:—"All should visit the Home for Flowers, at least once a year."
H. CANNELL & SONS,
The Home for Flowers, Swanley, Kent.

To the Trade.

FERNS—FERNS—FERNS.

	Per dozen. s. d.	Per 100. s. d.
PTERIS CRETICA	2 6	18 0
NEPHRODIUM MOLLE	3 0	20 0
PTERIS HASTATA	3 0	20 0
" TREMULA	3 0	20 0
" CRETICA ALBA LINEATA	3 0	20 0
LOMARIA GIBBA	3 0	20 0
PTERIS SERRULATA CRISTATA	3 6	25 0
" LONGIFOLIA	3 6	25 0
NEPHRODIUM MOLLE CORYMBIFERUM	3 6	25 0
LYGODIUM SCANDENS	3 6	25 0
DOODIA MEDIA	3 6	25 0
GYMNOGRAMMA ARGYROPHYLLA PERUYIANA	3 6	25 0
GYMNOGRAMMA MARTENSI	4 0	28 0
ADIANTUM SETULOSUM	4 0	28 0
PTERIS ARGYREA	4 6	30 0

Many thousands of the above splendid stuff in 60's, fit to pot on. Special terms by the thousand. Orders over 20s. carriage paid to London.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

New Catalogue of Plants, Bulbs, Fruits, &c.

ROBERT PARKER begs to announce that his New CATALOGUE is now published, and will be forwarded to applicants. It contains select, descriptive, and priced Lists of Alpine and Herbaceous Plants, Aquatic and Marsh Plants, Hardy Bulbs, Chrysanthemums (summer-flowering), Ferns (hardy greenhouse and stove), Delphiniums, Iris germanica, Pæonies, Pentstemons, Phloxes, Potentillas, Pyrethrums, Rhododendrons, Sweet Violets, Ornamental Plants (hardy, greenhouse and stove), Winter-blooming and Berrying Hardy Plants.
Exotic Nursery, Tooting, S.W.

SPECIMEN and EXHIBITION PLANTS for SALE.—To Nurserymen, or parties about to furnish, a large quantity of Specimen and other Plants, viz.:—
Dracæna Veitchii, Hedaroma tulipifera, Allamanda Shottii, Diosma capitata, Ericas Cavendishii, Turnbulli, Shanoni, and others; Pteris umbrosa, Gymnogrammas, Neotopteris australasicus, Platyceriums, Alsophila excelsa, 4 feet truok; the above in large plants. Also large plants of Azaleas, Camellias, and Orchids—Cypripedium insigne, Phaius grandiflora, Dendrobium speciosum, D. nobile; Ferns, large variety; Dracænas, Begonias, and other Stove and Greenhouse Plants.
The above are worthy of inspection, and may be seen or particulars obtained of
JOHN MILNE, Gardener, The Hall, Thirsk, Yorkshire.

WILLIAM GORDON having this year received large importations of the following fine ORCHIDS, offers semi-established but unflowered Plants at following low prices:—

	Each.—s. d.		Each.—s. d.
Ada aurantiaca	3 0	Dendrobium Freemanii	5 0
Aerides crispum	5 0	Calanthe vestita	2 6
" virens	5 0	Cattleya Acklandiæ	5 0
Brassia verrucosa	2 6	" Loddigesii	5 0
Cœlogyne cristata	5 0	" Mendelii	7 6
Cymbidium eburneum	2 6	" Mossiæ	2 6
Cypripedium barbatum	2 0	" Trianæ	7 6
" Hookeræ	2 0	Epidendrum vitellinum	2 6
" insigne	2 0	Lælia autumnalis	2 6
" niveum, specially fine pieces of this grand old favourite	2 6	" majalis	2 6
Dendrobium aggregatum	2 6	Odontoglossum Alexandræ	5 0
" cambridgeanum	2 6	" citrosmum roseum	5 0
" cretaceum	2 6	Oncidium crispum	2 6
" crystallinum	2 6	Saccolabium Blumei	2 6
" fimbriatum	2 6	" retusum	2 6
" formosum giganteum	2 6	Sophronites grandiflora	2 6

And nearly every other Orchid at equally low prices, on application to
WM. GORDON, City Offices, 10, Cullum Street, London, E.C.

Dutch Bulbs.

To SUPPLY the TRADE.

SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, beg to aonounce that their Crops of HYACINTHS, TULIPS, &c., look very fine.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
☞ Please observe Name and Address.

SPECIAL OFFER TO THE TRADE.

50,000 ERICA HYEMALIS, in 60-pots, at 20s. per 100.
30,000 " GRACILIS AUTUMNALIS, at 15s. per 100.
10,000 " WILMOREANA, at 15s. per 100.
The above are all fine healthy plants.
GREGORY AND EVANS, Effingham Nursery, Lee, S.E.

CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
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CYCLAMEN, 1s. 6d. per dozen. All post-free.
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STIPA PENNATA (Feather-grass), finest quality, per cwt., 110s. Stock, 20 tons.
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CAPE FLOWERS.—Finest White Flowers, per 100 flowers, 12s. Stock, 5,000,000.
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LILIES OF THE VALLEY.—First-rate Single Crowns, for forcing, per 1000 crowns, 36s. Stock 2,000,000.
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CAPE FLOWER WREATHS and CROSSES, in Boxes. GRASS BOUQUETS. Trade Price List on application.
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STRAWBERRIES.—Good strong plants of Stirling Castle (very early), British Queen, President, and other varieties, 3s. per 100. Stamps or Post-office Order to
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J. MALLER, Brunswick Nursery, Tottenham, begs to announce that his usual AUTUMN SALE will take place on THURSDAY, September 22. The Plants are in excellent condition, and consist of a very large Stock of ERICA HYEMALIS and other usual varieties, Double PRIMULAS, CYCLAMEN, BOUVARDIAS in variety, SOLANUMS, beautifully berried, Tree CARNATIONS, ACACIAS, GENISTAS, CAMELLIAS, AZALEAS, &c.
An inspection is invited. Close to the White Hart Lane Station, Great Eastern Railway.

STRAWBERRIES.
The best sorts for Forcing.
V. H. DE THURY, SIR JOSEPH PAXTON, PRESIDENT, } Strong plants, all well rooted, in small pots, prepared for forcing, 10s. per 100, 90s. per 1000.
Also strong plants of the above, from open ground, 2s. 6d. per 100, 20s. per 1000. Package free. Extra plants for carriage. Cash from unknown correspondents.
H. J. HARDY, F.R.H.S., Stour Valley Seed Grounds, Bures, Suffolk.

Autumn Planting.

FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.
THE LAWSON SEED and NURSERY CO. (Limited), 1, George IV. Bridge, Edinburgh; 106, Southwark Street, London.

TO THE TRADE.—A large quantity of very fine set DUC VAN THOL and WHITE POTTEBAKKER TULIPS to offer. Price on application.
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Admirers of the above should order at once
R. H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and Description on application. Price, the Set, £3 3s.; Single Plant, 7s. 6d.; Seedlings, 6s. per dozen. Seed, per packet, 3s. 6d. and 5s. Usual Discount to the Trade.
CHAD VALLEY NURSERIES,
Edgbaston, Birmingham.

30,000 Roses in Pots.

Several thousands of CLEMATISES, Ampelopsis Veitchii, and other CLIMBERS in pots, finely grown plants.
WM. WOOD AND SON beg to solicit attention to their very extensive and superb stock of the above.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d. stamp.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

The Cape Flora.

JOHNSON AND HARMAN, The Metropolitan Nurseries, Rondebosch, Cape Town, have much pleasure in announcing to the Horticultural World that, having commenced business as Nurserymen and General Exporters of Cape Plants, they are now prepared to execute in quantity orders for the following:—CAPE BULBS, ORCHIDS (Terrestrial), including DISAS of sorts, SUCCULENTS, FERNS, &c. J. & H. would further respectfully solicit the attention of the Trade (Continental please note) to the fact of their having, at a very considerable expense, recently taken over from Mr. Joseph Upjohn, of Rondebosch (for the last fifty years the well-known collector and exporter of Cape Bulbs), his entire collection of this beautiful but as yet comparatively little known class of plants. This unrivalled collection, the only established one of its kind in South Africa, comprises upwards of 150 distinct species, each with its endless varieties, being all accurately named. The extensive nature of this collection enables J. & H. to make special offers to the Trade on very advantageous terms, for collections varying from £1 to £50 and upwards in value—prompt attention, liberal terms, and quick dispatch being guaranteed.
In addition to the foregoing J. & H have now for disposal many extra fine clumps of STRELITZIA REGINA, NYMPHÆA SCUTIFOLIA, APONOGETON DISTACHYON, WATSONIA ALBA and ODORATA, and RICHARDIA ÆTHIOPICA—this last, in immense cultivated crowns, by the 100 or 1000.
CAPE EVERLASTING FLOWERS a speciality.

SPECIAL OFFER of COLLECTIONS of CLEMATISES, in 4-inch pots, and TEA and NOISETTE ROSES in 5-inch pots, fine plants; package free. All orders to be accompanied by Post-office Order or Cheque.

12	CLEMATISES, best old kinds	14s. 0d.
24	" " "	26 0
12	" " new	25 0
12	TEA and NOISETTE ROSES, best kinds..	15 0
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50	" " " " " " ..	52 6
100	" " " " " " ..	100 0

Including many newest and rarest kinds.
Sorts must be entirely left to, and Post-office Orders and Cheques made payable to
EWING AND CO., Norwich.

VIOLETS, SWEET VIOLETS.

DOUBLE:—

*Blandyana	Neapolitan
Belle de Chatenay	Reine des Violets
King of Violets	*Patrie
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SINGLE:—

*Neopolitan	*The Czar
Odoratissima	White Czar
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Those marked * are now in full flower, and will continue so in sheltered situations all the winter. They have been specially grown in strong clumps for Potting, Forcing, or forming Beds, Clumps, &c. Strong Clumps, 6s. per dozen, 40s. per 100; small Plants of the fourteen varieties, free by post, 4s. 6d. in stamps. Trade price on application.
FREDK. PERKINS, Nurseryman, Regent Street, Leamington.

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I have pleasure in announcing that this CATALOGUE is now ready, and contains most complete collections of Hyacinths, Tulips, Liliums, Narcissus, Gladiolus, &c. Fine selections of Hardy Orchids, Primula Sieboldii and Helleborus; Hardy Perennials for autumn planting; also Climbing Plants, Aquatic and Bog Plants, Herbs, &c. Gratis and post-free upon application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

Primulas—Primulas—Primulas.

JAMES TOMKINS, NURSERYMAN, Spark Hill, Birmingham, begs to state that he is now sending out his new magnificent PRIMULA FILICIFOLIA ALBA, The Queen, for which he obtained a First-class Certificate at the Royal Horticultural Society, at South Kensington, in March last, and a First-class Certificate from the Royal Botanical Society, Manchester. Without doubt the finest Primula in the World. Florists in this will find a profitable investment, being of a strong constitution, and a good seed producer.
Now ready, nice little plants, in small pots, 3s. 6d. each.
Usual discount to the Trade.

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BEG TO ANNOUNCE THAT THEIR
GENERAL FRUIT TREE CATALOGUE
For this season is now published, and will be forwarded Post-free on application. It contains a Descriptive List of Outdoor Fruit Trees of every description, also of Grape Vines, Figs, &c., in pots.
THE FULHAM NURSERIES, LONDON.

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J. CHEAL & SONS,
CRAWLEY, SUSSEX,
Have now received their consignments of first-class Bulbs direct from the best Dutch growers.
Priced and Descriptive Catalogues free.

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Have just received a consignment of the above, in first-rate condition. Lowest Price to be had on application.
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of BULBS for GREENHOUSE and BORDERS.
We offer the following Collection of Bulbs to those who desire a nice varied assortment, without the trouble of ordering every item separately. This Collection is the cheapest, and comprises the best supply of Bulbs ever offered, and cannot fail to please purchasers:—

12 HYACINTHS, choice, for border [water	50 SNOWDROPS
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12 " for borders	4 IXIAS
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50 TULIPS, assorted	25 WINTER ACONITES
12 RANUNCULUS	12 DOGSTOOTH VIOLETS
200 CROCUS, assorted	3 PANCRATIUMS
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Half the above quantities for 12s.
Orders amounting to £1 and over Carriage-free.
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HALF AN ACRE OF VIOLETS,

AND THOUSANDS in POTS, splendidly in Flower, and will continue blooming throughout the winter with the assistance of an old frame. All can have Violets during the whole of the season. Send for our Illustrated Autumn CATALOGUE.
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THE HOME FOR FLOWERS SWANLEY KENT

To the Trade.

EDWIN HILLIER has to offer DAPHN INDICA RUBRA, Double White PRIMULAS, a Maidenhair FERNS, good plants in 48-pots; also Dw ROSES, and Trained Apples. Cash prices on application.
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Mr. SLATER, Gr. to E. Marriner, Esq., Keighley, Yorksh

SPECIMEN CAMELLIAS and AZALEA —We are requiring the room the above occupy, and dispose of same at very low prices; all in fine condition, well and true to name. Purchasers will do well to call, or particul will be sent on application to
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Single Dahlias—Single Dahlias.

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R. COLLYER, Cart House Lane, Woking Station, Surr

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THE OLD ESTABLISHED SEED WAREHOUSE,
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FOR SALE.—Three ORANGE TRE and a LEMON TREE, in Tubs, stand from 7 to 9 high from the bottom of the stem. To be sold either separa or together.—Price from £6 to £8. Apply
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F. J. SPAE, NURSERYMAN, Coupu Ghent, Belgium, offers the following plants, in fine dition, at moderate prices:—
AZALEA INDICA, in good trade sorts, of all siz CAMELLIAS, PALMS, for table decoration; DRACÆ GRACILIS, FICUS ELASTICA, all sizes; CITRUS NENSIS, with fruits; ARAUCARIA EXCELSA GLAUCA, CARNATION Souvenir de la Malmai SPIRÆA JAPONICA, Clumps of LILY of the VALLE large stock of Pyramid and Standard BAYS, &c.

For Immediate Sale.

AZALEAS, of all sizes, including ma specimens and half-specimens of the leading variet Owing to want of accommodation we are now offering the ab at greatly reduced prices. Size and price on application to
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

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COCOA-NUT FIBRE REFUSE,
3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sa 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half t 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LE MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Pa Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, b quality for Orchids, Stove Plants, &c., £6 6s. per tru BLACK FIBROUS PEAT, for Rhododendrons, Azale Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, Farnborough, South-Western Railway, by the truckl Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. eacb Fresh SPHAGNUM, 10s. 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

COCOA-NUT FIBRE REFUSE, new made, as supplied to nearly all the Principal Nurseryn and Head Gardeners in England. In 4-bushel bags at 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or m free on to rail; truckload of about 250 bushels, £1 3s. (tru load free on to rail).—J. STEVENS AND CO., Greyhound Ya and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUS by Chubb's Patent Process, as supplied to all the Ro Gardens and principal Nurseries of Europe, useful at all seaso Invaluable for Potting, Plunging, Forcing, Ferneries, Str berries, Bedding-out Plants, &c.; Destroys all Slugs a Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. Sacks included); Van-load at Works, 4s.; ditto delive within 5 miles, 10s.; Truck-load (equal to about 300 bush when dry), free on rail, 25s. Terms cash with order.
CHUBB, ROUND AND CO.,
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SOLUBLE FIR TREE OIL INSECTICIDE.

Royal Botanical Gardens, Stretford, Manchester, October 22, 1879.

DEAR SIR.—We have used your Fir-tree Oil, and find it a most effectual destroyer of all kinds of pests to which plants are subject. I have a very strong impression that it will be very extensively used, at any rate it ought to be.—I am, yours very truly, BRUCE FINDLAY.

To Mr. E. G. HUGHES.

Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d., 7s. 6d.; Gallons, 12s. 6d. each.

Manufacturer, E. GRIFFITHS HUGHES, Operative Chemist, Victoria Street, Manchester.

Wasps and Flies Completely Cleared from Vineries, Greenhouses, Fruit of every description, by using

DAVIS'S WASP DESTROYER: thoroughly effectual, and the best article manufactured for this purpose. See Testimonials. Price 1s. 6d. and 2s. 6d., post-free in a Tin Box 4d. each extra.—Wholesale Agents: HOOPER AND CO., Covent Garden, W.C.; CORRY, SOPER, FOWLER AND CO., Finsbury Square, E.; or, of the Manufacturer, B. R. DAVIS, Yeovil Nurseries, Yeovil.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

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MARENDAZ AND FISHER, James Street, Covent Garden, W.C., have received a special importation of new ARCHANGEL MATS; also a large consignment of PETERSBURG MATS, MAT BAGS and RAFFIA FIBRE.

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J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C., have a quantity for sale, at reduced price, to large Buyers.

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Manufacturers of ROPES, TWINES, SACKS, TARPAULINGS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1s. each; 5 sacks, 12s.; 30 sacks, 20s; truck-load, delivered to any station in London, 25s. Try our HEMP SASH LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.

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For COVERING, TYING and PACKING.

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TANNED GARDEN NETTING, SCRIM CANVAS and TIFFANY, SEED BAGS and SACKS, TARPAULINS and HORSE CLOTHS. Descriptive Catalogue post-free on application. — JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London.

NEW ARCHANGEL MATS.

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THE ABOVE and many other PATTERNS are made in materials of great durability. The planer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

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SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton of Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

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N.B.—Orders promptly executed by Rail or to Wharves.

A liberal Discount to the Trade.

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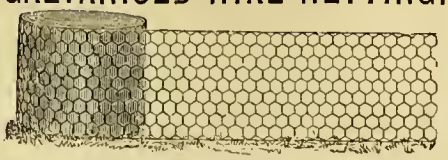

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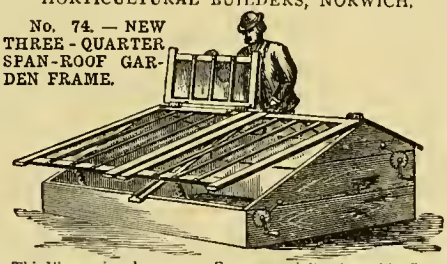
No. 74. — NEW THREE-QUARTER SPAN-ROOF GARDEN FRAME.



This Illustration shows a new Frame, specially adapted for Growing Cucumbers, Melons, &c., and for Storing Plants, giving greater height, more convenience, and better access to all the plants inside than our ordinary Melon and Cucumber Frame, No. 75.

PRICES—CARRIAGE PAID.

Size.	Long.	From front to back.	Gearing extra to 8 ft. size and upwards.	Packing Cases.
No. 1	4 feet	6 feet	£3 0 0	— £0 4 0
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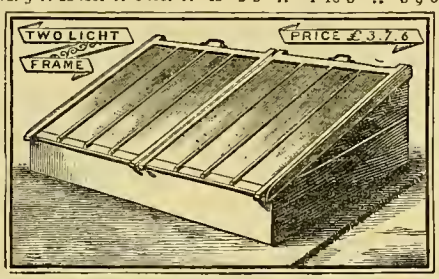
No. 3	12 feet	6 feet	6 10 0	1 2 0 0 6 6
No. 4	16 feet	6 feet	8 5 0	1 10 0 0 8 6
No. 5	20 feet	6 feet	10 0 0	1 16 0 0 9 6



Our stock is made of the best seasoned wood, ready glazed with 21-oz. English glass, painted three coats of best colour, and easily put together in a few minutes.

PRICES—CARRIAGE PAID.

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a-light Frame	8 feet by 6 feet	£3 7 6 4s. 0d.
3-light ,,	12 feet by 6 feet	4 17 6 4s. 6d.
4-light ,,	16 feet by 6 feet	6 7 6 5s. 0d.
5-light ,,	20 feet by 6 feet	7 17 6 6s. 0d
6-light ,,	24 feet by 6 feet	9 7 6 6s. 6d.

Lights only, 6 feet by 4 feet, unglazed and unpainted, 6s. each. Glazed with 21-oz. sheet glass and painted three coats, 16s. each.

All Orders amounting to 40s. Carriage paid to any Railway Station in England and Wales; also to Edinburgh and Glasgow, Dublin and Belfast.

Any damage in transit made good if advised immediately.

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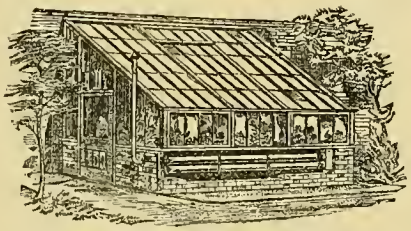
Movable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON AND PAUL, Norwich. Illustrated Catalogue sent free by post. **BOULTON & PAUL, Norwich.**



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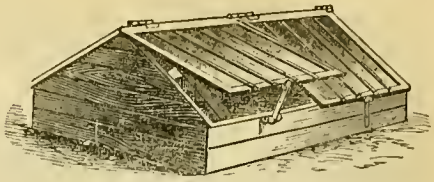
SHOWING HEATING APPARATUS.

THE "LOUGHBOROUGH" BOILER, now introduced, is intended to supply a want long felt, of a cheap Boiler for small Greenhouses, requiring neither brick setting nor iron case. The Boiler is placed in the wall of the Greenhouse, so that the heat from the Boiler itself is utilised in heating the house.

Price with fittings, £2 2s.

The apparatus for a Greenhouse, 20 feet by 12 feet, complete for £6 8s. Prices and full particulars on application.

MESSENGER AND CO., Loughborough.



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R. HALLIDAY AND CO. desire to draw special attention to their Plant Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England, also Dublin and Belfast:—

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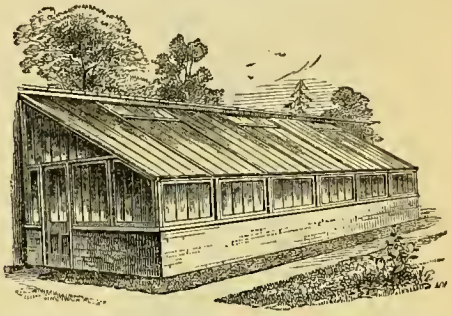

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CATTLEYA ELDORADO,

rare and extremely beautiful species; sepals and petals rose, lip deep golden-yellow, margined oadly from deep rose to the darkest purple. The importation comes from the same spot where allis found it ten years ago, and among which were few or no bad varieties. It is extremely re in its native country. Also a magnificent importation of

CATTLEYA SUPERBA, var. SPLENDENS.

his must not be confounded with the common "superba," from Demerara, from which it totally ffers—its flowers are much larger and of a deeper and far more brilliant hue. It is one of the ry best of the whole genus, and a most striking and most brilliant Cattleya. Very few plants of is handsome variety of Cattleya superba exist in this country, a few only having been collected Wallis, in 1873, since when none have reached Europe. The consignment is a very large one, id in splendid health—some enormous masses are among them. The Sale will also contain any other valuable CATTLEYAS, &c.

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THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 17, 1881.

HORÆ HORTULANÆ.

ON SOILS.

"AH! if I had but your soil, I should get on," says the unsuccessful gardener, when viewing with envy the products of a successful brother; "it is impossible to grow these things on my land." Indeed each of us has, I suppose, in turn complained of the disappointing character of the ground in which circumstances have led us to attempt to cultivate our favourite plants. And yet, when we come to think over it, soil is the one thing which, above all others, is in the gardener's own hands. The treacherous dealings of an English climate, the fickle sunlight, the untimely frost, the still more untimely rains, the deadly, cutting winds—these are things beyond his own disposal, against which he can provide little more than inefficient protection. In the majority of cases, too, the situation of his garden (I am thinking now of other than professional gardeners) is determined by reasons not horticultural in Nature; for, with most of us, the tent is pitched where the bread can best be won. But each of us has it in his own power so to modify the special soil of the spot where fortune has placed him as to make it suitable—in large measure, at all events, for the plants he loves.

The sea has always seemed to me a great consolation for gardeners; and in this way:—Throughout living Nature there are found two substances, often companions, in nature very similar, and yet, in the work of life, of different, perhaps of antagonistic functions: I mean potash and soda. In every living being, animal or vegetable, you will find these two; but they are held in different proportions in the different fluids and solids of the body, and appear to play different parts in the labours of the organism. While the animal body may, with comparatively little harm, be almost drenched with that commonest of soda compounds, table salt, a much smaller dose of potash may become a distinct poison. Now the sea is salt by reason of the great mass of the soda-salt contained in it; the quantity of potash is by comparison exceedingly small. Yet one common commercial source of potash is furnished by the ashes of seaweeds. These, living and growing in the sea, reject the abundant soda and pick up the scanty potash. This strange fact is, I say, a consolation to the gardener, for it shows him that what we call soil is not in itself food, but merely a carrier, throughout which the real food need be but thinly distributed. Much the same is seen in the air we breathe; the oxygen on which we live makes up a fifth only of the atmosphere, the other four-fifths are supplied by the useless nitrogen which we take into our lungs, it is true, but send out again unchanged, making no use whatever of it in our bodies. Still less, indeed, does the plant take up into itself, out of the manifold mixture which we call soil. The real food of even the most luxuriant vegetable growth is small in quantity, and, as far as we know, comparatively simple in quality; abundance of material and complexity

of composition are necessary for making the soil a fit carrier of the scanty precious real food, but are necessary for this alone.

This I take to be the first principle of the gardener's art, this the chief object of the gardener's pains—to bring and keep the soil in such a condition that the meagre handful of elements which serve as actual food shall be placed in the best circumstances, and prepared in the best possible way for reception by the plant. That the actual food (putting on one side for the present the matter of water) is scanty, every one knows. A tall tree, to take an extreme case, when burnt to ashes, dwindles to a mere handful of salts, to which you may, if you please, add, for the sake of completeness a tiny flask of ammonia to represent the nitrogen which it drew from the ground; the two together seem a trifle compared with the mass of earth through which the tree's roots wandered, and which served it as soil. Still greater is the contrast between the earth-drawn material of one of the luxuriant Sunflowers, in which æsthetic visitors to my garden at the present time find so much delight, and the load of earth which circumscribes its roots; burn the gorgeous plant and it vanishes to a pinch of salts and a whiff of hartshorn. These and these alone it took from the soil; all the rest came to it from the air.

The several elements of the actual food, too, are few in number—a little potash, soda, and lime, with a sprinkling of sulphur and phosphorus, and a trace of magnesia, alumina, silica, and iron; these, with some nitrogen and hydrogen, to form ammonia compounds, are the actual food elements of every plant, and of all plants. These, letting alone for the present the debated question as to how far carbon compounds may be absorbed from the soil, are the naked elementary things on which the plant actually lives. These are found in one proportion or another in, I might almost say, every soil. In almost every barrowful of earth taken from where you please, analysis would detect enough to supply, I would venture to say, the ashes of a tree, and we must remember the living root will pick up minute fragments which would escape the chemist; they are found scattered and distributed in a mass, it may be, of alumina, or of silica, or of lime, of which the plant makes no use at all. The difference between bad soil and good soil is not so much whether these elemental things are all present or no (though sometimes, it is true, one or the other may be all but absent), as whether they are present in appropriate arrangements and suitable conditions.

The broad characters of these "arrangements" and "conditions" are very fitly indicated by the well known gardening phrases of "dead" earth and "live" earth. A little while ago I dug up and brought to the surface the subsoil of some lightly and poorly cultivated land. I added to it ammonia salts and chemical compounds, so that as far as the mere elements of plant life were concerned, it was on a level with the cultivated patch by its side, and I sowed and planted. Joseph shook his head, prophesying that no good things could be hoped for from "that dead soil," and he was right; the seedlings in large measure failed or the seedlings dwindled and went off, and the planted perennials draggled out a stunted, poverty-stricken life, or vanished wholly out of existence. In spite of the presence of the elements of food the "dead" soil was unable to meet the wants of the plants, and to help them in the struggle of growth.

What then is the difference between "dead" earth and "live" earth? The fundamental difference is that told by the plain simple meaning of the words. Good soil, fit for the growth of plants is really and truly alive: the thin crust of the earth which we cultivate is a widespread organism in which forces contend in the same way as they do in a living body, in which atoms are whirled to and fro in molecular and chemical conflict.

A great deal of the work of the animal and indeed of the vegetable organism is done by means of agencies which we call "ferments." The action by which the tiny globule of yeast changes sugar into alcohol and carbonic acid is a type of the multitudinous and as yet mysterious actions going on not only in the digestive canal of the animal, whereby food is dissolved and transmuted, but in nearly all the passages and cells of every herb and beast, where blood or sap is being made, and where living protoplasm is being built up or broken down; and live soil is alive by virtue of its abounding in similar ferments. You pour some ammonia on to "dead" earth; it remains ammonia, and as ammonia is soon washed away. You pour the same quantity on to good "live" earth; in a short time tiny activities are at work, and the ammonia is soon changed into nitric acid, and this into some nitrate or other. Now, though all living matter, either in the changes attending on life, or in the decay which follows upon death, is, by the action also of ferments, resolved into ammonia, and though the ammonia thus produced is to a large extent the ultimate source of that nitrogen on which plants must feed in order to live, evidence is forthcoming to show that ammonia does not serve as the direct but only as the indirect food of plants; before a plant can take up the nitrogen present in ammonia that ammonia must be changed into a nitrate. And all over the globe the ferments in live cultivated soil are busy changing the useless, we may even say the harmful, ammonia into the beneficial nitrate.

This one ferment change going on in live soil has already been fairly worked out; but in all probability it is merely one of a vast number of similar changes going on in the earth, of whose existence we have indications, but concerning which our knowledge is imperfect and inexact. I am treading now on dangerous, untrodden ground, where we sadly need the light of careful experimental research; but I feel confident that future inquiry will justify the view that good rich soil is ever in travail, seething in molecular strife, for the benefit of the plant, that the earth is not merely a storehouse whence the herb draws directly the material it needs, but rather serves at once as kitchen and stomach, where food is both cooked and digested, in order that the rootlets may take it already prepared for further use, and the cells for which it is intended be saved many a laborious task. The plant, in fact, is fed by the soil, rather than feeds on the soil; all vegetable organisms are, as it were, parasites on Mother Earth.

Nor is this view refuted by the fact that many plants may be cultivated on pure useless sand, watered with appropriate saline solutions, or even in the solutions themselves apparently free from all the ferments of which I have spoken; for every living organism has almost unbounded powers of adaptation, and will make shift for itself under widely different conditions. Plants thus grown may live, but do not flourish. I, however, am speaking, not of what plants can achieve, but of what they are in the habit of doing under ordinary circumstances; and the objection which we are considering will first have force when we see market gardeners preferring to grow their produce in large vats of saline solutions. *Dietes.*

(*To be continued.*)

New Garden Plants.

ODONTOGLOSSUM VEXILLARIUM SUPERBUM, *nov. var.*

This indeed deserves a name as a variety. It has a very dark purple lip, with a radiating blackish zone before its base, bordered in front with fine white. The petals are purple, the sepals lighter, each lateral one with a line at its base. It was collected by Señor Schmidtchen in New Grenada, and brought by Mr. F. Sander under the Stevensian hammer. The specimen at hand was forwarded to Mr. F. Sander by its lucky possessor, R. P. Percival, Esq., Clevelands, Westcliffe Road, Birkdale, Southport. All those who were present at the same sale will no doubt take care of their specimens, and not dispose of them unless after flowering. *H. G. Rchb. f.*

LÆLIA CRISPA (*Rchb. f.*) VAR. DELICATISSIMA, *nov. var.*

This is a very fine variety, having nearly white flowers. There is some little purple-mauve to be seen in a broad stripe from the base of the lip towards the middle, in front of which it is sulphur tinted. The front part of the column is washed with light brownish-purple. Finally there is an exceedingly light purple hue outside the sepals in the middle line. Excepting those places the whole flower is of the finest white. I obtained a good flower from Mr. B. S. Williams who kindly informs me that Sir Trevor Lawrence Bart., possesses the same variety. *H. G. Rchb. f.*

RENANTHERA STORIEI, *Rchb. f.*

I have just obtained beautiful materials of this from Mr. Henry T. Brown, who found the species si months ago on a small island, when on an excursio from his residence, Tayaba, Philippine Islands — pencil sketch, dried flowers, flowers in spirits, sketch in colours, and living plants 5 feet long, hav been supplied to me. The sepals and petals ar much broader than in Renanthera coccinea the leaves, on the contrary, are much longer an narrower. Mr. Henry T. Brown favours me wit these remarks:—"It grows about 10 to 12 fe high, with distichous, dark green, and somewh fleshy leaves, about 8 to 10 inches long and 1½ inc broad. Inflorescence fairly long, branching an bearing fifty to sixty flowers, which are more tha 2 inches across. Dorsal sepal and petals dar orange, lower sepals broad, and of a most brillia velvet-crimson, with lighter shades of the sam colour. Lip small, deep crimson, with small yello bars, centre white." So far my new correspondent *H. G. Rchb. f.*

ABRONIA LATIFOLIA.

FOR covering bare spaces, for the front rows the herbaceous border, or for rockwork, we c highly recommend the Abronias, which are not much grown as they should be. They are perfect hardy plants, of creeping habit, with somewhat flesh broadish leaves, and tufts of flowers, rosy-lilac in umbellata, yellow in A. latifolia, here figured (fi 70). The plants remain in bloom for a long tim and have a very sweet fragrance. A. latifolia is native of the sea coast from Vancouver's Island Monterey, and has a long fusiform root, said to be us for food by the Indians of North-west Ameri The good qualities we assign to them from ma years' observation are such that we do not hesit to recommend them. A. latifolia is sometimes kno as A. arenaria. The specimen here figured w obtained from the herbaceous ground at Kew.

THE ANCESTRY OF DUCKWEEDS.

IT is now-a-days a favourite relaxation amo scientists from the dull, plodding work of fact-inv tigation and description to indulge their imaginatio in constructing the pedigrees of the objects of th study. This amusement has been dignified by scientific name, and is called "Phylogeny." Phy genists have agreed on a few main points, and c thing which is settled to their own satisfaction is t among flowering plants while the Dicotyledons—s as Oaks—are descended from several different anc tors, or, as it is called, are "polyphyletic," Monocotyledons—such as Palms, Lilies, Grass Orchids—are "monophyletic," *i.e.*, all descend from one primordial stock. Of this primitive Mo cotyledon we know very little. It may have ori nated independently of Gymnosperms and Dico ledons from the vascular Cryptogams, or, as Sa once suggested, from the lowest Gymnosperms Archisperms, the Cycadeæ, parallel branches p ducing the Coniferæ and the Dicotyledons; or, las it may have sprung from an early Dicotyledon. structure was that of a "generalised type," possess those characters which all Monocotyledons have common.

In our "phylogenetic" imaginings it is necess to consider the possibility of extensive degenerat proceeding *pari passu* with progressive developme but yet it seems to me easier to develope a Palm of a Duckweed, than to degenerate a Palm int Duckweed. It may, I think, be a general rule t the generalised ancestral types, in which the import characteristics of large groups first appeared, will found to be mostly small in size, relatively to members of the whole group. Conversely, it is w a group has reached its highest degree of special tion that we find its members most numerous most bulky. I think, therefore, that the prim Monocotyledon may probably have been a small h the stem-characters of the group would thus, at f be latent. Considering, too, the slight indication a perianth in any Cryptogams or Gymnosperms, may, I think, also presume that the tri-partite p anth of the Monocotyledons was also latent in ancestral form. On similar *à priori* grounds

should expect the ovary to have one or rarely three cells, and when having three to have them unfused together. We can imagine the seed to be at first always albuminous, perhaps very slightly so, and under certain circumstances altogether exalbuminous. Such characters would closely approximate our primitive Monocotyledon to the ancestral form of the first division of Mr. Bentham's Alliance 3, Nudifloræ, which closely corresponds to the Cohort Arales of Sir Joseph Hooker. More especially close will it be to the two orders Aroideæ and Lemnaceæ. The antiquity of the first of these orders is interestingly borne out by the occurrence of a genus named Pothocites in the coal measures, which Mr. Carruthers believes to be an Aroid.

A theory has been started of a primeval fresh-water ocean, and algæ and fungi still contend for the honour of being the first progenitors of the plant world. Certainly land must have appeared before mosses, Ferns, and vascular Cryptogams generally could have grown; nevertheless we do find many large organic groups to be probably aquatic in origin, *e.g.*, the Insecta, the Mollusca, the Vertebrata, and the Reptilia. It must be admitted on the other hand that otters, walruses, seals, whales, and dolphins are aquatic or amphibious animals, probably of terrestrial origin. But we may well imagine that Monocotyledons were primarily aquatic. This may account for the prevalence of smooth (glabrous) leaves, characteristic of aquatic plants, in the group.

The primitive Monocotyledon must have been far more generalised than such genera as Acorus, Anthurium, Monstera, Richardia, Dieffenbachia, Colocasia, Caladium, Alocasia, Amorphophallus, or Arum. Moreover, the majority of the Aroideæ are tropical, and among the most interesting conclusions of the new science of Distribution are the generalisations that most large groups have originated in the north-west—the Nearctic or North American region—and migrated still westward, the Atlantic being one of the oldest and most impassable of barriers. Orontiaceæ and Callaceæ are the most northern groups of Aroids, Calla palustris reaching 64° in North Europe. It is important to note here that Orontiaceæ are so far generalised as to have not been universally recognised as Aroids, that the ovule of Orontium is very similar to that of our native Lemna trisulca (three-leaved Duckweed), and that in monstrous flowers of Arum italicum a perianth like that of Orontium has been observed. Of course this last teratological fact may be one of reversion or of anticipation, and for certain reasons not easily expressed I feel inclined towards the latter view, according to which the Callaceæ are a later development of the Araceæ. In this last tribe—first, as I believe, in time—the simplest form is the genus Pistia, which consists of floating plants, universally distributed in the tropics. This genus does not present the characters of a degraded type, aborted organs, and so forth, but rather those of a rudimentary one, and so great is its affinity to the Lemnaceæ in the form of its inflorescence and anthers that they have often been classed together. The seed closely resembles that of the Lemnad genus Grantia.

Coming then to the Duckweeds, what do we find? They are the smallest of Phanerogams; they are found in stagnant fresh water in all climates, but especially in temperate regions; they could hardly be preserved as fossils; they are classed by the late Alexander Braun in the Helobiæ, which he characterises as having a strongly developed hypocotyledonary axis, and by Le Maout and Decaisne are said to be intermediate between Aroideæ and Naiadeæ. Sachs classes them in a group called Centrospermeæ, from the central position of the seed in the order and in Naias, remarking that the family Naiadeæ is indefinable and should be split up into several.

Thus the Lemnaceæ unite two groups often placed widely apart, being apparently on the whole more generalised than either. The study of the Naiadeæ—which are almost as universally distributed, and occur in salt as well as in fresh water—may prove the Duckweeds to be but an offshoot of this class. At present, however, to my imaginings, the lowly ancestors of the still lowly Duckweeds may put in a claim to have occupied the proud position of the ancestors of all Monocotyledons. *G. S. Boulger.*

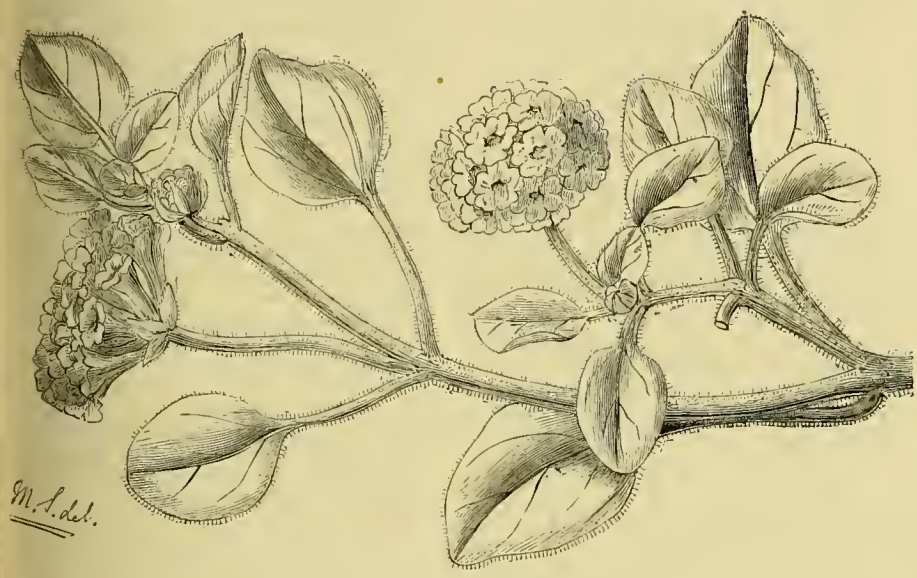

Fig. 70.—Abronia latifolia: hardy perennial: flowers yellow.

BRITISH ASSOCIATION.

The Mode in which Seed Buries Itself in the Ground.—Sir John Lubbock, Bart., President, read a paper on "The Mode in which the Seed of Stipa buries itself in the Ground." One of the most interesting parts in botany, he said, was the consideration of the reasons which led to the different forms, colours and structures of seeds; and it was, he thought, pretty well made out that a large proportion of those might be accounted for either as serving to protect the seed or to assist in its conveyance to a place suitable for its growth. If the seeds of trees fell directly to the ground it was obvious that very few of them would have a chance of growing. It was an advantage to them, therefore, of which many availed themselves, to throw out wings, in consequence of which the wind wafted them to a greater or less distance. Others, such as the whole tribe of nuts, being edible, were carried about by beasts and birds, and though some were sacrificed, others survived. Fruits, again, in consequence of their sweetness, were carried about by animals, which, after partaking of the fleshy portion, dropped the seeds themselves. Many seeds were covered with hooks, and thus adhering to the wool of sheep and other animals, were carried to greater or less distances. Others, like those of our common Dandelion, were provided with fairy parachutes, and were thus borne away by the wind. Others again, like some of the Violets, Geraniums, Vetches, Brooms, Cucumbers, Cardamine, Oxalis, and others, had beautiful and varied contrivances, by which they actually threw the seeds to a distance, in some cases, of more than 20 feet. Others, again, were enabled to penetrate the earth, and thus sow themselves in the ground. In one of our English clovers, Trifolium subterraneum, after the flower had faded, it turned downwards, and buried itself in the ground. The groundnut of the West Indies, and more than one species of Vetch, had a similar habit. In the Erodiums or Cranebills the fruit is a capsule, which opens elastically, and as in the case of the allied Geraniums, sometimes threw seeds to some little distance. The seeds themselves were in some cases spindle-shaped, hairy, and produced into a twisted awn. The number of turns on the awn depended upon the amount of moisture. If a seed be laid upon the ground, it remained quiet, as long as it was dry, but as soon as it was moistened, the outer side of the awn contracted and the hairs surrounding the seed moved outwards, the result of which was to raise the seed into an upright position. The awn then gradually unrolled, consequently elongating itself upwards, with the result that if it was entangled amongst any of the surrounding herbage the seed was forced into the ground. A still more remarkable case was that of the Stipa pennata. The actual seed was small, with a sharp point, and with stiff short hairs, pointing backwards. The upper end of the seed was continued into a fine twisted rod; then came a plain cylindrical portion attached at an angle to the corkscrew, and ending in a long and beautiful feather—the whole being about 1 foot in length. That end was supposed by Mr. Francis Darwin, to whom they were indebted for a very interesting memoir on the subject, to act very much in the same manner as that of Erodium, already mentioned. He did not doubt that the end would bury itself in the manner described by Mr. Darwin, but he doubted whether it always did so. One fine day, not long ago, he chanced to be looking at a plant of that species, and around it were several seeds more or less firmly buried in the ground. There was a little wind blowing at the time, and it struck him that the long-feathering awn was admirably adapted to catch the wind, while on the other hand it seemed almost too delicate to drive the seed into the ground in the manner described by Darwin. He therefore took a seed and placed it upright on the turf. The day was perfectly fine, and there could therefore be no question of hydroscopic action. Nevertheless, when he returned after a few hours, he found that the seed had buried itself some little distance in the ground. He repeated the observation several times, always with the same result; thus convincing himself that one method, at any rate, by which seeds bury themselves is by taking advantage of the action of the wind, and that the twisted position of the awn, by its corkscrew-like movement, facilitates the entry of the seed into the ground.

The Constancy of Insects in Visiting Flowers, and the Colours of Spring Flowers.

Mr. A. W. Bennett read two interesting papers on the above subjects. A reference to either of Müller's works showed at once that most kinds of flowers were visited by several, and many by a large number, of different species of insects, which assisted in the carriage of pollen from one flower to another. But he was not aware that attempts had yet been made to determine the question whether insects were altogether discriminating in their visits to flowers, or whether on the same journey they confined themselves exclusively or chiefly to one species. That paper, which was the result of observations during the last two years, was intended as a contribution towards the settlement of that question. Those who had not made the experiment would hardly appreciate how difficult it was to watch continuously for any considerable period the flight of any insect. He had chosen in all cases as points of observation spots where a considerable number of different flowers grew in profusion and were intermixed, so that the insect would have abundant opportunity of changing its diet if so disposed. In recording the number of flowers of the same kind visited by an insect in the same flight, he always meant flowers at such a distance from one another that the insect had to use its wings in getting from one to another. In August of last year he observed three different flights of the "Painted Lady" butterfly, and it settled six, three, and ten times respectively, always confining itself to the same species of flowers. On the same plot a hive-bee paid nine successive visits to the same species of flower.

On another plot a bumble bee visited the same species of flower fifteen times, and another of the same species eleven times in succession, not touching any other flower, but passing over many. In order to test whether insects were guided by colour only when visiting flowers, he watched one spot where there were white and purple Foxgloves, but a large bumble bee was seen to enter sixteen of the flowers regardless of colour, although to find the succession of Foxgloves it had to fly considerable distances over other flowers. No general statement could be made as to the consistency of insects in visiting the same species of flower during the same flight. A decided preference for successive visits to the same flower was unquestionably shown in many instances, but those visits did not depend on the colour of the flower only. The hive-bee appeared to be by far the most constant in that respect, often absolutely so. From their strong and rapid flight and the extremely hairy covering of their abdomen, that class of insects was probably the most efficient agent in the dissemination of pollen. So far as could be gathered from observation the "Painted Lady" and the small tortoise-shell butterflies were very consistent, while the whites, the blues, and the browns were far from catholic, or less discriminative in their tastes. It was open to question, however, whether more than a very few flowers were dependent upon butterflies for their fertilisation. At all events their visits to flowers were often only interludes on their settlements on grass, leaves, the stems of trees, or the bare ground.

ON THE COLOURS OF SPRING FLOWERS.

Mr. Bennett said every one must have noticed the variations in the predominance of our wild flowers as the season advanced from spring to summer and autumn. In our hedge-banks the pure white of the larger Stitch wort and "Jack-by-the-hedge" gave way to the bright blue of the Speedwell, and then to the reddish-purple of the black Horehound and the various shades of the Mallows. In our meadows the golden-yellow Buttercups were gradually replaced by the pink of the Sorrels and Ragged Robins, and then by the yellow Ragwort and purple Knapweed. Our river-sides were gay in the early spring with the golden Marsh Marigold, in the early summer with the yellow Flag, in the later summer with the purple Loosestrife. The bright scarlet of the Poppies and the Pimpernel only appeared in the ripening corn. The blue Campanulas, the bright yellow St. John's-wort, the purple Heather, do not brighten the landscape till the summer is in its prime, when the green or inconspicuous flowers of the Hazel, the Elm, the Oak, and nearly all our timber trees have long since passed away. He did not know, however, whether any attempt had ever been made to reduce those facts to a general law. Out of a total of sixty-four species he found in the list twenty-six white, nine green, thirteen yellow, five red or pink, and eleven blue or violet. He had not been able to prepare a list of our common summer and autumn flowers, but even without that there were a few striking points. There was for instance a very great preponderance of white flowers, which was not the case at any other time of the year; yellow was also greatly in excess compared with other seasons; and the number of red and pink flowers was extremely small. It was obvious, therefore, that if the excluded natural orders were restored, the plants belonging to them being mostly inconspicuous green or brown flowers, while some had bright yellow anthers, the proportions of red and blue in particular would be greatly diminished. Comparing those results with the spring flora of Switzerland, although difficulties in the way of any exact enumeration were very great, he found that out of fifty species eighteen were white, one was green, ten were red or pink, and eight blue or violet. In endeavouring to arrive at any general conclusion for these data, it should be borne in mind that the two colours, white and green, stood on a different footing from all the rest, and might be regarded as an indication of the absence of colour. With regard to yellow, he found an exceedingly interesting observation by M. Flahaut, that "a solid insoluble pigment, the xanthine of Frémy and Cloëz, is in the first place to be distinguished from all the soluble colouring matters—blue, yellow, red, and their mixtures—all of which are acted on very readily by re-agents, and which are usually formed only in epidermal cells." The difference between the prevailing spring flowers in England and in Switzerland seemed to him to be due to the same cause. Owing partly to the spring being a month later, partly to the more southern latitude, and consequent greater elevation of the sun, partly to the clearer air of a high altitude, the light which opens the earliest spring flowers is much stronger in Switzerland than in England.

WOODLANDS NURSERY, SUSSEX.

To any one travelling in the neigbourhood of Brighton, and having a few hours to spare, a visit to the Woodlands Nursery of Messrs. William Wood & Sons, of Maresfield, near Uckfield, will make a very agreeable change, and perhaps impress the memory with stronger recollections than even the beauties and attractions of the famous watering-place. The nurseries are but 12 miles distant from Brighton, and three from Uckfield—a station that is easily reached from Hayward's Heath on the London and Brighton main line. By this route a short visit to Lewes will not be the least interesting of the day's programme. Lewes, apart from its great natural attractions, is a place with a history of its own. Within 25 miles of the ancient borough was fought that great battle which lost the Saxon Harold his crown, and brought the country under the control of a powerful foreign potentate. Lewes Castle, once the seat of the feudal splendour of the Earls of Warrene, stands upon a lofty eminence, commanding a view of the South Downs and a tract of country of unequalled beauty in the county of Sussex. The town itself bears the stamp of antiquity in all its main features. The use of the Castle is retained by the members of the Sussex Archæological Society, and only the small charge of 6*d.* is made to visit the building.

"Lewes, thy castle like a shrine,
Where pilgrims lowly bend,
To teach the fading sons of time,
That everything must end.

"Yet still to me 'tis holy ground—
Each ruin lone and grey,
They tell us with a magic sound,
Of glories pass'd away."

But my object in referring so particularly to the Castle is because of the natural landscape, which is traversed at a glance from its summit, and which is always an acceptable sight to the horticulturist. The rich slopes clad with golden corn in ear, the ridges of chalk, or chalk hills, as they are called in Sussex, the fertile valleys, as when the eye travels along the Weald of Sussex, which joins Kent, are each and all sights which leave an indelible impression upon the mind. Then there is Beachy Head in the far distance, and Firle Beacon, one of the highest points in Sussex, and a chain of downs extending from Newhaven to Brighton.

Uckfield is but a short distance by rail from Lewes, and a drive of less than 3 miles takes you to Maresfield, from the main road of which place is the chief entrance to the nursery. Messrs. Wood & Son's nurseries are extensive, well arranged, and the health of the plants in all the departments is of the first order. The natural conditions afforded by soil and climate, together with good organisation and skilled management, bring about such results in a way that cannot fail to impress the visitor that the machinery of the place is directed with skilled hands. The first object that strikes one upon entering the nursery is a wall covered with Banksian Roses, which also cover the border in which they are planted and look very handsome. I am then directed into a small glass structure containing plants of Clematis Madame Grangé, a variety of the Jackmanni type, Pelargoniums, Petunias, Balsams, small Camellias, Liliums, Begonia Frœbelii, and Harrison's Musk, in pots of suitable sizes for furnishing. In a small house opposite were plants of the purple-leaved Beech, young plants of Catalpa syringæfolia, and Acer polymorphum atropurpureum. Myrtles, too, are here in abundance, and Tea Roses planted out in pits adjoining, which can be protected in autumn, and which supply any quantity of cut blooms. The varieties used for the purpose are Maréchal Niel and Niphetos. On my way to a detached house I passed quantities of Azaleas, Camellias, Cytisus, and other plants in large numbers for winter flowering. The detached house is filled with standard Euonymus worked on Euonymus europæus, variegated Privets, Skimmia oblata, Escallonia rubra, Eriobotrya japonica, Acers (sorts), Jasminum revolutum, Aralia Sieboldii, Hypericum olympicum angustifolium, and Hydrangea paniculata grandiflora, a grand shrub either for forcing or planting out-of-doors. In a range of low unheated pits I noticed thousands of Bay cuttings, Euonymus, Ivies, Juniperus virginiana elegans (new), Retinospora tetragona aurea, Cryptomeria elegans, Camellia stocks, and a large assortment of various other plants. A half-hardy plan (Bignonia grandiflora) which flowers late in th autumn struck me as being a useful plant for privat gardeners who require large resources to keep pac with the large demands made upon them at tha season. Ampelopsis Veitchii is here grown by thou sands, whole houses being filled with plants of it i small pots. Another useful hardy creeper is Viti striata, which adheres to a wall after the manner o Ampelopsis Veitchii. A small batch of Weigel Looymansii aurea also took my fancy as being a novelt among that class of plants. In an adjoining structur are numerous plants of Euonymus ovata aurea, E japonica aureo-variegata, and E. latifolia alba, als Hydrangeas Otaksa and Thomas Hogg, together wit Eulalia japonica (variegated grass), Ceanothus Veitchi dentatus and divaricatus, and Festuca glauca. A plan of Philadelphus coronarius aureus was pointed out t me as being perfectly hardy and a plant that shoul be more extensively cultivated than it is. Anothe summer flowering plant of simple cultivation Diplacus puniceus aurantiacus, with a Mimulus-lik flower, buff-colour, and very profuse in its habit flowering. The white and yellow Marguerites a also extensively grown here, as are Cyclamens an most other winter and spring flowering plant Leaving this part of the nursery to where the prin cipal glass structures are located, I passed (in fro of the office) some nice Conifers grouped in beds, illustrating what can be done with this choice class plants in winter, when there is so little done embellish our naked parterres and flower gardens.

The bed that struck me most had a central plant Cryptomeria elegans, and a varied arrangement con prising Retinospora squarrosa, Widdringtonia junipe oides, Cupressus Lawsoniana lutea, and Biota elega tissima. There was a border at the back of Portug Laurels kept clipped to about a foot in height, whi appeared rather a novel feature, or way of usi so common a shrub. Upon entering the glass stru tures I see at a glance that Rose growing in pots is speciality with Messrs. Wood & Sons, and such healt vigour, and cleanliness as is rarely seen among sa large numbers of Roses. I am first shown into a lo span-roofed house crammed with hundreds of healt Teas, of which Perle des Jardins, straw colou Reine Marie Henriette, the red Gloire de Dijo Souvenir de Paul Néron and Niphetos (always bea tiful when well cultivated), appeared to be the bes also Isabella Sprunt, a grand buttonhole variet Another house of equal size is filled with Maréch Niel and devoniensis, having a wide pit in the cent for propagating; yet another Rose-house filled wi plants in 6-inch pots for forcing, and still anoth containing plants of Gloire de Dijon, from 10 to feet high, for planting in high structures, or agai walls out-of-doors. In a second division of this ho are some good plants in bud of Innocenta Pirola, wh tinted with rose, and a beautiful buttonhole variet also Catherine Mermet, Madame Lambard, Niphet and others. Two other houses are filled with Ma chal Niel (tall plants) grown upon their own ro and on different kinds of stocks to suit all classes purchasers. Over 30,000 Teas of all kinds are gro in pots, Figs in large numbers, and thousands Rhododendrons and Clematis. I am next taken to summer quarters of H.P. Roses for forcing, Banksi Roses, Wistarias, Ivies, variegated and green; Hon suckles, double Furze, Pyrus, red and white; Esc lonias in variety, and Passiflora cœrulea, togetl with thousands of other hardy and half-hardy plant

Proceeding to the fruit quarters. I have first of to notice a fine orchard bearing regular crops of fru the soil evidently being a congenial one for t Apple. The young stocks of maiden and ot trees of Apples, Pears, Apricots, Plums, Peaches, a Nectarines are in magnificent health, without ever speck in the shape of blemish observable in any them. All are extensively grown, of all sizes a shapes, to meet the demands of customers. Sm fruits, too, are grown in proportionate numbers, n stocky little bushes of Rasps, Currants, Gooseberri &c. Of trees and shrubs, of which there are limited numbers, I noticed Weigela nana varieg and W. amabilis variegata; Spiræa callosa a a little bush of compact, rather dwarf ha with creamy-white flowers; Exochorda grandiflo Ceanothus Gloire de Versailles, Jasminum nudiflor aureo-variegatum, and a Honeysuckle, Caprifoli glauca, a late-flowering sort, of trailing habit, wh is well adapted for covering slopes or adorning ru work of any kind. The fruit-growing portion of

nursery slopes from the east, at the bottom of which is a fertile valley, also used for growing fruit trees, which is watered by a clear running stream, and is a capital site for growing fruit trees. I must again repeat, in order not to be misunderstood, that natural conditions of soil, drainage, and climate have much to do with the general health of all kinds of trees, and especially the fruit trees, which are free of canker or disease of any kind.

Roses upon standard and dwarf stocks are grown by their thousands, and acres of Conifers, from plants of the smallest size to those of specimen proportions. Even the Blackberry (Rubus laciniatus) is not forgotten: the plants are loosely trained to stakes after the manner of training Raspberries. One or two specialities among shrubs and Conifers may be worthy of mention. The first is a nice sample of Taxodium sempervirens variegatum, giant Wellingtonias, mop-shaped Acacias (A. inermis), and an Araucaria bearing cones, several of which are getting ripe.

I noticed a curious little plant, Dacrydium Franklinii, which is perhaps more rare than beautiful; still it is worthy of a place in groups or borders for making up front lines, or as a pot plant it would be found useful for many purposes. Of miscellaneous kinds, Juniperus chinensis aurea, and J. drupacea, a prickly tall growing variety, slightly burnt with the frost, seemed worthy of notice, as also Biota semperaurescens, Widdringtonia cupressoides, and Thuya Vervaeneana. A Weeping Ash, said to be grown from a stake placed in the ground, and afterwards worked, is now a handsome tree, and looks none the worse for its humble pedigree. Large quarters of Cedars and American plants, such as Rhododendrons, Kalmias, Heaths, Andromedas, &c., are well grown, and a collection of herbaceous plants in all the leading sorts. I must not omit to mention the line of Araucarias, 150 yards long, nor the variegated Tulip tree, Liriodendron Tulipifera medio-picta, which with a dense bush of Quercus glabra, and a Thorn adorned with a fine bush of Mistleto, are all interesting objects, as are also grand specimens of Wellingtonias, and two specimens of Biota elegantissima, from 8 to 10 feet high. Perhaps it is a mistake on the part of gardeners not to grow more Conifers in pots than they usually do. Messrs. Wood & Sons have large quarters of them grown for the purpose, and very pretty and useful they must be in winter.

In this fine nursery useful things have special attention, but the general arrangement is such that there is a combination of the ornamental, associated with or connecting the different departments, which renders a visit at all times both pleasant and instructive. *Special Reporter.*

ASPARAGUS ON CLAY SOIL.

Where there's a will there's a way, and this is the best time to plant Asparagus. This sea and sand loving plant does not like a cold clay soil, and it may be (but should not be) a hard task to make a fine plant, wherefrom to cut fat sticks, on a soil that may be compared to wet putty in winter and Babylonian brick in summer. Before I became a Hermit the heavy undrained clay at Hermitage had never borne a crop of Asparagus, but as I brought with me experience of a quarter of a century of horticultural work on the worst soil that could be found in Stoke Newington, I ordered a beginning to be made for Asparagus at the upper end of a piece of very wet grassland that sloped very slightly from the site selected towards the natual flow of the water. And the first step taken was to sow a bed in a sheltered garden a furlong distant, where we could not afford room for our bearing beds, the only object being to obtain plants to begin with. The rule determined on was to form two beds every year until a certain space was covered, each bed to be feet wide and 60 feet long, on a foundation of unmitigated clay, a considerable piece of which was to be converted into a kitchen and reserve garden.

When your people understand you the wheels do not need greasing. If there is a bit of hurry you do not run against each other, and if an accident happens one is in haste to utter a word that sounds naughty. The faithful Tom sauntered up to the high road, and caught sight of a string of carts conveying the rubbish from some buildings that were in process of demolition, and with the caution of a Jew he asked, "How much?" There was a bargain made instanter, and we had carted in, for "a mere song" (which I am now singing) a grand lot of this rubbish. It was knocked over, and the large stuff wheeled away as metal for roads, the woody stuff went towards the chimneys, and the mixture of plaster, mortar, sand, and small broken brick remained as the raw material for the manufacture of Asparagus.

This stuff being laid in convenient ridges, the top spit of grass turf was taken off on a space 60 feet long by 14 feet wide, leaving an ample margin for two 4 feet beds and a 2 feet alley between. But the margin was none too much, as you will see. Then we brought to the spot all the old leaf-soil, and clearings of Melon pits, and scrapings of turf from odd corners—a sort of indefinite infinity of all kinds of rubbish, but every bit containing something suitable to feed a plant. All these things—the top turf, the calcareous rubbish, the leaves, and the sweepings—were thrown together methodically, and the mixture made a great raised bed, looking very grey and stony, except where chips of live turf stood out to make a few dots of greenness.

This being accomplished in the month of March, the new bed was at once planted with Ashleaf Potatos; while on the other side, in the sheltered garden, the Asparagus to follow the Potatos was making a beginning of its noble career. The Potatos were a grand crop, good in every way, save that they were rough in the skin; and the only exhibition they were fit for was that which took place daily with the aid of a joint or a bird, or it might be the 6 o'clock family bloater.

When September arrived and the "Taturs" were gone the new big bed was well stirred over, and some fat dung was laid in the trenches as the work went on. All being made tidy, the ground was pegged out to form two beds of 4 feet each with a 2 feet alley between; and then we made shallow furrows for the plants. These were taken carefully so as to leave the seed-bed well occupied to furnish plants for the next year without need for another sowing. In planting we put single plants in their places and slightly covered them with the finest of the stuff near at hand, and when this was done the earth from the alleys and outsides and ends was strewn over and amongst them, all lumps and stones being thrown out, and the bed was then raked over and the rows carefully trodden to fix the plants in their places.

As regards distances, we began with a line down the centre of each bed, and plants at 18 inches distance. From this each way was a line 15 inches distant and plants 18 inches apart. Thus, the two outside rows were 9 inches distant from the alleys, and the plants throughout were 18 inches by 15 inches apart, every one carefully singled in the process.

They were green when planted, and so continued for a month, when they were done brown and were cut down, and the work of the season came to an end in the laying on of a thick top-coat of fat dung that had been saved for the purpose under cover.

Early in the subsequent spring the ground was very carefully pricked over between the rows, and very thin sowings of Radishes and Lettuces were made between the rows. These were removed from time to time either as weeds or as crop. Where a Lettuce stood near an Asparagus crown he had to take flight along with a groundsel or a Chickweed, but enough remained to pay the rent, and came to perfection, and did no harm. We did not cut a stick the second year, but we cut fairly the third year, and greatly the fourth; and, except for the circumstances that bring mundane things within finite measures might have gone on cutting our sticks for ever.

For three years we continued to lift plants from the original seed-bed to furnish the new bearing beds that were made each spring, and having borne a crop of Potatos were planted with Asparagus in September. The management never varied, except that, as we found the growth very strong, we gave the plants a distance of 2 feet in the rows, still keeping to the 15 inches measure between them. A dressing of fat dung was put on the top after cutting down in autumn, and we soon learned to give another dressing in spring, which was peculiarly beneficial, and must have a paragraph to itself.

It is not the rule to protect Asparagus. Now, our lower garden at Hermitage was blest in spring with a strong supply of pure air from the hyperborean regions. When a frosty wind swept over the marshy meadows and slid through the rising grass like a flash of lightning with a razor edge, I used to notice that many a fine stick just rising would be cut off, and many that followed were flinty in their hardness, owing to the check to growth from the sudden onslaught of the east wind. And so I had a great sweep up made of all kinds of light rubbish. Rough grass was cut from neglected corners of the shrubbery, leaves and sweepings of the hay-loft were gathered together, and this light stuff was spread over the crowns in little heaps. The rising sticks often lifted up the light protection in a lump, like the head of a Mushroom, and the sticks so protected were as green as needful, and very much more fat and tender than such as had to fight through without any such help. It became therefore the practice to save leaves and light litter for the spring dressing of the Asparagus beds, and the stuff was never put on until it was really wanted, because it might have been blown away, or might have quickened growth, which in so exposed a situation was not to be desired.

It is the custom, I observe, to put a crop of Cauliflower, or some such thing, in the alleys between Asparagus beds. This, in my opinion, is bad practice, allowable only in the first season, after which it becomes a profitless game of burning the candle at both ends. Those alleys should be kept clean, and the outside rows of Asparagus will root into them and enjoy the range; therefore, to dig the alleys is to do mischief. Far better keep them open, for the roots to run below and for the cultivator to run above. In the course of his running he may find it expedient, as I have done, to stake his Asparagus beds with light brushwood to afford support, for when the top grass is snapped short off by the wind the growth of the next year's crop is prejudiced. Where frost and wind are unknown it will of course be waste of time either to protect or support Asparagus. *Shirley Hibberd.*

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

Involucrati—reticulati.—Vernal, *continued* (*from p.* 304.)

21. ‡*C. corsicus*, Maw (new species).—Corm about ¾ inch broad; tunic fibro-membranous, finely reticulated. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, reaching to the level of the flower at the flowering time, and produced to 8 inches in length a maturity, about ⅛ inch wide, the lateral channels bearing one or two ribs. Proper spathe monophyllous. Perianth: throat glabrous, violet; segments about 1¼ inch long, and ½ inch broad, of a uniform bright lilac, the outer surface of the outer segments coated with buff, and feathered with purple markings. Anthers light orange, twice the length of the white filament; the style dividing at the level of the middle of the anthers, and produced into subulate bright scarlet stigmata, which are somewhat divided and fringed, and reach nearly to the level of the summit of the anthers. Seed pale buff.

C. corsicus is distinguished from C. minimus of De Candolle by its finely reticulated corm-tunic, its paler and larger flowers, its bright scarlet stigmata which never exceed the anthers, and pale buff seed; it is a mountain plant, ranging from 2000 to 6000 feet in the north of Corsica, where it flowers from February to May. It has hitherto been associated with C. minimus, to which, however, it is not nearly allied.

22. ‡*C. etruscus*, Parlatore.—Corm nearly spherical, a little broader than high, from ½ to ¾ inch broad; tunic of strong reticulated fibres. The basal tunic consisting of a disc with radiating, pointed fibres. Sheathing leaves falling short of the proper spathe. Proper leaves reaching to the throat at the flowering time, $\frac{3}{16}$ to ¼ inch broad, ciliated on the margins of the narrow keel. Basal spathe enclosing one or more scapes. Proper spathe monophyllous. Perianth: throat slightly bearded, yellow; segments about 1½ inch long and ½ inch broad, lilac; the outer surface of the three outer segments cream coloured, variously marked with purple lines or featherings, and occasionally self-coloured without markings. Anthers orange, about twice the length of the orange glabrous filament; the style dividing at the level of the summit of the anthers, and shortly produced into orange, spreading stigmata, which are almost entire, and overtop the anthers. Seed globose, dull fawn coloured.

C. etruscus was discovered by the late Professor Parlatore in the Tuscan Maremma, and for many years was only known by two or three specimens in the Florence Herbarium. It was refound in the year 1876, by Mr. S. Sommier and myself, in several localities in the Tuscan Maremma, where the country people told us it was not unfrequent. Its affinity is obviously with C. Imperati, and C. suaveolens; but its strong, reticulated corm tunic distinguishes it from any other vernal Italian species.

I have raised seedlings which maintain all the distinctive characters of the species.

23. ‡*C. montenegrinus*, Kerner; C. appendiculatus, Kerner ("nomen mutavi").—Corm about ½ inch wide; the tunic of closely reticulated fibres. Sheathing leaves falling short of the proper spathe. Proper leaves three or four to a corm, reaching to the level of the flowers, about $\frac{1}{10}$ inch wide, the lateral channels ribbed. Proper spathe monophyllous, reaching nearly to the throat. Perianth: throat orange, apparently glabrous; segments creamy white, barely an inch long. Anthers orange, about half as long as the orange filament, and bearing an appendage at their extremity resembling the stigmata; the style dividing close to the throat, and produced as entire, spreading, widely expanded stigmata, reaching a little above the base of the anthers.

C. montenegrinus is a vernal species from Montenegro, and has no near ally; the stigmata resemble those of no other species. Whether the stigmatic appendage to the extremities of the anthers is a constant character or an occasional case of metamorphosis I have not had an opportunity of ascertaining, but as it suggested the name of appendicularis to Dr. Kerner I presume it was present in all the examples collected.

24. ‡*C. banaticus*, Heuffel; C. Heuffellii, Kornicke; C. vittatus, Schlosser; C. Heuffellianus, Herbert; C. exiguus, Schur.—Corm small, nearly spherical, about ½ inch broad; the tunic of delicate, thin, reticulated fibres. Sheathing leaves falling short of the proper spathe. Proper leaves just appearing from within the sheathing leaves at the flowering time, and produced at maturity to a foot or more in length, glabrous, ⅜ inch broad, with a narrow keel, broad blade, and wide lateral channels. Proper spathe monophyllous. Perianth: tube purple; throat purple, unbearded; segments rich purple, with a darker purple blotch near the apex, the inner and outer segments similarly coloured, about 1½ inch long, and ½ inch broad, blunt at the apex, or emarginate. Anthers orange, a little longer than the white filament; the style dividing at the level of the summit of the anthers, and produced into a compact mass of fringed, orange stigmata exceeding the anthers. Seed globose, dull fawn coloured.

C. banaticus is a common species in the Banat, Hungary, and Transylvania; flowering in February and March. It is said to vary much in the colouring of the flowers, from deep rich purple to white; Schur describes several varieties. C. banaticus has often been confounded with Herbert's C. velachensis, which is a native of Greece, and has no basal spathe, but a diphyllous proper spathe. C. banaticus is widely cultivated as C. velachensis, and is known under the name of velachensis in many of the Continental gardens. I believe that the figure, tab. 6197, in the *Botanical Magazine*, given as C. velachensis, is merely C. banaticus; the plant from which the figure was drawn having come through Herr Max Leichtlin and the Rev. H. H. Crewe from the Berlin Botanical Garden, where C. banaticus is grown under the name of velachensis. I have repeatedly received from the Continent, both from botanical gardens and wild sources, C. banaticus under the name of C. velachensis.

25. ‡*C. Tommasinianus*, Herbert; C. serbicus, Kerner; C. crestensis, Eugene (?).—Corm nearly globular, barely ½ inch wide; tunic of fine reticulated fibres. Sheathing leaves falling short of the proper spathe. Proper leaves about ⅛ inch wide, glabrous, just appearing with the flowers, and produced at maturity to a length of 9 or 10 inches. Proper spathe monophyllous, reaching nearly to the throat. Perianth: throat white, unbearded; segments from 1 inch to 1½ inch in length, pale sapphire-lavender, and said by Herbert to be occasionally marked with a darker blotch towards their summit. Anthers pale orange, a little longer than the slightly glandular white filament; the style dividing at the level of the summit of the anthers, and produced into a compact mass of sub-entire, orange stigmata. Capsule purple. Seed bright carmine, ripening to brown.

A native of Dalmatia and Servia, flowering in March. C. Tommasinianus is nearly allied to C. vernus, but the throat is glabrous. Herbert is in error in stating that the "involucre" is absent, as I find that both the Dalmatian specimens received from the late M. Tommasini, as well as Kerner's herbarium specimens, named C. serbicus, have a basal spathe.

26. ‡*C. vernus*, Allioni, not C. vernus of Linneus and of Curtis, which is C. aureus.

Var. 1. *C. siculus*, Tineo.—Sicily.
Var. 2. *C. albiflorus*, Gay.—Trieste.

Corm about ¾ inch broad, a little broader than high; tunic of fine, reticulated fibres. Sheathing leaves falling short of the proper spathe. Proper leaves appearing with the flowers ¼ inch broad, nearly glabrous, keel very narrow, lateral channels wide and open without ribs. Proper spathe monophyllous, reaching nearly to the throat. Perianth: throat white or lilac, never yellow, always bearded; segments very variable in size and colouring, from 1 to 2 inches long, from pure white to deep purple, and variously striped and variegated, the markings of the inner surface of the segments generally differing from those on the exterior; the inner and outer segments generally identical in their colouring; the outer surface of outer segments rarely coated with buff. Anthers bright yellow, twice as long as the slightly glandular white filament; the style dividing a little below the summit of the anthers, and produced into a broad mass of sub-entire, orange stigmata, which in the type form overtop the anthers; in the varieties albiflorus and siculus, the stigmata are lower than the summit of the anthers. The stigmata are occasionally pale cream coloured. Seed globose, reddish-fawn coloured.

Crocus vernus was one of the earliest species introduced to cultivation, and has become naturalised in several localities in the Midland Counties, in Ireland, and I believe also in Norway. It has a wide geographical range on the Continent, through 15° of latitude, and 25° of longitude; extending from the Carpathians to the Pyrenees, east and west; and from Sicily to the Carpathians, south and north; and occurring from the sea level to an altitude of 6000 or 7000 feet. It is, however, scarcely continuous within its limit of range. I do not know of any record of its occurrence in Central France, except in the Canton du Puy. In the Pyrenees it is not common; and it is the only Central European species that approaches the Spanish area, within which a distinct set of species occurs; its main western limit is the French Alps. The large and small flowered forms are very irregularly distributed, without reference to altitude. The small C. siculus, with flowers not more than ½ an inch high, occurs in the mountains of the north of Sicily. C. albiflorus at low elevations in the neighbourhood of Trieste, and the larger forms, such as grandiflorus, at both high and low elevations in Italy and the Alps. Herbert records the occurrence of C. vernus as far east as the steppes north of Odessa, but its occurrence in Russia is denied by Trautvetter.

C. vernus is remarkable for the great range of the colouring of its flowers; the endless varieties, from pure white to deep purple, being generally intermixed in its native habitats, and correspond with the multitude of horticultural varieties which decorate our gardens. The flowers are produced from early in March, at low elevations, to as late as July in the higher Alps.

(*To be continued.*)

LOOKINGS AROUND.

NISBET'S VICTORIA TOMATO.—Those who desire to combine the useful with the ornamental in gardens cannot do better than grow the above Tomato, and train the plants upon trellises or upon back walls of fruit-houses, where it will have a most pleasing effect. Mr. Temple grows it largely at Burghley-on-the-Hill in his vineries, where the plants are bearing most abundantly, and where the little golden-yellow fruits are most pleasing to look at, and not bad to taste.

YUCCA ALOIFOLIA VARIEGATA.—A noble pair of specimens of this fine Yucca is now in flower at Barleythorpe, near Oakham, in Rutlandshire; the plants are of equal height, and the flower-spikes over 18 inches in length, and, taken altogether, a better pair of plants for vases, or better samples of cultivation could not be wished for or desired.

SWAINSONIA GALEGIFLORA.—This plant — the purple-flowered variety—with its white companion, are two useful plants for covering pillars, or for training to wires under the rafters of cool plant-houses, where they not only supply large quantities of cut flowers, but are also very ornamental when in flower. A fine specimen of the purple variety came under my notice a few days ago loosely tied to a trellis, in which position it occurred to me that a well-grown specimen of it trained in the same fashion would be a telling point in a collection of twelve stove or greenhouse plants, where very valuable stock is not plentiful for such purposes.

ASTERS IN POTS.—Amongst the floral specialities now to be seen at the nurseries of Messrs. W. & J. Brown, of Stamford, nothing surpasses the fine display of Asters in pots which adorn the windows of thei seed shop in Stamford, where they are pleasingly assc ciated with Vallota purpurea, summer flowering Chry santhemums, golden and silver Conifers, and Gladioli

FUNKIA GRANDIFLORA IN POTS.—In one of th large orchard-houses at Ketton Hall, near Stamford I noticed one or two of these beautiful plants i flower during a recent visit, which struck me as bein a good way of growing the plant for decorative pu poses. There are few herbaceous plants so we worth growing in pots as this Funkia, which ha prettily marked leaves, and produces spikes of whit sweet-scented flowers nearly equal to the lovely Par cratium fragrans. I have often seen it in pots befor and large specimens of it too; but I think if it wer more extensively grown in a small state it would l found more useful for decorative purposes.

LEYCESTERIA FORMOSA.—Those who have muc to do with decorating tall glasses during th autumn months know the value of this excelle flowering shrub, which supplies such useful materi for the embellishment of tall ornaments in glass; b the past winter, which has taught us many lesso and strange experiences, has, among its many dism associations, indicated some points of interest an utility even in the partial destruction of plants. Th Leycesteria, which has been cut down in mar places, is now one of the most beautiful of dwa autumn flowering shrubs, proving clearly to us that we chose to use the knife, the Leycesteria would l one of the most accommodating of hardy plants.

THE MOUNTAIN ASH IN RUTLANDSHIRE.—Th mountain Ash is generally associated, at least history, with glens and mountain passes, rocky defil and steep ravines, but it also finds a home, a mo familiar home, in the grounds and shrubberies of lar estates all over the country. I was, however, hard prepared to see it by the roadside between Stamfo and Ketton, a few days ago in front of a neat roadsi cottage, and overhanging a white wall, where i clusters of scarlet berries had a most beautiful effec *Looker Round.*

Notices of Books.

The Chemistry of the Farm. By R. Waringto F.C.S. Bradbury, Agnew & Co.

Chemistry has advanced of late years with su rapid strides that those whose pupilage expired but few years since find it difficult if not impossible keep abreast of the science. This arises not so mu from the increase in the number of facts, but from t different way of grouping those facts, and the mo extended inferences now derived from them. M Warington's little book appears very opportunely, a time when a "popular" book, in the best sense, agricultural chemistry was demanded. The auth deals in successive chapters with the characteristics plant growth, the sources of plant food, the nature manures, the several crops grown on the farm, t food to be given to the stock, and the chemistry milk and its derivatives. On these points M Warington discourses with a brevity, clearness, a grasp of his subject, which betoken an accomplish practitioner, not only in the laboratory, but also the desk. He expressly tells us his book is specia intended for teachers; and this being so, there perhaps the less reason to point out that t author assumes a degree of knowledge whi is not common among agricultural reader for instance, on the very first pages mention is ma of "amides" and "albuminoids," but no definiti is given of either, and no explanation given of t difference between them. So a little farther on come to the very interesting phenomenon, first ma known, if we remember rightly, by Schlœsing, t the nitrogenous contents of a soil are oxidised means of a minute Bacterium—are not all Bacte very minute?—by whose agency, as Mr. Waring tells us, humus and ammonia are oxidised, and th nitrogen converted into nitric acid. So remarka and important a phenomenon as this (alluded in our first article this week), as yet so l known outside of professional circles, should h been led up to by some explanation of what a B terium is, and what effects are produced by vari kinds of these organisms. The mode of life of pla demands more careful scrutiny at the hands chemists than it has as yet received. Mr. Waring sketches for us, in general terms, the migration

starch, albuminoids, phosphates, &c., from the green parts of the plant to the seed as the plant matures, and points out the difference in these respects between annual and perennial plants; but this is merely the fringe of a vast subject, and although Mr. Warington's statements, as far as they go, are correct, it is known that there is considerable variation in different plants in those phenomena which constitute the maturation of the plant. One way in which variation of this kind may occur is, indeed, indicated in another chapter, wherein the author discusses the varying relations of different crops to soil nitrogen:—

"The fact that the active growth of the cereals commences in spring and concludes at their time of blooming towards the end of June, places these crops at a disadvantage as to the supply of nitrates from the soil. The autumn and winter rains have frequently washed out the greater part of the nitrates contained in the soil before the growth of the cereal crop commences, and nitrifaction in the soil has not long recommenced its activity in summer time when the crop becomes too mature to appropriate fresh supplies of nitrogen. A root-crop sown in early summer, on the other hand, has at its disposal all the nitrates that would be available for Wheat or Barley, and in addition the large supply of nitrates formed in the soil during summer and early autumn. A great part of the nitrates which would be lost in cereal cultivation is thus assimilated and retained by a root crop, and such crops are found to stand in less need of nitrogenous manures than cereals."

Mr. Warington's book is the first of a series of five to be devoted to various branches of agricultural practice and cultural science. If the remaining books are as well done as this is, and bear evidence in their degree of as much original work, the result will be creditable to English science, and can hardly fail of proving very beneficial to agriculture.

—— *Conspectus of the Flora of Europe.*—Mr. Nyman's most useful list of European plants has reached its third section, and now extends to the end of the Coniferæ.

—— *Rabenhorst's Kryptogamen Flora.*—The fourth section of this useful work, edited by Dr. Winter, contains descriptions and woodcut illustrations of the Uredineæ and Tremellineæ.

—— Van Tieghem's *Traité de Botanique* has reached its third part, in which is concluded the history of the general morphology of plants.

CYSTIDIA IN THE MUSHROOM TRIBE.

The receipt of the magnificent specimens of Agaricus bombycinus from your correspondent the Rev. J. M. Du Port, has again directed my attention to the subject of cystidia in Agarics. Knowing by experience how fine the cystidia are in some near allies of A. bombycinus, the first thing I did on receipt of the specimens was to look for the cystidia. For several hours of the night my efforts to find any were unavailing, at last I saw one: soon afterwards two others (in the hymenium), at length two more: they all agreed exactly in their great size (longer than any here illustrated), in their spindle-shape, and in being without spicules at the summit. The cystidia must be extremely rare in A. bombycinus, and this fact will give some one a good opportunity for saying he cannot see them, or for some rash person to deny their existence altogether.

I will briefly state what is meant by cystidia in the Mushroom tribe, and my impression that they represent the male element of these plants.

As a good example, I will take Coprinus atramentarius; this is an extremely common deliquescent Agaric, very frequent about rotten palings and wooden borders of gardens. Under the cap one can, of course, see innumerable black gills, each gill about as thick as tissue-paper; if the edge of one of these gills, or a section through any part of the gill surface, is examined with a microscope, three sorts of cells, in addition to the spores, will be seen. First, the simple cells of the plant, as at A, fig. 71; next, cells of a somewhat larger size, called basidia, B, these carry the spores, as at C. The basidia always carry four spores, on the minute spikes here shown, but one spore only is shown in position, for convenience; and lastly, other bodies of an immensely larger size occur, as at D—these latter comparatively gigantic flasks are extremely abundant; in some species of Coprinus they are so large that they can be seen without a lens, and they are so heavy that they drop out of the fungus in large numbers and rest on the ground with the fallen spores. At first these bodies are filled with fluid, but as the fungus becomes ripe the fluid becomes differentiated and takes a fine granular form; at this period the cystidium opens at the top, either by an orifice or sometimes by a little operculum, or trap-door, which flies off, and the minute mobile granules pour out. Cystidia are distinctly hyaline and glutinous bodies, the spores always

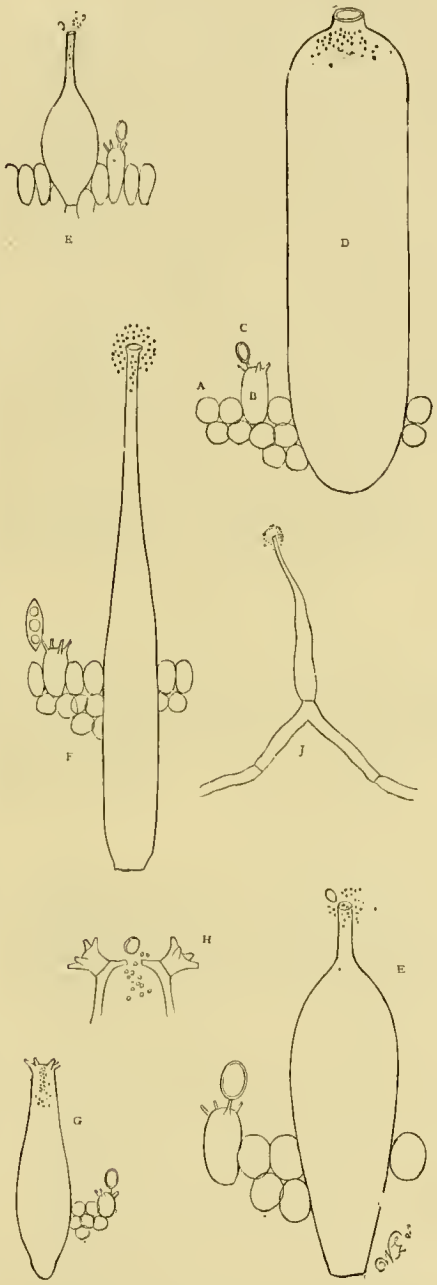

Fig. 71.—Cystidia in the Mushroom tribe, enlarged 400 diameters.

stick to them. Now in such deliquescent fungi as Coprinus the cells of the plants speedily perish, with the exception of the basidia, with the spores *and the cystidia;* the cystidia remain uninjured as long as the spores, and this fact alone suggests to my mind that they should be considered of equal importance with the spores.

At E is seen the cystidium of Agaricus cucumis; at F, the cystidium of Gomphidius viscidus; at G, Agaricus umbrosus; at H, Agaricus radicatus, with the little operculum or lid, at E and H, flying off. The figures are enlarged to an uniform scale, namely, 400 diameters; and in each figure the simple cells of the plant and the basidia, with the spores, are also illustrated. It will be seen how important these bodies are as regards size and persistence.

Many botanists have noticed cystidia; but in my opinion cystidia have at present by no means received the attention that is their due. I could fill several pages of the *Gardeners' Chronicle* with illustrations of their diverse forms, but in no instance have I ever seen a cystidium smaller than the ordinary cells of the fungus; they are usually larger, sometimes hundreds of times larger, always more hyaline.

Professor De Seynes expresses an opinion that cystidia are hypertrophied basidia—that is, basidia (or spore bearers) blown out in size; and Dr. Cooke seems to think this view is supported by some basidia, being furnished with spicules at the top, G, as if they were intended to bear spores. If these views are admitted we have organs that are hypertrophied and atrophied at the same time. It is the case of a mountain bringing forth a mouse. The cell is blown out so as to give enormous expectations, and when quite mature it puts out four little effete horns, but never produces spores.

That the cystidium and basidium are modifications of each other I am quite prepared to admit; and as for the four spicules in Pluteus, if botanists will only look at A. petasatus they will see cystidia with eight or even twelve spicules in three rows. Are these then to be considered attempts to produce eight or twelve spores instead of the normal four? Sometimes the spicules are proliferous, and each spicule will produce four others of a minor order, as at G (A. umbrosus, enlarged 1280 diam.). Is this for sixteen spores?

In conclusion, I will advert to the way in which the cystidia in Gomphidius are borne. In many instances (if not in all) they arise from two conjoined cells, as at J (enlarged 160 diameters). I have not seen basidia so arise, and it looks superficially like what is termed conjugation. It is a very curious thing that Dr. Cooke, in figuring Peniophora sparsa (*Grevillea*, p. 125, fig. 16), shows two metuloids (like small cones) with a forked base: this is remarkable, and to my mind it indicates that the metuloids of Peniophora may sometimes arise from two cells, instead of a single one. *W. G. Smith.*

FRUIT NOTES.

Frogmore Prolific Apple.—I can fully endorse all that has been said by Mr. Ingram, of Belvoir, and Mr. W. Carmichael respecting the good and prolific qualities of the above Apple. This valuable variety has been grown here for some years, never failing to bear crops of fine fruit, even on quite small bush and pyramid trees of only two years' growth. I have always very highly recommended it as one of the surest bearing and best early culinary Apples in use from September to Christmas. It is surprising that an Apple having such excellent qualities and one described in Dr. Hogg's *Fruit Manual* as one of the best culinary Apples sent in to the Royal household should be so little known. *Geo. Cannon, Lee's Nursery, Ealing.*

Peach Rivers' Large Early Mignonne.—We gathered ripe fruit of this from a west wall on August 24, beautifully coloured, of large size, and A 1 in quality. It is one of the best of the several good kinds raised by the late Mr. T. Rivers. It is sometimes confounded with the older variety called Early Grosse Mignonne, but it ripens from ten days to a fortnight before this kind, and the fruit is larger and more deeply suffused with rosy-crimson. The tree has a good constitution, and is equally well adapted for forcing as for open-air culture. *W. W.*

Pott's Seedling Apple.—This variety deserves all that your correspondent, Mr. W. Roberts (p. 334), says of it. I have fruited this variety for this last four years, and it has never failed to carry a heavy crop of splendid fruit. Other varieties that do well here are Stirling Castle, Lord Suffield, Hawthornden, Cox's Pomona, Annie Elizabeth, Peach, Ecklinville Seedling, Red Astrachan, Maltster, Lord Grosvenor, Warner's King, Keswick Codlin, Lord Burghley, Golden Pippin, King of Pippins, Blenheim Orange, Norfolk Beefing, Beauty of Kent, Boston Russett, Golden Noble, Small's Admirable, Cox's Orange Pippin, Lady Henniker, and Claygate Pearmain. *Edward Ward, Gr., Hewell Grange, Bromsgrove, Worcestershire.*

Barton's Incomparable.—If Mr. Carmichael has found Barton's Free-bearer and Barton's Incomparable two distinct varieties, the trees that were supplied to Mr. Scott were decidedly wrong, as he obtained Barton's Free-bearer, Barton's Incomparable, and Barton's Favourite as distinct kinds, but when they fruited here he found them one and the same thing. The praise he tenders Devonshire Buckland Apple for its good qualities is well deserved, but we find it around this neighbourhood a rather shy bearer. The Apple W. E. Gladstone, which your correspondent "R. W." writes about, I believe, originated in France, as we imported trees of it from a French nurseryman in 1875. *W. Roberts, Merriott.*

Duchess' Favourite Apple.—A very beautiful Apple is grown in this district under this name, and it is one in high favour both with growers, because it is so free, and with buyers, because of its beauty and rich colour. It is not unlike Fearn's Pippin in shape, but is more conical, and has, when ripe, the rich bright crimson hue of the Quarrenden. The name is not to be found in the *Fruit Manual*, and, therefore I conclude that it is but a local one, and is perhaps in the trade under some other designation. *A. D.* [This Apple was raised by the late Mr. Cree, of the firm of Cree & Co., of Addlestone, and was named by him Duchess of York's Favourite, the Duchess then residing at Oatlands Park in the immediate neighbourhood. It is a very handsome Apple, but not of very high quality; nevertheless well worth growing as an early sort for its fine appearance. EDS.]

Grove End Scarlet Strawberry.—How seldom we see this fine old Strawberry in gardens now-a-days. Many of the rising generation of gardeners hardly know it, and a good many others despise it; still it is worth a place in every garden where large quantities of Strawberries are required for preserving. It is also less fastidious as to situation than most other varieties, and will succeed fairly well under partial shade, and with less attention than almost any other variety that could be mentioned.

Pear Beurré de l'Assomption.—How is it that this Pear is not more largely grown? It is a large handsome fruit, of very good quality, and the tree is a sure and prolific bearer. It may certainly be classed among the best of market Pears, and one wonders that market growers, who are generally pretty 'cute in discovering a real market novelty, have not before this learnt its value. We bought four trees of the Messrs. Rivers, Sawbridgeworth, some six or seven years ago, which have been trained over a walk as orchard cordons, and they have not failed to bear heavily for the last five years. They are on the Quince stock, which will account for their never having required root-pruning to induce fruitfulness. The season of ripening is from the middle of August to middle of September—a quality that may account for its not having become more popular, as that is the season of ripening of that best of all early Pears, Williams' Bon Chrétien; but, for all that, large growers in particular would find it profitable to grow both the kinds. *W. W.*

Minchall Crab.—I met with some fine trees of this old Apple in an orchard the other day, the trees showing amidst many others signs of rude health and long life. The heads were very large and loaded with fruit. At the first glance trees and Apples might be mistaken for the Blenheim Orange, but the fruit are found to be more depressed. The Crab is a long keeper, and becomes a most useful Apple in the spring months. Locally the growers will persist in calling it the Minchin Crab. When it is a good fruit sea on, a visit to an old orchard is always full of interest. One now and then lights upon some old or almost unknown sorts, and these serve to increase our knowledge of Apples, as well as enable us to see more fully what advance the Apple has made from time to time. *A. D.*

The Kentish Cherry.—A variety comparatively unknown among small growers, notwithstanding its qualities as a culinary fruit. Those who use Morello Cherries for dessert—and there are many who do when they are dead ripe—would find this variety much superior and altogether better in flavour for dessert or preserving than the Morello. It is the only variety from which you can draw the stone without disturbing the flesh, and is largely used for preserving when it can be obtained by those engaged in the trade.

Harvey Codlin.—This is an Apple that is by no means common, and yet it is a hardy, free-bearing sort that produces large handsome conical fruit of capital cooking quality. I draw attention to it, however, chiefly to remark upon the great similarity that exists between its fruit and that of Lord Suffield, for there is just the same form, closed eye, speck and bloom, but the fruit of Lord Suffield is larger, ripens earlier, and is of a paler hue. Is this Harvey Codlin one of the Lord Suffield's parents? Not only does the fruit so much resemble, but the trees in habit and growth resemble it also. The Harvey Codlin is quite an old kind, but always bears fruit. *A. D.*

The Quince as a Stock.—Some fourteen years since I planted many Pear trees of various sorts grafted on Quince stocks. For several years they did well and bore good crops of fruit for the size of the trees. Now, and for some years past, the leaves put on a yellowish autumnal tint early in July, whereas all on the Pear stock many years older are still green; these bear good crops, the others do not; both have been root-pruned. The soil is at top a sticky sort of poor loam, the subsoil clay, with a few chalk stones here and there. Have any of your readers had a similar experience of Quince stocks? On this soil I am disgusted with them. *Robert Warner.*

Mr. Gladstone Apple.—I find here the above Apple in every respect bearing out the description given of it in your Fruit Notes by "A. D."—free-bearing, very early, good size, skin most beautifully and highly coloured, covered with bloom like that of the Red Astrachan Apple, and much perfumed. I have a strong opinion that this very showy and excellent early dessert Apple, when better known, will be very largely grown, especially by market growers, as there is a decided preference in the market for highly coloured fruit. *Geo. Cannon, Lee's Nursery, Ealing.*

PLANT GOSSIP.

EUPATORIUM GRACILE ODORATISSIMUM.—This is one of the most charming varieties of its class, and, as the reader will observe from the name, it is sweet-scented—no small recommendation in an autumn-flowering plant. For mixing with Violets in a cut state from November to Christmas it is particularly useful, and ought to be in every collection of winter-flowering plants.

LANTANA MADAME ROUGIER.—Among the dwarf compact-growing kinds this variety is certainly a gem—a free flowerer; in colour orange and rose, the very thing for front rows of moderate-sized structures, and a true amateur's plant. The value of a small collection of these plants for general decorative purposes must be known, to be appreciated as they ought to be.

CHORETIS GLAUCA.—As miscellaneous bulbous plants are becoming better known, and some of them so useful for cut blooms, I would strongly recommend those who do not possess Choretis glauca to purchase a nice established plant of it. Pancratium fragrans comes nearest in appearance to it of any of the Pancratiums generally cultivated. Choretis glauca is, I believe, considered by some to be a little shy blooming; for myself, I cannot say I have found it so. It is grown here in an intermediate-house, after being well established in the stove. The former house suits it very well if it is not blocked in with stock larger than itself, and has plenty of light and room for its graceful foliage to mature and develope. For specimen glass, accompanied with other superior choice bloom, such as is to be found in the Orchid-house, its effect, if in quantity, for wedding, christening, and the like occasions, is remarkably good—it is by far more than charming. It does not appear in the catalogues of even our largest nurserymen now. *W. Sims, The Gardens, The Firs, Mitcham.*

OXALIS CORNICULATA RUBRA.—It is always instructive to find a common plant turned to good account in the way that Mr. Mason, gardener to the Hon. William Evans Freke, uses it at Bisbrook Hall, in Rutlandshire. The plant is usually employed for carpet bedding, but to see it covering the surface of pots for furnishing purposes is not an every-day occurrence. Mr. Mason plants it upon the surface of the soil in pots containing Pandanus Veitchii or other variegated plants where it has a rich contrasting effect, and gives diversity of colour and a pleasing change, which is both simple and agreeable.

VIOLA PILRIG PARK.—This is one of the freest flowerers of the Viola family at this season. It is growing and flowering even in a young state in the most satisfactory manner, but Violas have had a grand innings lately, the wet cool weather suiting them admirably, so we must not estimate them at more than they are worth.

CLEMATIS FLAMMULA.—This very old-fashioned but most useful variety is a plant which should be well known to cottagers, amateurs, and even to gardeners who frequently have to advise in the matter of clothing walls, unsightly offices, and trelliswork with creeping plants. The hardiness of the plant, the profusion in which its little white sweet-scented flowers are produced, and its habit of growth renders it at once one of the most eligible subjects that can be employed for covering or creeping over rustic work where expensive plants or horticultural skill are not sought after. The variety is neat in growth, and is perhaps best adapted for covering low trelliswork where the fragrance of its flowers could be enjoyed to the full.

AMPELOPSIS SEMPERVIRENS.—If we can only succeed in producing an evergreen Virginian Creeper, such as the plant under notice, which is of recent introduction, partaking of the adhering properties of Ampelopsis Veitchii, we shall have accomplished something which will be a great benefit to gardeners and gardening. The plant grows freely from cuttings, and if it will only adhere to walls with partial training it will be a great acquisition to our stock of wall creepers. *W. Hinds.*

CORYLUS COLURNA.—Unlike most of the cultivated nuts this species attains a considerable size. In the Levant—its native country—it is often found 60 feet high, with a trunk of considerable thickness. Although it is probable that no specimens of the size mentioned exist in this country, yet there are to be seen, in old places where collections of deciduous trees were once carefully established, good examples which serve to point the moral that there are many fine deciduous trees of great interest and beauty which seem to have become quite forgotten. In the arboretum at Kew there is a good specimen now in fruit; the latter are very striking, with their large laciniated and fringed involucres. In the *Hortus Collinsonianus* there is an interesting note by Mr. Collinson respecting this species. "The Turkey nut in the Mill Hill Garden is very remarkable from all others, for the husk rises high, and branches out every way, and covers the nut. This is a remarkable acquisition, for the captain that brought them from Turkey, eating them in a drinking-room, one of them dropped into the crack of a rotten window-board, where it took root; my gardening friend, Mr. Bennett, coming there and seeing it, transplanted it to his garden, from whence our tree was a layer, and brought here anno 1756."

Garden Operations.

KITCHEN GARDEN.

During the fine weather which we have been having during the last fortnight a vigorous use will have been made of the Dutch hoe, in order to destroy small weeds, together with the stirring of the soil between the rows of Lettuce, Endive, Onions, Spinach, and other crops. This procedure has a twofold effect—that of destroying the weeds, and at the same time of accelerating growth in the plants. The transplanting from the seed-beds of Cauliflower and Lettuce plants resulting from the seed sown on August 20, will require special attention next week, as they will then be large enough for putting in their winter quarters in pits, frames, and hand-glasses, where the plants can be protected from the effects of frosts and heavy rains, inasmuch as they suffer nearly, if not quite as much from a superabundance of the latter as from a few degrees of the former.

Cauliflowers.—Prick out the first batch of these into handglasses placed in rows 2 feet apart every way, so that there is room between the glasses in the row for the top of each glass to be placed when not required over the light; for this purpose four bricks should be placed in position for the covers to rest upon. Previous to putting the plants in the hand-glasses we put on a surface-dressing of wood-ashes, as a means of preserving the roots and leaves of the plants from the ravages of insects. We put from six to nine plants into each hand-glass, which are in two sizes—18 inches and 22 inches square respectively—and these we thin out to three and five in February and March next, lifting them carefully with the soil adhering to the roots of the individual plants, which are then transplanted in a suitable situation. In order to obtain

and preserve a sturdy growth in the plants, the top lights must be left off the glasses and only be replaced on the approach of frost or during heavy rains. The plants in glasses which I am now referring to will occupy a piece of ground adjoining the recently planted Cabbages, and which has been deeply trenched and liberally manured. The plants thus treated, together with a few hundred plants wintered in 60-pots, will supply our earliest Cauliflowers in May next, and to which those plants raised from seed at the same time as those in the glasses, and subsequently pricked out in a pit or frame 5 or 6 inches apart every way and transplanted in the spring, will make a succession. These plants, like those in the hand-glasses, should have the sashes and shutters left entirely off in the absence of frost, heavy rains, or snow, the object to be attained in each case being identical—a sturdy growth. Failing the above accommodation, a sufficient number of plants may be wintered in an improvised frame fixed in a warm corner and protected during frosty nights with hurdles, to which mats have been fixed, the whole covered with dry Fern in the event of severe frosts.

Another important subject, and one also that requires some consideration as to the best means of wintering it, is Lettuce. The plants (the seeds of which were sown at the same time as the Cauliflower seed) will be ready for pricking out in pits, frames, and warm borders by the middle or end of next week. These may be grown in the same way and under the same conditions as those recommended for Cauliflower plants in glasses (only a greater number of plants may be wintered in the individual lights), pits, &c. The plants for early spring work we winter in pits, over which we can put the sashes when necessary, and plant in rows 6 inches apart and nearly the same distance between the plants in the rows, in light soil and within 6 or 9 inches of the glass. In addition to these we winter a number of plants in a shallow frame with wooden shutters and Fern, as a means of protection from frost, when necessary; and also in warm dry borders with 6 inches between the rows and 3 inches in the rows we make our last planting, which, on the advent of frost, are covered lightly with Fern, which, in the event of severe weather, is increased, and again removed and replaced in accordance with the nature and whims of the weather. In February and March next every other row of these plants will be carefully lifted and transplanted in warm situations, and the plants in the rows will be thinned out to the proper distance in the rows (12 inches) as they are required for use, and if necessary for transplanting. Before pricking out the young Lettuce plants, and finally transplanting them, we make it a rule to surface-dress the ground with new dry soot, which with the rake is slightly incorporated with the soil. This we find from many years' experience of its use serves not only as an antidote against the attacks of insects but also as a fertiliser and purifier of the soil.

Attend to the earthing-up of Celery as the nature of the weather permits of this being done. Late plantings of Broccolis, Savoys, and Leeks will also require attention in this direction. Thin out plants of Lamb's Lettuce to about 4 inches apart in the rows, and Dutch-hoe between the latter in order to destroy small weeds, which are sure to be cropping up now, and would speedily develope themselves if allowed to remain undisturbed for a short time, and also to stimulate growth in the plants.

Frame Ground.—On the approach of frost it will be necessary to lift all the full and half-grown Lettuce plants and lay them in by the heels for present use, but not too closely together, lest they should become too damp, and rot in consequence. Make a sowing of Wood's Frame Radish forthwith, and as soon as the plants appear through the ground, remove the lights daily. All subjects in this department will require abundance of air during favourable weather.

Forcing Department.—If French Beans were sown as recommended in our last Calendar, they will now be large enough for having the points of the shoots nipped out and the plants earthed-up to the rims of the pots; keep the plants near the glass and ventilate them freely during the day in order to promote a sturdy growth. *H. W. Ward, Longford Castle Gardens, Wilts.*

FRUIT HOUSES.

Peaches and Nectarines.—The trees in the early house will by this time have pretty well matured their growth, and, as a natural consequence, will be taking their annual rest for the next two months. I have had the sashes removed from our first and second houses for some weeks past, and the young wood is now getting a nice brown colour, and the buds look very promising for a good crop of fruit next season. Keep the foliage on trees in succession and late houses thoroughly clean by frequent syringing (at least once daily), and whenever the borders get at all dry give them thorough soakings of clear water. Any trees in late houses that are swelling off their fruit may have liberal supplies of liquid-manure. Assist the maturing of the wood in late houses with a little fire-heat, and a free circulation of air by night as well as day; it will also improve the quality of any fruit that may be ripening. *J. Wallis, Keele Gardens.*

Melons.

During the past fortnight but little assistance has been derived from solar heat, and Melon crops generally, which are very susceptible to extreme changes of weather, have not made that progress which is so desirable at this season. The uncertainty of the outdoor temperature renders it an irksome duty to the stoker to keep up the average warmth required by Melons without exceeding a healthy figure—say a mean of 75° by day and 70° by night—which should not be exceeded if possible as long as the weather remains cloudy and sunless. With, however, a good stoker at the helm, and a properly adjusted heating apparatus and valves in sound working order, the temperature may be regulated early in the morning, so that in case the sun breaks out strong for a few hours the heat can be controlled and kept at a moderate figure. It is always a great cultural advantage to have plenty of heating surface in forcing-houses, especially during periods of depressed temperature, which enables the cultivator to maintain a genial warmth for his plants without at any time overheating the hot-water pipes, which creates a burning, dry atmosphere, and usually breeds red-spider, which is even more dangerous at this season than earlier in the year, when crops progress with greater rapidity, and plants have more vigour in them to battle against the attacks of the insect. While, therefore, it is necessary to keep a fairly high temperature and an atmosphere moderately dry, it is also important to supply sufficient moisture to keep the plants in a growing, healthy state. When the days are mild, even if there be but little sun, a notch of air should be put on at 9 A.M., or even before, and if there are iron or zinc gratings let into the front wall immediately below the hot-water pipes a constant circulation of air broken up into fine threads—if I may use such an expression—can be admitted, which, coming into contact with the heating surface before it enters the house, will sweeten the atmosphere and have a very beneficial influence upon the plants. What must be particularly guarded against is a close moist atmosphere during this dull weather, which would cause the plants to grow weakly, and render them subject to disease at a time when they should be full of vigour to sustain and nourish the crop. In case of strong sunshine a slight shading during the hottest hours of the day will be beneficial until the plants are again strengthened with plenty of natural heat and healthy fresh air. Plants that are ripening off their crops will require but little water at their roots—indeed, the less they get the better, as long as they do not exhibit symptoms of distress. *W. Hinds.*

Cucumbers.

Those who have been harassed with the Cucumber disease during the summer months may now congratulate themselves that their difficulties for the present year are nearly past. I have little faith in ever eradicating the disease from any place where it has once got a firm hold, except by giving up Cucumber growing for, at least, a couple of seasons in the structure, or even an adjoining structure, where the pest has established itself. It is a curious fact that the ravages of the disease are never so conspicuous in winter; indeed, plants that enjoy average attention seldom fail to grow and fruit very well through the winter months, although I have frequently detected traces of the disease among plants under the charge of unsuspecting persons who have not had experience of the symptoms by which the disease can be identified in its mildest form. For the present, however, there need be no apprehensions of fear from the insiduous attacks of the disease, if a thorough clearance out was effected as recommended some time ago, and the house or pit was disinfected, and fresh material and healthy young plants, raised from a good fruiting strain, have been planted out as already directed. The natural habit of growth and rapid development of Cucumbers, which takes place under certain systems of cultivation, very frequently sow the germs of disease brought about by exhaustion in the earlier stages of growth. To an inexperienced person there does not seem to be so much difference between two sets of plants having green leaves, and covering an equal area of trellis, but there may, there is—and very often, too—a very great difference, from a cultural point of view, in the actual condition of the plants. The one may have grown faster than the other, and at first sight look as well, but upon examination their thin fragile leaves and lanky growth is sufficient practical evidence that the cultural treatment is not right. The latter condition is brought about by a high moist temperature, insufficient ventilation, and want of discrimination and judgment in airing, watering, syringing, &c., which, after all, are the three principal and vital operations in Cucumber growing. Keep the plants moving at all times, but do not force much growth, except when the weather is favourable enough to admit sufficient air to strengthen the growth as it is made, and to render it firm enough to stand the dull days of winter. Cucumber growing is not accomplished in winter, but during the next six or eight weeks, and as we sow now, so we shall reap hereafter. *W. Hinds.*

FLOWER GARDEN.

Foliage Beds and Winter Bedding.—After a month of the most showery weather that has ever been known in this part of the country at this season, those beds that are composed of foliage plants only are in every way satisfactory, being well filled out and as bright in colouring as if there had been the best of weather; the very opposite is the case as regards flowering plants, particularly Pelargoniums, which usually constitute the bulk of the flowering plants used for bedding purposes. Ageratums, Violas, Heliotropes, and Calceolarias have withstood the rain better, but these cut a sorry figure in comparison with the beds of foliage. Unfortunately in the make-up of the latter the use of tender plants, such as Coleus, Iresine, and Alternantheras is unavoidable, else their effectiveness would not be marred for a long time to come; but even as it is, taking all points and all sorts of weather into consideration, one has no difficulty in awarding the palm to foliage arrangements of various descriptions.

For some time now—in all our formal bedding arrangements—we have given preference to and introduced a preponderance of foliage plants, and this, not by reason of the summer effect they produce, but because we are required to study winter effect; hence in spring planting we use all hardy plants that we think suitable, to save labour of replanting as winter approaches. The conversion of a summer to a winter garden is thus reduced to the minimum point, and unfortunately the cold nights begin to warn us that we have almost reached that stage, and that therefore preparation must be made for substitution of hardy for tender plants. It is quite impracticable in this place to name all the plants and their adaptation to certain arrangements that are thus pressed into service, but the following may be suggestive:—A large bed, the groundwork of which is Herniaria glabra, this being intersected with Mesembryanthemum cordifolium variegatum, the panels being of Alternantheras and green Sedum Lydium. The panels of Sedum have a dot plant of the tree Sempervivum arboreum variegatum, and those of Alternantheras dot plants of Echeveria metallica, the central plant of all being variegated Phormium, with an undergrowth of Sedum acre elegans. The reconversion from summer to winter of this said bed will be as follows:—In place of Mesembryanthemum Sedum glaucum will be used; for the panels of Alternanthera, Ajuga reptans purpurea, and dot plants of Thuya aurea (small); the panels of green Sedum will remain, and in these will be put small plants of Retinospora pisifera aurea; the central plant and groundwork will remain as before. We have other beds that may require more replanting, and some less than that here given, but this is instanced as a fair sample of the labour and material necessary for the carrying out of a combination of summer and winter bedding.

Herbaceous Plants and Mixed Flower-Beds.—The damp weather has suited many of these; Japanese Anemones and Phloxes were never more vigorous or more profusely flowered. The latter need frequent going over, to remove dead blossoms, as likewise do most of the other occupants of such borders. The present is the time to note any changes that it is desirable to make as to rearrangement of plants, their height, spread of growth, colour of flowers—all these should be noted for use when the time for removal arrives. Thin out annuals; some of the hardier kinds may still be sown with fair prospects of success. Plant bulbs, and if no general replanting or rearrangement is this year needed fill out the bare spots, at all events near the margins, with hardy surfacing plants, such as Sedums and Saxifrages.

General Work consists in the preservation of neatness, including such routine operations as the sweeping and rolling of walks and turf. Worm casts are very troublesome at this season; lime-water is the best destroyer of the worms, and does no injury to the turf. Of course, when there are acres of lawn this remedy is out of the question, and one must therefore be content to sweep and roll.

Any alterations that may be in contemplation should at once be decided on and be commenced forthwith; for turf and plants and shrubs of every description, after so much rain, may now be moved with safety; early autumn planting is generally the most successful, and is by far the least labour, there being no need to water, but simply to tie the plants to supports and well mulch. Pelargoniums and other bedding plants that have been struck in the open air should now be got under protection. Give them abundance of air, but guard from frost. Cuttings of tender kinds not yet put in should have immediate attention. *W. Wildsmith, Heckfield.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 19	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Bulbs at the Auction Mart, by Protheroe & Morris.
TUESDAY,	Sept. 20	International Potato Show at the Crystal Palace (two days). Annual Sale of Winter-blooming Heaths, &c., at Maller's Nursery, Lee, Kent, by Protheroe & Morris.
WEDNESDAY,	Sept. 21	Sale of Dutch Bulbs, at Stevens' Rooms. Annual Sale of Winter-flowering Heaths, &c., at Fraser's Nursery, Leyton, by Protheroe & Morris.
THURSDAY,	Sept. 22	Sale of Established Orchids, at Stevens' Rooms. Annual Sale of Winter-blooming Heaths, &c., at Maller's Nursery, Tottenham, by Protheroe & Morris.
FRIDAY,	Sept. 23	Sale of Plants, Tools, &c., at Calverton Limes, Stony Stratford, at 11 A.M., by Mr. Moggs Wright. Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY,	Sept. 24	Sale of Dutch Bulbs, at Stevens' Rooms. Clearance Sale of Greenhouse Plants and Nursery Stock at Allen's Nursery, Finchley, by Protheroe & Morris.

CONSERVATISM IN FRUIT GROWING was once more strikingly impressed on all careful observers of the marvellous display of fruit brought together at the great International Fruit Show recently held at Manchester. Amid the many hundred dishes of Grapes exhibited, the Hamburgh was the predominant black Grape, the Muscat of Alexandria the most popular white Grape. This clinging to old varieties would doubtless have been even more apparent, had not prizes for collections of Grapes, ten varieties, been offered. Prizes were also given for special varieties, such as Madresfield Court, Duke of Buccleuch, Golden Champion, Alicante, Lady Downe's, &c., as well as for the heaviest bunches; the latter, of course, bringing in some grosser growing sorts. Apart from these special stimulants to variety, it is probable that the lack would have been still more striking in the great Grape exhibition at Manchester; though, of course, such Grapes as Gros Colmar, Alicante, Lady Downe's, Madresfield Court, Mrs. Pince's Muscat, or the Muscat Hamburgh, even the Golden Hamburgh, or Duke of Buccleuch, can hardly be called very novel at the present day. Even some of the oldest and best of our white Grapes, such as Buckland Sweetwater, and Foster's Seedling, were sparingly represented, while Mrs. Pearson and Golden Queen were hardly seen at all. No, the Black Hamburgh is still the black Grape; and the Muscat of Alexandria the white *par excellence;* these have stood the test of time, and seem on that account as well as by reason of their high intrinsic excellence, to be more largely grown than ever.

The same clinging to old well proved sorts was equally or even more observable in the Peaches and Nectarines, which were the next great features of the show. Of over 100 dishes of Peaches staged, fourteen were Royal George, twelve Grosse Mignonne, eleven Bellegarde, ten Noblesse, nine Violette Hâtive, eight Prince of Wales — this variety is evidently stealing a march on the older sorts, four of Dr. Hogg, two Lord Palmerston, two Chancellor, two Stirling Castle, two Dymond, and from one to two each of the following, as well as several dishes unnamed, and of no particular merit:—Red Magdalen, Early Alfred, Gladstone, Alexandra Noblesse, Astrachan, Crimson Galande, Early Admirable, Late Admirable, and Exquisite.

The preference for old varieties was still more striking among Nectarines. Among over 100 dishes of these, counting those in the collections as well as the single dishes, there were twenty-four of Pitmaston Orange, twelve of Violette Hâtive, two of Elruge, five of Pineapple, five of Victoria, four of Stanwick Elruge, four of Rivers' Orange, four of Red Roman, and two of Prince of Wales. The following were also represented by single or very few more dishes:—Downton, Lord Napier, Darwin, Murray, Newington, Hunt's Tawny, and Improved Downton. It will be observed that some of these varieties so scantily represented are amongst the oldest in cultivation, so that it is not altogether the rejection of novelties as such, that causes such a general run on a comparatively few well-known and thoroughly proved sorts, but it is rather the result of a rigid selection by which the fittest and most profitable varieties seem to be chosen by general experiences; and had one time to follow the prize lists, it would be found in most cases that the highest awards had best attested and rewarded the wisdom of those practical men who trust for their main crops and their show fruits to those established varieties, some of which have borne the strain of centuries, and are crowned with the victories of years.

We would not, however, be understood to disparage new fruits. Far from it. Fruit has its victories as well as plants, though they have neither been numerous nor so brilliant. It is doubtless well that this should be so, as otherwise our favourite Grapes, Peaches, Nectarines, Apples, and Pears, would probably soon be grown out of character and flavour, and disappear from cultivation. The proverb "Leave off with the old love before we are on with the new," should be reversed and read thus in relation to fruit, "Hold fast by the old until the new proves itself better." This has led to the winning of many a prize at Manchester and elsewhere, and, what is of more importance still, the bountiful supplying of those home tables which practical fruit growers are bound to furnish all the year round with the best fruits in or out of season.

In subordination to this rule all new fruits should have a fair trial, and not a few of them are of great merit. Nevertheless the solid gain in regard to quality is hardly worthy to be compared with the rapid progress that has been made in other branches of horticulture. But while novelty or improvement in fruit moves slowly, its cultivation has vastly improved. One of the most gratifying features of the Manchester show was the almost total absence of inferior fruit. Next to the pleasure of admiring the best samples shown was that of looking at the long ranges of dishes of fine, even high-class fruit, almost any one of which was worthy of honourable commendation. But notwithstanding the unprecedented liberality of the Manchester Botanical Society in offering prizes to the amount of two thousand pounds, it was impossible that among so many hundreds of exhibitors all could win. In the fruit classes, however, and as we believe for that matter in all others, the exhibits did the exhibitors the highest honour, and though many were necessarily defeated or disappointed, none were disgraced.

—— RUDBECKIA SPECIOSA.—At this season of the year yellow flowered Composites are somewhat of a "drug in the market." Selection, therefore, becomes a matter of importance to most people, and with a view of helping them, we have from time to time given illustrations of the very best of the herbaceous plants generally. Among these superlatives the present plant, fully described at p. 276, must undoubtedly be reckoned. It is of moderate height, and the flower-heads, 3—4 inches across, are orange coloured in the ray, while the disc-florets are of a deep purple. So far as we can learn the plant has not previously been figured—a circumstance which makes us the more anxious to make its merits known. Our specimen was figured (fig. 72) from a plant in the garden of W. B. HEMSLEY, Esq., but it is to be met with at Kew and in the nurseries of Messrs. KINMONT & KIDD, of Canterbury, where may still be seen several of the finer herbaceous plants originally got together by the late Mr. MASTERS.

—— OVER-GROWTH.—"Since the subject of vegetable pathology," writes Mr. BERKELEY, "has been taken up so successfully by Sir JAMES PAGET, attention has lately been very much turned to anomalies as well as to ordinary forms of disease. A very curious one, if not entirely new, has lately occurred, which I lose no time in communicating to the *Gardeners' Chronicle*. I have observed for some time that a plant of Thuya gigantea has appeared in a very unsatisfactory condition, though one close to it is a fine sample of growth. On examination I found a large excrescence like a corn at the base of the tree, which had a diameter of more than 13 inches, while the trunk of the tree had a diameter of 3 inches only. I had a section made with a circular saw, which was impeded when half-way through. At the point where the impediment took place was a little lump of hard ironstone, which had the curious effect of causing a strange diversion of growth, which was more rapid than it had previously been, but the principal energies of the plant were diverted; a few roots were thrown out on one side, while there was not a trace of roots on the other. The strangest part was that the growth of the stem was more rapid, but the health of the plant completely deranged. It was clearly not a case of exostosis, depending on an imperfect developed bud, but very analogous to a wen in the human frame. The case is so curious that I have sent a drawing which may, I hope, be acceptable. Since the above was written Dr. MASTERS has pointed out that a similar production is noticed and figured in 1879, vol. ix., pp. 372, 377, and I have observed somewhat of the same kind at the point where plants have been grafted. I do not think it is analogous to what are called gnaurs, but that it is a kind of hypertrophy." *M. J. B.*

—— INTERNATIONAL POTATO SHOW.—We may remind our readers that this show opens on Tuesday next at the Crystal Palace, and will be continued the following day. There is, we learn, every probability of a fine display. The Lord Mayor and Sheriffs will visit the exhibition, and his Lordship will preside at the luncheon on Tuesday at 1.30.

—— MR. BRUCE FINDLAY.—It will surprise no one to learn that this gentleman is suffering from the effects of overwork, and the sympathies of those who witnessed the result of his efforts at Manchester will be with him. We learn that Mr. FINDLAY has been enjoined perfect rest for a time, and has left home to secure it. Any delay in settling matters of business is to be attributed to this cause alone.

—— THE SIBERIAN CRAB IN PLEASURE GROUNDS.—There are few trees more ornamental either when in flower or in fruit than the Siberian Crab, which is, strangely enough, half-hidden from view about most gardens, whether large or small. Is there any more beautiful sight at the present time than one of those fine trees laden—in many cases borne down—with highly-coloured fruits? We lately saw a variety bearing yellow fruits at Orton Hall, Peterborough, which would make a good companion for the commoner small-fruited kind, which is still the prettiest because of the rich red colour of its fruits.

—— THE AMERICAN CROPS OF CLOVERS AND GRASSES.—From information which has come to hand we learn that the crop of every variety of American grasses is short this season, excepting only Poa pratensis, on account of the continued and exceeding hot weather and severe drought. There was little or no seed left over from last year, so the current crop has to be depended on, and the growers are reluctant to sell, expecting the prices will rule high. Poa pratensis is a fair crop, quality and quantity being satisfactory, but it is expected all will be sold, there being such a large demand for it in the United States. Of Dactylis glomerata there is a short crop, but of excellent quality. The supply of Festuca pratensis will be small, but the quality is extra fine. The crop of Agrostis stolonifera is a poor one. Of Timothy-grass and white and Alsike Clover the crops are short and prices ruling usually high. At present the probable crop of red Clover can scarcely be determined, but it cannot be excessive, and there is scarcely any old seed whatever in the market. The reports from Germany are expected to be more favourable, but anything like a correct forecast of the probable quantities can scarcely yet be made.

—— AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The next meeting of this Association will be held on British territory, at Montreal. Mr. MEEHAN has been appointed a Vice President, and is to deliver an address on Vegetable Physiology, and the advances made in that branch during the last quarter of a century.

The Gardeners' Chronicle,] FIG. 72.—RUDBECKIA SPECIOSA: NAT. SIZE: FLOWERS ORANGE AND PURPLE. (SEE P. 372.) [September 17, 1881.

—— WET WEATHER PLANTS.—After such a spell of wet weather, people are naturally looking about and taking note of those plants that are, so to speak, weather-proof, be it either wet, cold, or sunshiny. Tender-foliage plants are fast going back, Pelargoniums are making too much growth, and Lobelias are getting over, but beds of Wigandia caracasana intermixed with scarlet Gladioli are as fresh and bright as if we had had sunshine for the past month. In Battersea Park the subtropical beds intermixed with flowers are the chief feature—the carpet-beds excepted—at the present time.

—— MR. G. F. WILSON, F.R.S.—The current number of *Colburn's New Monthly* contains a portrait and appreciative notice of our excellent friend and ardent horticulturist, Mr. G. F. WILSON, the story of whose career as here told is instructive.

—— BOUGAINVILLEA SPECIOSA.—At one time it used to be looked upon as a feat to flower this deep mauve-coloured climber, and, amongst other things, an unusual drying and roasting of the roots by having the plants growing in a border under the drying influence of hot-water pipes or flues was considered necessary. But such in reality is not at all required, neither is anything like the amount of heat needed that once was thought requisite. In the conservatory at Ashton Court, near Bristol, kept at a greenhouse temperature in summer and about 50° during the winter, there is a large specimen turned out in the border in the usual way, and each spring it blooms profusely, keeping on until the summer is far advanced. In the same house, amongst the usual summer-flowering things, was a number of plants of the chaste-flowered Eranthemum Ghiesbreghtii blooming beautifully. This Eranthemum almost vies with some of the Barkerias in the character and delicacy of colouring in its elegant flowers. As a decorative subject it is well worth being much more extensively grown than at present.

—— SLOES IN RUTLANDSHIRE.—The Sloe crop in Rutlandshire this season is more than usually abundant, and reminds one of the old seasons of twenty years ago, when bushels of Sloes and wild Damsons could be gathered from the hedgerows every autumn. The Haws are certainly more abundant than the Sloes, but perhaps such a crop of both has not been seen for many years before.

—— CLASSIFICATION OF GRASSES.—Dr. C. O. HARZ contributes to the *Linnæa*, ix., p. 1, an article on the systematic classification of grasses, more especially devoted to the consideration of the genera Brachypodium, Bromus, Festuca, and allied genera, for which he proposes and defines a tribual character. He also constructs a "monophyletic" genealogical tree of the Glumaceæ.

—— LILIUM AURATUM RUBRUM VITTATUM.—Mr. BARR has submitted to us a magnificent bloom of this variety of L. auratum. The flower is as large as that of a big auratum, measuring fully 11 inches across. The form is broadly funnel-shaped, each segment recurved, rather narrow, but with a broad central band of rich reddish-purple reaching nearly to the tips, and spots of the same colour.

—— DOUBLE PELARGONIUMS IN SMALL POTS.—These are plants at once so useful, so easily raised from cuttings, and so inexpensive, that a choice selection of them would furnish no inconsiderable addition to our stock of decorative plants. Every one knows that there are thousands of them grown of many shapes and sizes, but it is when they are grown in a small state that they are so useful for private purposes. Only those who have large experience of the extent to which furnishing is carried on in private establishments can form any idea of the value of a goodly number of these plants grown in, say, pots of from 4 to 6 inches in diameter, with from three to four trusses of flowers upon each. Foliage plants were all-in-all for a time, and very pretty they were, and are still, but they lack brilliancy unless they are very judiciously used in rooms already overdone with heavy decorations. Double Pelalgoniums only become really floriferous when they are pot-bound, or something approaching it; give them root-room and their natural vigorous habit predisposes them to make soft growth, which takes time to solidify and mature, but restrict growth at the root at an early stage and a strong cutting becomes a flowering plant in a few months. They should be kept near to the glass and in the full blaze of the sun, in order to hasten a flowering condition, which, when once secured, may be assisted by applying some good concentrated manure in moderate quantities at short intervals as the plants appear to require it. Having once obtained a fair collection of them in a few striking colours, arrange a pair of vases, or, better still, a pair of large jardinettes, taking care to have the whole surface covered with growing moss, and see if the choicest foliage plants out of the plant-stove will make a display to equal it, or, at least, give as much satisfaction in point of general effect. To produce a fine display, only rich striking colours, such as white, scarlet, maroon, and crimson, should be used.

—— CATALPA SYRINGÆFOLIA AUREA.—This is a noble plant, with its broad golden leaves, to mix with evergreen trees and shrubs for autumn effect. Many samples that were cut down by the bitter frosts of last winter have made good progress, and although shortened in length are pretty bushes, perhaps the most attractive autumn shrub that we have. It comes in as a relief among evergreen shrubs before the sere and yellow leaf of the Beech and the Elm provide us with more than enough of the same colour. With such a plant in addition to the Golden Poplar, we may add to the beauty of shrubberies in autumn, and make them both interesting as well as effective.

—— SECOND GROWTH IN SHRUBS.—The result of so much wet weather of late is now being forcibly evidenced in the second growth of shrubs, which is a very unsatisfactory state of things thus early in the autumn. It is perhaps better in many respects that the temperature is so low, otherwise with a warmer atmosphere continually charged with moisture the state of things would be still worse. We want a fine bracing air for a month or six weeks to harden the growth of shrubs and ripen the buds of fruit trees, which are more numerous than they have been for many a year. If shrubs that are intended for early forcing show symptoms of second growth they should soon be lifted, potted, and set on a bed of coal-ashes behind a north wall, where they would remain cool and dormant, and where they could be temporarily shielded from heavy rains. To succeed in gardening one must be in advance of the times, and above all things not to wait until the steed is stolen before the stable-door is closed.

—— DWARF FRENCH BEANS are much damaged this year by a fungus, which attacks the leaves, stems, and ultimately the pods, making them quite unfit either for the market or domestic use, especially where they are preserved for winter in a solution of salt, as is the fashion in Germany, and which is adopted in some parts of this country. Such a solution boiled is admirably adapted for the preservation of many vegetable substances, as M. DE CANDOLLE has shown us. The pods have first a number of brownish spots, which soon spread and become more intensely coloured. They then become studded with little pustules, consequent on the increase of the subjacent spores, which at last burst their bondage, and appear in the form of little tendrils. As the disease increases the underlying tissue is destroyed, the fungus ultimately penetrating quite through the fleshy interior substance. Dried specimens were published by DESMAZIÈRES under the name of Septoria leguminum, of which genus, however, it is a very bad representative. It belongs rather to the genus Glæosporium, and indeed has been figured lately by SACCARDO, in his *Fungi Italici*, 1032, under the name of Glæosporium Lidemuthianum. It seems, therefore, to be very widely distributed, and where the pods enter very largely, as they do in Germany, into daily food, the loss must sometimes be very serious. *M. J. B.*

—— POTATOS.—It is now evident that the Potato crop of the present season will fall short of the fine produce of last year. Although early kinds have not done badly they are but a small portion of the whole, and do not in any way affect bulk or price now. Still worse than this, the disease is becoming general, and in some localities has already done great mischief. It is not a usual feature of this destructive agent to find it so rampant in Potato breadths as it is at this time of the year, but now even such famous resisting kinds as Champions and Magnum Bonums are losing their leafage at a rapid rate, and the fungus has also affected the tubers. That such a result would follow was but inevitable, after the long spell of cold and almost continuous rains we have had. Not only have the fungus spores operated upon the foliage, but they have operated upon the tender and immature tubers directly in the soil, that having become cold and sodden. Growers are now getting alarmed, and are lifting their crops and either disposing of them by auction, or are running them into market as fast as they can. The result is a low price, even good Regents obtaining not more than from 80s. to 90s per ton. When all the cost of seed, manure, labour rent, taxes, and marketing is deducted, the imagination need not be strained to discover how much is left as profit. That buyers both find and fear disease, and find also but a moderate crop, is evident when it is found that breadths of the most promising kind sell at from £14 to £16 per acre—a very indifferent price indeed in a good district and near London. No doubt the cry in favour of the larger growth of earlier kinds will be raised, and it is a cry that should be listened to. Any sort that will give a good crop of tubers of good table quality in August is certainly to be preferred to one that, like Magnum Bonum and Champion this year, will not be ripe till next month. Indeed, were it not that earlier ripening kinds escaped the disease largely, they would still have the recommendation that by lifting early they left the ground free much sooner for further cropping.

—— TOWN TREES.—Our contemporary, *Land* observes:—"It is pleasant to find so much interest taken in the planting of trees at seaside towns Clacton-on-Sea, one of the latest aspirants to the favours of London holiday-makers, will one of these days be a veritable *ville-en-bois*, miles of streets and roads having been laid out on both sides with beautiful young trees, which are making such progress that you can almost see them grow. Several inland towns are also remarkable for their tree-planted streets and promenades. Shrewsbury and Grantham are capital instances in point. Most of the trees at Grantham were put down by public subscription about fifteen years since, and they are now a credit and delight to the place, the notice-boards attached to the guards round them, in which 'the public are requested to protect the property belonging to the public,' having been effective. Some of the newer streets and roads in the Essex town of Romford are about to receive similar decoration, the subscribers to a fund for the purpose having received the permission of the local authority to carry out their object, accompanied by a nice little grant towards the expenses, and an assurance that the trees shall be well cared for."

—— PROLIFEROUS PINE-APPLE.—Mr. WILSON the Castle Gardens, Arundel, sends us a Pine-apple each pip of which is represented by a small bud (sucker or gill). It was grown in a pit with others, and treated in the same way. It is a curiosity, and not very desirable one from the gardener's point of view but we have also seen instances where each of the suckers has developed into a fruit like the central one but smaller. Whether it would be worth while to try and develope this condition is also doubtful, but at any rate it would be more promising than Mr. WILSON'S specimen.

—— GRAPES AT ASHTON COURT, BRISTOL.—The high character which Mrs. Pince's Muscat Grape received prior to and about the time it was let out was such as to cause great expectations respecting it. Then after a little time had elapsed to admit of its getting fairly established in the hands of those who had purchased plants, Mr. MEREDITH came out with the very large bunches shown in the collection with which he took the prize offered by the QUEEN at Edinburgh in September, 1869, but although these were good examples of what it is possible to accomplish in the way of size in Grape growing, both as to big compact bunches and large berries, still there was such a want of the deservedly prized deep black colour in them that despite their size, they were set down as deficient in the first essential that cultivators look for in a black Grape; nevertheless, in most gardens where there are any pretensions to keep abreast with the best sorts of Grapes that appear the variety was tried, but with it, as with a good many others that have appeared since, there were more who failed than succeeded. With many it did not set well, and in the case of still more who managed to get it right in this respect, it refused to colour even tolerably. Yet there were some who managed it, and still continue to manage it in a way that not only leaves nothing to be desired

but that also shows what a fine Grape it is when well done. Amongt those who have been most successful with it is Mr. AUSTEN, whose splendid bunches exhibited at the late Manchester Show could not fail to be noticed by all who saw the exhibition and take an interest in such matters. Just before the show in question we had an opportunity of seeing the fruit as it hung on the Vine at Ashton Court. Mr. AUSTEN grows it in the second Peach-house, a long lean-to structure, and the Vine is trained in the form of a single rod for some length along the front, just above the eave of the house; it was carrying ten bunches, that collectively would not be much if any under 35 lb. in weight. It would be difficult to imagine anything in the way of Grapes handsomer than were these bunches with their large even berries, quite black and well covered with bloom; every bunch here was set as fully and evenly as Alicante usually does, although we understand nothing out of the ordinary course of treatment was done to secure fertilisation. In the same house there is another Vine, Black Hamburgh, carrying a full crop that for perfect finish quite equalled these grand bunches of Mrs. Pince's Muscat, at once upsetting the opinion not seldom expressed, that to grow this variety well it requires a house to itself. In the earliest Muscat-house the remains of a beautiful crop was hanging, alike even a bunch and berry, well coloured, and unusually clear and free from the little brown freckles often present in this variety. In the principal Muscat-house there is a very fine crop, large bunches as even a berry as they possibly could be, and promising to colour up fully. Adjoining this is a large house filled principally with Lady Downe's and Black Alicante, bearing a fine crop of good even bunches remarkable for their perfect finish.

—— "A VOYAGE IN THE 'SUNBEAM'."—Messrs. LONGMANS have issued a cheap edition (price 5s.) of Lady BRASSEY's popular *Voyage in the Sunbeam*, in order to bring it within the reach of all for whom the record of travel in foreign lands has any interest. This edition would make an excellent present to children.

DIMORPHANTHUS MANDSHURICUS.—This, which is perhaps best known as Aralia chinensis, is now a conspicuous feature in the home nursery of Messrs. GEORGE BUNYARD & Co. at Maidstone, and the large and free growing specimen seen there represents a very fine hardy tree—a noble and effective example for the subtropical garden. It is freer in growth than A. spinosa, and its large and handsome foliage is just now crowned with many branching panicles of bloom.

—— PUBLICATIONS RECEIVED.—*Talks about Flowers*. By Mrs. M. D. WELCOME. Yarmouth, Me., U.S.A.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending September 12, issued by the Meteorological Office, London:—The weather during this period has been comparatively dry, but in all places except our extreme south-west coasts the sky has been very cloudy. The temperature has been slightly higher than it was last week, but still below the mean for the season, the deficit ranging from 1° in "Scotland E." to 5° in the "Midland Counties." The highest reading (70°) was registered at Cirencester on the 9th, and the lowest (39°) at Landale on the 12th. The rainfall has been less than the mean in nearly all districts, the deficit being more marked at our north-western stations and in "Ireland S." than elsewhere. Bright sunshine shows a decided decrease nearly everywhere, and has been very deficient, the percentages varying from 35 in "England S.W." to only 1 in "England N.E." Depressions observed:—During the first part of the period several small depressions were shown over our islands and the Channel, which caused the wind to be very variable in direction; by 8 A.M. on the 9th, however, pressure was highest to the westward of us and lowest over North Germany, so that northerly breezes prevailed in all parts of the country. This condition continued until the close of the period, when the barometer was falling slowly in the west and north, and the wind was inclined to back towards west.

—— GARDENING APPOINTMENTS.—Mr. JOSEPH VILLIS, late Gardener at Nash Court, Tenbury, Salop, has been appointed Head Gardener to THOS. HARRION, Esq., Thurcroft Hall, Rotherham, Yorkshire.

THE KEW ARBORETUM.

THE MAPLES.—XVI.

ACER TRUNCATUM, Bunge, *Enumer. Plant. Chin.* n. 62; Maximowicz, *Mélanges Biologiques*, tome x., p. 601.—North China.

This differs from A. pictum—under which it is placed by Koch and most authors except Maximowicz—in its much larger fruits with broader almost horizontally spreading wings. Leaves 5—7 lobed, truncate at base, lobes subcaudate, acuminate, entire.

ACER JAPONICUM, Thunb., *Flora Japonica*, p. 161; *Icon. Plant. Japon.*, dec. ii., tab. 10; Sieb. et Zucc., *Flora Jap. Fam. Nat.*, n. 177; *Flora Japonica*, ii., t. 144; Franch. et Savat., *Enum. Plant. Japon.*, i., p. 86; Maxim., *Mélanges Biologiques*, tome x., p. 605. A. vitifolium, Hort.; A. palmatum macrophyllum, Hort.; A. japonicum macrophyllum, Hort.; A. japonicum macrophyllum aureum, Hort.—Common in Eastern Yesso, Niphon, and cultivated in Japanese gardens.

A distinct species with many lobed leaves (somewhat like those of the American A. circinatum) and large, deep purplish-red flowers. The foliage in early spring is a pleasing very light green, and the flowers are produced at the same time as the leaves; these vary slightly in depth of colour, in the number of lobes, and the depth to which they are cut, but the species as a whole is not a variable one.

A. japonicum argenteum, Hort., does not belong here at all, but is simply A. rufinerve var. albo-limbatum.

ACER CIRCUMLOBATUM, Max., *Mélanges Biologiques*, tome vi., 368, x. 605; Miquel, *Archives Néerlandaises*, ii. 475.

Subalpine woods of the province of Senano. Japan. Nearly allied to A. japonicum, differing slightly in form of leaves and fruits.

ACER PICTUM, Thunb., *Flor. Japon.* 161; *Icon.*, dec. v., 1; Maximowicz, *Mélanges Biologiques*, tome x., p. 599; Koch, *Dendrologie*, theil i., p. 531 (in part). *A. colchicum*, Hartwiss, *Gardeners' Magazine*, 1840, p. 632; Loud., *Encycl. of Trees and Shrubs*, p. 1112; *A. aetnense*, Hort.—Mandschuria, Daghestan, Japan, &c.

Var. RUBRUM: A. colchicum rubrum, Hort.

A strong-growing form, with brownish bark, and foliage throughout the entire season a purplish colour. In the ordinary form (A. colchicum) the bark and leaves are green. Introduced to this country in 1846.

Var. MARMORATUM: A. marmoratum, Hort.

Leaves dotted and splashed with white, almost as in A. campestre pulverulentum.

Var. VARIEGATUM.

Leaves with large blotches of white, sometimes one-half of leaf creamy-white.

The plant figured by Thunberg, a variegated form with white dotted leaves, may be the var. marmoratum, above-mentioned. Koch describes the fruit of A. pictum as moderately large, with not quite horizontally spreading wings; but there are wide differences in fruit, in many cases it is small, with erect or converging wings. Maximowicz distinguishes four varieties.

Var. α. A. PICTUM, Thunb.

Leaves bearded in axils of leaves beneath, lobes cut to the middle or almost to the base of the blade. Wings of fruit erect, with converging or rarely diverging tips.

Var. β. A. PICTUM VAR. CONNIVENS.

Young leaves, and generally old ones, pubescent on nerves beneath, as well as bearded in their axils; wings as in var. α. Lobes cut to middle of blade. This was introduced from Japan by Messrs. Veitch, and kindly determined by Dr. Regel of the St. Petersburg Imperial Botanic Gardens. As it is desirable to have a garden name for this form, the above descriptive one is now given.

Var. γ. Leaves hairy in axils below, wings diverging at a right or obtuse angle. A. Mono, Max., *Prim. Flor. Amur.*, p. 68; A. laetum γ parviflorum, Regel.

Eastern Mandschuria; Japan, volcano of Fudziyama, in company with A. pictum, which turns red in autumn whilst this remains green. Perhaps this is the pretty form, of rather spreading habit, with twiggy branches and light green leaves, grown in gardens under the name of A. colchicum.

Var. δ. Young as well as adult leaves hairy on nerves below, wings diverging at right angles. A. truncatum, Franchet et Savatier, *Enum. Plant. Japon.* i., n. 359.

There is also another form between α and γ, with the foliage of the first and the fruit of the latter.

The following interesting extract is from a letter addressed to me by Mons. Jean Van Volxem, an ardent tree-lover, and a gentleman who has travelled a good deal in both the Old and the New Worlds:—"As to Acer colchicum, I have seen it wild in Lower Daghestan, about Ruba, the green and the red varieties growing promiscuously with all shades of difference between the two extremes, and in such equal numbers that I could not say which is the type and which the variety. I do not believe any would come true from seeds; it has not been tried, I believe, in our gardens."

ACER CAMPESTRE, L.; Loudon, *Encycl. of Trees and Shrubs*, p. 93; Koch, *Dendrologie*, theil i., p. 534; Hooker, *Student's Flora of the British Islands*, ed. ii., p. 87; Syme, *English Botany*, tab. 321, p. 232.—Europe, from Denmark southwards; West Asia.

A bush or small tree from 10 feet to 30 feet high, varying much in size of leaves; there are also differences in the size and form of the horizontally spreading wings, but whether these can eventually be correlated with other characters so as to render them of any use in determining the numerous forms, is more than I can at present say. No British Flora has as yet noticed the two rather distinct varieties which occur as true natives; in the one the fruit is quite smooth, whilst in the other it is hairy with larger wings. Perhaps the latter (A. hebecarpum) is the more frequent on the chalk downs, &c., of the South of England. The large growing forms of A. campestre sometimes resemble very much in size and outline of foliage small growing forms of A. Pseudo-Platanus, but the green (not glaucous) under-surface of the leaves and their softer texture are sufficient to distinguish between the two in the absence of fruit or flowers.

Var. AUSTRIACUM: A. austriacum, Trattinick, *Archiv. der Gewächskunde*, tab. 36; Loud. *Encyclop. of Trees and Shrubs*, p. 93; A. molle, Opiz, *Flora*, vii., theil 1, 183.

A stronger, more robust plant than ordinary A. campestre. There is, however, in nurseries, under this name, a very different plant, which will shortly be mentioned. Loudon mentions a variegated state of A. austriacum, which is not in the Kew arboretum, and which I have not seen.

Var. FRUCTU RUBRO: A. campestre rubrum, Booth; Loud., *Encyclop. of Trees and Shrubs*, p. 1112.

Fruit deep red. An ornamental form, with perhaps smaller, more hairy leaves than usual; perhaps not very uncommon in a wild state. Mr. W. W. Reeves brought me wild specimens he collected at Godstone, in which the fruits, and particularly the wings, were a decided blood-red colour.

Var. HEBECARPUM, DC. *Prodromus*, i., p. 598.

Large winged fruits, clothed with velvety pubescence.

Var. LEIOCARPUM: A. collinum, Wallr.; DC. *Prodromus*, i., p. 584.

Fruit smooth.

Var. PULVERULENTUM: A. campestris, fol. punctatis.

Leaves covered with small specks and blotches of white.

Var. SUBEROSUM, Dumortier, *Flora Belgica*, p. 113.

A form with very corky bark.

Var. TAURICUM, Hort.

I am not certain that this, which is a strong grower, is not identical with the var. austriacum above mentioned. There is in collections a very distinct plant under this name which does not belong to A. campestre at all.

Var. VARIEGATUM (A. campestre argenteo-marginatum).

A distinctly marked form of vigorous habit. Under A. campestre must also come A. aetnense, Hort. (there are three distinct plants in gardens under this name); A. marsicum, Guss., *Pl. Rar.* 373; A. affine, Opiz, *Flora*, vii., beil. i. 83, xii. 547; A. macrocarpum, Opiz; A. sylvestre, Wender, *Schrift. d. Naturf. Gesselschaft in Marb.* ii. 250. Other varieties are A. campestre nanum, A. c. lævigatum, A. c. heterocarpum. The var. hyrcanum, mentioned and figured in Loudon, is not the genuine hyrcanum, which is a distinct species. *Geo. Nicholson, Kew.*

HARDY EVERGREENS.

THE last two winters have certainly gone far to prove what species are really deserving of the term "hardy" and what are obviously not so, and will no doubt suggest the propriety of revising the list of plants so designated. There is a difference of opinion among practical men as to the best season for transplanting evergreens, some preferring spring to autumn; but taking all things into consideration, including the many pressing operations requiring attention during the busy period of spriog, early autumn may certainly be considered to be the most convenient, if not in all respects the best season in which to plant evergreen as well as deciduous trees and shrubs. At that time young growth has generally arrived at a stage of maturity when it is able to withstand the check inseparable from the operation of transplanting without to any great extent flagging or suffering from contraction of the bark, as the roots will at once respond to the call made upon them by the foliage; and as the soil will still retain a considerable portion of the warmth communicated to it by the previous summer's sun, the work of reparation, as regards any injury the roots may have sustained in the process of transplanting, will at once commence, and the plants will have ample time to establish themselves in the soil before winter sets in. If this be admitted, intending planters would do well to ascertain what species and varieties have proved themselves to be really hardy by having withstood the severity of two certainly exceptionally severe winters, and of which it is possible, and even probable, we may ere long have a repetition.

In alluding to a few plants classed as hardy evergreens, but which in reality are not so, I may mention the well known common Laurel (Cerasus Laurocerasus) a native of the Levant, but which has been grown in this country for more than 200 years. There is possibly no other evergreen shrub so extensively planted as this is, and it appears to be almost a pity that this should be the case, as it is really far from being hardy, and generally suffers more or less in even comparatively mild winters. It is less hardy than its equally well-known congener, the Portugal Laurel (Cerasus lusitanica), and it is certainly a less ornamental plant. In a comparatively sheltered garden I recently visited, the common Laurel was the only plant which had seriously suffered—even Aucubas and the Laurustinus had escaped almost unscathed. In more exposed gardens, however, this has not been the case, and the last-named species, with many others, have suffered very severely; and although it would by no means be advisable to banish such plants from the shrubberies, still sheltered situations should, as far as is possible, be selected for them, as well as for other partially hardy species, such as the Arbutus, or Strawberry tree, the very pretty Japan Euonymus, &c.

The Portugal Laurel, as has been said, is perfectly hardy, or rarely suffers to any great extent from the severity of our winters, and it is certainly less extensively planted than it ought to be. It naturally assumes a compact and conical form of growth, and when grown as a single specimen upon the lawn, or in the form of a standard, makes a very good substitute for the Orange tree, which it is sometimes even supposed to be. Of all hardy evergreen shrubs the common Holly may certainly be said to be among the most ornamental, and it is not so freely planted as it deserves to be. There are also its numerous ornamental or curious-foliaged varieties, such as Ilex contorta, or corkscrew, Ilex donningtoniensis, Ilex Dahoon, Hedgehog, yellow-berried, broad-leaved, narrow-leaved, Myrtle-leaved, &c., together with the many really beautiful variegated kinds, whose leaves are distinctly margined with gold and silver stripes. There is also the common Yew, with its numerous variegated and exceedingly pretty varieties.

The tree Box in several kinds, the Alaternus, the Mahonias, the Arbor-vitæ, or Thuya occidentalis and orientalis, Chinese Junipers, Cupressus Lawsoniana in its varieties, such as argentea, gracilis, and erecta viridis, all exceedingly ornamental and perfectly hardy, together with Thuyopsis borealis and dolabrata, fine evergreen trees, which no amount of frost appears to injure, together with most of the Retinosporas, all very pretty, as well as quite hardy, also the Rhododendrons and other American plants in all cases where the soil is suitable, together with many hardy deciduous flowering shrubs and trees; so that there is really little excuse for planting species which are found to be unable to withstand the rigour of most of our winters. *P. Grieve.*

Foreign Correspondence.

GERMANTOWN, NEAR PHILADELPHIA, *Aug.* 29: *Robinia hispida.*—I have just returned from a botanical excursion through our wide country, of some 2500 miles, and found for the first time in all my excursions a locality for Robinia hispida, the common Rose Acacia. It was on Look-out Mountain, the southern termination of the Cumberland Ridge of the Alleghany Mountains. I had long wished for this, in order to note how it produced seeds when in its natural position. To my surprise, I could not see a single seed-vessel among the thousands of plants on this mountain, which has an elevation of 3000 feet above the sea level. I have never seen a seed-vessel under culture, and felt sure I should find them in wild Nature. Does it ever produce seed in the gardens of Europe? *T. Meehan.* [We never saw it. EDS.]

GREENHOUSE FLOWERS: AZALEAS.—By this time the flower-buds should be set, and the plants gradually inured to a cool atmosphere, whether they are placed out-of-doors or in a cool airy greenhouse near the glass. As the weather becomes colder, and especially if heavy rains set in, the plants ought speedily to be removed into the house. See that the leaves are quite free from thrips and red-spider. This is a good time to put in cuttings, choosing young wood that is well ripened, and taking the cuttings off with a heel attached: put them in firmly in a pot filled with very sandy peat, and to maintain an equitable temperature round the pot it should be placed in a larger one, the space between being filled with sand. A bell-glass should be put over the cuttings with its rim resting on the sand. This simple arrangement is the best for those who only want to propagate a few plants.

CHRYSANTHEMUMS.

The most important work at present is paying strict attention to setting the blooms by pinching off all stem growths immediately under the bud. This must be done as soon as they can be taken hold of with the finger and thumb, else the growths from the stems will injure the buds, and if they are not removed at all, the first buds, which are those that will produce the best exhibition blooms, will shrink up. Some rich surface dressing must be applied to the surface of the pots as soon as the buds are set, and manure-water must be applied occasionally. The grower for exhibition will find daily occupation amongst his plants at this time; for, besides attending to the blooms for exhibition, there is constant occupation amongst the specimen plants. The large-flowered varieties require to have the lateral growths removed from the stems, the same as those intended to produce large blooms for cutting. One bloom only is left on the end of each growth. Training the shoots into their proper position must also be attended to. The culture of the Pompon varieties is very simple, and consists merely in training the growths into shape without removing any of the blooms. See that all of the plants have sufficient space to develope themselves, and that the leaves are kept free from insect pests and parasites.

CINERARIAS.

The routine work in connection with these is very simple, and consists merely in keeping the leaves free from insect pests. Thrips have been very common this year, and if not prevented speedily injure the Cinerarias. The plants grow rapidly at this season, and must be planted in the pots where they are to flower long before the roots become pot-bound. Pot in good turfy loam, leaf-mould, and rotten cow-manure.

CHINESE PRIMULAS.

These have now become indispensable in every well-kept garden, and the improvement in the quality of the flowers has been very marked within the last few years. We are now getting many distinct and pretty colours besides the traditional white and red varieties. Mr. H. Cannell has much improved Vilmorin's deep red strain, usually called Chiswick Red. Messrs. Sutton, of Reading, have succeeded in fixing a very fine strain of a pretty pink variety, with large flowers of excellent shape. It is called Reading Pink. Messrs. Carter, of High Holborn, have also a decided acquisition in their very distinct variety with flowers of a bluish tint. Added to the above are Mr. Gilbert's beautiful varieties with double flowers, which are so useful for bouquet making in the winter. The cultivator must now attend to potting on and pricking off the plants as they require it so as to keep up a succession of flowers, if required from now until the end of March.

HYACINTHS.

We are now receiving the catalogues of Dutch bulbs, and no delay should take place in ordering them after this time. There is a chance that the best bulbs will be sent out first, and it is better to have the bulbs where they can be kept in a cool dark place at home, than to have them after they have been drying for weeks in the seedsmen's windows. The bulbs should be left in the bags in which they were received until potting time. For early blooming purposes they should be potted at once, but for the general late bloom it is better not to pot them until a month later. The potting soil may as well be prepared and put into a dry place, as it may be wet at the time it is required. Take of good loam two parts, leaf-mould one part, rotten cow-manure one part, and river sand one part; mix them well together, and it is always ready when wanted.

PELARGONIUMS.

These should all have been shaken out of the pots in which they bloomed by this time. If some of the late-flowering varieties have not been done, see to it at once. Any plants that are intended to flower very early should at once be repotted; but it is quite as well to use pots that are not too large. If large pots are used for early-blooming plants the chances are that they will grow too much, and not throw such an even head of bloom as would be desirable. The recent exhibitions of the Pelargonium Society have fully demonstrated that for all ordinary purposes 6-inch pots are the best, and for the very large specimens 8-inch is the outside limit. Repotting must be performed carefully, and good prepared compost ought to be used. The after treatment is also of great importance. The roots of the plants, and also the potting material, should be fairly moist at the time of repotting, and no water should be applied to the roots of the plants for nearly a week after. Many persons have their plants out-of-doors up till now, but if that is the case remove them indoors at once as the leaves are apt to contract the disease called "spot" if the plants are exposed to cold and damp. The fancy varieties require much the same treatment as given above. They like a lighter compost to grow in, and a rather warmer temperature. Zonals are very useful to produce cut flowers at this season of the year and onwards. The weather is generally such that good blooms cannot be gathered out-doors, but with the aid of glass, and without artificial heat, splendid trusses can be obtained. Small and medium-sized plants ought to be potted on now to produce flowers at mid-winter. *J. Douglas.*

PELARGONIUM (DOUBLE) DUCHESS OF CONNAUGHT.—This is a very fine variegated leaved variety, which originated as a sport with Mr. Dutton of Bath. About three years ago a shoot of the well-known double variety, Madame Lemoine, put forth leaves having a green centre and a broad margin of

white. A cutting was taken and struck, and the plant, together with cuttings taken from it, have maintained the variegated form in a very attractive character. The leaves are large, the growth vigorous, and the flowers as large and well coloured as in the case of the original type. A double Pelargonium with variegated foliage is a decided novelty; but the sport under notice is not the first known. Mr. Cannell catalogues one under the name of Soleil Levant (Lemoine), of dwarf compact habit, bright silver variegated foliage, and rich scarlet flowers; and in addition there are Mrs. Parker, silver variegated, with pink flowers; Mrs. Carr, silver variegated, with pink flowers; Mrs. Strong, a golden tricolor, with scarlet flowers; Golden Jewel, golden foliage, with scarlet flowers; and a silver tricolor numbered 751 in Mr. Potten's catalogue, with cerise-scarlet flowers, but of very poor quality. It will thus be seen there is quite a group of these interesting novelties. It may be assumed (we presume) that all have originated as sports, in the absence of any information to the contrary.

THE ISLE OF WIGHT.

(*Continued from p.* 268.)

St. Clare's Castle, in the close vicinity of Appley Towers, Ryde, and to which we shall have to refer at another time, is the residence of Mr. Egerton Harcourt. The sloping lawns, flowery terraces, and wooded retreats, abutting on the very margin of the sea, constitute a garden establishment of unusual beauty and interest. The general lie of the land slopes to the sea. To break the declivity terraces are here and there formed, and one in particular runs parallel to the sea just within the sea wall. At right angles to it runs an avenue of Thorns, with a Rose tent at the far end. In one corner is a small wood of Oaks and Elms, and scattered everywhere in suitable situations are fine trees and shrubs of no common interest. What these are, and how they fared during the last two winters, is a matter of importance to note; and so, without confining ourselves to any strict order, but taking them just as we find them in our notes, we proceed to mention a few of the more prominent. The Chinese Palm—Chamærops Fortunei—proved itself able to resist the frost. The New Zealand Flax—Phormium tenax—survived the winter, not entirely without injury, but singularly enough the variegated variety has proved the hardier of the two. Yuccas had been injured by the weight of snow, but Y. filifera was flowering well. The variegated Bambusa Fortunei was unhurt, as also was Thamnocalamus Falconeri, but Arundo Donax was nearly killed. Pawlonias flowered well, and the Loquat as well as Magnolia grandiflora grown in the open, was injured. Indian Azaleas, Camellias, Arbutus procera, and other forms of this genus showed no trace of the winter's violence; but bushes of Riccarton Fuchsias had, we were told, diminished somewhat in size, but were nevertheless full of blossoms. Great bushes of Myrtles testified to their powers of resistance, though here and there there were traces of damage. More astonishing still, perhaps, was it to see a good-sized bush of the double Pomegranate in full flower in the open ground without any protection. Clerodendron Bungei was spreading so freely as to become an objectionable weed. Rhus Cotinus is, of course, hardy enough, but it is rare to see it so thickly feathered over with its plume-like inflorescence. Photinia serrulata and the much less common P. glabra, said to be very striking when in bloom, were uninjured. There is quite a grove of Cork Oaks, some of which are fine specimens. Among the Conifers, Pinus insignis may be specially mentioned; its massive dark green lustrous foliage seemed in no way injured, and one tree, laden with cones, is probably the largest we have set eyes upon. Abies Menziesii is here represented by a fine specimen, as are also Cryptomeria japonica and Libocedrus chilensis, while Cupressus macrocarpa as usual in the island forms one of the noblest trees.

In a select corner of the kitchen garden are some young plants of American Oaks, Vines, and Peaches, procured by the gardener, Mr. Charles Meehan, from his brother, our respected colleague, the Professor of Botany to the State Board of Agriculture at Philadelphia. These having been only lately received, were not in a condition to report upon, but their progress will be watched with interest. Among them was a golden form of Thuya occidentalis called "George Peabody," of much brilliancy, and keeping its colour late in the season. Without seeing it side by side with other similar Thuyas, it is difficult to pronounce upon its relative value, but in any case there is no difficulty in coming to the conclusion that it is a "good thing." Our visit was of the "run round" order, so that these hasty notes give a very inadequate idea of the beauty and interest of these grounds. *The Rambler.*

HEATING APPARATUS.

We are frequently asked to recommend a cheap and effectual method of heating small greenhouses managed by amateurs. Messrs. Messenger, of Loughborough, have introduced a new boiler which seems likely to answer the purpose. The small boilers for setting in brickwork hitherto in use necessitate a considerable outlay for a stokehole if below the level of the ground, and where the heating apparatus is put in by the tenant this is a drawback. In this boiler the mains are entirely saved, and the hot-water pipes are connected to the sockets of the boiler, while an open feed syphon at the opposite end does away with the necessity of a cistern. Added to these advantages, the boiler being placed in the greenhouse assists in heating. Messrs. Messenger further claim for it the following advantages:—

"No heat is wasted. The boiler standing in the house, the whole of the heat from the boiler itself is utilised. Economy both in first cost and maintenance; there being no brick setting or iron casing required, and consequently none to get out of order. Not being set in brickwork, or attached to the freehold, it forms a

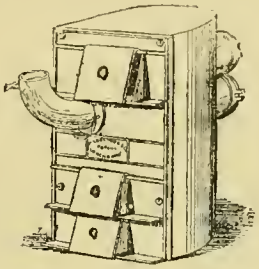

Fig. 73.—the "loughborough" boiler.

'tenant's' fixture. Cheaper and more powerful than any boiler for small greenhouses before the public. No unsightly stokehole is necessary, the front of the boiler being flush with the greenhouse and on the level of the ground. The boiler is not unsightly inside the house, being under the stage; and being stoked from the outside no fumes can enter the house. May be fixed either in the brick or boarded front of a greenhouse, and is absolutely safe from risk of fire. Being on the slow combustion principle, it is very economical in fuel. No night stoking is required. The joints to the hot-water pipes are put together with elastic rings, and can be fixed by any handy person. A hot-water fitter not necessary."

DEVIZES: ITS CASTLE AND GROUNDS.

One of the most striking architectural objects in what we might appropriately term the eastern portion of the extensive district known as the West of England is Devizes Castle, the residence of its owner, R. Valentine Leach, Esq. It occupies a commanding position on the west of the town, and presents a conspicuous landmark to the traveller journeying by the Berks and Wiltshire branch of the Great Western Railway from Trowbridge to Reading. On leaving Devizes the railway passes under a portion of the Castle grounds ere it emerges again into the light of day.

Devizes is a town of great but uncertain antiquity. Some antiquarians suppose it to have been of Roman origin. The nature of the soil varies considerably from that of the more southern and western part of the county; in the latter stone is abundant, while at Devizes all traces of it are lost. In this district is found the Greensand, one of the beds lying between the Chalk and the Oolite, which is very porous, and of great thickness. The water for the use of the town is wholly obtained from wells, and it is difficult to get a good supply without penetrating to a great depth. In the course of boring for water, and in excavating, a vast number of fossils have been found.

To the north-east of Devizes is Roundway Down, the abrupt termination of a large ridge of chalk hills stretching westward from Marlborough, and on the south side of which is the well known "White Horse" of Pewsey. On the brow of Roundway Down, and nearly overlooking the town, are the remains of an ancient earthwork or Roman station. Between Roundway Down and the town of Devizes lies Roundway Park, the residence of C. E. Colston, Esq., a richly wooded domain of considerable extent. The mansion is of a substantial and unpretending character, and looking south-west from it there is a truly magnificent view of a fine and fertile valley, stretching away to the Dorsetshire sea coast.

Devizes is a very pleasant and clean agricultural town, but is also the seat of some industries of a profitable character; notably the engine works of Messrs. Brown & May, which have an European reputation. The suburbs are well wooded and flanked with many handsome villa residences. In few towns can the visitor find more extensive and better examples of the successful culture of plants in the windows of the houses that line the streets than in Devizes. Neighbours seem to vie with neighbours in making the most effective display. During the past four years a horticultural society has been formed in Devizes, and some very successful exhibitions have been held, looked at as having brought together collections of plants and flowers of a highly valuable character. Unfortunately wet weather has prevailed, but so far from weakening the efforts of the promoters, a large and determined effort will be put forth during the ensuing year to hold one of the best exhibitions in the West of England.

On the elevated mound occupied by the present Castle of Devizes formerly stood the ancient and celebrated Castle built in the reign of Henry I., by Roger, Bishop of Salisbury. Old writers say that for magnificence, extent, and strength the Castle had not its equal in Europe. It was the scene of many vicissitudes during the troublous times which followed; for 300 years or so it was one of the strongholds of the feudal lords, and proved such a source of menace to the reigning sovereign of the time that many kings, from Henry II. to Henry VII., endeavoured to disarm and destroy them, and it is thought that during the stern yoke of the last monarch the building was dismantled or partially destroyed. The Castle was destroyed by order of Parliament after a decisive victory by Cromwell over the Royalists in 1645.

The visitor who enters the Castle grounds from the lodge near the Market Square, and taking the walk to the left, gradually ascends to the south-west side of the garden front, enters through a kind of arched gateway, and finds himself contemplating a picture of extraordinary interest. There is a surprising beauty in the scene which bursts upon his view. Before him is the castellated building standing on a portion of the site of the ancient erection, covered throughout a great portion of its base with Ivy and the Virginian Creeper, with other choicer types, among them the scarlet-flowered Lonicera Ledebourii, the blossoms succeeded by dark berries embedded in scarlet bracts. The tints on the Virginian Creeper in autumn are surpassingly fine. A somewhat detailed description of this portion of the Castle grounds appeared in the *Gardeners' Chronicle* of some two years ago. Suffice it to state that the low stone walls which skirt some of the principal walks are covered with Ivy, on which are stood at intervals large specimen flowering plants. Then there are slopes of Pernettya mucronata, which must be a fair sight in autumn when covered with coral-red berries. One of the glories of the Castle grounds is the wealth of evergreen trees and shrubs. Coniferous plants, such as Thuyas, Thuyopsis, Wellingtonias, Piceas, Araucarias, &c., play a very important part; and of deciduous trees there are Hawthorns, Beech, Mountain Ash, Maples, &c. Here the Purple Beech takes on a very rich colour, and the variegation of Acer Negundo variegatum is highly attractive. There is one bank of Ivy against the Castle walls, 49 feet in height. Nor is ornamental gardening overlooked, for in many places there are set down very pretty embroidered plots of foliage plants, which contrast well with the rich green turf on which they lie, and the vigorous growth of vegetation which surround them. The view from the Castle grounds, away along the full stretch of a fertile Wiltshire valley, is something to remember with delight for months after.

On a warm sloping bank is the fruit and kitchen garden. The vineries are some 156 feet in length, and

the Peach-house 150 feet; other glass is in course of erection. Mr. Thomas King, the gardener at Devizes Castle, has made a well-deserved reputation as a first-class cultivator, particularly so in the matter of Grapes. Is there something in the soil of Devizes Castle Gardens that enables Mr. King to turn out such superbly-finished and fine examples of Chasselas Musqué Grapes? In addition, Mr. King grows Black Hamburgh, Muscat of Alexandria, Alicante, Buckland Sweetwater, Alnwick Seedling, grafted on the Royal Ascot, and which sets as freely as the Hamburgh, &c.

Too much praise cannot be given for the admirable order in which the Castle grounds are kept, and no visitor to Devizes who has in him a love for gardening should, ere he leaves the town, forbear to pay a visit to the delightful grounds of the Castle, where he will see much to interest, and not a little to instruct, if he be minded to learn. *R. D.*

Orchid Notes.

SACCOLABIUMS.—In a nice selection of Orchids at Ashton Court, remarkable for their strong healthy growth, is a plant of Saccolabium retusum, bearing six large racemes from a single growth, with one more coming on a little later; the growth has all its leaves—twenty-four in number—in perfect condition, down to the surface of the pot. S. præmorsum, standing near it, carries four of its densely-packed spikes of bloom from one growth; here, again, the growth retains every leaf perfect. Nothing shows more plainly than the ability in Saccolabiums and other Orchids of kindred habit, to carry their leaves for a number of years, that the treatment they receive suits them, and is such as to promise their continuing for an unlimited time in a healthy thriving state. This leaf-retention may, in fact, be taken as the best test of successful cultivation, for with it there is no doubt about the bloom they produce being proportionate.

WORK IN THE HOUSES.

The shadings on the houses will now be less required than hitherto has been the case, and in a very short time it will cease to be needed altogether. Since, however, it may yet happen that some hot and bright days are in store for us, it is scarcely wise to take the whole of the blinds off, but those on the north and east sides of the houses may be dispensed with, and should be taken off and thoroughly dried. If in good condition put them by in a dry loft or shed after fastening a label to each one, indicating which house it belongs to, so that in the spring no mistakes may be made when they have to be fixed again. The remaining blinds must only be used when it is absolutely necessary, as when so strong a sunshine may be streaming in for a good part of the day it is only by a considerable amount of top and bottom ventilation, and by heavy damping down, that the temperature can be kept sufficiently low to prevent the tender leaves being scorched by such strong and intense light. The object in view now is the ripening and maturing of the growths already formed, and plenty of air and a good share of light are the most essential part of the treatment now to be given to those that are thus far advanced. There are however some in all the divisions that are only just starting into growth, and many that have as yet only half finished forming their bulbs; these must have a growing treatment, and an atmosphere about them in all respects conducive to the speedy formation and swelling up of their bulbs. See that all are free from insect pests; yellow thrips is very apt to put in an appearance; scale will quickly spread and disfigure the leaves. Endeavour to keep these pests down by constantly looking over the plants, sponging and cleaning all that require it. It is a good plan occasionally to go over the whole of the plants, taking one house at a time, and observing the condition of the bulbs, breaks, and roots; examine also to see whether woodlice, slugs, or cockroaches are hiding away, and working mischief at the back part of the plant or amongst any part of the bulbs. If possible, find out the vermin, and destroy them at once. The Pleiones, just for a few weeks as the leaves are turning yellow and falling off, must have less water, so that after a short rest the new growths may burst away, their first appearance being at the base of the present formed bulbs, whence they quickly develope into their bright and charming flowers, some coming singly, others in couples, from a single break. P. Hookerii and P. humilis, if sufficiently strong, will flower some two or three months after the others. Their treatment in all respects is similar to the more common and popular forms. These should all be grown in quantities. Coelogyne cristata in the Cattleya or Dendrobium-house, and several others of this genus, are now swelling their growths, and to assist the formation of round, plump bulbs, some liquid manure, sufficiently warmed, may now be given them. Do not, however, give this stimulant in excess, as the bulbs are liable to damp off, and thus the growth is entirely lost. The Lemoiniana variety of C. cristata is stronger in all respects than the old type, longer in the bulb; the flowers are more numerous on the spikes, larger in size, and less wavy, and the colour in the centre of the labellum is brighter and darker. This is a most desirable form. Calanthes also are now pushing up their spikes, and must be assisted with a little manure-water; those that are grown in pots have wire handles fixed to them, and can be suspended from the inside roof of the East India-house. In this way it will be found that the spikes will push up with greater vigour, and at the same time the drawing of the spikes ere the buds appear will by these means be obviated, for the blooms will be produced much nearer the plant, and come much more closely together—a great advantage where they are in demand for indoor decoration. The colour, too, of C. Veitchii is much improved by the flowers expanding near the glass.

Gradually lower the night temperatures, so that at 6 A.M. the thermometer indicates as follows:—East India-house, 65°; Dendrobium-house, 62°; Cattleya-house, 58° to 66°; and the Odontoglossum-house, 55°—any house of an intermediate character between either of these stated being also correspondingly lowered. *W. Swan, Fallowfield.*

Home Correspondence.

Eucharis amazonica.—A long span-roofed plant-house filled with a fine collection of these beautiful stove Lilies was the finest sight that I saw at Enville upon a recent visit to that extensive and well-managed garden. The plants had been taken to pieces in the spring and repotted, the large bulbs being kept in pots by themselves, in order to have uniformity of growth. By the way, what mistaken notions people generally have with regard to resting Eucharis. First grow the plants, then rest them (a good many starve them), and finally bring them into flower in a semi-exhausted state, with leaves that were once healthy and green of a dingy yellow, and flowers about half their normal size. Has rest much, if anything, to do with the flowering of Eucharis? Let us see if we can solve the problem from actual practice, which admits of no cavil, and leaves no room for prevarication. Start two pots of Lilies of equal strength into growth at one and the same time; after growth is made remove one into a cooler house, and subject it to what is called the resting process, and leave the other in the warmth of the plant stove—only, of course, give it less water while the bulbs are in the last stage of development, and see what difference there will be in the time of flowering. These plants will stand a low temperature for a time if kept dry, but they are enfeebled in consequence, and the results of one's labour during the season of growth is lost by exposing them to extreme drought or a low temperature. The proper place to rest them is the plant-stove, giving sufficient water to keep the foliage erect, and maintain the vigour and substance which has been induced by a liberal season's growth. To do Eucharis well, there ought to be system in the management of them. There is no secret about their time of flowering—they flower regularly after every growth they make, once the bulbs have attained flowering strength. They are not starved into flower, as many erroneously suppose who have pots crammed with bulbs of different sizes which flower at different times in a haphazard way, which is neither advantageous to the cultivator nor beneficial to the plants. *W. H.*

The Lily Disease.—Now that Mr. Berkeley has described for us the true nature of the Lily disease, gardeners will be anxious to learn all they can about its cause, its effect, and its remedy. Concerning the cause and the remedy I can only offer a few vague suggestions, founded, as far as they go, on my own observation, but of the effect I have already had two or three years' experience. The spores of the fungus which causes the disease are either carried up from the soil with the young growth of the stem of the Lily, or brought from a distance in the air. We may suppose, however, that they are not developed or do not start into growth unless favourable conditions occur either in the atmosphere or in the plant, or in both. In the last two years the disease has appeared and has spread rapidly in my garden immediately after a period of wet, cold, ungenial weather, and has especially attacked plants of succulent and robust growth. I am in the habit of watering my Lily beds very abundantly in early summer, and frequently water at mid-day or early in the afternoon, when the sun is hottest. As I said in my former letter, the disease is certainly worst this year in plants most exposed to the sun; and I think that rapid luxuriant growth suddenly checked by cold rains and cold nights is at least one cause of the development of it. Another year I shall water some of my beds sparingly, and mark the difference. I may add that I give no manure to my Lilies either above or below ground. As for the effect of the disease: when plants in bud are badly attacked the flowering is entirely destroyed, but in the case of the early flowering kinds, as L. colchicum, L. chalcedonicum, L. pardalinum, little harm is done. Last year I marked many clumps of Lilies with a label distinguishing those affected badly or slightly. This year some of those marked "bad spot" have grown and flowered very well, and are now only slightly affected. I mention in particular a bunch of L. californicum of which the flowering was nearly destroyed last year, which have this year increased and flourished, and a bunch of L. chalcedonicum of the variety called L. c. majus. This has been splendid: one stalk was 5 feet high and produced fourteen large flowers, which were all open at once. As regards L. auratum I have taken less notice of it, as I never expect this species to thrive after the first year in the open border, though as a greenhouse plant I am very successful with it, from year to year, and have never yet had a plant of it, or of any other Lily, attacked by disease under glass. In a former letter I mentioned an enclosed frame, uncovered at the top, and planted with Lilies, as in a bed, and I said that these showed no sign of spot, but observing unmistakable patches of rust on some of the buds I put on the lights, giving air only during the warmer part of the day. This has arrested the spread of the disease, and the buds are growing, and most of them will flower well. This remedy, however, is not within our reach in the case of Lilies planted in the open border. About four years ago my late-flowering Phloxes were suffering from a disease which threatened to destroy the stock. I had observed it for two or three years; and one variety, which I presume was all the increase of one plant, suffered more than any other. The leaves became blighted and curly when the plants were only a few inches high, and the flowers were spoilt. In this case the disease seemed to be hereditary. I sent a parcel of flower-heads and stalks to the *Gardeners' Chronicle*, and Mr. Berkeley reported that they were attacked by a parasitic fungus up to that time undescribed, but which he then described and named. I mention this because the result affords some hope to those whose Lilies are suffering from a similar disease. By digging up and burying all the plants of Phlox on which I observed signs of disease I seem to have cleared my garden of it, and I never had a finer or more healthy display of flower on the Phloxes than this year, though there will be some persons who will think that the disappearance of the disease was "*post remedium*," but not "*propter remedium*." But perhaps gardeners can hardly be expected to sacrifice valuable Lily bulbs, and it may not be necessary to do so; little, however, can be lost, and much may be gained, by cutting off all leaves and buds directly the spot appears on them, and burying or burning them. A wholesale dusting with sulphur might be tried as a preventive. Those who have studied the Potato disease, to which the Lily disease bears much resemblance, may suggest other remedies; certain chemical manures are guaranteed to insure immunity from disease to the Potato crop, and the limited extent of a Lily bed offers greater facility for the trial of remedies than a field crop can do. It must also be borne in mind that early Lilies as well as early Potatos are comparatively free from the evil effects of the disease. *C. Wolley Dod, Edge Hall, Malpas, Sept.* 10.

Potato Disease.—In conversation with a gentleman who has a great fancy for the culture of Potatos, he informs me that it had several times struck him that the Potato disease might to a great extent be overcome by early planting and long resting. With this object in view he planted out in rows in October, 1880, and did not commence digging till August 1881, and now finds that he has a perfectly healthy and fair crop, without a sign of disease. *Experimenter.*

Pensioners' Gardens.—I am charmed at your having noticed the old Chelsea pensioners' gardens in the *Gardeners' Chronicle*, and can well imagine the pride with which these brave veterans will read "in print" of their horticultural taste. I often stay with relatives at the Royal Military Hospital, and, much as I admire the skill displayed in the arrangement of the private grounds, and appreciate the privilege of sitting in them, I find more real interest in visiting the pensioners' gardens, and having a chat about the real old-fashioned plants to be met with

ere; then the old men are so courteous in offering ttle nosegays, and on one occasion, when I was usekeeper in my relative's absence, I always purased all the flowers I used for decorative purposes om the pensioners. Some of them turn their attenon to herbs and salad vegetables, and I have seen r finer early Lettuce and spring Onions in their rdens than in the greengrocers' shops at the Westd of London. *Helen E. Watney.*

Fuchsias for Hanging Baskets.—At this season the year, when plants are none too numerous for essing hanging baskets to make them anything like ly, it is a wonder that neat-habited free-flowering uchsias are not more frequently employed. They yield readily to training of any form, and are so beautiful thal, that those who use hanging baskets at all ould not be without them.

Dux Potato.—In the last *Gardeners' Chronicle*, 346, "A. D." says, in writing about new kinds of tatos, that a seedling Dux is but a reproduction of hoolmaster. I beg to inform him that I have never d any seedling from Schoolmaster, and that Dux s raised amongst many others from a berry of terson's Victoria. The flavour of Dux and of Schoolster is first-rate, although perfectly distinct in ch. *The Raiser of Dux.*

Milla biflora.—In reply to the inquiry of that ccessful grower of Milla biflora, Rev. Mr. A. wson, I beg to state that I had a bulb of it with o flower-stems, one of which had seven, the other r flowers in the umbel, Sometimes two flowers ened at once, rarely three. It appears that there variation among the bulbs from different localities, d much more so among seedling bulbs. The flowers, liciously scented a few hours after opening, are of chastest whiteness, often 3 inches across, and are st useful for bouquets. To avoid bareness, several lbs should be placed together. They readily bear d here, but this impairs somewhat the strength of bulbs, and they must not be allowed to do so if e and substantial flowers are wished for the year to ne. *Max Leitchtlin, Baden-Baden.*

Agaricus (Armillaria) mucidus.—A very large mber of this beautiful transparently-white fungus is be seen in an avenue of Beech trees in Heningham rk, Norfolk. Quite half of the trees are affected it. I have never seen such a development before, ough I have often looked for the fungus in that enue, sometimes failing to discover any, sometimes ding one or two specimens only. The heat of July, lowed by the rains of August, seem to have been st propitious to the development of fungi generally. *M. D. P.*

Tuberous-Rooted Begonias as Bedders.—peated illustrations have been afforded during the esent summer of the value of tuberous rooted gonias as bedders. At Chiswick, at Messrs. John ing & Co.'s nursery, at Forest Hill, and other ces, these plants have been seen growing freely, d flowering profusely and continuously. One of best varieties that has come under notice was in Chiswick collection, named Coral, raised by the v. H. Tindal. The habit of growth is particularly arf, bushy, and sturdy, and it stands well in wet ather. So stiff is the growth that it appears as if e might sit on the plants without doing them injury. e flowers are of a reddish-coral-crimson colour, and duced with remarkable freedom. It is a distinct d most useful form, and if certain varieties are to propagated as bedders, this should be one of them. e of the old type of flowering Begonias, ascotensis, particularly well worthy of notice for its excellent vice in the flower garden during summer. It is ll known for its dark-foliaged and deep red flowers; t in order to have it to the best advantage it needs be associated with some other plant, such as one th silver variegation. Begonia ascotensis is a plant rdeners will find valuable for many purposes, and ould be grown accordingly. *D.*

Stephanotis Culture.—At p. 342 of your last ue a paragraph appears respecting the successful lture of the Stephanotis at Messrs. Garaway's, and, I understand it rightly, attributing the successful wering of this most beautiful plant to keeping its ts thoroughly "in bounds." From experience I convinced that it is not at all necessary to restrict roots of it to ensure its flowering, for I find that I get at least double the quantity of flowers by nting it out, and larger flowers too. When I took rge of these gardens, a Stephanotis plant in a pot s trained over the roof of a stove where small decora-e plants are grown for the mansion. This plant did t flower very well. I decided to make a bed and nt it out; it has grown luxuriantly since last March, d almost at every joint of the young wood there is a wer. Every gardener knows that this plant wers from the base of the young wood, and I find t with abundance of this I have a proportionate amount of flowers. I also believe that a stove ought not to be much shaded for this plant; I scarcely shade this plant at all, and give it plenty of air. Should any of your readers doubt this statement I shall be pleased to show any of them at the present time hundreds of Stephanotis flowers in different stages of development on the plant referred to, for it still continues to make wood, and therewith produce flowers. *Thomas Lloyd, Spring Grove Gardens, Bewdley, Sept.* 13.

Hardihood of Laurels.—It is a fact that the common Laurel went down before the intense frost of 1880-81, and much damage was done to large breadths and bushes of this old evergreen; but the Caucasian and the round-leaved Laurels did not suffer nearly so much as the common form, if, indeed, they may be said to have suffered at all. At the nurseries of Messrs. John Perkins & Son, at Northampton, and in those of Messrs. George Bunyard & Son, at Maidstone, the same result was noticeable, and especially so in the case of plots of each variety growing side by side. The two forms of hardier character will in all probability drive the common Laurel out of cultivation, and especially so as they are decidedly of a handsomer habit of growth and more robust. The Colchic Laurel is apparently hardier than the common kind, yet not so good in all respects as the two varieties before mentioned. *R. D.*

The Virginian Creeper.—I came across some very beautiful effects produced by the Virginian Creeper the other day, resulting from simply allowing it to climb up amongst deciduous trees, and running hither and thither as it lists. Thus, just now, when its autumn tints are put on, the colour was not seen in the mass as upon a wall, but bunches of it showed here and there, and the effect was extremely beautiful. There are plenty of trees about far from luxuriant in the matter of foliage, which would be all the better for a little more leafage, and this the Virginian Creeper would freely give. Then the autumn tints would for the time give colour of the richest kind, and when the leaves had fallen Nature would lose nothing by having in the trees the addition of the interlacing and gracefully pendent growth of the climber. *A. D.*

Pyracanthas vulgaris and Lœlandi.—Looking through the gardens at Sunninghill, near this town, to-day, these two bright berry-bearing shrubs, trained against a southern wall, were conspicuous at a considerable distance. Both were bearing a number of shining vermilion-like berries, but upon closer examination it was seen there was much difference between them. The foliage and fruit were much larger in the latter, and covered a larger space of wall, while the general appearance was more effective. Unlike Barberries and Cotoneasters adjoining, the fruit or berries were not uniformly diffused over the branches, but gathered in masses near the extremities. Would pruning or other treatment remedy this seeming defect of habit? *W. J. Murphy.*

Aërial Potatos.—The production of tubers on the shaws is not uncommon in seasons like the present. Hitherto, in my experience, they have been hard and of a dark green or purple colour, and, as a matter of course, uneatable. But now I have gathered a crop of white tubers, quite eatable, though also quite worthless. I enclose a few taken from green shaws on the 12th instant. I could have gathered a quart. The largest of them weighed exactly a quarter of an ounce. *Shirley Hibberd.*

Hardy Fruit Growing at Bowood.—When Mr. Phipps took charge of the gardens at Bowood some five years ago he found the wall trees (Plums, Apricots, and Pears) in an unsatisfactory and almost barren condition from old age—tree exhaustion on rather a large scale—some of them, judging from the appearance of the few old ones that are allowed to remain for the time being, have never started kindly into growth. To remedy this undesirable state of things Mr. Phipps speedily and in a thoroughly practical and workman-like manner set to work with a determination to embellish the numerous lofty fruit walls in the shortest possible time with flourishing well-trained and fruitful trees. The first step to be taken in this direction was to root up all the old trees, and in their stead plant young kindly growing ones; and in what way was the latter to be done in order to secure the most satisfactory and permanent state of vigour and fruitfulness in the trees? Not by digging out holes barely large enough to squeeze the roots of the trees into, as is not unfrequently the case, and planting them in a barrowful of prepared soil, and then leaving them to take care of themselves under the false impression that everything that was necessary for giving the trees a good start and subsequently maintaining them in a good condition had been done, is this condition of the trees to be attained. The old trees were rooted out, the old sour soil removed, and a new border made the entire length of each wall so planted of the best available loam on the estate (let intending planters take note of this); and then the trees, having allowed the soil sufficient time to subside, were planted in their permanent positions, where, as might have been expected, they have made a fine regular but not an over-luxuriant growth, the latter being regulated in the summer by pinching out the points of the strongest growing shoots with the finger and thumb. The first batch of trees thus treated were Apricots and Plums, which have borne good average crops this year, especially good and heavily cropped being Denyer's Victoria Plum, a fine free-bearing kitchen variety. Pears, Green Gages, and other varieties of Plum trees similarly planted last and preceding years are making nice well-shaped trees. After the lapse of a few more years Mr. Phipps will have planted all the wall trees, with perhaps a few exceptions, at Bowood, and this, too, without materially interfering with the ordinary supply of fruit to the house. True, the scanty crops of wall fruit which we have had during the last few years did not afford much opportunity of being affected by the carrying out of the details above indicated. *H. W. W.*

Allamanda Wardleana in Festoons.—Few stove plants are better known or more justly appreciated than the different varieties of Allamanda, which are so ornamental as stove creepers, and so useful as specimen plants. It is not often, however, that one meets with such an example as to be seen at the present time in the aquatic-house at Sir Henry Peek's garden, at Wimbledon. The plant covers the whole roof of the house, and instead of being trained in the usual formal way it is allowed to fall in festoons from the roof—such a sight as is seldom seen, and a lesson to gardeners that too much training often spoils the natural effect of very pretty plants. The difficulty appears to be with gardeners in drawing the line between what is necessary to restrict a plant from a wild state and squeezing it into a pancake for the sake of fashion, or something worse. *W. Hinds.*

The Gooseberry Caterpillar.—I would advise "B. T." (page 271), and all others, to try the plan, which I have adopted for years on both Gooseberry and Currant trees, and during that time have not been annoyed with this troublesome pest. Procure a bushel of fresh lime, and expose it to the air in an open shed until quite fallen to powder without the aid of water; this quantity generally takes about a fortnight to break down; if a larger quantity is required, it should be spread out thin; add to this 2 or 3 bushels of soot as fresh as can be had, with 1 lb. of white pepper, turn these mixtures quietly over and well mix, so as to blend them well together, and allow them to lie a few hours before using, which must be done dry and as soon after leaf fall as possible. Choose a calm, damp day to prepare for action; as these mixtures are all rather annoying to the olfactory organs, the operator must keep on the windward side. The plan I adopt is this:—Suspend a sieve on a rather stout pole about 6 or 7 feet long, pierce 2 holes in the rim, and fix to the pole, so as to leave the sieve free to move to and from the user: a stout string or wire can be brought across to keep it in position. About a quart to a bush. will be ample, if used with a steady hand. *R. C. E. H.*

Kleinia tomentosa (Haworth).—In reply to "Correspondent," I wish to state that, from the description he gives, the plant Mr. Croucher gave him was Kleinia tomentosa of Haworth, which is synonymous with Cacalia Haworthii of Sweet, and with Kleinia Haworthii of De Candolle. There are several plants of this species grown at Scilly in pots for windows. *W. Roberts, Dersingham, Norfolk.*

Judging at Exhibitions.—When judging at a show the other day, a gentleman was much perturbed in his mind because I refused to be a party in disqualifying a stand of twelve bunches of zonal Pelargoniums, which, he contended, should contain single trusses, and averred that the prize was gained by trickery and fraud, although the wording of the schedule was for the best twelve trusses, and I take it that a truss is a bundle or bunch of anything, and therefore we had no right to disqualify. It is very likely that the committee who drew up the schedule intended that the collections should only contain single trusses, but in adjudicating, I maintain that censors have no right to go outside the strict wording of the list, or attempt to enter into the thoughts and intentions of those who frame them, for if they do they assuredly go beyond their duties, and by so acting cause much dissatisfaction and unpleasantness among exhibitors. It so happens that in the schedule issued last year by the same society, the wording was for the best "twelve single trusses," and it may be that the person who showed the twelve made up bunches inferred that it was open to him to do as he liked. I am clearly of opinion, however, that all classes, whether for fruit or flowers, should be limited as to numbers, as it places those who compete on the same footing, and renders the task of doing justice less

difficult with the judges. As the subject is an important one, I shall be glad to see it discussed, and to hear what views others take of the matter. *J. Sheppard.* [We think our correspondent is mistaken. The word "truss" is applied to any flowers growing in a bunch. Thus we have the truss of the Verbena, the truss of the Rose, and the truss of the Pelargonium—not in the sense of a bunch, but of a single inflorescence. The wisdom of exhibiting single trusses of these flowers is another thing. In Roses it is a customary, and, on the whole, a salutary practice, but with Pelargoniums and Verbenas a "bundle" of several trusses is much more effective, and to those who have eyes to see not at all misleading. EDS.]

Cockscombs at Wimbledon House.—Mr. Ollerhead has this year introduced a new feature into the flower garden at Wimbledon House, which is altogether novel in conception and pretty in effect. The novelty—if I may so call it—consists of a whole bed of Cockscombs very evenly grown, which is rather a new feature in flower gardening. The bed—a circle—is on the terrace in front of the house, and I think from the behaviour of the plants with Mr. Ollerhead this season we are likely to see Cockscombs more extensively used as bedding plants in future. In Battersea Park the Cockscombs are dotted about, while Mr. Ollerhead has planted his *en masse* with much better effect. I believe the "combs" were well formed before the plants were planted out, and the fact of their doing so well in a wet season ought to exercise a healthy influence in their favour as outdoor decorative plants. *X.*

Tropæolums on Arches.—There can be no greater ornament or acquisition to a plant-house (especially if it be of moderate proportions) than one or two arches draped with flowering creepers. There are not many plants better adapted for this purpose during the autumn months than Tropæolums, of which Ball of Fire is a capital variety and a profuse winter flowerer. In a short time show-houses will not have that redundancy of scarlet which they now possess, and Tropæolums trained conspicuously over arches would furnish a desideratum which would give tone and even a bright appearance to a dull arrangement. *W. H.*

Wasps.—Mr. Woodford (p. 314) may congratulate himself upon the absence of wasps in his district (Margate) this year. Though comparatively few when compared with the number of nests destroyed and paid for during the last few years, is not the case here, as the following figures will testify. Since July 16 to the 3d inst. we destroyed 533 nests, for which we paid £26 13*s.*—1*s.* for each nest—as compared with £57 10*s.* last year, commencing on June 26, and ending on September 18. *H. W. W.*

—— I must congratulate Mr. Woodford on his having no wasps. We have swarms here, both indoors and out. Plums suffer very much from their depredations; to go to the walls after Plums is no safe business here, as almost every fruit contains one, two, or three of the venomous creatures. Grapes have to be protected from their attacks. *W. M. G.*

Large and Small Grapes.—In order to keep pace with the dictates of fashion, we often travel faster than is good for the benefit of practical horticulture, or indeed of horticulture generally. Perhaps there is no fruiting plant in cultivation that has formed the theme of so much discussion during the past decade as the Vine. Have we progressed in practical results in anything like equal proportion to the theoretical profusion of our ideas? What are the staple varieties of Grapes now in cultivation? and what were they a dozen or more years ago? We have Black Hamburgh Grapes now, just as we had them a dozen years ago, some better and some a good deal worse according as the cultivator has been successful in procuring a good variety, and growing it to perfection. Great strides, it is true, have been made in Grape growing of late years, but some of our finest dessert Grapes are less grown every year, until by-and-bye the rising generation will only know Gros Colmar, Trebbiano, Black Alicante, Lady Downe's, and a few others. Will any of the above mentioned compare with Chasselas Musqué or the Frontignan?—of which it is a rare sight to see a single example in a private garden now-a-days. The comparison may not be happy, but if we take Black Hamburgh, Foster's Seedling, Buckland Sweetwater, or any other early or mid-season kind (Madresfield Court excepted), our position is little better. When any one class or type of Grape is grown to the exclusion of others of equal or superior merit it is time to call a halt. Of course it would not pay to grow Chasselas Musqué or Grizzly Frontignan for market, but it is hardly right that the sweeter kinds of Grapes should be lost sight of altogether because others are superior in point of size, though not to be compared in the same day in point of flavour. That large Grapes are more profitable and more satisfactory to grow there cannot be a doubt. If employers or the public—the general consumers of such produce—want large bunches and large berries no one will object to their having them, but for private purposes I have no doubt many private families would be glad of a change. There is room in most gardens for the smaller kinds of Grapes, and the large ones too in proper proportion. I have cut Chasselas Musqué on April 30 in capital condition, with a richness about it that we do not get in any early white variety grown at the present day. A house full of Frontignans alone would, I am sure, be an acquisition to many of our private Grape growing establishments. Who will say a word in favour of old neglected friends? *W. Hinds.*

Duke of Edinburgh Carnation.—A few days ago (August 25) I noticed a grand display of this late free flowering scarlet Bizarre Carnation in the gardens at Bowood in front of Mr. Phipps' office. It is a most useful and showy variety, and supplements the supplies obtained from earlier flowering varieties, which, together with its free and late flowering habit, renders it deserving of a place in every garden, more especially in gardens where sweet scented cut flowers are greatly in demand for the embellishment of the drawing-room and boudoir. *B. W. Ward.*

Grapes and Peaches in the Same House.—Under the above heading appeared an article in a recent number of the *Gardeners' Chronicle* (p. 304), which I venture to say would be misconstrued by many, more especially by amateurs, or ladies and gentlemen, building new vineries and Peach-houses. After reading the article referred to they would very naturally say, If Peaches and Grapes of the finest quality are to be produced from one house, why should we go to the unnecessary expense of building two when one will answer our purpose? I should be very sorry indeed to be the poor gardener for a lady or gentleman in such a false position, for I am positive, from my own experience, that fruits of the best quality cannot be produced both from the same house for any length of time, and more especially if forced early—say, for instance, the house is started at Christmas, as the Peaches come into bloom, much more air is required to be given than is beneficial to the Vines at that stage. I have lived in two establishments where two vineries were built against a Peach wall, and the trees being young and healthy, the gentleman wished to give them a trial with the Vines, consequently we had splendid crops of Peaches, but the Grapes were inferior both as regards bunch and berry. The other place referred to was one in which a house was built expressly for the occasion, namely, a three-quarter span—the Vines planted in the front and the Peaches at the back; but as they grew and met each other, the Peaches requiring so much syringing to keep down red-spider, the bunches of Grapes could not escape getting the spray from the syringe; consequently we lost that beautiful bloom which stands in such favour at our fruit exhibitions and is not thought a little of on some dessert dishes. I do not for one moment mean to infer that it is impossible to grow both in one house, for I know it can be done with more or less success, as several of our great fruit growers have recommended it, but only where the means are so limited as to make it absolutely necessary. *W. B. G.*

Harrison's Musk a Carpeting for Rose Beds.—In moderate-sized places, where a few Rose beds are, either from choice or fancy, located near the house, it is a good plan to carpet the beds with this lovely plant, which is not half as much grown out-of-doors as it might be in small gardens—perhaps in some large ones too. After Roses have done blooming, they are untidy-looking at best, or at least are far from ornamental. There is no reason why Rose beds should not be made more attractive than they generally are by carpeting the surface with the above-mentioned plant, which is unusually brilliant this season. *W. Hinds.*

Hardy Fruit Exhibition.—I quite agree with the remarks your correspondent "A. D." has made with respect to an exhibition of hardy fruits. These last two or three years the Apple and Pear crops have been very deficient; this season the reports that have come to hand tell us the crops are good both in quality and quantity. Therefore, could not a society be organised after the manner of the Potato society, and have an exhibition some time in October? There have been grand exhibitions of the kind held at South Kensington in November, but that is too late, for the days are dark and gloomy, and the public do not patronise even a fruit show at that season of the year. I should be glad to aid in any movement for the formation of a society such as I have named. *W. Fowle, The Gardens, Dogmersfield Park.* [Too late, we fear. EDS.]

Maréchal Niel Rose, Origin of.—I have just been informed on good authority that this fine and popular Rose is not a seedling, but a "bud sport," with an interesting history. A gardener at Montauban, David Pradel by name, inserted a bud of th old Cloth of Gold, or Chromatella, on a plant of th American Rose, Isabella Gray, as a stock. Th operation resulted in the production of the now cel brated Maréchal Niel Rose. Of course such a Ros like good wine, was too good to be hidden away lon and my informant tells me that Pradel sold the Mar chal to Eugène Verdier for something like £25, ad ing that the first year it was sent out Eugène Verdi sold nearly £3000 worth of this now well-known Ros There remains one word to be said. Is this the tr history and origin of Maréchal Niel? Can any Ro historian say that this account is altogether erroneou and if so can he furnish us with the true history? A l of the Roses now known to be "sports" is a lo and interesting one. *F. W. B.*

SCHOMBURGKIA LYONSII.

THE history of the discovery and introduction of th Orchid into Britain, was given by Prof. Reichenba in the *Gardeners' Chronicle* for September 28, 187 It was then considered a rarity, and the first inflor cence which the celebrated Orchidologist receiv merited at his hands the following comparati description:—

"Imagine a long Schomburgkia raceme, wi very long narrow bracts, flowers equalling those S. rosea, ovaries dark purplish, sepals and pet white, wonderfully covered with seriate rows Hebrew letter-like dark purplish stripes. The has a brown (brownish-yellow, G. S.) margin, ke in the middle and transverse purplish spots. T small white-purplish column has an acute process each side of the two-horned anther. For those w do admit Schomburgkia, it is decidedly a great beau yet I am quite aware that Schomburgkias are not t fashion—happy plants, which therefore will not killed in hecatombs."

Schomburgkia Lyonsii may still be rare in Brit gardens, but it is not so here in Jamaica. I have it fr the west-end and from localities within 25 miles of the east-end of the island, while immediately around it is common, from an elevation of 3000 feet above sea level down to within a few yards of the seashore. seems to prefer to grow on the upper surfaces of limbs of high trees. The positions the plants occu mostly expose them to both wind and direct sunshi The species is now (middle of July) in flower. Th mometer registering 88° during the day, 78° at nig showers every three or four days; heavy dews night.

The light coloured variety referred to by P Reichenbach as having been illustrated in *Bot. M* 1860, 5172, I find here but sparingly. Its ovary column are pure white, and the disk of the labell is whitish, and indeed the entire flower is altoget more chaste than that of the more common fo When viewed from a distance of a few yards, flower with its equal ovate-oblong sepals and pet evenly spread out, is very suggestive of a five-ra star-fish.

Juvenile plants up to three years old are so v different from the mature fertile ones, that a fri who saw one that I had found thought it belon to a totally distinct genus. Of these, the pseu bulbs are shortly ovate, truncate and tetragon compressed, each bearing a single short, but oth wise characteristic, oblong leaf. As the plants g strength the pseudobulbs assume the ultimate f form shape and bear two, or when exception vigorous, three, oblong-linear leaves. It takes fr three to five months for the scape to grow and matu then, almost suddenly, the long fertile bracts of bottle-brush raceme burst open, freeing from tw to twenty-five flower-buds. In less than twelve ho after the terminal bud expands—centrifugal! followed in quick succession by the other flow Here, left to themselves, they are open not lor than three days.

Mr. B. S. Williams (*Orchid Grower's Manual* 291), says that in Britain the plant "lasts in bl three weeks." A low temperature, little sunsh and an abundance of moisture must have someth to do in extending the duration of the blossoms.

The flowers of our Jamaica-grown plants evidently not specially made for our admiration at any rate, not for our long-continued enjoym They are scarcely well expanded when their ant cells open, and thereby allow the slightest-actio

* Are the other known species of Schomburgkia centrifu? If they are, it is an excellent distinguishing character Schomburgkia.

the wind to shake out one, two, or more of the pollen-masses, which, owing to the elasticity of the delicate caudicles, fall on the large, shallow, viscid stigma, and the object of their blossoming is thus in great measure accomplished. That this is the true reading, is shortly after seen in the flaccid, shrivelled sepals and petals folding themselves over the column; almost as quickly as the divisions of the perigone in the bud opened to display their most attractive faces do they again, though in a less glorious condition, return to their especial duty of protecting the soul of the flower.

Mr. Darwin in his volume on the *Fertilisation of Orchids*, p. 358, states that "self-fertilisation is a rare event with Orchids. In Cephalanthera grandiflora it occurs, but in a very imperfect degree. . . . . Certainly the fertilisation of this Orchid is aided by insects. In some species of Dendrobium self-fertilisation apparently occurs, but only if insects accidentally fail in removing the flower's own single pollen-mass." He mentions two or three other Orchids that are doubtfully self-fertilised, but the foregoing instances are the best. Having carefully observed the flowers of many plants of Schomburgkia Lyonsii, I am compelled to the conclusion that here, at home, the species is absolutely self-fertilised. The flexible labellum, unlike that of the great majority of Orchids that are exclusively fertilised by insect agency, is no longer a footstool for nectar-seeking insects; but, on the contrary hangs loosely over and above the column, so that were an insect of any weight to alight on the exposed parts of the labellum, it would certainly be pressed down closer on the column, and thereby effectually debar the creature access to the nectary. The nectary, though specially formed, as well as I can observe, contains no nectar. Two flowers examined, while yet in the bud, had each two pollen-masses on their stigmas, and the usual swelling as a result of contact of the two healthy sexual elements was plainly visible, and good healthy capsules, full of seed, were a further result. I have never seen more than seven of the eight pollen-masses on their stigmas, the eighth being always in its place in the anther; and I have seldom found more than four on the stigma. I have never yet seen an old scape of this plant but that every peduncle on it bore, or showed that it had borne, a well-filled capsule—except in every instance in which I had taken special pains to castrate the male organs of the flower immediately on its opening. The latter, I need hardly state, never got fertilised. I have already stated, that here the flowers of our plant, when left naturally to themselves, are open not longer than three days; but in the case of those from which I removed the pollen from the anthers, they lasted in all their beauty fully a week longer; in other words, they were open for at least nine days. It is just possible that flowers of this plant similarly treated in Britain, might last in freshness for five instead of three weeks. There are many other species of the tribe Epidendreæ, to which our plant belongs, that have beautiful but unfortunately short-lived flowers that might, by a timely removal of their anther-contents, be made to endure much longer.

The foregoing was written, intended for publication in this journal, twelve months ago, but, being anxious to further test the accuracy of my observations, I decided to defer offering the article for publication until that opportunity occurred. I have again, twelve months later, examined many flowers, even more critically than before, and now I am fully satisfied that S. Lyonsii is exclusively self-fertilised. How exceptionally fertile is this absolutely self-fertilised Orchid! Not a single flower of it, left to itself, fails to accomplish all of its economy; in which respect it is a contrast to its insect-fertilised associate Oncidium luridum, also now in flower, with its paniculate scape, from 3—14 feet long, bearing from 100—500 flowers "hung out," as Americans would say, for weeks together to lure winged insects. Many as are the flowers of the inflorescence of this Oncid it is noteworthy that I have never seen more than twelve capsules on a scape. How much more certain is fecundity in self-fertilised plants! Nevertheless, Nature speaks eloquently through the vast majority of tongues of the great Orchidean family, that, for some reason or other, self-fertilisation is wrong in principle, and that cross-fertilisation by insect or other external agency is for the lasting well-being of this order of plants.

Though the flower of Schomburgkia Lyonsii of this generation is undoubtedly self-fertilised, it is probable that it has not been so always. Or it may be that it is a mere patchwork of the flower characters of older, perhaps extinct, organisms. It has a specially formed nectary, but in which, as previously stated, I have failed to discover nectar, though an insect might. The channelled labellum—which now, like a canopy, overhangs the upturned stigma—has five parallel keels, trending to the mouth of the nectary, so that a proboscis, propelled down either of the four grooves, could not possibly miss it. Finally, there is the most attractive colouring of the flower, so well described by Prof. Reichenbach. *Geo. Syme, Castleton Botanic Gardens, Jamaica.*

Reports of Societies.

Royal Horticultural: *Sept.* 13.—Dahlias formed the staple of the show. They lined the vestibule with bands of rich and varied colour, they thrust themselves into the Council-room and contested the pride of place with the Apples and Pears, making even the Roses of Messrs. W. Paul & Son look pale by contrast. There they were in every variety, big show Dahlias, like dumplings in form and quilled like a lady's tucker in the olden times, and with tier above tier of petals like so many shells piled one on another; coquettish pompons, bright bedding Dahlias, bouquet Dahlias excellent for cutting, and the colours of all rich and pure beyond compare, "self-asserting" in their brilliancy or mottled and striped as in the fancy kinds. The Cactus Dahlia, quite improper as to form, out-blazed the others in colour. Even the green Dahlia was not forgotten, and though generally looked on only as a monster fit for eccentric botanists and crotchetty amateurs, yet its rich green formed a nice contrast to the more gorgeous hued varieties. Illustrations of most of these kinds with notes on the species were given in our columns last year. The visitors on this occasion had also an opportunity of comparing the simple beauty of the single varieties with the more artificial productions of the florist, and although we do not suppose real Dahlia lovers will be shaken in their allegiance there is no question that the less educated eyes of the general public turn with greater pleasure to the single varieties. Cut Roses made a good display, as well as a miscellaneous assemblage of odds and ends, including fine African Marigolds, a bank of Amaranthus tricolor finely coloured, an interesting collection of herbaceous plants from Mr. Riches, including Campanula lactiflora cœrulea, a plant about 18 inches high, with funnel-shaped blue flowers; and Allium glaucum, a dwarf species with linear glaucous leaves like those of a Carnation, and stalked umbels of small lilac flowers. Messrs. W. Paul & Son, of Waltham, sent a fine collection of fruit, elsewhere mentioned, and a small group of cut specimens of Cratægus, including C. latifolius, with large scarlet berries; C. rubra, with bronze berries; C. tanacetifolia, yellow; C. nigra, black; the yellow-fruited C. Oxyacantha; C. punctata, red; C. pentagyna, red; C. arbutifolia, red; and C. Layii, red. This formed a beautiful and interesting collection, though the specimens were small.

Floral Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Before passing to the business of the day it was unanimously resolved to forward an expression of sympathy and condolence with the family of the late Mr. Charles Lee. Messrs. Hender exhibited cut blooms of their double Dahlia, in which one quill grows within another, much as in the case of a hose-in-hose Primrose. Capsicum Little Gem, from the Society's gardens, received a First-class Certificate. It is of dwarf habit, with numerous small ovoid red berries. The same award was made to Pitcairnia Jacksoni, a species with a dwarf stem thickly set with recurved linear leaves, glossy above, ashy grey beneath, and with erect spikes of rather large red flowers. Messrs. Ronalds, of Chichester, showed a dish of Golden Crab Apple, the small, globose, yellow fruits of which are very effective. Mr. John Fraser showed Ixora regina, a free-flowering variety, with pale orange-pink flowers, which obtained a First-class Certificate; and also Ixora venusta, with flowers of a deep orange-red. Pellionia Davueana, from Mr. W. Bull, received a First-class Certificate as a stove basket plant, for which its pendulous stems and ovate acute leaves, 2 inches long, dark green mottled with silver, are well adapted; the flowers are borne on stalked cymes, but are inconspicuous. Nepenthes Morganiana ×, a hybrid raised in America by Mr. Taplin, was shown by Messrs. Veitch. The leaves are reddish, and the pitchers are of medium size, winged in front, deep red, but with a green lid. It is said to have been raised between N. Hookeri and N. phyllamphora. Messrs. Veitch also showed a hybrid Sarracenia, S. Courtii ×, which received a unanimous vote for a First-class Certificate. It is a cross between S. purpurea, as the seed parent, of which it has the deep wing, and S. psittacina as the male parent, of which it has the general form and habit, having small, spreading pitchers of a deep red colour, deeply winged, and with a concave, cowl-like lid, as in psittacina. Messrs. W. Paul & Son and Messrs. Veitch jointly received a First-class Certificate for Euonymus latifolius, a hardy shrub, laden with large pink-violet capsules and scarlet seeds. Mr. Owen, of Henley-on-Thames, received a First-class Certificate for Adiantum Oweni, said to be a hybrid between A. amabile and A. cuneatum, and having stiff triangular decompound fronds, of which the older ones had much of the incised character of those of amabile, while the central fertile ones had very small pinnules with more of the cuneatum character. It will be a very elegant decorative plant. Messrs. Veitch showed Cattleya gigas and Lælia Turneri elegans.

The Dahlias.—There was a greater number of Dahlia blooms exhibited at this meeting than has been seen together at South Kensington for many years, and although there was no competition the individual blooms were exceptionally good, especially of the show and fancy varieties. Mr. Charles Turner, of Slough, and Messrs. H. Cannell & Sons, of Swanley, each of them, had good representative collections. Mr. Turner had a double row of stands, the back row being remarkably effective. There was a nice young Palm between each stand, of which there were thirteen filled with bouquet Dahlias, bedding and single varieties in bunches. In the front of these were seventeen stands of show and fancy varieties set up in the usual way. As garden flowers, or for cutting purposes, the bouquet varieties are the best of all; and, as they were arranged in bunches by Mr. Turner, they ought to find a place at all exhibitions. The best of them were named last week at page 335. The show and fancy varieties comprised the best sorts, new and old, in cultivation, the following being remarkably fine:—Alexander Crammond, Annie Neville, Burgundy, Canary, perhaps the finest yellow variety exhibited; Charles Leicester, Chris. Ridley, Clara, a beautiful rosy-peach, very distinct; Ethel Britton, George Smith, Henry Walton, James Service, John Bennett, John Neville Keynes, John Standish, John Wyatt, Joseph Ashby, Mrs. Henshaw, Prince Bismarck, Rosy Morn, and Silvio. The best of the fancy varieties were also named at p. 335.

Mr. Cannell's large collections comprised in all twenty-four stands, the varieties being very similar to those already named. He had a very pure white variety named Purity, and a few new varieties of the show section of great promise. Cannell's Scarlet is a beautiful variety of excellent shape, a clear light scarlet. He had amongst bouquet varieties Triumph, Dora, National, Bird of Paradise, Sensation, Gold Nugget, Mrs. S. Elsner, Coronet, Little Beauty, and Little Philip. Mr. Cannell had also a large and representative collection of single blooms. The varieties of D. variabilis are endless, but none of them seemed to surpass or even equal Paragon, a very old form; alba, said to be a very old variety, and which has found its way into general cultivation from the Oxford Botanic Garden, may also be popular—the ray florets are large, well shaped, and pure white. It was also exhibited under the name of White Queen. The single varieties raised from D. coccinea are the best by far; Morning Star is a fine crimson form; Scarlet Gem and Scarlet Dwarf are also very pretty; and there is also a pure yellow form of coccinea. Messrs. Turner and Cannell were both recommended to the Council for the award of a medal for their exhibits.

Mr. T. S. Ware, of Tottenham, exhibited four stands of well grown blooms of single Dahlias; most of them seemed to be seedlings from D. variabilis, and were very distinct and beautiful. The best were Alba, Crimson Beauty, Brightness, and Vivid. A collection of bouquet Dahlias was also sent from the Society's Garden at Chiswick, and also a beautiful bunch of the singular Dahlia Juarezii, Little Bobby, John Sandy, Pure Love, Little Fairy, Little Dear, Prince of Lilliputians, and a pretty yellow variety named Olga Kreutzburg. New varieties were exhibited in considerable numbers. Mr. Turner had Pioneer, noticed at p. 335—it received a First-class Certificate; Herschel, a medium-sized crimson of good shape; Comet—of this there were but two flowers of a bright scarlet colour, but it is also a flower of good promise. Mr. Geo. Smith, New Villa, Hedge Lane, Edmonton, exhibited a variety named Fair Rosamond—a distinct and good flower, white, with purple tips to the florets. Messrs. Keynes, of Salisbury, also exhibited some good new Dahlias: Miss M. Batchelor received a First-class Certificate; it is only of medium size, but of exquisite form, and of a deep shade of bright scarlet; Florence Brown is the most perfectly formed fancy Dahlia yet seen, the colour is buff, with a purple shade, and striped with crimson-maroon. Messrs. Rawlings, of Romford, received a First-class Certificate for George Rawlings; they had six blooms, all good; it is a fine dark maroon variety, not so deep in colour as Pioneer, but the flowers are of full size, and it is the best formed and most constant of the dark varieties. Mr. Eckford, The Gardens, Sandywell Park, Cheltenham, was also an exhibitor of seedlings—Miss Eckford was the best of them; it is

of good shape, and of a yellow colour, shaded with fawn.

ROSES.—Messrs. W. Paul & Son, of Waltham Cross, exhibited six stands of Roses, showing very clearly that Roses are not only plentiful but very good at Waltham at this season. Of Teas, which were very fine, the varieties were Sombreuil, Maréchal Niel, Madame Bérard, Catherine Mermet, Souvenir de la Malmaison, Shirley Hibberd, Innocenta Pirola, Belle Lyonnaise, Marie Van Houtte, Niphetos, a fine cluster of eighteen blooms, and Madame Falcot. Of hybrid-perpetuals the best were Madame Sophie Fropot, Countess of Oxford, Duchess of Bedford, Countess of Rosebery, Pride of Waltham, Alfred K. Williams, Alfred Colomb, La France, Mrs. Bellenden Ker, Baroness Rothschild, Charles Lefebvre, Marie Baumann, Lord Macaulay, and Comte de Mortemarte.

The following are the awards of the Floral Committee :—

First-class Certificates.

To Mr. G. Rawlings, for Dahlia George Rawlings.
To Mr. C. Turner, for Dahlia Pioneer.
To Messrs. Keynes & Co., for Dahlia Miss M. Batchelor.
To W. Paul & Son, for Euonymus latifolius.
To J. Veitch & Sons, for Euonymus latifolius.
To J. Veitch & Sons, for Sarracenia Courtii×.
To the Society's Gardens, for Capsicum Little Gem.
To the Society's Gardens, for Pitcairnia Jacksoni
To Mr. John Fraser, for Ixora regina.
To Mr. John Owen, for Adiantum Oweni.
To Mr. W. Bull, for Pellionia Davaueana.
To Messrs. J. Laing & Co., for Pelargonium (silver tricolor) Mrs. Miller.

Votes of Thanks.

To Messrs. Watson & Son, for group of early-flowering Chrysanthemums.
To Messrs. Ronalds, for specimens of Golden Crab.
To Mr. R. Dean, for new dwarf French striped Marigold.
To Mr. J. T. Riches, for group of hardy flowers.
To Mr. B. S. Williams, for Stephanotis multiflorus.
To Messrs. W. Paul & Son, for cut Roses.
To Mr. T. S. Ware, for seedling single Dahlias.

Medals Recommended.

To Mr. C. Turner, for collection of Dahlias.
To Mr. Cannell, for collection of Dahlias.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. At this meeting Messrs. W. Paul & Son, exhibited a large and interesting collection of Apples and Pears—seven varieties of Pyrus Malus, and twelve kinds of Cratægus, for which a Silver Medal was recommended. Some seedling Apples also came from the same firm. Mr. G. Hawkins sent some nice samples of Plums, Pears, and Peaches, grown in pots. A small collection of fruit came from Messrs. Rivers & Son, of Sawbridgeworth, and another from Mr. G. Bunyard, of Maidstone. Mr. R. Dean sent a dish of Frogmore Prolific Apple, and also a dish of a very handsome Apple grown in West Middlesex under the name of Duchess' Favourite, and in Kent under the name of Duchess of Gloucester. This Apple was thought highly of by the committee, and commended on account of its handsome appearance as being worthy of extensive cultivation for market purposes. It is somewhat like the Astrachan, but is rounder in shape, and has a firmer flesh. Mr. Burnett, of The Deepdene, Dorking, sent a dish of Apples called Red Devonshire Queen, which is the same as Red Astrachan. Mr. Jones, of Elvetham Park, Winchfield, sent a seedling Melon, but it was over-ripe. A seedling Fig of very promising appearance came from Mr. George, of Ockenden, Cuckfield ; it was rather deficient in flavour. The committee wished to see it again when grown under more favourable circumstances. Mr. Gilbert, of Burghley, sent a handsome Melon, called Netted Victory. It was not quite in condition. The committee wished to see it again. The same exhibitor also sent a brace of four sorts of Cucumbers. Messrs. J. Cheal & Sons, of Crawley, Sussex, sent two Melons. Messrs. J. Veitch & Sons showed branches in fruit of three kinds of autumn Raspberries, viz., October Yellow, October Red, and Belle de Fontenay. A sample of the Russian Mammoth Shallot, and of the ordinary red, came from Mr. W. H. Brown, of Uppingham. The committee recommended that a collection of Shallots should be grown for trial at Chiswick next year. The following are the awards :—

Cultural Commendation.

To Mr. G. Hawkins, for Plums, Peaches, &c,

Votes of Thanks.

To Mr. R. Dean, for Apples.
To Mr. R. Gilbert, for Cucumbers.
To Messrs. T. Rivers & Son, for collection of fruit.
To Messrs. J. Veitch & Son, for Raspberries.
To Messrs. G. Bunyard & Co., for Apples, &c.

Silver Medal recommended to Messrs. W. Paul & Son, for collection of Apples and Pears.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in 5, St. Andrew's Square, Edinburgh, on Tuesday, the 6th inst., Mr. M. Dunn, Dalkeith Park Gardens, Vice-President (in the absence of Mr. John Downie, President), in the chair. The Secretary read a paper from Mr. James Parkson on the subject of "Florists' Flowers," in which the writer enumerated the many definitions of florists' flowers which had been given by the leading gardening authorities both past and present. He referred to the difficulty of accurately defining what was and what was not a florist's flower. In the discussion which followed the reading of the paper it was strongly contended by some that the subject was impossible to be clearly defined, while others maintained that all those flowers which could be reproduced and improved from seed came under the category of florists' flowers. A general opinion was expressed that the number of flowers which composed this class of plants was capable of a much wider extension. The Chairman, in summing up the discussion, stated that the prevailing concurrence of views was in favour of giving the matter the widest possible definition. He thought that the most accurate definitition would be to say that florists' flowers were those which were capable of improved development from seed, and which engaged the attention of the florist.

Mr. Wm. Priest, Newbattle Abbey Gardens, read a paper "On the Colouring of Grapes." He said—Those of us who grow Grapes are aware how gratifying it is to see well-coloured and well-finished fruit; and how difficult it is to produce fine Grapes most of us know who have tried it. From the fact that so many badly-coloured samples are exhibited at so many shows, it is evident that this part of Grape growing is not one of the easiest things to accomplish in the gardening world. Take, for instance, the general run of what are called late Grapes—those used from now until March or April next. The Muscats or yellow kinds, and the black varieties, such as Gros Colmar, Lady Downe's, and Black Alicantes, if these varieties are not well coloured they have very little chance of being good flavoured or keeping in good condition for any length of time. The above varieties can all be grown in the same house, although where it is possible the Muscats and Gros Colmar will do best together, and the Lady Downe's and Alicantes together, as the latter will colour and finish up better in a cooler temperature than the former ; still, it is quite possible to grow them all to perfection in the same house, and to do this the Vines should be started not later than February 1, so that they may have a long season before them. The house must be kept cool during the stoning period, otherwise the Lady Downe's will scald badly, after that they should be kept considerably warmer to colour and finish well. Apart from the composition of the border and the watering there are a great many other details that must be strictly attended to. The roots of course must be in good action otherwise the Vines will not be in a fit state to produce good foliage, let alone fruit ; and without good clean healthy foliage we need not look for good fruit. The ventilators should never be quite closed after the fruit is set except for an hour or so on the afternoons of very hot days, when the house should be well damped down and closed up to refresh the Vines and the ventilators opened again about 6 P.M., and a little warmth put into the hot-water pipes to keep up the desired temperature. Extremes of heat and cold are not good for Grapes, therefore the more equable the temperature can be maintained the better. In dull, wet and cold seasons it is difficult to get Muscats to finish well, and in hot and dry seasons black Grapes generally ripen too quickly to show well. The Vines should not be planted closer than 3 feet apart, some growers say 6 feet, but this width is a waste of room ; the laterals should not be closer than from 18 to 24 inches : this space gives ample room for a good covering of foliage without crowding it. On a rod 20 feet long ten bunches will be generally found to be quite enough, but much depends upon the strength and health of the Vines, as one variety will finish well while another will not. Black Grapes, as a rule, colour better with a thicker covering of foliage than Muscats will do, more particularly Black Alicante and Lady Downe's. The foliage should be tied back from the bunches of the Muscats, to let in all the light and sun possible. Colour in black Grapes is not always an indication that they are of good flavour, because many varieties get black before they are nearly ripe ; but if you have the colour the flavour will come, that is to say, if they are kept in a dry, warm atmosphere for a time. Muscats, on the contrary, are sure to be of a good flavour if they are yellow. The principal points, therefore, to be attended to in colouring and finishing a crop of Grapes are—to avoid heavy cropping, for the strength of the Vine ; to keep the rod and laterals a good distance apart, to admit of the foliage getting all the light and sun possible ; to attend carefully to the ventilation ; to maintain a steady temperature, and to see that the roots are in good action, never allowing the borders to get dry.

Dr. Paterson, Fernfield, Bridge of Allan, exhibited Abies Alberti in cone, Thuyopsis dolabrata in fruit, also a fruit of Podophyllum peltatum, the American May Apple. Mr. William Leith, Abercairney Gardens, Crieff, exhibited six varieties of new seedling Carnations and Picotees ; one of the former, a dark crimson Clove, received a Certificate from the New Flowers Committee ; one of the latter, named Lady Anne H. D. Morny, was noticed on account of its Clove scent. Messrs. George Cooling & Son, Bath, exhibited two plants of the new Kidney Bean, Ne Plus Ultra. It received a favourable opinion from the meeting, it being productive, of dwarf habit, and with fine-shaped pods. Messrs. Dicksons & Co. exhibited a stand of twelve varieties of seedling Pinks and Carnations ; one of the latter, named Invincible, of sulphur-yellow colour, commended itself to the New Flowers Committee. Messrs. Downie & Laird exhibited a new seedling Lobelia, with a dark blue flower, and of a close and compact habit. Mr. Mark King, Bonnington, exhibited a yellow Dahlia bloom with a double head.

Cryptogamic Society of Scotland. — The seventh annual conference of the Cryptogamic Society of Scotland was held on the Island of Mull on August 30 and succeeding days. Excursions were made in the neighbourhood of Salen and Tobermory, and some interesting features of the Scottish flora were observed. The entire absence of some of the more common and widely distributed Cryptogams was remarkable, while others of less frequency or of greater rarity were found.

"Notes on the Lichens," by Dr. Stirton, will be given in the *Scottish Naturalist*, and the results of observations on fungi will be embodied in supplements to *Mycologia Scotica*, which are in course of publication by the author in the same journal. The editor, Dr. Buchanan White, will refer to other points of interest in an early number.

Exceptionally fine weather made the meeting a most enjoyable one, while the grandeur of the scenery added a new charm to those who were strangers to the west coast of Scotland.

The next annual conference will be held in Aberdeen, under the presidency of Professor Dickie, in the autumn of 1882. *J. S.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON

FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 14, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In
8	29.59	—0.32	63.5	49.2	14.3	55.8	— 2.5	48.4	77	N.	0.0
9	29.76	—0.15	63.5	51.0	12.5	55.7	— 2.1	50.5	83	N.W.; N.N.W	0.0
10	29.83	—0.07	57.5	50.5	7.0	53.8	— 4.2	49.5	85	N. N.W	0.0
11	29.79	—0.11	58 0	51.0	7.0	53.7	— 4.1	51.5	92	N; WNW	0.1
12	29.83	—0.07	57.5	52.5	5.0	54.5	— 3 1	52.1	91	N.W.; WNW	0.0
13	29.94	+0.06	65.0	52.0	13.0	56 4	— 1.0	53.7	91	N.W.	0.0
14	29.95	+0.07	66.8	50.0	16.8	56.8	— 0.4	51.6	82	NNW; N.W.	0.0
Mean	29.81	—0.08	61.7	50.9	10.8	55.2	— 2.5	51.0	86	N.W.	0.2

Sept. 8.—Fine morning, but foggy. Overcast generally. Fine rain at night.
— 9.—A moderately fine day, but mostly overcast. Fine night.
— 10.—A fine morning ; light rain at times. Windy night.
— 11.—A dull, windy morning ; frequent rain ; cloudy night.
— 12.—A cloudy, dull, damp day.
— 13.—A dull, overcast day. Fine, warm night.
— 14.—A fine day and night.

LONDON : *Atmospheric Pressure.*—During the week ending September 10, the reading of the barometer decreased from 29.97 inches at the beginning of the week to 29.55 inches by 9 A.M. on the 6th ; increased to 29.58 inches by 3 P.M., and decreased to 29.56 inches by 9 P.M. on the same day ; increased to 29.77 inches by 9 A.M. on the 8th ; decreased to 29.74 inches by 3 P.M. on the same day ; and was 30.02 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.81 inches, being 0.26 inch lower than last week, and 0.28 inch below the average for the week.

Temperature.—The highest temperature in the shade in the week was 66°.2, on the 6th ; the next in order was 66°, on the 7th. On the 10th the temperature did not rise above 57°.5. The mean of the seven high day temperatures was 62°.9.

The lowest temperature in the week was 49°.2 on the 28th ; on the 7th the lowest temperature was 54°. The mean of the seven lowest temperatures was 51°.5.

The greatest range of temperature in one day was 14°.3, on the 8th ; the smallest was 7° on the 10th. The mean of the seven daily ranges was 11°.4.

The mean daily temperatures were, on September 4, 56° ; on the 5th, 55°.3 ; on the 6th, 58°.5 ; on 7th, 57°.3 ; on 8th, 55°.8 ; on 9th, 55°.7 ; on 10th, 53°.8 ; and these were below their averages, excepting on that of the sixth day, which was 0°.1 above its average—the others were 2°.8, 3°.1, 1°.1, 2°.5, 2°.4, and 4°. respectively below their averages. The mean temperature for the week was 56°.1, being 2°.4 higher than that of last week, and 2°.3 below the average of the week for sixty years.

The highest reading of a thermometer with black-ened bulb in vacuo, placed in the full rays of the sun, was 121° on the 6th; the highest on September 9 was 76°. The mean of the seven readings was 88°.3.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 45°, and the mean of the seven readings was 46°.9.

Rain fell on six days in the week to the amount of 0.62 inch, of which 0.37 inch fell on the 6th.

ENGLAND: *Temperature.*—During the week ending September 10 the highest temperatures were 70°.4 at Cambridge, 69° at Truro, and 68° at Sunderland. The highest temperature at Liverpool was 60°.7, at Bradford 63°, and at Wolverhampton 63°.8. The mean from all stations was 65°.7.

The lowest temperatures in the week were 38° at Truro, 41°.5 at Leicester, and 43° at Sheffield. The lowest temperature exceeded 48° at Sunderland, Liverpool, and Blackheath. The general mean was 45°.1.

The greatest ranges of temperature in the week were 31° at Truro, 25°.4 at Nottingham, and 25° at Cambridge. The smallest ranges were 11°.7 at Liverpool, 16°.8 at Wolverhampton, and 17° at Blackheath and Bradford. The general mean was 20°.6.

The mean of the seven high day temperatures was or exceeded 64° at Cambridge, Truro, and Brighton, and was less than 60° at Wolverhampton and Liverpool. The general mean was 62°.1.

The mean of the seven lowest temperatures was or exceeded 50°.5 at Brighton, Liverpool, and Blackheath, and was less than 48°.5 at Leicester, Plymouth, and Bristol. The general mean was 49°.

The mean daily range was 20°.1 at Truro, 17°.5 at Cambridge, and 15°.3 at Nottingham; and was 10°.9 at Liverpool, 10°.4 at Bradford, and 10°.7 at Leeds. The general mean was 13°.2.

The mean temperature for the week was 57° at Cambridge, 56°.1 at Blackheath, and 55°.8 at Brighton, and was less than 53°.2 at Leicester, Plymouth, and Wolverhampton. The general mean was 54°.2.

Rain.—The largest falls were 1.71 inch at Plymouth, and 1.19 inch at Truro. The smallest falls were 0.02 inch at Liverpool, 0.2 inch at Sheffield, and 0.22 inch at Bradford. The general mean was 0.56 inch.

SCOTLAND: *Temperature.*—During the week ending September 10 the highest temperature was 69° at Dundee. At Leith the highest in the week was 67°.9. The general mean was 63°.

The lowest temperature was 37°, at Paisley; at Leith the lowest temperature in the week was as high as 48°.9. The general mean was 44°.9.

The mean temperature was highest at Dundee, 55°.7; and lowest at Paisley, 52°.6. The general mean was 54°.1.

Rain.—The largest falls were 0.75 inch at Leith, and 0.65 inch at Edinburgh; the smallest falls were 0.11 inch at Paisley, and 0.25 inch at Dundee. The general mean fall was 0.43 inch.

JAMES GLAISHER, F.R.S.

Variorum.

PLANTS FOR ROCKWORK.—A silver variegated form of Nepeta Glechoma (the Ground Ivy) is particularly effective on the rockwork in the Chiswick Gardens of the Royal Horticultural Society. Mentha Requieni is a subject well worthy attention for embroidered beds; it has a remarkably dense and compact habit of growth, more so than M. Pulegium gibraltaricum, with smaller foliage and closer masses of leaves. Two forms of a dwarf-growing Thyme are very valuable, viz., Thymus Serpyllum, and its variety lanuginosum, the leaves of the latter being more woolly, but both are excellent carpet plants. The pretty little Erpeton reniforme, with its white and purple flowers, when in a cool and moist position, is a most effective rock plant. Bambusa Fortunei aurea stricta has been, and still is, a gem on the rockwork at Chiswick: the foliage is handsomely marked with green and gold. Carex paria variegata is an effective dwarf-growing plant, with green and silver variegation. What a pretty thing is the old Silene Schafta, with its many pretty pink flowers; it is a compact-growing and very free blooming plant. One of the Marjorams (Origanum Tournefortii), an old but neglected plant, has large spikes of pale rose-coloured flowers. Saxifraga spathulata is a close and compact growing Saxifrage, well adapted for covering rockwork; it is much more refined in habit than some of the others, the rosettes of leaves being very dense and of a bright green colour. Sedum Lowersii is not only very free of bloom, but should it fail to flower a nice grey carpet is formed by the foliage, and it stands exposure much better than S. Sieboldi; it also remains in bloom a long time. Other subjects are scarcely less useful and attractive, but the foregoing represent a few subjects of undoubted usefulness for the rockwork that one finds in almost every garden.

CENTAURIDIUM DRUMMONDII.—This fine hardy annual, introduced some years since from Texas, deserves to be much more grown in gardens than it is. A short time since we saw a long line of it in a Kentish nursery, the seed of which was raised in a cold frame in early spring, and the plants put out in good soil. The plants had branched freely, and were literally laden with large yellow Composite flowers. It is an excellent subject to cut from, and treated in this way can be had in bloom from July till October. There is such a tendency on the part of many gardeners to grow only certain sorts of annuals that are best known in gardens that it is feared some subjects of a most useful character, similar to that under notice, get lost sight of altogether. The Composite which heads this paragraph well deserves general cultivation, and gardeners who have to provide cut flowers will find it to be to their advantage to grow it.

CASSIA MARILANDICA.—This pretty perennial deserves a word of praise as an autumn-flowering plant of some beauty and the easiest culture. It grows about 4 feet high, has pinnate leaves and yellow flowers with black anthers. In the United States it is called wild Senna, and is used as a substitute for the Alexandrian Senna, but is only half as powerful as that kind. Now flowering freely at Kew. Martin, in his *Historia Plantarum Rariorum*, says that this species was first introduced by Mr. Collinson in 1720.

LEPACHYS PINNATA.—In the Kew herbaceous department this elegant Composite is now in flower. It grows about 4 feet high, has pretty pinnate leaves and showy flower-heads, with somewhat small discs and long drooping yellow ray-florets. The receptacle, when bruised, exhales a pleasant odour, much resembling that of aniseed.

Answers to Correspondents.

APPLE SCALE: *W. J. G.* Your trees are covered with the Mussel scale, fully described in our volume for 1843, p. 736 (fig. 74). The bark should be scraped so

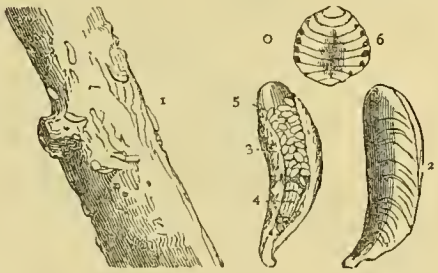

FIG. 74.—APPLE SCALE.

as to crush the insects without injuring the tree, and then the trunk and branches washed with gas-tar.

AGERATUM: *W. G. C. & S.* The variety is a very good one, dwarf and close in habit, and with a reddish tinge in the flowers. It does not appear to be materially different from others in cultivation, though we have none at hand for comparison.

ARAUCARIA BLEEDING: *Swindon.* If the resinous matter is discharging from the main stem the plant must be in a bad way. The primary cause of it is usually something amiss with the roots. They have, no doubt, got into a bad subsoil. The best plan would be to dig a trench round the tree; if it is a small one 2 or 3 feet from the bole, 5 or 6 feet if it is a large tree. Go down 3 feet if the nature of the subsoil admits of it; then fork out a portion of the soil from amongst the roots, working in under the roots with a fork. Clear out as much of the old soil as possible without injuring the tree. When this is done replace the old soil with good turfy loam, treading it in firmly if it is dry.

AURICULAS: *W. H. S.* It is a misfortune rather than an advantage that the plants should be showing flower now. You should nip off the trusses if you desire to strengthen the plants and to have a chance of a seasonable spring bloom. Keep the plants well ventilated in a cold frame with a northern aspect. The Vine leaf is developing warts from the under surface, occasioned probably by too close and moist an atmosphere.

BEGONIAS: *Keynes & Co.* There were no stigmas on the ends of the petals when we opened the packet. We presume they must have dropped off.

CERCOCARPUS PARVIFOLIUS: *J. V. V.* This has quite inconspicuous flowers, and is apparently not a shrub of pleasing habit. It grows from 2—10 feet high, according to locality. It inhabits the mountains of western North America from the Wyoming Territory southward through Utah to South California, and would doubtless prove hardy in England.

COLEUS: *J. B.* The Coleuses are very pretty, but our gardens are overwhelmed with them, and we do not notice anything absolutely new in character amongst those sent. Nos. 3, 4, 6, and 9, seem to be the best.

CULTURE OF LAPAGERIA ALBA AND ROSEA: *Subscriber.* These ought to do well planted out against the end wall of a greenhouse—inside the house, of course. They do well in an ordinary greenhouse temperature. Probably you did not prepare a good border for the roots. They require a deep well-drained border, made up of a good compost of light very turfy peat, with some pieces of broken pots and charcoal added to it. It would be best to grow the plants in pots until they are of large size, as small plants put out in a border, probably at a considerable distance from the glass, would be two or three years before they grew much, or made any attempt to flower.

DAHLIA: *Rawlings Brothers.* The blooms sent of the variety named George Rawlings are very fine. They are large in size, full and high in the centre, neatly cupped, and symmetrical or well-proportioned, the colour a deep maroon. We consider it to be a first-rate variety in the class of self show flowers.

ERRATA: *P.* At p. 334 for "Trent" read French;" for "Teas or anything else," read "on anything else;" for "Selina" read "Setina;" for "Montreuil" read "Montravel."

FUNGUS: *G. L., Clevedon.* The Puff-ball-like fungus is the egg condition of Phallus impudicus. At maturity it sends up a white stem some 6 or 9 inches high; it is then highly fœtid, and wherever it grows it is an intolerable nuisance. All specimens should be burnt. *W. G. S.*

GALLS ON OAK: *A. R.* The common Oak-spangles produced by Neuroterus lenticularis, and the Artichoke-gall produced by Cynips quercûs gemmæ.

GALLS ON WILLOWS: *W. M.* The "gall" on the Osier (Salix triandra) is really a fungus, Lecythea mixta (the Orange Willow Rust); that on S. Helix is truly the work of a gall-fly, Cynips sp.

GUMMING OF PLUM TREES: *H. G. C.* This is very often caused by excessive or injudicious pruning, or by the roots resting in cold sour soil.

HAMPTON COURT: *J. S.* Apply to Mr. Graham, Hampton Court.

HYACINTHS: *Reader.* We have grown Hyacinths successfully in cocoa-fibre refuse, mixed with charcoal, in glasses, in the proportion of about one-fourth of charcoal, but found no advantage over culture in water. *Reader* asks further if any of our readers can suggest any better material than this cocoa-refuse as a substitute for water in growing Hyacinths in glasses. We doubt if anything which would be available would keep as pure, and look so clean and wholesome, as water.

INSECTS: *T. Hill.* The large green grasshopper.

MANHATTAN: *C. & R.* American.

NAMES OF FRUIT: *W. F.* Coe's Golden Drop.—*Saltmarsh & Son.* It is the same as that now grown for Duchess' Favourite.

NAMES OF PLANTS: *Connon & Reid.* Tradescantia virginica.—*J. C. C.* Sedum Fabaria.—*G. T. M.* Euonymus latifolius.—*A. Y.* Your plants have been named at least once before. You must remember it is no part of our business to take the trouble to name your plants. We are willing to oblige you so far as we can, and the least you can do is to be civil. The plants are Nigella damascena, and Chrysanthemum segetum.—*Thos. Weston.* Duranta Plumieri.—*W. Syme.* Lathyrus annuus.—*W. Cash.* Silene Schafta.—*C. W. D.* 1 and 2, Helianthus lætiflorus; 3, H. giganteus; 4, H. tuberosus; 5, H. decapetalus; 6, perhaps A. foliaceus, a rare plant from Sitcha: please send another specimen; 7, material insufficient.—*Hotspur.* 1, Scabiosa atropurpurea; 2, Harpalium rigidum; 3, Coreopsis lanceolata; 4, Polygonum cuspidatum; 5, Potentilla hybrida; 6, Funkia cœrulea.—*J. B.* 1A, Santolina Chamæcyparissus. The Fern is Polystichum angulare parvissimum, which, so far as its history is known, sprang up in a fernery in Devonshire where British Ferns were cultivated, and therefore has as much right to be considered British as half the seedling forms now in cultivation which pass unchallenged. We should certainly admit it to competition under the circumstances described.

PEA: *Finney & Co.* The sample sent was very fine in yield and colour, but they were too old to judge of the flavour.

PEAR LEAF DISEASE: *R. F. D.* The Galls on your Pear leaves are produced by a mite, Phytoptus pyri. We know of no remedy but collecting the leaves and burning them.

PHYLLOXERA: *R. S.* You need not fear to use crushed bones, provided you know for certain that they have not been taken from a garden where Phylloxera exists.

PROTOPLASM: *J. S.* What you send is an Alga, called Nostoc, on which the slugs are feeding.

SYRINGA: *R. D. T.* The name applies strictly to the Lilac; the other plant has no right to the name.

WATER SNAILS: *C. M. O.* These are beneficial in eating Conferva, &c., but they must not be allowed to become too numerous, as they are apt to prefer a mixed diet, which is not always convenient for the purveyor.

WHITE WATER-LILY: *J. M. R.* We have often seen them, though not so commonly as in the yellow species.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors*," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

A. CLEAVER, Bore Street, Lichfield—Dutch Bulbs.
S. YATES, Millgate, Manchester—Dutch Bulbs.
A. ROOZEN & SONS, Overween, Haarlem—Dutch Bulbs.
J. M. KING, Coggeshall, Essex—Bulbs, &c.
GEO. COOLING & SON, Bath—Bulbs, &c.
SAMUEL MAY, Leeds—Bulbs, &c.
ISAAC DAVIES, Ormskirk—Rhododendrons and Azaleas.
KENT & BRYDON, Darlington—Bulbs.
OSBORN & SONS, Fulham—Fruit Trees, Grape Vines, &c.
HARRISON & SONS, Leicester—Bulbs.
R. & G. CUTHBERT, Southgate—Bulbs.

COMMUNICATIONS RECEIVED.—J. S.—C. L.—G. M.—H. E.—J. D.—F. M., Philadelphia.—Prof. Decaisne.—F. S.—W. G.—E. S.—C. W. D.—S. H.—W. G. S.—H. W.—C. R.—C. M. O.—M. L.—M. F.—Mrs. Weston.—W. M.—Subscriber.—J. D. G., Apples.—Keynes & Co.—Connon & Reid.—R. W.—B. F.—E. W.—F. M., Glasgow (thanks).—Hotspur.—Lee.—W. W.—J. S.—A. R.—J. S., Sen.—G. N.—W. R.—T. Lloyd.—W. H. D.—R. S.—J. M. A. P.—W. S.—J. M.—J. C.—J. S. K.—G. D.—Reader.—J. T.—H. T. B.—S.—Prof. Wittmack, Berlin.—M. Godefroy-Lebeuf.

Enquiries.

He that questioneth much shall learn much.—BACON.

BEES.—I should be very glad if you or your readers could give me any explanation of the following fact:—A short time ago I noticed great disturbance and fighting in a hive of bees, and the ground near the bee-shed was thickly strewn with dead and dying; small portions of comb were dragged out. This continued for four or five days, when, on observing perfect quiet restored, I raised and examined the hive, which was entirely untenanted—the whole community had decamped. The hive was well filled with comb, but no honey. Can you suggest the cause of a circumstance which has never come under my notice before, though a bee-keeper for many years? *M. Goodale.*

COCKROACHES.—*G. H.* asks Orchid growers to help him by telling him how to exterminate these pests. He has tried many poisons and traps without adequate effect.

PINUS FLEXILIS AND P. ARISTATA.—Can any correspondent oblige by giving his experience of the hardiness of these two Conifers, and the dimensions of his specimens? *X.*

Markets.

COVENT GARDEN, September 15.

Business remains the same; all classes of goods being in excess of the demand, and prices generally lower, with the exception of Plums and Nuts, which are very firm. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 3 6	Melons, each	1 0– 2 6
Damsons, ½-sieve	3 3– 3 9	Peaches, per dozen	1 0– 6 0
Figs, per dozen	0 6– 1 0	Pears, Eng., ½-sieve	2 6– 3 6
Grapes, per lb.	1 0– 2 6	— French, per. doz.	1 6– ..
Kent Filberts, per lb.	0 8– 0 9	Pine-apples, Eng., lb.	2 0– 3 0
Lemons, per 100	4 0– 6 0	Plums, per ½-sieve	3 6– 5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Lettuces, Cabbage, per doz.	0 6– 1 6
Aubergines, each	0 4– ..	— Engl. Cos, score	1 6– ..
Beans, French, p. lb.	0 4– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 6– 2 6	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen	4 0– 6 0	Parsley, per bunch	0 4– ..
Celery, per bundle	1 6– 2 0	Peas, per bushel	5 0– 8 0
Cucumbers, each	0 6– 1 0	Radishes, per bun.	0 2– 0 6
Endive, per doz.	2 0– 3 0	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	3 0– ..
Herbs, per bunch	0 2– 0 4	Tomatos, per lb.	0 9– 1 0
Horse Radish, p. bun.	4 0– ..	Vegt. Marrows, doz.	2 0– ..

Potato trade very heavy, and prices much lower, as follows:—Kent Regents, 10*s.* to 11*s.*; Roses, 8*s.* to 9*s.*; Myatt's, 10*s.* to 12*s.*; Magnum Bonums, 9*s.* to 11*s.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutiloo, 12 blooms	0 2– 0 4	Mignonette, 12 bun.	1 6– 3 0
Asters, 12 bunches	3 0– 6 0	Pelargoniums, 12 sprays	0 9– 1 0
Bouvardias, per bun.	0 9– 1 0	— zonal, 12 sprays	3 0– 6 0
Camellias, 12 blooms	6 0– 9 0	Primula, double, per bunch	0 6– 1 0
Carnations, 12 blms.	1 0– 2 0	Rhodanthe, 12 bun.	8 0–12 0
Chrysanth., 12 bun.	4 0– 9 0	Roses (indoor), doz.	1 0– 3 0
Cornflower, 12 bun.	1 0– 3 0	— (outdoor), 12 bun.	4 0– 9 0
Dahlias, 12 bunches	4 0– 6 0	Stephanotis, 12 spr.	4 0– 6 0
Eucharis, per doz.	6 0– ..	Sunflowers, 12 blms.	0 9– 2 0
Feverfew, 12 bun.	3 0– 6 0	Sweet Pea, 12 bun.	3 0– 6 0
Gardenias, 12 blms.	3 0– 8 0	Sweet Sultan, 12 bun.	4 0– 8 0
Gladioli, 12 sprays	0 9– 1 6	Tropæolum, 12 bun.	1 0– 3 0
Heliotropes, 12 sp.	0 6– 1 0	Tuberoses, per dozen	0 9– 2 0
Lapageria, white, 12 blooms	2 0– 4 0	Violets, 12 bunches	0 9– 1 0
— red, 12 blooms	1 0– 3 0		
Marguerites, 12 bun.	4 0– 6 0		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Ferns, in variety, per dozen	4 0–18 0
Asters, per dozen	4 0– 6 0	Ficus elastica, each	1 6– 7 6
Arbor vitæ (golden), per dozen	6 0–18 0	Foliage Plants, various, each	2 0–10 6
— (common), dozen	6 0–12 0	Fuchsias, per dozen	3 0– 9 0
Begonias, per doz.	4 0–12 0	Lilium lancifolium, per doz.	12 0–36 0
Chrysanthemums, per dozen	6 0–12 0	— auratum, p. doz	24 0–60 0
Cissus discolor, doz.	18 0–24 0	Marguerite, white, per dozen	18 0–24 0
Cyperus, per dozen	6 0–12 0	— Yellow, per doz.	12 0–30 0
Dracæna termioalis	30 0–60 0	Myrtles, per doz.	6 0–12 0
— viridis, per doz.	12 0–24 0	Palms in variety, each	2 6–21 0
Euonymus, various, per dozen	6 0–18 0	Pelargoniums, scarlet, per dozen	3 0– 6 0
Evergreens, in var., per dozen	6 0–24 0	Solanums, per dozen	9 0–12 0

SEEDS.

LONDON: *Sept.* 14.—To-day's market was poorly attended, and there was not much business doing. For Trifolium incarnatum holders realise former terms. Reasonable rates now prevail for winter Tares. Rye unchanged. More money is asked for white Mustard. Rape seed keeps steady. Samples of new American red Clover seed have just come to hand; yearling samples command hardening rates. Full prices are asked for Alsike, white, and Trefoil. Hemp seed, owing to some arrivals, is cheaper. There is no alteration in Canary seed. Blue Peas tend against the buyer. *John Shaw & Sons, Seed Merchants,* 37, *Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the Wheat trade was firm but not active, fully supporting the recovery quoted on Friday last. English Wheat brought the rates of Monday se'nnight, foreign in some cases rather more. Flour was steady in value, with a moderate demand, and Barley was dull in all positions. Beans were again 1*s.* lower, whilst Peas were unaltered. Maize on the spot was 6*d.* dearer on the week; Oats were firm at 3*d.* to 6*d.* over the previous Monday's rates.—On Wednesday business was less active, but Monday's rates for Wheat were fully sustained. Maize was scarce, and 3*d.* to 6*d.* dearer. Barley, Beans, and Peas were steady and unchanged; and Oats were quiet at late rates.—Average prices of corn for the week ending Sept. 10:—Wheat, 54*s.* 5*d.*; Barley, 34*s.* 6*d.*; Oats, 24*s.* 4*d.* For the corresponding period last year:—Wheat, 42*s.* 2*d.*; Barley, 35*s.* 1*d.*; Oats, 21*s.* 8*d.*

HAY.

Tuesday's Whitechapel Market report states that supplies were rather short, and the demand brisk. Best Clover advanced in value. Quotations:—Prime old, 105*s.* to 140*s.*; new, 100*s.* to 130*s.*; inferior, 80*s.* to 90*s.*; prime old meadow hay, 100*s.* to 134*s.*; new, 100*s.* to 125*s.*; inferior, 60*s.* to 85*s.*; and straw, 30*s.* to 52*s.* per load.—On Thursday there was a moderate supply of fodder on sale. With a brisk trade, prices were firm, as follows:—Prime old Clover, 100*s.* to 140*s.*; inferior, 60*s.* to 95*s.*; new, 110*s.* to 130*s.*; prime old meadow hay, 100*s.* to 134*s.*; inferior, 50*s.* to 90*s.*; new, 100*s.* to 125*s.*; and straw, 30*s.* to 54*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 126*s.* to 135*s.*; inferior, 98*s.* to 110*s.*; superior Clover, 130*s.* to 143*s.*; inferior, 110*s.* to 120*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies have rather fallen off, and clear off more readily at the following quotations:—Kent and Essex Regents, 80*s.* to 100*s.*; Roses, 80*s.* to 90*s.*; kidneys, 90*s.* to 100*s.*; Magnum Bonums, 80*s.* to 90*s.* per ton.—The importations into London last week consisted of 8743 bags from Hamburgh.

COALS.

The following are the quotations current at market during the week:—Wylam, 16*s.* 6*d.*; Ravensworth West Hartley, 15*s.* 3*d.*; Walls End—Easington, 16*s.*; Haswell, 18*s.* 6*d.*; Hawthorns, 17*s.* and 16*s.* 3*d.*; Lambton, 18*s.*; Original Hartlepool, 18*s.* 6*d.*; Ryhope, 17*s.*; Wear, 16*s.*; South Hetton, 18*s.* 6*d.*; Tunstall, 16*s.*; Chilton Tees, 17*s.*; Hetton, 18*s.* 6*d.*; Hetton Lyons, 16*s.*; South Hartlepool, 17*s.*; Tees, 18*s.* 3*d.*; Radford Navigation, 17*s.* 6*d.*

Government Stock.—On Monday the closing quotations for Consols were, for delivery, 98¾ to 98⅞, and 98 15/16 to 99 for the account. Tuesday's final figures were, for delivery, 98⅞ to 99, and 99 to 99⅛ for the account. Transactions closed on Wednesday at 99 to 99⅛ for delivery, and 99⅛ to 99 3/16 for the account.—Thursday's final quotations were, for delivery, 99⅜ to 99¾, and 99¼ to 99⅜ for the account.

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Of improved construction, can be erected in a few minutes with Roosting House, Covered Run, Nests, Perches, &c. complete, 12 feet long, 4 feet wide. Price £6 10s., carriage paid. Write for Illustrated Catalogue, containing useful Treatise on Poultry Management, free by post.
BOULTON AND PAUL, Manufacturers, Norwich.

W. Wells' New Improved Spray Distributor
This will be found of great value to all Gardeners for distributing Insecticides on Plants infested with Thrips, Green Fly, Red Spider, Mildew, Mealy Bug, or any other Pest, as it can be directed to any part required, and, working as it does with such ease, will be found of great use to Ladies to cleanse Rose Bushes &c. Price 15s. each. Trade supplied. Price on application.
W. WELLS, Earlswood Nurseries, Redhill, SURREY.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.
These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.
High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	18 in.	300	7 0 0
20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1000	16 0 0
24 ,,	24 ,,	48 ,,	1400	20 0 0
28 ,,	28 ,,	60 ,,	1800	25 0 0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W.*
May 29, 1873.
"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.
J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.
When ordering Boilers please refer to the above advertisement.

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Toope's Asbetos Covering Company
(LIMITED)
Manufacture an easily fitted and removable Patent Covering for Hot-water Pipes of any diameter, which effectually prevents any loss of heat in pipes passing from the boiler to the Glass-houses, no matter what distance.
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NUMEROUS TESTIMONIALS.
Send circumference of pipe, and length required, to the Factory,
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PIPES and FITTINGS
FOR HEATING APPARATUSES.
The largest stock in the Kingdom. 4-inch pipes, 1s. 7d. per yard.
SILVESTER & SAINSBURY,
Castle Hill Foundry, Newcastle, Staffordshire.

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THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being left with precision, and" he further adds, "the use of it will, we have no doubt, become general." Prices 27s. and 30s.
LAWN EDGER CO., 15, Pall Mall, London, W.

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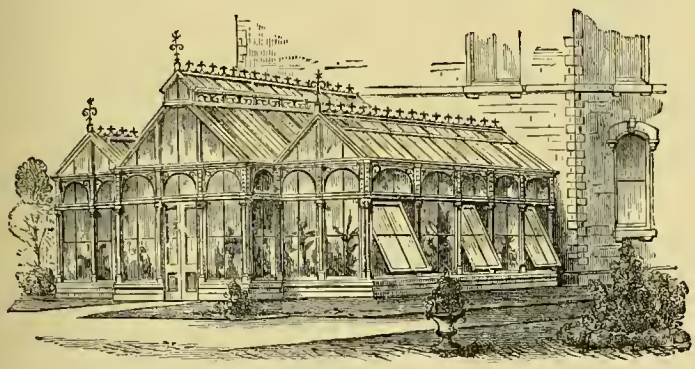

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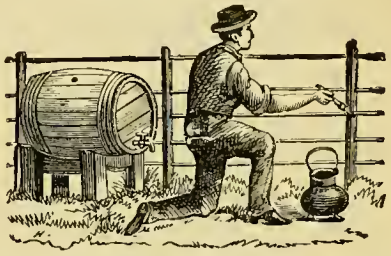

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GARDENER, in the Kitchen Garden, or in the Pleasure Grounds.—Age 24; good character. Willing to assist in the Houses, and looking after fires if required.—F. E., 56, High Street, Fulham, S.W.

GARDENER, where assistance is given, or good SECOND.—Age 26, married; understands Stove and Greenhouse Plants, Vines, Melons, Cucumbers, and Flower and Kitchen Gardening.—T. IRELAND, Orion Cottage, Bath Road, Hounslow, Middlesex.

GARDENER (SINGLE-HANDED).—Age 23, married; understands Stove and Greenhouse Plants, Vines, Melons, Cucumbers, Flower and Kitchen Gardening. Five years' character.—F. LEVITT, Thercroft, Laughton, Rotherham.

GARDENER (SINGLE-HANDED, or where another is kept).—Age 30, married, no family; understands Vines, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Good character from present employer.—G. W., 4, Elizabeth Cottages, Sandy Lane, Kew, Surrey.

GARDENER (SINGLE-HANDED, or SECOND).—Age 27; understands Vines, Cucumbers, Melons, Stove and Greenhouse Plants. Good reference; total abstainer.—T. WHITE, Mr. Mapstone, Long Ashton, Bristol.

GARDENER (SINGLE-HANDED or UNDER).—Age 31, married, no family; eight years and eleven months in present situation.—J. C. BLACK, Lake Cottage, Farnham, Surrey.

GARDENER (UNDER), in a Gentleman's Garden.—Age 21, Scotch; good references.—J. E., 49, Blantyre Street, Chelsea, London, S.W.

GARDENER (UNDER).—Age 24; two years' good character. Please state wages and particulars to JAMES BROWN, The Gardens, Thrumpton Hall, Derby.

GARDENER (UNDER), where two or three are kept.—Age 22; eight years' good experience. Three years' good character. Near London preferred.—J. MOORE, The Gardens, Pendley Park, Tring.

GARDENER (UNDER), in a Gentleman's Garden.—Age 20; three years in present situation; respectable and trustworthy. — Mr. DRIVER, Gardener, Standish House, Stonehouse, Gloucestershire.

FOREMAN, in the Houses, in a Nobleman's or Gentleman's establishment.—Age 26; good practical knowledge of all branches of the profession. Good character.—C. H. RITCHINGS, The Gardens, Balls Park, Hertford, Herts.

FOREMAN, in a good establishment.—Age 25, single; well experienced in all branches. Good character and references. — S. N., 14, St. Thomas' Gardens, Queen's Crescent, Haverstock Hill, N.W.

FOREMAN and PROPAGATOR, in a good Provincial Nursery.—Well experienced. Satisfactory references.—J. G., Mr. Munro, 5, Bayton Terrace, Edinburgh.

FOREMAN (GENERAL, WORKING), SALESMAN, or PROPAGATOR.—Twenty years' practical experience In and Outdoors. Could Manage a Branch Business, undertake Journeys if required, well acquainted with Herbaceous Plants and Hardy Bulbs, with some knowledge of the Seed Trade. Highest references.—F. R. S., Hopgood & Co., Florists, &c., Brompton Road, S.W.

FOREMAN (or SECOND), in a good establishment.—Can have excellent references as to character and abilities.—T. GREEN, A. Dunn's, Miller Sporle, Swaffham, Norfolk.

FOREMAN, or SECOND, in a Nobleman's Garden.—Aged 23; three years' good character. Nine years' experience in a Nobleman's Garden.—Apply, stating wages, &c., to W. JONES, Brymbo Hall, near Wrexham, Denbighshire.

JOURNEYMAN, in the Houses, or UNDER GARDENER.—Age 21; good character.—A. W., Park Cottage, Acre Road, Kingston-on-Thames.

JOURNEYMAN, in the Houses.—Age 21; three years' character from last situation. Bothy preferred.—M. N., Mattingley, Winchfield, Hants.

JOURNEYMAN, in the Houses, where two or three are kept.—Age 21; good references as to character and ability.—W. T., 111, Lot's Road, Chelsea, S.W.

JOURNEYMAN, in the Houses, in a good establishment.—Can make himself useful in Outdoor operations. Two years' in present situation. Can be well recommended.—E. BROWN, Brickendon Grange, Hertford.

JOURNEYMAN, in the Houses, in a good establishment. — Age 22; six years' experience. Good references.—J. EMBERSON, 10, Portland Terrace, Woodland Hill, Upper Norwood, S.E.

JOURNEYMAN (or Good SECOND, in the Houses) in a Nursery or Gentleman's establishment.—Single; eight years' experience in Plant Growing. Good references.—R. S., 36, Grovedale Road, Upper Holloway, N.

TO THE SEED TRADE.—A young man, having seven years' experience, desires an engagement. Good references. — W. ALPHA, Post-office, Tynninghame, Prestonkirk.

Seed Trade.

SHOPMAN (HEAD).—Twelve years' experience in first-class Houses. Thoroughly acquainted in all departments of the Trade. Good references.—N. B., P. Taylor, 30, Albert Street, Leith Walk, Edinburgh.

SHOPMAN.—Age 26; is open for engagement in the beginning of October. Has had good practical experience in leading Scotch Houses.—SEEDSMAN, Messrs. Downie & Laird, Edinburgh.

To Seedsmen.

SHOPMAN.— A young man (21) wishes a situation as Shopman. Disengaged in a few weeks. At trade for 7½ years. First-class references.—"306," Keith & Co., Edinburgh.

SHOPMAN (SECOND).—Age 20; nearly six years' experience in Garden and Agricultural Seeds, with some knowledge of Book-keeping.—For reference apply D. S., 76, Lauriston Street, Edinburgh.

Seed Trade.

SHOPMAN (ASSISTANT).—Five years' good experience. Good recommendations.—J. C., Wm. Drummond & Sons, Stirling.

Seed Trade.

SHOPMAN (ASSISTANT). — Age 20; five years' experience. Will be well recommended.—J. N., Messrs. SMITH AND SIMONS, Howard Street, Glasgow.

BOOK-KEEPER, SHOPMAN, or other position of trust.—Age 36; could Manage a Business. First-class references.—A. B., Mr. Bennett, 78, Mansfield Road, Gospel Oak, London, N.W.

BOOK-KEEPER and CORRESPONDENT.—Nine years experience. Thorough knowledge of Nursery and Seed Trade. Good references.—G. FROST, Orgreave Colliery, near Sheffield.

To the Seed Trade.

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Pure, Mild and Mellow, Delicious and Most Wholesome. Universally recommended by the Profession. The Cream of Old Irish Whiskeys.

KINAHAN'S LL WHISKEY.
Dr. Hassall says—"Soft and Mellow, Pure, well Matured, and of very excellent quality."

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Gold Medal, Paris Exhibition, 1878; Dublin Exhibition, 1865, the Gold Medal.—20, Great Titchfield Street, London, W.

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and as the safest Aperient for Delicate Constitutions, Ladies, Children, and Infants.
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HOLLOWAY'S PILLS and OINTMENT.—During excessive variations of temperature every one is more or less liable to internal congestions and inflammations. Throat, chest, liver, bowels, kidneys, and skin all suffer in some degree, and may be relieved by rubbing in this Ointment, aided by proper doses of the Pills, for administering which full directions accompany each box; in truth, any one who thoroughly masters Holloway's "instructions" will, in remedying disease, exchange the labour of an hour for the profit of a lifetime. All bronchial, pulmonary, and throat disorders require that the Ointment should be thoroughly well rubbed upon the skin twice a day with great regularity, considerable briskness, and much persistence.

NOTICE.

THE

GARDENERS' CHRONICLE

Subscribers wishing to have Extra Copies of the Number for August 27, containing the Coloured Plate,

"GROUP OF ORCHIDS,"

Are advised to order them at once, as only a very few copies are left.

OPINIONS OF THE PRESS.

JOURNAL of HORTICULTURE, Sept. 1, 1881.

"Coloured Plates of Flowers are so numerous now-a-days, that it is only when one of striking excellence appears that it merits notice. Such an one was issued last week with the *Gardeners' Chronicle*, representing truthfully and artistically the three beautiful Odontoglossums vexillarium, Alexandræ, and cirrhosum. We congratulate our contemporary and their artist on this very chaste and beautiful work of art, which so many Orchid admirers will be glad to possess."

GARDENERS' MAGAZINE, August 27, 1881.

"The *Gardeners' Chronicle* of the present date (August 27) is adorned with a large and handsome coloured plate bearing portraits of four distinct and splendid Orchids. Bravely amongst them shine two of the noblest of the Odontoglots, supported by other two that are of importance for their beauty. Good varieties of O. vexillarium and O. Alexandræ have been selected for this plate, and Mr. Fitch has contrived to secure softness of expression with brilliancy and definite drawing."

MANCHESTER WEEKLY POST, August 20, 1881

"The *Gardeners' Chronicle* has before time published picto supplements which have been remarkable alike as displays of arti excellence and executive skill; but they are surpassed by the charm picture—for a finished and beautiful picture it is—a 'Group of Orchi after a painting by Fitch, which is to be issued with the number Saturday next. We have seen nothing of the kind so delicate in tre ment or so admirable in manipulation."

THE BUILDER, August 27, 1881.

"The *Gardeners' Chronicle* for the 27th, which gives a full repo of the International Horticultural Exhibition at Manchester, includ a double-page coloured plate, from a painting by Fitch, representin a 'Group of Orchids.' It is exceedingly well executed; the modula n of whites and delicate pinks is capitally managed, and the result a very pretty plate."

The Price of the above Number is

FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY.

OR WITH PLATE ENCLOSED IN CASE, SEVENPENCE-HALFPENNY.

*** PURCHASERS ARE SPECIALLY RECOMMENDED TO ORDER THE PLATE IN A CA

to prevent injury from folding.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C

Editorial Communications should be addressed to "The Editors;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London.
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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $6.35 for Twelve Months.
Agent for America:—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

CRYSTAL PALACE COMPANY'S SCHOOL of GARDENING Principal, Mr. EDWARD MILNER. The NEXT TERM OPENS on OCTOBER 1. Div. I.—Landscape Gardening. Div. II.—Practical Gardening. Ladies as well as Gentlemen in Div. I. Prospectus and information of The SUPERINTENDENT, the Library, Crystal Palace.

ALEXANDRA PALACE, N.
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1st Prize. 2d Prize. 3d Prize. 4th Prize. 5th Prize.
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1st Prize. 2d Prize. 3d Prize.
For the Heaviest Gourd .. £2 .. £1 .. 10s
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HEREFORD APPLE and PEAR SHOW will be held on WEDNESDAY and THURSDAY, October 26 and 27. Prizes open to all. For List of Prizes apply to H. CECIL MOORE, Esq., Woolhope Club Room, Free Library, Hereford.

RICHMOND Horticultural SOCIETY.
President—H.S.H. the DUKE OF TECK, G.C.B.
The THIRD ANNUAL AUTUMN EXHIBITION of CHRYSANTHEMUMS, FLOWERS, FRUIT and VEGETABLES, will be held in the Assembly Rooms, Castle Hotel, Richmond, on THURSDAY and FRIDAY, November 10 and 11. Schedules may be obtained of GEORGE EYLES, Lesham Villa, Kew.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.
The object of this Institution is to provide PENSIONS for *bonâ fide* FARMERS, their WIDOWS, and UNMARRIED ORPHAN DAUGHTERS. Nearly 600 persons are now being maintained, at an annual cost of £12,000, and more than 350 Candidates are waiting for Election. The Clergy are earnestly solicited to forward Collections resulting from "HARVEST THANKSGIVING SERVICES."
Particulars of the Society may be obtained of the SECRETARY, Royal Agricultural Benevolent Institution, 26, Charles Street, St. James's, London, W.

Cineraria and Calceolaria Plants.
THOMAS BUNYARD begs to offer his unsurpassed strain, post-free, 8s. per 100, 1s. 4d. per dozen. THOMAS BUNYARD, Florist, &c., Ashford, Kent.

To the Trade.
CARTERS' WHOLESALE CATALOGUE of DUTCH and other FLOWER ROOTS, EVERLASTINGS, and HORTICULTURAL SUNDRIES, has been Posted to all Customers. A Duplicate Copy will be forwarded immediately on application to any Customer who has not already received it.
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HURST AND SON have received a further consignment of Early White Roman HYACINTHS, in first-rate condition. Lowest price to be had on application.
Their samples of DUTCH ROOTS (particularly HYACINTHS), are this year extra fine, the bulbs being large and heavy. With very few exceptions orders are dispatched the same day as received.
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To the Trade.—Dwarf Roses.
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To the Seed Trade.
CORRY, SOPER, FOWLER AND CO. (Limited) beg to claim special attention to their Season's Assortment of DRIED FLOWERS and GRASSES, of excellent quality, made up in Bouquets, Wreaths, Crosses, &c., and suitable for the autumn and winter trade. Price Lists on application to 18, Finsbury Street, E.C.

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WANTED, Old STOCK PLANTS of DRACÆNAS TERMINALIS, RUBRA, CONGESTA, &c., in any quantity. Particulars to H. B., *Gardeners' Chronicle* Office, W.C.

WANTED, to Contract for, Two choice WHITE COAT BOUQUETS, to be posted daily to the country; only tinned wire to be used; boxes, wadding, and postage provided by Advertiser.
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WANTED, ENGLISH YEWS, 3 to 4 feet, and 4 to 5 feet; COMMON BOX, 3 to 4 feet. Lowest price per 100.
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WANTED, a Copy of *GARDENERS' CHRONICLE* for January 6, 1877, for which the Advertiser offers 2s. 6d.
G. C., *Gardeners' Chronicle* Office, W.C.

To the Trade.
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PRICE LIST of the above and other Roots may be had free of Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, London, E.C.

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CHARLES TURNER'S Descriptive LISTS of the following can be had free on application:—
DUTCH and other BULBS, CARNATIONS, PICOTEES, PINKS and STRAWBERRIES.
The Royal Nurseries, Slough.

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THOMAS BUNYARD is now offering his first importation, at low prices. Quality all that can be desired. CATALOGUES post-free. Special prices for quantities. The Nurseries, Ashford, Kent.

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108, Eastgate Street, Chester.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application.
Lion Walk, Colchester.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

6000 Grape Vines.
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FOR SALE, for want of room, large CAMELLIAS, PALMS, &c. LIST, with sizes and prices, on application to
EDWIN COOLING, Mile Ash, Derby.

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LAPAGERIA ROSEA, good specimen plants, from 21s. to £10 10s. each. The Trade liberally treated, for cash.
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Finchley, N.
CLEARANCE SALE THIS DAY.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Allen to SELL by AUCTION, on the Premises, The Bark Cottage Nursery, Friern Park, North Finchley, THIS DAY, at 2 o'Clock, many thousands of well grown GREENHOUSE PLANTS, AZALEAS, and CAMELLIAS, BEDDING PLANTS, an assortment of recently transplanted NURSERY STOCK, FRUIT TREES, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 8, New Broad Street, E.C., and Leytonstone, E.

Monday Next.
UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, and every following Monday, extensive consignments of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, lotted to suit the Trade and private buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Lower Streatham, S.W.
(Opposite Norbury Station).

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Norbury Nursery, Lower Streatham, S.W., by order of Messrs. B. Peed & Son, on TUESDAY, September 27, at 12 o'Clock precisely, the surplus stock of STOVE and GREENHOUSE PLANTS—Specimen Azaleas for exhibition, many of which have obtained prizes at the London shows this season, 50 Eucharis amazonica, Palms for decorative purposes, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone, E.

The Westbourne Nursery, Harrow Road, W.
UNRESERVED SALE of SPRING and WINTER BLOOMING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises as above, on WEDNESDAY, September 28, at 11 for 12 o'Clock precisely, by order of Messrs. Woodroffe & Son, several thousands of STOVE and GREENHOUSE PLANTS, including 400 Calla æthiopica, 4000 good bushy Genistas, 1500 Aloysias, 1500 Hydrangeas, 1500 well berried Solanums, 2000 double Primulas, white and purple; 1000 strong Poinsettias, 1000 Bouvardias Hogarthii and jasminoides, 2000 Chrysanthemums, extra fine Adiantum cuneatum, 200 Azaleas, 500 Fairy Roses, Palms, and other Stock.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone, E.

Tooting, S.W.
IMPORTANT CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Parker to SELL by AUCTION, on the Premises, The Exotic Nursery, Tooting, S.W., on THURSDAY, September 29, a quantity of STOVE and GREENHOUSE PLANTS, in healthy and thriving condition; choice Orchids, including several rare and valuable species; Exotic Ferns, a selection of Palms, English-grown Azaleas and Camellias, &c.; also a capital Exhibition Plant Van, in excellent condition.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

Imported and Established Orchids,
PALM SEEDS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY, September 30, at half-past 11 o'Clock precisely, a splendid importation of various ORCHIDS, received direct from Mexico, for unreserved sale, including 220 Chysis lævis, 400 Cattleya citrina, 400 Epidendrum vitellinum majus, 400 Lælia majalis, 300 Oncidium ornithorrhynchum, 250 Odontoglossum bictoniense, 100 O. citrosmum, and others; also 100 lots of ESTABLISHED ORCHIDS, and 5000 seeds of ACROCOMIA ACULEATA.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Lee Park Nursery, Turner Road, Lee.
CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL on the above Premises, by order of Mr. Tuffin, on TUESDAY, October 4, at 1 o'Clock, the whole of the Stock in Trade of GREENHOUSE PLANTS, 1500 CAMELLIAS and AZALEAS, and a general assortment of NURSERY STOCK.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone, E.

South Acton, W.
EXPIRATION of LEASE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Day to SELL by AUCTION, on the Premises, the Nursery and Market Garden, South Acton, W., on WEDNESDAY, October 5, at 12 o'Clock precisely, the Erections of Eight GREENHOUSES and several PITS, 2000 feet of HOT-WATER PIPING, Three BOILERS, 40,000 capital BRICKS, the whole of the GREENHOUSE PLANTS, 2000 Geraniums, 1000 Ferns, 80 specimen Camellias and Azaleas, 100 Eucharis grandiflora, fine clean-grown plants; 500 Cyclamen, 1000 Vallottas, 60 large Tea Roses, 2000 dwarf Roses, 1000 Cloves, 1000 Spiræas, 350 named Chrysanthemums, and other Stock.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

Trindsbury, near Rochester, Kent.
CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Miss Beadle, who is retiring from business, to SELL by AUCTION, on the Premises, the Bill Street Nursery, Trindsbury, near Strood, Kent, about a mile from Strood and Rochester Bridge Stations, on WEDNESDAY and THURSDAY, October 5 and 6, at 12 o'Clock precisely each day, the whole of the well grown NURSERY STOCK, in good condition for removal, comprising an assortment of Evergreen and Coniferæ Shrubs, 1000 Aucubas, 2000 Privet, Ornamental and Forest Trees, 1000 Limes, 10,000 Ash, 7000 Quick, 800 Fruit Trees, 4000 Gooseberries and Currants, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leystonstone, E.

Hornsey Road, Holloway, N.
WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Tollington Nursery, Hornsey Road, Holloway, N., on FRIDAY, October 7, at 1 o'Clock precisely, the Erections of Eight GREENHOUSES, Four RANGES of PITS, BRICKWORK, HOT-WATER PIPING and BOILERS; also the whole of the GREENHOUSE PLANTS, comprising 5000 Geraniums, the collection of New Double Geraniums, raised by Dr. Denny, and sent out for the first time last year; 100 Camellias and Azaleas, Chrysanthemums, UTENSILS in TRADE, and SUNDRIES.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, at 8, New Broad Street, E.C., and Leytonstone, E.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas,
SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.

On view the mornings of Sale, and Catalogues had.

Thursday Next.
ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 29, at half-past 12 o'Clock precisely, the well known Collection of ORCHIDS formed by E. W. Walker, Esq., of Clevelands, Dawlish, including fine plants of rare and valuable species; to which will be added some IMPORTED ORCHIDS, from Mr. F. Sander, of St. Alban's, including Odontoglossum Œrstedi, O. Halli, O. Edwardi, O. cirrhosum, Oncidium macranthum, &c.

On view the morning of Sale, and Catalogues had.

Seakale and Market Garden Stock.

MR. MALCOLM SEARLE in instructed by the eminent grower, Mr. George Steel, to SELL by AUCTION, at Grove House, Sands End, Fulham, S.W., on TUESDAY, September 27, at 11 o'Clock, in Lots, 10 Acres of Steel's celebrated strong SEAKALE, Ashleaf POTATOS, large White AZALEAS, 120 glazed 3-light Forcing BOXES, 100 PIGS, £15 valuable CART, VAN, and Nag HORSES, PONY, HARNESS, Market Garden VANS, CARTS, WAGGONETTE, DOG-CARTS, and PONY-PHAETON.

Catalogues at 2, Bond Court, Walbrook, City, E.C.

Sale of Shrubs, Evergreens, &c.

MR. J. M. POTT will SELL by AUCTION, at the Chilwell Nurseries, on THURSDAY, September 29, a large number of extremely fine Golden YEWS, HOLLIES, and other EVERGREENS, the whole of which have been recently transplanted, and are fit for removal. Also a number of LIMES, ELMS, and other TREES.

Catalogues from J. R. PEARSON, Chilwell, Notts.

Extensive Clearance Nursery Sale.

MESSRS. LYON AND TURNBULL have been favoured with Instructions from the Curator Bonis on the Estate of the Sole Partner of Messrs. James Dickson & Sons, Nurserymen and Seedsmen, to SELL by AUCTION, on the Premises of the Firm, Inverleith Nurseries, Edinburgh, on WEDNESDAY, THURSDAY, and FRIDAY, October 5, 6, and 7, at 11 o'Clock each day, in order to clear the ground required for a street about to be formed through their Nursery, large and valuable NURSERY STOCK, consisting of several thousand Choice Ornamental Deciduous and Evergreen Trees and Shrubs, about 1000 Golden Queen Hollies, 1 to 3½ feet; 1400 Cupressus Lawsoniana, 1000 Picea Normanniana, Retinospora plumosa aurea, and other choice Coniferæ; a fine lot of Stove and Greenhouse Plants of the healthiest description, including fine specimens of New Crotons, &c.; also 4,000,000 Seedling Larch, 500,000 1-yr. 1-yr. Larch, 50,000 1½ to 3 feet Larch, 388,000 1-yr. 1-yr. and 42,000 2-yr. 2-yr. Scotch Fir, 16,000 Alder, 15,000 Thorns, 13,500 Privet, 36,000 Poplars, 35,000 Ash, 5000 Lilac, 6000 Beech, &c. The whole fit for Immediate Planting, having been carefully reared and transplanted, and will remove with perfect safety.

On view any time before the Sale, and Catalogues to be had on application to the Auctioneers, 51, George Street, Edinburgh; Messrs. JAS. DICKSON AND SONS, 32, Hanover Street, Edinburgh; and at the Nurseries, Inverleith Row, Edinburgh.

WANTED, TO RENT, a SMALL NURSERY, South of England preferred.

Apply, J. M., Gardener, 4, Percy Terrace, Monkton Street, Ryde, Isle of Wight.

TO BE DISPOSED OF, a good MARKET NURSERY, within 4 Miles of Covent Garden, about 1 Acre, nearly covered with Glass; Dwelling-house, Stable, &c.

W. W., 41, Wellington Street, Strand, W.C.

To Seedsmen and Florists.

TO BE DISPOSED OF, with Immediate Possession, an Established SEED BUSINESS, in a large and thriving town in Cheshire. Two small Nurseries are attached, and can be had if desired. A good opportunity for a practical and energetic man. Terms moderate.

For full particulars apply to CHESHIRE, Messrs. Waite, Nash, Huggins & Co., 79, Southwark Street, London, S.E.

Fruiterer's.

FOR DISPOSAL, a first-class BUSINESS. Would suit a Gentleman's Gardener. Good position.

Address, FRUIT, care of Davies & Co., Advertising Agents, Finch Lane, Cornhill, E.C.

Beddington.
Within a few minutes' walk of the Mitcham Junction Railway Station.

TO BE LET, on Lease, an area of LAND, situate in Hackbridge Road, containing about 26 Acres, with Two Cottages thereon, suitable for Market Gardening purposes, Rent £130 per annum.

For terms, apply to BLAKE, SON AND HADDOCK, 21, High Street, Croydon; and 32, Nicholas Lane, E.C.

STOVE and GREENHOUSE PLANTS.—Nine EUCHARIS AMAZONICA, in bloom; four SCARLET CAMELLIAS, four AZALEAS, three EPACRIS—all Specimen plants and in splendid condition.

Mr. SLATER, Gr. to E. Marriner, Esq., Keighley, Yorkshire.

AMPELOPSIS SEMPERVIRENS, or Evergreen VIRGINIAN CREEPER, very fast grower; young plants, by post, 1s. each; larger, in pots, 1s. 6d. and 2s. 6d.

W. AND J. BROWN, Stamford.

TO THE TRADE

SPECIAL OFFER OF PLANTS.

		s. d.
ANTHURIUM SCHERZERIANUM, in 6o's ..	each	2
GARDENIA GRANDIFLORA, in 48's	dozen	24
CROTONS, splendid variety, from	,,	12
DRACÆNAS, splendid variety, from	,,	15
ADIANTUM CONCINNUM LUTEUM, in 6o's	,,	9
,, **FARLEYENSE**, in 6o's	,,	24

BOUVARDIA, ALFRED NEUNER. The new double white—the finest stock in Europe, doz., 55s. & 100

JAMES CARTER & CO.,
237 and 238, HIGH HOLBORN, LONDON, W.C.

New Catalogue of

BEAUTIFUL FLORISTS' FLOWERS, fo Garden Decoration or Exhibition, should be planted o bought now for next year's bloom, all named, fine varieties (no common Seedlings).

DELPHINIUMS, PYRETHRUMS, and PÆONIES, 8s per dozen; 12 of each for 21s.

POTENTILLAS, 6s. per dozen.

Show or Fancy PANSIES, the finest sorts, PHLOXES PENTSTEMONS, ANTIRRHINUMS, 3s. 6d. per dozen; 1 of each (5 dozen) for 15s.

CATALOGUES, post-free; terms cash.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

New Catalogue of

HERBACEOUS PLANTS.—Selections o the finest sorts for Garden Decoration, cheap, all named poor weedy varieties not included. The present is the be time to plant.

	Per dozen.	Per 50.	Per 100.
	s. d.	s. d.	s. d.
The Finest Sorts ..	6 0 ..	21 0 ..	35 0
Good Sorts	3 6 ..	13 0 ..	25 0
Rock Plants	3 6 ..	13 0 ..	25 0

Spring Flowering PERENNIALS (not Violas or Pansies the brightest, the finest, the hardiest—colours White, Yellow Red, or Purple—including DAISIES, 5s. per 100, excludin Daisies and the red colour, 8s. per 100.

BEDDING VIOLAS or PANSIES, fine named sorts (no Seedlings), in colour as desired, per dozen, 2s.; per 100, 8s 10s., or 12s., according to variety. One of the finest collection and thousands of strong plants.

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STOVE and GREENHOUSE PLANTS.—The cheapest in the Trade. All buyers invited to inspe the large fine stock of clean, healthy, low priced plants of the at the Oldfield Nursery, 8 miles from Manchester, 25 miles fro Liverpool, 30 miles from Chester, 32 miles from Crew Altrincham, West Timperley and Broadheath Stations, all ne the Nursery.

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THE FOLLOWING, of th Finest Strains:— From stores. In 5-inch pot

CINERARIAS	per doz., 1s. 3d.	good plants:	5s.
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Herbaceous CALCEOLARIAS	,, 2s.;	in 3-inch pots,	4s.

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DUTCH and FRENCH BULBS, HYACINTHS, CROCUS, TULIPS, and other BULBS a ROOTS. In this department we combine the best quality th cdn be bought with moderate prices, by adopting the princip of small profits and quick returns. Terms cash.

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STRAWBERRY PLANTS.—Before buyin see our List, about 50 varieties, true to name. Purchase selection, 3s. 6d. per 100; ours, 2s. 6d. per 100; 500, in sorts, 1

FRUIT and FOREST TREES, ROSES, RHODODENDRONS, CONIFERS, THORN QUICKS, &c., all good quality and low in price, from

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

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The best sorts for Forcing.

V. H. DE THURY, SIR JOSEPH PAXTON, PRESIDENT, } Strong plants, all well rooted, fro small pots, 4s. per 100, 35s. p 1000—sure of a crop next ye

Also strong plants of the above, from open ground, 2s. 6d. p 100, 20s. per 1000. Package free. Extra plants for carriag Cash from unknown correspondents.

H. J. HARDY, F.R.H.S., Stour Valley Seed Ground Bures, Suffolk.

NOTICE TO INTENDING PLANTERS

On account of the expiration, next March, of th Lease of a portion of

"THE FULHAM NURSERIES

OSBORN & SONS

are prepared to offer, at exceptionally Lo Prices (as the ground must be cleared), a quantity of

Ornamental Evergreen and Deciduous Trees and Shrubs;

Also some large Specimen Plants o

RHODODENDRONS and HARD AMERICAN AZALEAS.

THE FULHAM NURSERIES, LONDON, S.W.

BISMARCKIA NOBILIS, WENDLAND.

(PRITCHARDIA NOBILIS, Hort.)

This new genus is a discovery of the late African traveller, John Maria Hildebrandt, and Thirty Plants only exist in Europe.

It is a noble Palm, leaves steel-grey and brown, and much divided.

Price 3 Guineas each, cash. Orders may be directed to

Mr. B. ROEZL,

109, CAROLINENTHAL, PRAGUE, AUSTRIA.

LOUIS VAN HOUTTE,

ROYAL NURSERY, GHENT, BELGIUM,

Begs to offer fine and bushy Plants of the following:—

AZALEA MOLLIS, 4-year old seedlings, with about 8 buds, at £5 per 100; with from 12 to 15 buds, £6 per 100. All nicely round shaped, and well adapted for forcing in pots.

AZALEA INDICA, best and newest varieties, well budded, £5 per 100; Specimen Plants, from 5s., 10s., to 20s. each.

CAMELLIAS, in varieties, including Double Whites, from £7 to £20 per 100.

GLOXINIAS, fine strong mixture, mostly erect-flowering varieties, 20s. per 100.

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TUBEROUS-ROOTED BEGONIAS, best mixed kinds, and very distinct colours, strong bulbs, 20s. per 100.

CATALOGUES, giving particulars of every Class of Plants, Hyacinths, Tulips, and other Flower Roots, gratis on application.

HYACINTHS, TULIPS, AND OTHER BULBS.

The Subscribers have pleasure in announcing their

FIRST IMPORTATION of DUTCH BULBS

OF ALL SORTS, COMPRISING

HYACINTHS (including the beautiful Forcing White Roman), NARCISSUS, TULIPS, CROCUS, and all other Winter and Spring-flowering Varieties, which are unusually fine, large, sound, and well ripened.

SPECIAL OFFERS TO LARGE BUYERS.

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First Prize for Best Greenhouse, June 8, 1881,
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For Outdoor Cultivation contains 654 selected Bulbs:—

36 *ANEMONES, double.*
25 „ *fine single.*
200 *CROCUS, choice varieties.*
1 *CROWN IMPERIAL.*
20 *HYACINTHS, mixed*
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12 „ *double white.*
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100 *SNOWDROPS, double and single*
6 *TULIPS, Duc Van Thol.*
6 „ *early double, mixed.*
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6 „ *Parrot, fine mixed*
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A most reliable Guide to the Successful Cultivation of Bulbous Flower Roots, **Gratis and Post-free.**

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CABBAGE PLANTS for Sale.—All the leading varieties, including Nonpareil, Enfield Market, Early Rainham, Cocoa-nut, and Shaw's Improved Red, all of which have been pricked out Price per 1000 on application to The MANAGER, Sewage Farm, Chesterfield.

Deutzia gracilis and Dwarf Roses.

WILLIAM FLETCHER will be pleased to submit Prices of the above-named, per 100 or 1000. Ottershaw Nursery, Chertsey.

DUTCH BULBS.

J. CHEAL & SONS,

CRAWLEY, SUSSEX,

Have now received their consignments of first-class Bulbs direct from the best Dutch growers.

Priced and Descriptive Catalogues free.

CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
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CYCLAMEN, 1s. 6d. per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

Dutch Bulbs.
To SUPPLY the TRADE.
SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, beg to announce that their Crops of HYACINTHS, TULIPS, &c., look very fine.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
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To the Trade.
FERNS—FERNS—FERNS.

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PTERIS CRETICA	2 6	18 0
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SPECIAL OFFER of COLLECTIONS of CLEMATISES, in 4-inch pots, and TEA and NOISETTE ROSES in 5-inch pots, fine plants; package free. All orders to be accompanied by Post-office Order or Cheque.

12 CLEMATISES, best old kinds	14s. 0d.
24 " " "	26 0
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Including many newest and rarest kinds.
Sorts must be entirely left to, and Post-office Orders and Cheques made payable to
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GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d. stamp.
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30,000 Roses in Pots.
Several thousands of CLEMATISES, Ampelopsis Veitchii, and other CLIMBERS in pots, finely grown plants.
WM. WOOD AND SON beg to solicit attention to their very extensive and superb stock of the above.
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Admirers of the above should order at once
R. H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and Description on application. Price, the Set, £3 3s.; Single Plant, 7s. 6d.; Seedlings, 6s. per dozen. Seed, per packet, 3s. 6d. and 5s. Usual Discount to the Trade.
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Autumn Planting.
FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.
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STIPA PENNATA (Feather-grass), finest quality, per cwt., 110s. Stock, 20 tons.
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THOUSANDS of STRONG PLANTS, now ready.—SIR J. PAXTON and VICOMTESSE DE THURY, 3s. per 100; cheaper by the 1000. Many other kinds same price.
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Hyacinths, Tulips, and other Bulbs.

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(Successors to the late A. PAUL & SON—Established 1806)
Beg to announce that their
NEW CATALOGUE
OF
HYACINTHS, TULIPS and OTHER BULBS,
CAMELLIAS, AZALEAS, &c.,
Is now ready, and will be sent, post-free, on application.
The Bulbs this year are of very fine quality.

Collections of Bulbs from 10s. 6d. to 84s.

"Hyacinths formed the most important feature of the show, the principal exhibitor being Mr. Wm. Paul, of Waltham Cross, who was far in advance of any other in the size and beauty of the noble spikes which he placed in competition."—*Journal of Horticulture.*

"Hyacinths were again the main feature, Mr. William Paul taking 1st prize with a collection that were as near absolute perfection as, in the present state of our knowledge, we can imagine."—*Gardeners' Chronicle.*

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WM. PAUL & SON beg to draw attention to their collection of Camellias, which is the largest and finest in the Country.
Good plants of all the best varieties, with bloom-buds, 30s. per dozen and upwards. Specimen plants from one to thirty guineas each.
The *Journal of Horticulture*, in alluding to the plants at Waltham Cross, says:—"Anything more thoroughly healthy, more free and more fine, could not be imgined than the large housefuls of fine plants."

PAUL'S NURSERIES and SEED WAREHOUSE,
WALTHAM CROSS, HERTS.

TO THE TRADE.

CYCLAMEN PERSICUM, all colours
CYCLAMEN GRANDIFLORUM, newest sorts
CYCLAMEN GIGANTEUM, in variety
Unflowered Seedlings, Splendid Quality, in small 48's, Price from 50s per 100.

Sample Roots, post-free for 6 stamps.

JAMES CARTER & CO.,
237 and 238, HIGH HOLBORN, LONDON, W.C.

For Immediate Sale.
AZALEAS, of all sizes, including many specimens and half-specimens of the leading varieties. Owing to want of accommodation we are now offering the above at greatly reduced prices. Size and price on application to
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

To the Trade.
EDWIN HILLIER has to offer DAPHNE INDICA RUBRA, Double White PRIMULAS, and Maidenhair FERNS, good plants in 48-pots; also Dwarf ROSES, and Trained Apples. Cash prices on application.
The Nurseries, Winchester.

F. J. SPAE, NURSERYMAN, Coupure, Ghent, Belgium, offers the following plants, in fine condition, at moderate prices:—
AZALEA INDICA, in good trade sorts, of all sizes; CAMELLIAS, PALMS, for table decoration; DRACÆNA GRACILIS, FICUS ELASTICA, all sizes; CITRUS SINENSIS, with fruits; ARAUCARIA EXCELSA and GLAUCA, CARNATION Souvenir de la Malmaison, SPIRÆA JAPONICA, Clumps of LILY of the VALLEY, a large stock of Pyramid and Standard BAYS, &c.

PRIMULA. **CINERARIA.** **CALCEOLARIA.**
Wm. Cutbush & Son's
Strain of these cannot be surpassed. They are sold in Packets, 2s. 6d., 3s. 6d. and 5s. each; but quality is the same.
HIGHGATE, LONDON, N., and BARNET, HERTS.

Ferns a Speciality.
EXOTIC AND BRITISH FERNS,
IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.
Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

STRAWBERRY PLANTS.
Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to
CRANSTON'S NURSERY and SEED CO. (Limited),
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NARCISS.—DOUBLE WHITE N. odoratus alba-plena
" PHEASANT-EYED.
" " " ORNATUS (early blooming).
" DOUBLE DAFFODILS.
" " INCOMPARABLE.
SNOWDROPS.—DOUBLE and SINGLE, firm samples, &c. For Prices of these and all sorts of Dutch and English Flowering Bulbs, see our Wholesale CATALOGUE
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For Autumn Planting.—Now Ready.
GEE'S superior Bedfordshire-grown CABBAGE and OTHER PLANTS; ASPARAGUS, SEAKALE and RHUBARB ROOTS; 1, 2 and 3-yr. old QUICKS; WALLFLOWERS, DAISIES, and many other Spring-flowering Plants, &c. Cheap and good.
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To the Trade Only.
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Standard and Dwarf Roses.
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SEAKALE CROWNS for Sale, large and well selected; also ASPARAGUS. Land specially adapted.—T. BROSNAN, Market Gardener, Norman Farm, Fulham, S.W.

Dutch Bulbs direct from the Growers.
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DOUBLE:—
*Blandyana, Belle de Chatenay, King of Violets, *Marie Louise, Neapolitan, Reine des Violets, *Patrie, *Princess Marie de Savoy
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*Neapolitan, Odoratissima, *The Czar, White Czar, *Victoria Regina.
Those marked * are now in full flower, and will continue so in sheltered situations all the winter. They have been specially grown in strong clumps for Potting, Forcing, or forming Beds or Clumps, &c. Strong Clumps, 6s. per dozen, 40s. per 100; small Plants of the fourteen varieties, free by post, 4s. 6d. in stamps.
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For full description and price of this desirable Novelty see New LIST of HARDY FLORISTS' FLOWERS for Intermediate Planting, containing also Single and Double Pyrethrums, Pansies, Pæonies, Pinks, Yellow and Border Carnations, &c. Free upon application.
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SPIRÆA PALMATA, the largest stock of Forcing Plants in Europe.
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LOAM and PEAT.—A few Trucks of fine Yellow, Fibrous Loam, carriage paid to Bricklayers' Arms Station, 15s. 6d. per ton. Also useful Brown Fibrous Peat, 22s. 6d. paid to same station. Not less than 3 tons. Cash with order.—E. WALLACE, Contractor, 1, Salisbury Street, Strand, W.C.

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Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
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Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

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COMBINATION
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It is used for Cutting Turf and Grass Edges, Cutting out Ornamental Beds and round Raised Beds, Hoeing and Weeding, Cutting Water-courses, &c.

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This useful Machine is used for Lawns, Banks, Grass Edgings, round Flower Beds, and places where the Lawn Mower cannot reach: will Trim Shrubs, Ivy and Creepers; Cutting Clover, Rye and other Green Crops; Trimming Hay and Corn Ricks, Thatch, &c. Sold in five sizes, with or without trays.

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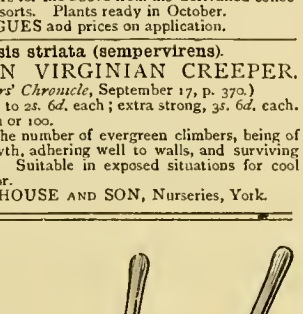

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GREEN'S PATENT TUBULAR SADDLE BOILER

Had the First and Highest Prize, a Silver Medal,

Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.

The "Journal of Horticulture" of June 9 says:—

"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The "Garden" of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

Descriptive Illustrated Price LIST free on application to

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NOTICE.

THE

GARDENERS' CHRONICLE

The Number for August 27, containing the Coloured Plate,

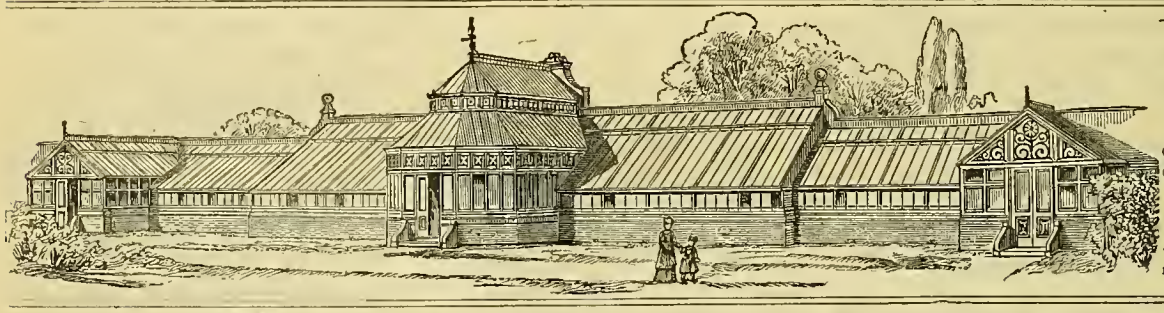
"GROUP OF ORCHIDS,"

IS NOW

OUT OF PRINT.

A few Plates are still left, which will be forwarded, enclosed in Case, post-free for Sevenpence each.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.



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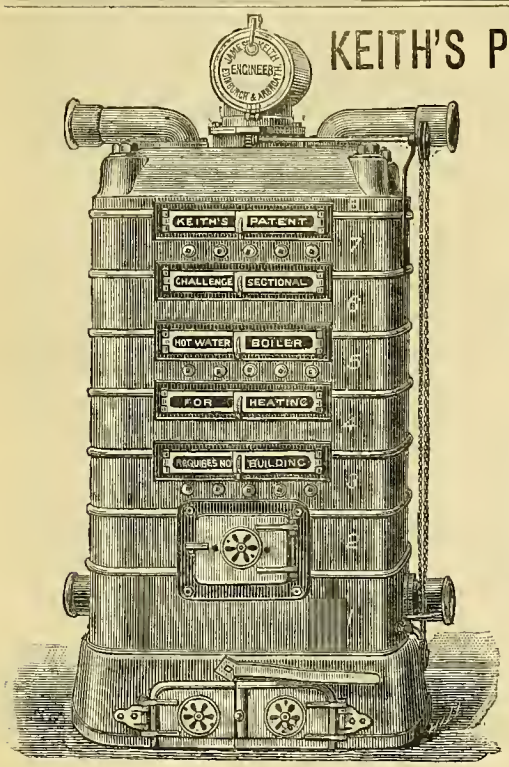

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FOR HOT-WATER HEATING.

Can be Heightened or Lowered to suit any requirements. They stand complete in themselves, and require no building work round them, being wholly "water jacketed," and thus entirely free from risk by fire.

These PATENT "CHALLENGE" BOILERS have about ten times the heating surface of the ordinary Saddle Boilers, and are certainly THE BEST, MOST POWERFUL, and MOST ECONOMICAL Hot-water Boilers in use.

See Prospectuses, References, &c.

One of these Boilers has been over a year in use, heating 7500 feet of 4-inch pipe (or nearly 1½ mile of pipe), at the Winter Gardens of Isaac Holden, Esq., Oakworth, Keighley. This Boiler has only a 30-inch square fire-grate surface, and has 306 square feet of effective heating surface directly over the fire.

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Gas and Water Engineer,
EDINBURGH and ARBROATH.
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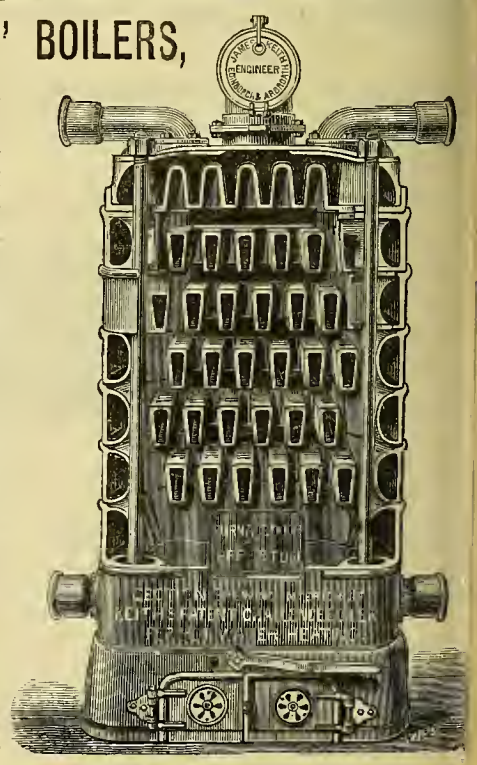

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Light Blue Neapolitan ,,	—	15 0	2 0	0 3
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Early Double Roman Narcissus	—	—	2 0	0 3
Early Paper-white ,,	—	—	2 0	0 3
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	Per 1000 s. d.	Per 100 s. d.	Per Doz. s. d.	Each. s. d.
Double Snowdrops, large	21 0	2 6	0 5	—
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Have recently received, in excellent condition,

MANY THOUSANDS of PHALÆNOPSIS,

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Many Thousands of ODONTOGLOSSUM ALEXANDRÆ (crispum).

The Stock of these lovely Orchids is by far the largest hitherto seen in Europe, and the same remark applies to the General Collection of Orchids, which is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

Hugh Low & Co. very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether Purchasers or not.

Also to hand, large quantities of Angræcum citratum, A. Ellisi, Cattleya Mendelii, C. Leopoldi, C. Trianæ, C. chocoensis, C. bicolor, C. Schilleriana, C. labiata varieties, C. crispa; Lælia purpurata, L. cinnabarina, L. Dayi, L. Perrini; Cœlogyne Lowi, Vanda Hookeri, Sophronites grandiflora, S. coccinea, Zygopetalum maxillare.

ALL OF WHICH ARE ON SALE, AT MODERATE PRICES.

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FLOWERS.

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THE QUEEN'S SEEDSMEN, Suttons Sons READING, BERKS.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 24, 1881.

HORÆ HORTULANÆ.

ON SOILS.

(*Continued from p. 364.*)

THE fundamental difference between live and dead soils, as alluded to in the last article, entails many other secondary differences, and of these perhaps the most important are what we may speak of as physical differences. I do not overlook the influence of pronounced chemical characters of soil, such as those which distinguish clay from sand or chalk, but I feel sure that many results attributed to the chemical nature of a soil are in reality due to physical features, induced, it may be, or favoured by this or that particular chemical constitution, and not the direct consequence of the presence of this or that chemical substance. But over and above chemical constitution, to which I will return presently, every gardener will admit that the physical characters of a soil are of prime importance. These may be roughly classed under three heads—cohesion, which determines whether the soil be stiff, or friable and loose; moisture; and behaviour towards radiant heat, according to which the soil is spoken of as warm or cold.

In respect of cohesion, extremes are seen in the stiff clay which the mattock can cut out in almost perfect cubes, and the light sand which is in danger of being blown away by every gale of wind. Each of these, viewed from the simple physical point of view, has its advantages: the stiff clay affords anchorage for stout and long thong-like roots, the loose sand favours the wanderings of tiny thread-like rootlets. And though it cannot be denied that the nature of some plants leads them to flourish best in a stiff soil, while others refuse to grow in other than a loose one, the soil which is most satisfactory for the gardener, the one which he can clothe most abundantly with the choicest and most varied flowers, is a "mean" soil, one which is neither stiff nor loose, or, to speak more truly, which is at the same time both stiff and loose. This indeed is recognised in the usual directions of gardening books, where we are told to lighten the stiff soils, and to give body to the light ones; but—and this is the point to which I wish to call attention—it does not seem always kept in sight, that the most suitable degree of cohesion, the condition of soil which is tenacious without being lumpy and caked, which is porous, and yet lies undisturbed by the fiercest winds, is one of the most precious attributes of "live" soil, is one of the results of the ferment actions of which I have spoken.

Many of us, I suppose, have taken in hand a patch of dead stiff uncompromising clay. Sticky, buttery, clammy all the winter, baked to a hard, rough, brick-like cake in the summer drought, it was at first our despair. As, however, season after season we dug into it a good body of rich farmyard manure and turned it over and over, it changed its nature, and mellowed into a rich "live" loam. That change was not merely the result of a mingling of the

particles of decayed straw and dung with the particles of the merely divided but otherwise unaltered clay—was not merely due to the addition of ammonia, potash, phosphates, sulphates, and the like, to the alumina basis of the clay—was not wrought alone by the burrowing rodent action of the numberless rootlets of the plants we from time to time grew in it—it was not solely brought about by the cleaving might of winter's frosts, which split the ragged lumps into crumbling powder; it was not the work of each of these, of all these alone, though every one in turn helped. More potent than any of them, though working with and through each of them, was the action of the ferments, of which the stable-yard manure was at once the source and seed-bed. These attacked the stiffness of the clay at its very source, altering the chemical combinations on which the molecular stiffness hung deep; these not only mixed but united the salts and carbon compounds of the manure with the aluminic base, and thus digested the at first incongruous factors into a uniform whole. And their work was a lasting one, whereas the crumbling powder which the winter's frost leaves, if it be the work of frost alone, is soon battered back again by the rains of spring into a cakey lump; the clay once worked up into "live" soil can never go back to its native stiffness.

The case of sand is somewhat different, since the silica of sand does not lend itself so readily as the alumina of clay to chemical transformation; to convert pure sand into a wholesome soil some distinct "body" must be added in mass. But here, too, the subtle influence of ferments may be seen. If you mix pure sand with pure clay, even though you pour into it abundantly solutions of ammonia and all necessary salts, the result will be simply an indescribable medley fit for no man's land—a muddle, which after a while will resolve itself back again into clay and sand. Work into the same mixture an adequate supply of organic stuff, either itself holding ferments or serving as material with which ferments can work, be it stable manure, peat, or leaf-mould, and in a short time clay and sand will be blended into a profitable nutritious mould.

Everywhere, indeed, we may see the same thing, the hidden slow subterranean work of fermentative organic matters, aided by rain, sun, and frost, converting the too tenacious, or the too fugitive native sterile dead earth into porous and yet consistent fertile live soil. And this medium soil is assuredly the best for most, if not for all plants. I do not pretend to understand the mystery why some plants love a light and others a heavy soil, but there are reasons for thinking that the long stretching roots, which are almost characteristic of the latter class, serve rather for anchorage or for the gathering in of adequate moisture than for the seizure of actual food. At all events, these long, bare, whip-like roots are accompanied by masses of matted fibrous rootlets, which, running into the generous superficial mould, seem specially adapted for assisting the plant to obtain more copious nourishment. And whenever such rootlets are present, access to a rich, friable, lively earth is sure to bring healthy foliage and an abundant bloom.

Important as is this attribute of live earth, whereby its spongy yet firm nature affords the best bed for the continual spreading of the tender, tiny rootlets, still more important perhaps are the relations of the same thoroughly digested soil to moisture. If there be one thing which is above all others the gardener's one anxious care, it is to see that his plants shall have enough, and not more than enough, water. Out-of-doors we are lifted with hope or filled with despair according as the rain falls at the right time and in proper measure. In the greenhouse the one question which repeats itself in worrying fashion day after day is—"Shall I give this plant more water or no?" The ignorant, clumsy gardener is known at once by his manner of watering, and where mistakes in soil, or pots, or pruning have killed their thousands, mistakes with the watering-can have killed their tens of thousands. "Let me have day by day just as much water as I need, so that I am never dry and never water-logged!" cries nearly every growing plant, and in hundreds of glasshouses throughout the land many a wretched flower is being baked when it should be moist, and drenched when it should be barely damp. One feature of "live" earth is that it does its best to remedy the fitfulness of outdoor weather and the errors of indoor ignorance. This is very clearly shown by a valuable experiment of Lawes and Gilbert. These gentlemen laid down a series of parallel deep drains in a long sloping field, at the bottom of which each drain opened into a reservoir, so that the amount of water passing along each drain could be measured. Part of the field was either left alone or treated with saline matters only; part was well dressed with rich farmyard manure. When the outflow of the several drains came to be measured, it was found that though the same rain had fallen over the whole field, far less water escaped by the pipes which drained the thoroughly manured plot than by the others. That is to say, the manured land, the live soil, absorbed and retained within itself, for the benefit of the plants which grew on it, far more water than did the more dead soil. This, indeed, is perhaps after all the chief and the most valuable characteristic of cultivated live soil; by virtue of the changes of which I have spoken taking place in it, it acquires the property of retaining—of holding in some sort of combination—a large amount of water. Of the exact nature of that combination—of the exact manner in which the water is held—we cannot at present say anything very definite, but the combination is of such a kind that while the plants can take up the water as they need it, the soil itself cannot be said to be wet. When heavy showers fall on dead soil, the water which does not roll off the hard solid surface rapidly soaks through, carrying, dissolved in it, as much precious soluble matter as it can take up, and in a short time, under a hot summer sun, the earth is once more baked and dry. When the same showers fall on cultivated, ferment-holding, spongy live soil, at first almost every drop is taken up and stored away amid the manifold compounds present; it is only when its sponginess is satiated, when more water would become injurious to the plants, that it trickles away below. And live soil thus adequately wet remains for a long time moist, giving up with great unwillingness apparently to evaporating forces that which is easily wrung from it by the action of the roots. Naturally the thicker such a layer of fertile live soil the greater is the reservoir of available water, and the wise gardener who desires to grow flowers whose demands for water are imperious will plant them in ground in which the depth of cultivated live soil is measured, not by a few inches, but by 2 or even more feet. In such a bed, secure of their water supply, plants will gather benefit only from the warm rays of a summer sun, which would soon scorch them to death in shallower soil.

Lastly, it is worthy of note that just as all ferment-wrought decompositions tend to generate blackness, all the particoloured objects of Nature being reduced by decay to a dull dark mass, so all soil darkens as it becomes cultivated and live—the red loam, the bluish clay or the whitey chalk, all in time become changed into blackened mould. And this very change of colour is in itself no mean advantage. When we remember that a black surface absorbs more heat than a light one this becomes evident. In those happy days when a bright summer sun shines upon us we ourselves throw aside the black hat, or hide its blackness with a white puggaree; but what we fear, the plant delights in, and to it the presence of black earth round its roots is a wholesome stimulus to more luxuriant growth. A dark soil is a warm soil; it takes up and gives to the plant the rays of heat which a lighter surface wastes, reflecting back into the air. So potent is this influence of absorbed warmth that a white barren patch of cold chalky ground may be made at once in a measure fertile by the mere admixture of some black material of little or no manurial value. And it is an incidental advantage of proper cultivation that while aiming at other things it tends to make the land of darker hue, and thus to increase its power of absorbing warmth. Such, then, are in outline some of the beneficial physical changes which are wrought in the ground, as by means of subtle transformations crude dead earth is converted into active live soil.

But over and above, indeed causative of, these physical features, are countless changes which we may speak of as chemical. The subject is full of intricate problems, to solve which we need, as in so many other cases, not so much empiric trials—for of these the gaps in our gardens show we have almost enough—but definite experimental inquiries. In the presence of so much difficulty and doubt I dare not trust myself to do more than touch on a few general aspects of the matter. *Dietes.*

(*To be continued.*)

VIGUIERA (HARPALIUM) RIGIDA.

A VERY good test of the popularity of a plant, as we find, is the frequency with which we receive specimens for naming. Judged by this test, the plant commonly known as Harpalium rigidum (see fig. 75, p. 397) takes deservedly a high rank among lovers of hardy perennials. It is, in fact, one of the most showy of the autumn-flowering Composites, and from its hardihood is suited to almost any situation. The plant grows 3—4 feet in height, with opposite, ovate-acute, rough leaves. The flower-heads are borne on long stalks, and measure about 3 inches across; the ray-florets are yellow, those of the disc reddish-brown, the whole surrounded by an involucre of numerous rows of brownish scales less than half the length of the ray-florets. Technically, the genus differs but little from Helianthus.

FRUIT GROWING AT BERKHAMSTED.

GRAPE growing has long been a speciality at Messrs. Lane's nurseries at Great Berkhamsted. Lane's Grapes — specially Lane's Muscats — have a world-wide reputation for their extraordinary size and quality, and various are the conjectures as to the reason or the cause of such success. Some aver it is the soil, others that it is the magic influence of the water procured from the celebrated spring that bubbles up right at the doorstep of the Muscat-house. Some say the roots have found their way to, and are revelling in and around this wonderful well, and hence the extraordinary fruit; but, if so, what a shock to our theories of keeping the roots warm and dry at certain seasons? However it may be, the Grapes have been for many years wonderfully fine, and are again so this season—nearly, not quite, as fine as ever, and the crop prodigious.

But it is not of Grapes we wish to speak at this time; there is a greater attraction in the fruit line. In a field of some 15 acres, on the top of the hill not half a mile distant, we lately beheld one of the finest crops of fruit it has been our privilege to see for a very long time. Divested of the trees and fruit, this piece of ground would appear to most people to be one of the most unsuitable of spots on which to form an orchard. It is elevated, much exposed, and the land is poor and stony—indeed, in some part there seems nothing but stones. But the trees appear to thrive on them, and even the stones are valuable. Last winter stones to the value of £100 were picked and sold from this orchard, and still there seems to be more stones than soil. Judging, however, by the copious top-dressings of manure so liberally applied by Messrs. Lane, it is the evident intention to reduce them to a minority one day soon.

Some fifteen years ago or thereabouts Mr. Lane commenced to plant the trees in this field, partly as a trial or experimental ground; plenty of good trees were, of course, at command, so that the ground was soon covered. The greater portion has proved a decided success, but there were also many singular failures. The planting of fruit trees is always more or less an experiment as to what sorts may prove suitable or otherwise. The situation being exposed, the low bush form of tree is that adopted. The trees are planted in lines pretty closely together, so that they soon form a slight shelter for each other. This form of tree, it may be remarked, has many advantages apart from its immunity to injury from blasting gales &c.; the fruit being within reach is easily gathered and much time is saved thereby, which to a fruit grower is an important matter.

Plums first attract attention, the crop on every tree being excessive. Denyer's Victoria is very large grown, and seems to succeed admirably; there were many hundreds of trees, the only fault being that the fruit had not been thinned. But what a work! The Victoria Plum seems to be universally good, and almost always a good crop. The Prince of Wales also grown to some extent, and the result is very good; but this Plum has an unfortunate tendency to die, and will soon be extinct—the Sultan, a seedling raised by Mr. Rivers, and possessing all the good qualities and more of the Prince of Wales, and with an excellent constitution, is rapidly taking its place. Messrs. Lane have probably the largest and finest stock of this that is to be found. Nothing can exceed the beauty of this Plum—large reddish purple, and having such a density of bloom that

trees are perfect pictures of beauty. Mitchelson's, a medium-sized black Plum, is also grown to some extent. It is a sure cropper. Angelina Burdett, a large black ovate Plum—"Burdetts," as they are called in market—meets with favour. It is almost equal to a Green Gage in quality. Cox's Emperor, a very large reddish variety, was also well represented. It is worthy of a more extended cultivation. Abricote Rouge is also worthy of note, a large handsome reddish fruit of fine quality. Kirk's, a well-known large black Plum, and Diamond, are also both largely grown and worthy. Pershore, a very avourite Worcestershire yellow Plum, is largely grown, and here, as elsewhere, a most abundant bearer. Of later varieties, Autumn Compote was very promising, as also Belle de Septembre and Sandall's, one of the latest varieties grown. Of newer varieties, Rivers' Late, a pale, medium-sized, round fruit, promised well. Another promising variety is named Late Prolific. Early Transparent, Blue Prolific, a seedling of Mr. Rivers', somewhat resembling a large and very fine Damson, was very conspicuous, and excellent in quality. Grand Duke, the last new variety sent out by Mr. Rivers, is apparently a great favourite with Messrs. Lane; a great many trees of it are planted. The fruit is large, ovate, very late, and excellent. Another interesting tree was a small one of what is termed Rivers' Early Damson—probably Eugene Fürst—laden with fine fruit, and quite ripe, some weeks in advance of all other Damsons; a very valuable acquisition for late districts. Mention must also be made of the Farleigh or Crittenden Damson, which is cultivated largely. How very charming the little trees are, laden with the dense clusters of this pretty fruit!—the crop is something extraordinary.

Apples occupy the second place, although they may probably be fully more valuable. The most remarkable variety is Lane's Prince Albert. This is to be met with all over the orchard, and everywhere every tree is laden with large and fine fruit. It is not particularly showy, but the more closely it is inspected the more handsome it appears. The fruits are large, greenish, or but slightly coloured—an excellent winter cooking Apple, which ought to be far more largely grown and cultivated than it has yet been. Small's Admirable was bearing a very fine crop, and amongst other sorts may be mentioned Lord Suffield, Stirling Castle, Grenadier, Lord Derby, Lord Grosvenor, New Hawthornden, Warner's King, and Jolly Beggar as being specially good. Cellini and Dumelow's Seedling, such excellent Apples in most places, have here proved most unsatisfactory.

Pears are not yet largely represented, but some very fine examples of Durandeau, Madame Treyve, and Souvenir du Congrès were noted, the latter especially fine.

Filberts are very largely grown as an intermediate crop amongst the Apples and Plums, and the crops this season are very large and fine. The trees are allowed to grow somewhat larger, and are not so closely pruned as in the Kentish orchards, and the success attendant would seem to justify the treatment. A variety named Early Prolific, or Pearson's Early Prolific, was being grown extensively, and ripe early in September. It is earlier, but not so large as that termed the Kentish Cob, which is the chief or main crop variety.

Much more might be noted and stated concerning this remarkable orchard. Let others go, see, and judge for themselves—they will not return disappointed. *A. F. B.*

Fig. 75.—Viguiera rigida. (see p. 396.)

A COTTAGERS' SHOW.

ALTHOUGH we have numerous reports from time to time of horticultural shows held in the provinces, it is very seldom, if ever, that we read of any in which cottagers alone take part, but I have now the pleasure of noticing a most successful one, held in East Suffolk on September 14, which was initiated by Lord John Hervey, a gentleman who takes a most lively interest in the welfare of the working classes, and has been foremost in establishing club-rooms and libraries in the surrounding villages near where he resides, which club-rooms and the different exhibitions of garden produce that have been held have done much in rubbing off the rust and enlarging the ideas of the men for whom they were got up, and it must therefore be gratifying to the originator to witness so good a result. That very great interest is taken in these autumn meetings is shown by the numerous entries made and the great number of people who meet together on these occasions, as is evidenced by the takings at the gates, which last year amounted to upwards of £16, and this from the low charge of 6*d.* admission and half-price for children; but satisfactory as that was, the receipts from this source will no doubt be largely exceeded this year, as the people who visited it appeared in more force than ever.

As the district embraces several parishes, the place of the show is changed annually, the last being held, by the invitation of the President, the Hon. and Rev. F. Ponsonby, in the picturesque grounds of the Rectory at Stutton, which are famed for the magnificent old trees they contain, and the charming landscape views that are to be had at different parts overlooking the Stour, which, when the tide is in, has an expanse of water nearly 2 miles across. The most noteworthy among the arboreal ornaments are three Cedars of Lebanon, one being specially remarkable for its gigantic size and the spread of its huge branches, which run out on either side, as I stepped it, a distance of 20 yards, and the trunk at the junction of the limbs is between 9 and 10 feet through; and near by there is a noble old Scotch Fir, that measures over 11 feet in circumference. Besides these patriarchs there are five evergreen Oaks growing in a circle, the largest of which has a straight clean stem that girths upwards of 10 feet. These trees are said to have been raised from acorns gathered from the one at Trimley, in this county, which is supposed to have been the first known in England, and to have originated from seed brought over by the great circumnavigator, but be this as it may, they are of great age, and probably the finest to be found anywhere in the country. Judging from the number to be seen in every portion of the grounds the five referred to have given rise to a numerous progeny, as they abound in every part, and, being so near the German Ocean, have escaped the devastating influence of the past hard winter better than any I have met with before.

By the sides of the main approach to the house, which is a fine old structure in the Elizabethan style, evergreen Oaks are thickly planted, and form a dense canopy overhead, which on a hot summer's day must render the drive very cool and refreshing. A Hemlock Spruce, Abies canadensis, a Conifer comparatively rarely met with, forms a very striking object, with its silvery foliage and gracefully drooping branches, the lower ones of which have spread out and carpeted the ground around, and are left, as they should be, uninterfered with. Not less remarkable than some of the trees already enumerated is a Portugal Laurel, the branches of which, emanating from the old trunk, now fast going to decay, creep along the surface of the soil, many of them measuring over 60 feet in length. Unfortunately for the place there has been some attempt at altering it to the fashion of the day, but it is to be hoped it will go no further, as vases, steps, formal slopes and beds are out of all character with the surroundings.

As regards the show itself, the collections of vegetables—twelve sorts, to be exhibited in baskets or trays—would have done credit to any professional gardener, as not only were the several kinds very fine but they were arranged with fresh Parsley between, and displayed with great taste and judgment, the principal prize-takers being old stagers, employed in Woolverstone gardens. The lot that came in 1st contained fine Cauliflowers, Tomatos, Peas, a brace of Cucumbers, Beet, Celery, French Beans, Onions, Carrots, Turnips, and Potatos; but these were very close run by the 2d, which had a large red Cabbage instead of Tomatos. It looks hopeful for the poor in winter to see the fine, sound, clear Potatos that were exhibited in such quantities, and the Carrots, Parsnips, and Onions were equally fine. Fruit, too, was in great force, as in the tent devoted to artizans and garden labourers there were upwards of sixty dishes of Apples, twelve of Grapes, and about the same number of Damsons, and a few other Plums and Pears. The agricultural labourers have a class to themselves, as their facilities and time for growing things are not so great, but for all this they are not far behind in the display they make, or in the quality of their excellent productions.

A great feature at the show was the needlework, a thing to be encouraged among the industrial classes, and in proof of the great interest felt by the visitors, and the wives and daughters of the men, the tent was crowded, and the scrutiny the garments, &c., received, close. To teach a more humane and better system of treating bees, a hive was manipulated and the honey taken without destroying those busy workers, which flew about and alighted on the face and hands of the operators, and did not appear to resent the interference in the least. *J. Sheppard.*

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.—VI.

Subgenus II. PLATYASTER.—Perianth-tube straight or slightly curved, the lanceolate segments spreading or ascending when fully expanded. Filaments equilaterally divergent from the sub-erect style.

**** Tropical American Species.

32. *C. strictum*, Herb. in Bot. Mag. t. 2635; Amaryll. 253; Kunth, Enum. v. 559; C. Herbertianum, Schultes, Syst. vii. 874.—Bulb small, ovoid, without any distinct neck. Leaves stiffly erect, lorate, pale, obtuse, apparently about 1 foot long, 2—2½ inches broad, with a narrow entire edge. Scape green, subterete, nearly twice as long as the leaves. Flowers four in an umbel; pedicels none or very short. Ovary oblong. Perianth-tube pale green, sub-erect, about 5 inches long; segments white, lanceolate, 3—4 inches long, about ½ inch broad. Filaments red, about 1 inch shorter than the perianth-segments; anthers about ½ inch long.

Figured by Herbert from garden specimens of uncertain origin. They were said to have come from Ceylon, but it has never been refound there, and its nearest affinity is with the American species of this section.

33. *C. Commelyni*, Jacq., Hort. Schoen. t. 202; Kunth, Enum. v. 560; C. Commelinianum, Herb. Amaryll. 254; C. attenuatum, Willd.; Schultes, Syst. vii. 873.—Bulb ovoid, 1½—2 inches in diameter, with copious stolons and a short neck. Leaves linear, 1—1½ foot long, under 1 inch broad, firm in texture, closely veined, tapering to the point, slightly scabrous on the margin. Scape slender, under 1 foot long. Flowers 3—5 to an umbel; pedicels none or very short; spathe-valves greenish, lanceolate from a broad base, 2—3 inches long. Ovary oblong; ovules 3—4 in a cell. Perianth-tube slender, 4—6 inches long, straight in the mature flower; segments lanceolate, reflexing, about half as long as the tube, ⅓—½ inch broad, veined with purple on the back. Filaments bright red, about 2 inches long; anthers ½ inch long. Style overtopping the anthers.

This is the Lilio-asphodelus americanus sempervirens minor, figured by Commelinus (*Plant. Rar.*, tab. 15) in 1706, from a plant grown in the Medical Garden at Amsterdam, and it is mentioned as a variety of americanum by Linnæus. The wild examples I have seen were gathered at Para by Burchell, in Demerara by C. S. Parker, and in Surinam by Hostmann. C. Wright (No. 2344) has a form from Cuba with only a single flower, with a tube ½ a foot long, broader and more ascending segments than the Surinam plant, and leaves not more than ½ inch broad. I do not think C. Lindleyanum, Herbert (which = C. revolutum, Lindl. in *Trans, Hort. Soc.* vi. 284, and C. viridifolium of Rœmer), is more than a taller, more robust variety of Commelyni, with rather broader leaves. Of this I have seen wild examples gathered in Cayenne by Martin, in Demerara by Parker, and in Surinam by Hostmann. Herbert says that when alive it has a smoother, more shining leaf than erubescens, and a more ovoid bulb, which is rather disposed to rest in winter. In stature and leaf it bears the same relation to erubescens that defixum bears to asiaticum.

34. *C. erubescens*, Soland. in Ait. Hort. Kew. i. 413; Red. Lil., t. 27; Jacq. Hort. Schoen., t. 494; Lodd. Bot. Cab., t. 31; Gawl. in Bot. Mag., t. 1232; Herb. Amaryll. 251.—Bulb ovoid, 3—4 inches in diameter, with a short neck. Leaves numerous, arcuate, lorate, 2—3 feet long, 2—2½ inches broad, tapering to a cuspidate point, moderately firm in texture, closely veined, the cartilaginous edge slightly scabrous. Scape 1½—2 feet long, about ½ inch diameter. Flowers 4—8 to an umbel; pedicels none or very short; spathe-valves 3—4 inches long. Ovary oblong, with 4—5 ovules in each cell. Perianth-tube 5—6 inches long, quite straight in the expanded flower; segments about half as long as the tube, linear-lanceolate, reflexing more or less, tinted claret-purple on the outside. Filaments about 1 inch shorter than the perianth-segments; anthers about ½ inch long, sub-erect; bright-coloured style overtopping the anthers.

Widely diffused in Tropical America on both sides of the continent. Herbert defines and names seven varieties. It is figured in Miller's *Icones*, tab. 110, and there is a specimen at the British Museum dried from a garden at Spring Grove in the year 1784.

35. *C. americanum*, Linn. Sp. 419; Gawl, in Bot. Mag., t. 1034; Herb. Amaryll. 254; Kunth, Enum. v. 559.—Bulb ovoid, 3—4 inches in diameter, with a short neck. Leaves 6—10 to a bulb, arcuate, lorate, 2—3 feet long, 1½—2 inches broad, moderately firm in texture, closely veined, narrowed to the point, the narrow cartilaginous edge not scabrous. Peduncle 1½—2 feet long, about ½ inch in diameter. Flowers 3—6 to an umbel, very fragrant; pedicels none or very short; spathe-valves erect, lanceolate-deltoid, about 3 inches long. Ovary slender, with several ovules, in each cell. Perianth-tube very slender, 4—5 inches long, quite erect in the mature flower; segments of the limb lanceolate, 3—4 inches long, not spreading so much as in erubescens, white on the back, ½ inch broad at the middle. Filaments about half as long as the perianth-segments; anthers linear, ½ inch long. Style considerably overtopping the anthers.

A native of the Southern United States. It comes very near to erubescens, but the flowers are more fragrant, pure white, with less spreading segments, longer in proportion to the tube, and with shorter stamens. The type specimens on which Linnæus founded the species in the *Hortus Cliffortianus* are at the British Museum.

36. *C. graciliflorum*, Kunth and Bouché, Ind. Sem. Hort. Berol, 1844; Kunth, Enum. v. 565.—Bulb subglobose-ovoid, 3—4 inches in diameter; tunics greenish-yellow. Leaves about fourteen to a bulb, lanceolate, 1½—2 feet long, 1½—2 inches broad, narrowed gradually to a point, light green, firm in texture for the genus, the cartilaginous margin distinctly denticulate. Scape under 1 foot long, light green, compressed, springing from the axil of one of the outer leaves. Flowers 6—8 in an umbel; pedicels none, or very short; spathe-valves 3—4 inches long. Tube of the perianth 5—6 inches long, quite erect when the flower is fully expanded; segments lanceolate, reflexing, not more than half as long as the tube; filaments red, but little shorter than the perianth-segments; anthers about ½ inch long. Style overtopping the anthers.

A native of Venezuela. Sent by Moritz alive to the Berlin Botanic Garden about 1844. I have seen dried specimens only. A plant distributed by Fendler as No. 2169 is probably a variety of the same species with thinner lorate leaves, 3—4 feet long, 3—4 inches broad.

37. *C. concinnum*, Mart. in Schultes' Syst. Veg. vii 857; Herb. Amaryll. 262; Kunth, Enum. v. 572.—Bulb and leaves unknown. Scape green, under 1 foot long Flowers twelve in an umbel, inner erect, outer curved pedicels very short; valves of the spathe brown, reflexing lanceolate, 1¼ inch long. Perianth-tube 1¼ to 1½ inch long; segments of the limb lanceolate, purple on the outside, 2½—3 inches long, under ½ inch broad. Filaments about half as long as the perianth-segments anthers small, oblong; style reaching nearly to the tip of the perianth-segments.

A native of mountain sides at Villarica in the province of Minas Geraes, in Central Brazil. Known only from dried specimens, collected long ago by Martius. Easily distinguished from all the neighbouring species by its very short perianth-tube.

38. *C. Kunthianum*, Roem., Amaryll. 80; *C. erubescens*, H.B.K., Nov. Gen. i. 279, not Ait.—Bulb ovoid 3 inches diameter, with a distinct neck. Leaves about twenty to a bulb, lorate, spreading, bright green, about foot long, 2½—3 inches broad, undulated towards the entire margin. Scape 1 foot long, issuing from the axil of one of the outer leaves of the rosette. Flowers 4— to an umbel, sweet-scented; pedicels none or very short; spathe-valves lanceolate, about 3 inches long Perianth-tube 7—8 inches long, straightened when the flower is fully expanded; segments of the limb

ınceolate, pure white, 2½ inches long. Filaments bright ed, under 2 inches long; anthers under ½ inch long. tyle overtopping the perianth-segments.

A native of New Granada, discovered originally by lumboldt between Turbaco and Los Volcancitos. ly description is entirely taken from a plant that owered at Kew in May, 1875, from a bulb brought England by Mr. Patin. A nearly allied plant, ith a longer, narrower leaf, tube and perianth-segents much tinted with claret-purple on the outside, e latter above 3 inches long, was found by Mr. alph Tate, A.L.S., near Greytown, in Nicaragua, 1867.

39. *C. undulatum*, Hook. Exot. Flora, t. 200; Herb. maryll. 253; Kunth, Enum. v. 558. — Bulb small, oid, with a long neck. Leaves dark green, lanceolate, foot long, 1 inch broad, narrowed gradually to the int, firm in texture for the genus, sub-erect, channelled wn the face, the cartilaginous margin entire and not abrous. Scape about 1 foot long, green, under ½ inch diameter. Flowers four to an umbel; pedicels none very short; spathe-valves green, linear-lanceolate, 3—4 ches long. Perianth-tube greenish, 7—8 inches long, rved before the flower expands; segments of the limb nceolate, about 3 inches long, lanceolate, undulated, t tinged with purple on the back, erecto-patent when lly expanded. Filaments bright red, about 1 inch orter than the perianth-segments; anthers linear, about inch long. Style overtopping the anthers.

A native of the province of Maranham, in North razil, sent alive by R. Hesketh, Esq., about the ar 1827, to the Liverpool Botanic Garden. Schubert, *Flora Braziliensis*, has confused this with C. Comelyni. *J. G. Baker.*

(*To be continued*)

PLANT GOSSIP.

Dipladenia Brearleyana.—Something to be seen d not soon forgotten is this very brilliant Dipladenia st now at Syon, near Brentford. Indeed, in saying st now, the inference may be drawn that it is just at best; but as the plant commenced blooming last ay, and is now in as full flower as at any time since, may be said to have been at its best all the summer. The long bloom-stems tell that very effectively, r there they hang from the roof of the low house in hich the plant is growing quite a foot in length, and omise to carry many flowers ere they finish. The ant occupies but a limited root-space at one end of e house. It has been run along the roof, and filling e back produces at its points literally a blaze of orious colour. Mr. Woodbridge thinks that the ant will bloom till Christmas, and no doubt it will; at will give a floriferous season of eight months.

Giant Cockscombs. — After reading the note at 333, I measured two of ours. One measured feet 7 inches from tip to tip, 18 inches at its greatest eadth, and 10 inches from the top of the pot to the p of the plant; the other was 2 feet 10 inches from to tip, and 18 inches in its greatest breadth, and inches from the top of the pot to the top of the ant. I did not measure any last year, but I think ese are the largest I have ever had. The first is all at could be desired in height, shape, and colour. *enry Kent, Gr. to J. Lane, Esq., Grove House, ighgate Road, N.W.*

Terminalia elegans.—This is a plant which, as r as the writer is aware, has never occupied a first sition as a table plant. The first plant of it, as ell as I can recollect, came into my hands eleven ars ago. I thought then it was one of the prettiest foliage plants, but somehow or other it has never come common as its merits and graceful appearance itle it. A plant of it in a 6-inch pot came under y notice a few days ago, and the opinion I had rmed of it eleven years ago was verified, and I still ink it makes one of the prettiest of pretty foliage ble plants. The deep midrib, and narrow horintal ribs of the same colour, are very striking in the aves, which are rightly described as being elegant. *. H.*

Hyacinthus candicans. — Some very fine exples of this noble plant, with extraordinary fine ikes, are in flower in the herbaceous border in the rseries of Messrs. Little & Ballantyne, Carlisle. hey stood the severity of last winter with impunity. he white flowers are very valuable to the bouquet. *A. O.*

KETCHUP UNDER THE MICROSCOPE.

Ketchup, as made by farmers' wives and daughters and servants, differs in a marked degree from the same condiment as sold in the shops when the different sorts are compared with each other under the microscope. Mushrooms are confessedly somewhat difficult things to understand; but if a Mushroom is a mystery, ketchup, as sold by dealers, is a Sphinxian enigma that may long await a mycologic Œdipos. Housewives usually make ketchup of pasture Mushrooms with an addition of salt, sometimes with a little ginger, cloves, allspice, or, may be, mace. This material, after being well boiled and securely corked and sealed, is one of the most delicious sauces it is possible to put upon the table. The writer of these lines being a sort of fungus fancier is of course seldom without genuine ketchup in his house. "Who loves a Mushroom loves good ketchup, too," as the poet once wrote.

Pure, *bonâ-fide*, home-made ketchup is illustrated at A, fig. 76; it swarms with purple-brown Mushroom spores, as shown. Occasionally a grain or two of pollen may be seen, as at B, or perhaps part of the hair-like pappus of a Dandelion, as at C. A glance at the size of these minute objects by the side of the spores

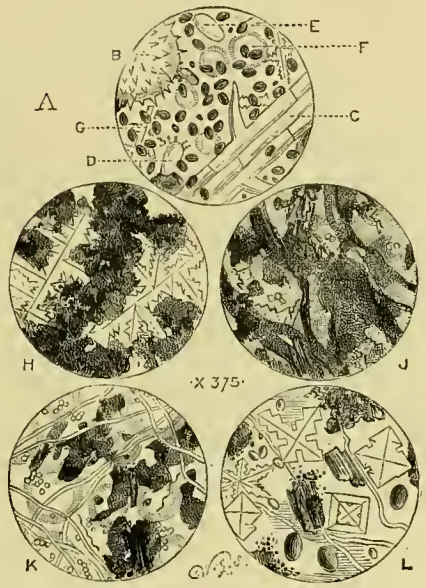


Fig. 76.—Ketchup under the microscope.

shows how small indeed are the spores themselves. At D is a basidium, or spore-bearer, with its four little spikes for carrying four spores; at E a cystidium, one of the organisms referred to in a recent number (see p. 369, September 17, 1881): boiling does not destroy either of these cells or the spores, but the ordinary cells of the fungus are very much broken up and obliterated in the manufacture of ketchup. The circular markings at F represent drops of oil from the spices, whilst G shows the crystals belonging to the salt. Everything is right and proper, recognisable at a glance, and with no extraneous matter of an offensive character present.

The compound sold by dealers is sometimes termed Mushroom Ketchup, Mushroom Flavour, or Mushroom Relish.

The four illustrations at H, J, K, and L, are camera-lucida reproductions of the ketchup manufactured by four different London traders. H seems to be all salt and smashed up toast; J looks like salt, decayed fish, or slime, a little mildew, and broken-up twigs; K is chiefly fungus spawn, spores of mildew, oil, crushed Walnut husks, and vibriones. At L is the most respectable sample; here we have crystals of common salt, and possibly some other crystals, toast, Walnut husks, and fungus spores. The manufacturer of it is a conscientious trader, for the little transparent ovals seen in the engraving belong to the brownish spores of the Horse Mushroom, and the large dark ones to one of the deliquescent species of Coprinus, such as one sees growing to perfection, in wet, foggy weather, about rotten palings. Costermongers and their families gather these things in the suburbs of London, and the fungi never fail to produce an abundance of rich black juice suitable as a substitute for permanent black writing ink.

One might well feel a little mystified at the nature of shop ketchup as seen under the microscope, but on turning to Cassell's *Dictionary of Cookery* one finds that ketchup may be made in various ways and of various substances. For instance, there is "Fish Ketchup," made from the "meat from a lobster;" "Lobster Ketchup," undescribed; "Anchovy Ketchup," made from "half a gallon of mild ale" and "two dozen pickled anchovies;" "Cucumber Ketchup," made (not from Agaricus cucumis, but) by sprinkling salt over mashed Cucumbers; "Mussel Ketchup," made by pounding mussels in a mortar and boiling in wine or cider; Mustapha Ketchup, made from a "sound ox-liver" (not the valuable "vegetable liver"—a rich entertainment for a refined diner—common on rotten Oaks); Pudding Ketchup, undescribed. Besides these there are many others, as Pontac Ketchup, undescribed; and the ketchup of Elderberries, "Irish Walnuts" (!), Lemon, Oysters (not the delicious "vegetable oyster"—Agaricus ostreatus—a treat for an epicure—common on rotten Elms), Tomatos, Walnuts, and "Seven Years" (!), unfortunately undescribed.

It is clear we must not be too hard on the dealers or always expect to see spores in ketchup. Whilst looking for paltry Mushroom spores we may be overlooking a choice preparation of Mustapha, Pontac, Pudding, or the rare "Irish Walnuts," to say nothing of ox-liver, pounded mussels, oysters, or "meat of a lobster." Dr. Bull once made some unequalled ketchup, without boiling; the thrill on the palate was extraordinary, and every one praised it as the perfection of ketchup. On putting it under the microscope in a search for the source of the electric thrill, the sauce was found to be full of lively gyrating infusoria. Bacteria were present in millions; no one caught splenic fever, but then it must be remembered fungologists are, as a rule, proof against bacteria.

We happily do not always know what we eat and drink, and if in future the readers of the *Gardeners' Chronicle* cannot taste Mushrooms in their ketchup (bought at the shops) they may depend upon it they have got Pontac, Mustapha, or one of the others. *W. G. Smith.*

NORMANHURST COURT.

The seat of Sir Thomas Brassey, Bart., M.P., although comparatively speaking a new place, clearly shows what charming effects may be produced in a short time by a liberal outlay, energetic management, and good taste combined. On the Catsfield Road, about three miles from Battle, is situated the main entrance lodge, a handsome and roomy building; both the lodge and pillars supporting the gate are completely draped with Ivy, Virginian Creeper, and other plants, making a charming picture. The carriage drive is a well kept road, 18 feet broad, on each side of which for a considerable distance a very natural and novel effect is produced by irregular groups of Gorse, and the many different species and varieties of hardy Heaths, occupying the space usually devoted to grass in front of the woods, and as the soil is in parts peat, the Heaths flourish most luxuriantly; the bright masses of colour, backed up by the variously tinted green of the background of trees is very pleasing. The woods in all parts are thickly planted with Rhododendrons, furnishing an admirable cover for game. On emerging from the woods, extreme neatness becomes in every part apparent, the turf and numerous walks being in excellent keeping. The rarer Conifers, planted thickly at first to fill up, are continually thinned so as to retain the best placed and best furnished trees as permanent specimens, and these are allowed sufficient space to perfectly develope their respective habits. Their progress is very rapid, the plants often making upwards of 2 feet of growth in a season.

Most of the Conifers in cultivation are to be seen here. The Wellingtonias are a splendid lot of young trees. Abies Albertiana is a great favourite, and deservedly so, as it grows with great freedom, and its elegant habit and fresh appearance are very pleasing. In fine contrast to the above I noticed an extremely handsome specimen of Cedrus atlantica, of most un-

usually bright and silvery appearance. A very striking effect is produced in all parts of the pleasure-grounds by massing large groups of flowering plants together; for instance, a large group of double flowering Furze is followed by a dozen or more plants of a distinct and showy hybrid Rhododendron, then similar masses of hardy Azaleas, Kalmias, Andromedas, Gaultherias, hardy Heaths, in great variety—nearly all the free flowering hardy shrubs being represented in the same liberal manner. Several species of Hypericum are very effective as undergrowth in many places. The number of hybrid Rhododendrons of all the best kinds and hardy Azaleas used here is enormous, and all being planted so thickly at first, constant thinning is unavoidable, and thus the rarer varieties of trees and shrubs are removed to distant parts of the grounds. Space is found for very many of them along the sides of a grass drive, upwards of 3 miles in length, which has been formed around the estate, and is much used by Lady Brassey and visitors. Many pleasing views of the grounds and surrounding country are obtained, and the constant changes of sunshine and shade render this grass-drive very pleasant at all times.

In a beautifully sheltered glade, securely fenced by ornamental ironwork, there is a compact rosery, in which most of the best varieties were growing with vigour and flowering profusely. Near the rosery is a piece of ornamental water, spanned by a handsome rustic bridge. The banks are skilfully and naturally managed, so as in great measure to conceal its extent. Many rare waterfowl from distant lands find a home here.

The mansion is a splendid building, and all its surroundings are in perfect keeping, the liberal owner sparing no expense to render the necessary buildings worthy of the noble mansion. This was the more desirable, as but a short time since all the different offices were plainly visible from each other, but now the ornamental trees, &c., are fast effecting their desired object; and all walls, from the loftiest tower to the lowest building, are covered with various creepers. A small conservatory is attached to the mansion, in which Tree Ferns, Palms, and fine-foliage plants, freely intermixed with flowering plants, make at all times a nice display. A small flower garden joins the conservatory, but vast quantities of flowers suitable for house decoration are grown in different parts of the grounds. The wall garden is not so large as would seem desirable, but the walls are well covered with young vigorous trees that have completely filled the space allotted to them, and are mostly bearing heavy crops of fruit. Bush fruits are most abundant, and finer crops of Strawberries I have seldom seen. A large kitchen garden is in course of formation, in addition to the one already in use, which is not sufficient to the demands made on it. The gardener's house is an excellent and convenient one, opening into the main range of glass.

The first house, a cool greenhouse, is principally devoted to hard-wood plants, next a vinery bearing an excellent crop of Black Hamburgh Grapes, then a Peach-house; enough was left at the time of my visit (July 2) to show there had been a splendid crop of fine well-coloured fruit, followed by a vinery full of Muscats, fine in bunch and berry. This led to a small house, with an entrance from the wall garden, principally filled with Camellias planted out, with Tacsonias and other trailing plants hanging in graceful festoons overhead. Then followed a vinery from which the crop had been mostly cut; the next two houses were full of Tree Ferns, Palms, Orange trees, and a lot of plants used for decoration—all clean, healthy, and growing with vigour. Behind this range is another, commencing with a house full of Roses planted out, conspicuous amongst them for beauty and usefulness being large plants of Madame François Jamin (Tea). Nothing more beautiful than this Rose could be desired for button-holes and small bouquets. Here, too, were the Melon and Cucumber pits, and a range of half-span pits, four in number, 40 feet long, full of Pelargoniums, Bouvardias, Fuchsias, Ferns, and a host of other plants for furnishing cut flowers, the demand for which is so great that little space can be found for specimens of any description. Orchids are not grown in great numbers. A fine piece of Angræcum eburneum was just coming in flower, nice pieces of Vandas, Saccolabiums, Aerides in variety, Dendrobium Farmerii, densiflorum, nobile, and several others, a fine piece of Lælia purpurata, several Oncidiums, several recently imported Phalænopsis grandiflora were starting freely. I believe it is contemplated to much extend the accommodation for these beautiful plants. I had almost forgotten to mention a large apartment under the balcony, with entrance from the principal rooms, part fernery, part grotto, fitted up with virgin cork. When lighted up on festive occasions, with Palms and foliage plants introduced, it must present a very singular appearance. Mr. Allen, the energetic gardener, must be congratulated on the success that has attended his efforts to render this beautiful place altogether so attractive. *J. Murton.*

BURGHLEY PARK.

THE noble seat of the Marquis of Exeter in Northamptonshire (fig. 78, p. 405), and two miles distant from Stamford, is approached from the main road by a fine carriage drive bordered by large spreading Elms and other trees. At the entrance are the "bottle" lodges, so called from there being a pair of high stone octangular turrets flanking a massive iron gate, surmounted with spike-ball and other ornaments crowning the armorial bearings of the family. The house was begun and mostly built in the reign of Elizabeth by William Cecil, Lord Burleigh. Over one of the entrances within a central court is the following inscription, recording an earlier period of the work:—"W. Dom. De Burghley, 1577." Beneath the turret is the date 1585, when many great additions were made to the building. The grand entrance towards the north appears to have been added in the year 1587. Since these dates many other additions and alterations have been made, the whole of the house surrounding a central court. Looking southwards the lawns are beautifully undulated, with a broad sheet of water in the distance, and charming views of woodland scenery. On the west side are similar views, and distant ones of objects in Rutlandshire, Lincolnshire, and the spires of Stamford. On the north side the ground slopes to the river Welland, and an extensive tract of country is in view. About two miles to the west of Burleigh are the ruins of Wothorp, or Wothorpe House, where, according to Camden, a mansion of considerable size was built by Thomas Cecil, the then Earl of Burghley, who is recorded to have said that he built it only to retire out of the dust while his great house at Burghley was sweeping. The Duke of Buckingham resided here for some time after the Restoration. In the dining-room is a large silver fountain and two oval silver cisterns adorned with lions, the supporters of the family arms, the weight of the smaller 600 ounces, or 1 cwt. 3 qr. 9 lb., supposed to be the largest piece of plate in Europe. The house contains a magnificent collection of pictures, many of the rooms are of great historical interest, and the decorations of the most costly description. The Lime tree planted by Queen Elizabeth during her visit to Burghley (see fig. 78, p. 405) is one of the most noteworthy objects outside the house, and is preserved with the greatest care as a relic of the past.

The history of fine mansions and noble old trees is no doubt very interesting, but it is sometimes dry reading to the practical horticulturist, so I will pass on to a general description of the extensive park and pleasure grounds. Approaching the "middle park" a fine view of the house is obtained between two vistas of trees, and groups of Limes, Beech, Elms, and Oaks are interspersed upon green slopes with good effect. The Temple garden is also in view, and a few strides further brings you in sight of a fine lake, with mounds of trees and rich green valleys not far distant, which produces a rich harmony of scene. The lake is over 3¼ miles in length, and is spanned by an ornamental bridge. The view towards Uppington—the Earl of Lindsey's seat in Lincolnshire—through vistas of spreading trees, and including the spires of Euston Church, is also very beautiful. Proceeding in the same direction through the nursery, which is bordered by healthy trees, the best view of the lake is obtained where it takes a sweeping semi-circular curve, and appears to form an island, having for its centre a massive group of stately grown trees.

Upon the right of the lake a cascade, summer-house, and a peep across the dell, afford much pleasure and variety to the visitor. The Laurels forming undergrowth have been sadly mutilated by the frosts of last winter, and some valuable trees have been slightly affected, but have sustained no permanent injury. Looking across the lake some good Wellingtonias. Taxodiums, and a deciduous Cypress, 60 feet high, are fine ornaments, and occupy very suitable positions as specimens where they can extend themselves without obstruction. Some of the woodland walks are here very pretty, and are bordered by large masses of Laurels kept trimmed annually, and having specimen trees planted at intervals amongst them.

The Rose garden, a simple grass plot sheltered upon one side by a broad belt of trees, is planted chiefly with standard Roses which seem to have escaped the late severe winter with little or no injury. At the south side of the garden two glass structures (detached) contain healthy collections of stove and greenhouse plants, which need not be particularised beyond stating that they are of the ordinary useful description for furnishing and cutting. On the way to the Temple garden are some fine groups of Larches, and splendid specimens of the Copper Beech, Cedars of Lebanon, Liriodendron tulipifera, and many other fine trees. The largest Cedar of Lebanon has eight limbs, any of which would be considered a fair sized tree. The temple garden is laid out in Box sloping from the lake, and is filled with the usual variety of summer flowering plants suited to the climate and position. There is a museum near to the garden containing many curious and interesting specimens, the most noteworthy of which is the head of a hippopotamus presented to Lord Edward Cecil, commander of the *Surprise*, by Chief Wilkinson, of Tallangia, on the occasion of his visiting this chief on the west coast of Africa. There are several hills between the Temple garden and house known respectively as Beech Hill, Oak Hill, &c., so called because of the grand groups of Beech or Oak which adorn the summit of each mound, and which are beautiful objects to look upon, and are noble pictures in the landscape.

Before going into details concerning the vegetable and fruit departments I think it will make my remarks more intelligible if I give the reader some idea of the magnitude of the kitchen and fruit gardens at Burghley. The kitchen garden proper is over 12 acres in extent and is enclosed by substantially-built brick walls. The garden is then divided into eight divisions, by walls running transversely, giving an extent of wall for fruit-growing purposes perhaps unequalled by any other private garden in England. Outside the walled-in garden a new vegetable and fruit garden has been made of over 14 acres, besides an orchard of considerable age, bearing good crops of Pears, Apples, Plums, Cobs, &c., and which is heavily cropped with vegetables between the fruit trees. Mr. Gilbert's name has long been identified with vegetable and fruit growing of the highest quality, the rapid system of cropping adopted at Burghley yielding the most handsome and satisfactory returns from year to year. I will take the walled-in garden in its respective divisions as being the simplest way of noting a few of the more especial objects in each. The first division has a range of Peach-houses on the south wall, from which great crops have been gathered; the trees are in luxuriant health, and swarming with fruit-buds for another season. Early Beatrice was gathered on May 18 of the present year, succeeded by Royal George, Early Grosse Mignonne, Violette Hâtive, and other standard kinds. I noticed Mr. Gilbert does not believe in the starving system of growing Peach trees, his borders are kept thoroughly soaked until the leaves begin to fall, and, as a consequence, the buds are well nourished and plump. Figs are grown upon the back walls, and in the open quarters of the division Currants, Gooseberries, and other small fruits are grown in abundance, also standard Pears and Apples, one fine tree of Louise Bonne of Jersey being quite a picture, the fruits being numerous and high in colour. Horizontally-trained Pears and other fruit trees are trained upon the walls.

In the second division are two Melon-houses, 80 feet long; a Tomato-house with a hip roof, 80 feet long, two late vineries, one 80 feet, and another 65 feet long respectively; and two pot Vine houses. The Melon-houses are span-roofed, with a pit in the centre and a path all round, and are heated with three rows of 4-inch piping upon each side. The rows of plants are planted in the centre pit with a "sand path" between the rows of plants, which is a good means of maintaining cleanliness in the house, and of inculcating order in the minds of juniors. The Melons have leaves like Rhubarb, and are bearing heavy crops of Mr. Gilbert's well-known kinds. The Tomato-house contains fruiting plants, and a fine batch of Capsicums bearing full-grown, rich coloured pods. In the vineries grand crops of Lady Downe's, Alicante, and Trebbianos have finished

perfection, and the Muscats as a crop are as fine a sight of Grape growing for all purposes as could well be desired.

I noticed a fine stock of Ferns in the vineries for cutting purposes, and many other plants. The borders round the quarters of this division are planted with Apple and Pear trees in full bearing, Cockle Pippin and Dutch Mignonne having missed but two crops in thirteen years. The walls are stocked with fruiting trees of Cherries, Golden Drop Plums, and the north wall with Currants for yielding a late supply.

In the third division are two Muscat-houses, 75 feet long each, and a house of young Muscat Vines planted this season in excellent order, as are also pot Vines for next year's fruiting, of unusual size and firmness—thoroughly well-grown canes. In the same division are two vineries, one a Trebbiano-house, and the other planted with Hamburghs. The Hamburghs are mostly cut, and the Trebbianos are intended for the late autumn, and a grand show of Grape growing they are—large, well-formed bunches, and a crop so regular that not a single blank is to be seen in the whole house. The south wall of the fourth division is occupied with Royal George, Violette Hâtive, and Princess of Wales Peaches, marvellous crops and highly coloured. Not a spare foot is left unoccupied upon the walls in these gardens, if there is only room to squeeze in a single Tomato plant, which always yields something, indeed a good deal at Burghley, where certain varieties crop so well and ripen their fruits so satisfactorily. Upon the east wall Apricots and Pears are grown, and the north wall is stocked with Currants. Claygate Pearmain Apple crops well as a standard here, as also Cox's Orange Pippin. As an example of Mr. Gilbert's system of cropping it may be useful to mention that the south border is planted with brown Cos Lettuce between rows of President Strawberry planted at 2½ feet apart each way. The Strawberry plants were raised on turfs, and are at this early date strong plants, and will bear a full crop of fruit next season. Upon the west border the crop of Onions, in lines, of James' Keeping, Bedfordshire and Reading Onions, are clean well-grown samples, and the yield enormous.

No. 5 division has a range of cool lean-to houses planted with Cherries, Figs, and Peaches, the latter bearing first-rate crops of good size and excellent flavour. Figs are also grown in pots, and a select variety of curled Parsley for exhibition. This is a wrinkle for exhibitors! Wallflowers are also grown in pots for spring flowering, double Pelargoniums, Mignonette in small pots, a fine strain with flower-spikes well shot up—dainty little plants for grouping or furnishing. A batch of Marigolds in pots (variety Cloth of Gold) I thought exceedingly handsome; perhaps we do not always make the most of flowers that are simple to grow, and at the same time showy for many purposes of decoration. Three different varieties of Nasturtiums are grown for salading, and are much appreciated by the family. The plants are grown in pots and very pretty ornaments they are as well as being useful for salading. In the middle division of the range a fine Maréchal Niel Rose grown on the extension system ought to be a lesson to many cultivators. Three shoots are taken up under each rafter, and such shoots too!—like one-year-old Vines for fruiting in pots. Mr. Gilbert is of opinion that the cause of failure in many cases with this Rose is that it is worked on old stocks which do not swell with the scion. The plant at Burghley is over eight years old, and is as healthy as the first year it was planted.

The sixth quarter of the garden is double the size of any of the others, with a walk up the centre and is a very prolific fruit garden of standard Pears, Plums, and Apples, of which Lord Suffield and a variety called Barnack Beauty, which has not missed a crop for eleven years, are considered the best. The latter variety appears to make "natural spurs" and is certainly a freer bearer than many other kinds that are more commonly grown. The west wall is planted with Pears, the north wall with Morellos, and the east wall with Tomatos, a variety of Mr. Gilbert's own selection and a great cropper. A nice collection of cordon Pears planted this season have succeeded admirably, and are bearing from four to six fruits each—rather much for the time. The quarters of vegetables, I need hardly say, are of the first order, and the system of cropping both economical and profitable.

The walls of the seventh division are occupied with Apricots, Plums, and Pears which have or are bearing full crops; and in this garden also are some good examples of Strawberry growing, a branch of fruit growing in which Mr. Gilbert always excels, and in which he takes great interest. The particular varieties of fruit in this garden are Lady Lennox, Nonsuch, and Bedfordshire Foundling Apples, and Bergamotte d'Esperen Pears, of which a large quantity is grown for a supply during the Spring months. The natural spurs are

Fig. 77.—THE CEDARS IN BURGHLEY PARK.

abundant upon the trees, and this year's crop is a most satisfactory one. There is about half an acre of Celery in this garden without a single "bolted" head or defect in the cultivation—an even crop, of fine size and quality.

The eighth and last division of the garden contains some good examples of fruit growing upon the walls—of Apricots upon the south wall, and triple cordon Plums upon the west, Pears and Tomatos upon the east wall, and Morello Cherries upon the north. The quarters of Raspberries, Strawberries, and small fruits generally are also in good bearing order. The outside of the wall upon the south side, which is buttressed to strengthen it and break the winds, is planted with Pears, Apricots, and Plums, and the borders are stocked with healthy crops of vegetables. The orchard outside the garden contains fine bushes of Pears, Apples, Filberts, &c., laden with fruits, and Vegetable Marrows, ridge Cucumbers, or Mushroom beds between the rows of fruit trees. Mr. Gilbert grows bushels of Mushrooms out-of-doors, in the simplest way possible, and never fails to obtain abundant crops. In every nook and corner there is something going on that will either yield a profit or meet the enormous demand which is required from such an establishment, where all kinds of vegetables are grown by the acre, and failure is unknown. Green crops of all kinds are grown amongst fruit trees wherever there is space for a row, or even a plant, in order to economise space and make the most of everything at command. Mr. Gilbert speaks favourably of Dr. Roden's new Strawberries, Amy Robsart, Hundredfold, Enchantress, and Countess, which are having a fair trial, and will be duly reported upon according to their respective merits.

The new orchard and vegetable garden is a very interesting sight. The long lines of fruit trees planted among Potatos and other vegetables, so green and healthy in appearance, is the best evidence of Mr. Gilbert's energy and skill and of his great faith in extensive gardening when it is well managed and conducted upon the true principle of economy, namely, to grow abundantly such varieties of fruits and vegetables as suit the climate best, and to weed out those kinds that only bear an occasional crop, many of which are too extensively grown in private gardens, where quick returns are expected now-a-days, and where something more will have to be done in the future than has been done in the past.

Returning to the entrance to the walled-in garden I have to notice a range of span-houses in three divisions, two of which are gay with Pelargoniums, Begonias, Vallota purpurea, Abutilons, Fuchsias, and a small collection of cool Orchids. The third division is kept for stove plants, of which there is a useful collection of Dracænas, Crotons, Dieffenbachias, Palms, Acalyphas, Ferns, Gardenias, and a free-flowering Bougainvillea trained upon the roof. The propagating-house is temporarily filled with winter-flowering plants, such as Calanthes, Epiphyllums, flowering Begonias, and Eucharis, some of the latter bearing sixteen flower-spikes; and many other winter-flowering plants.

The garden offices are both spacious and numerous, and the fruit-room, 180 feet long and 25 feet wide, is not the least important adjunct to one of the finest and best managed gardens in the kingdom. *W. H.*

Forestry.

MY residence at Weybridge abuts on the beautiful property of Admiral Egerton, St. George's Hill. Through his kindness I have been in possession of about 2 acres of woodland for the last twelve years. This bit of forest was formerly one mass of Spanish Chestnut stumps, grown for coopers' hoops, and interspersed with Scotch Fir, Birch, Beech, and Oak. The soil was sand or gravel, with about 6 inches of peaty mould on the surface, and the interspaces were covered with Heath, Calluna vulgaris, and Erica Tetralix. I cleared the soil of nearly all the stumps, planting specimen Conifers, and leaving some of the trees, all small, sowing Heather seed in the vacancies made by the extraction of the roots. Wishing to allow the eye to range over my shrubbery into the adjoining forest, and not wishing to cut down the trees I had left, I met the difficulty by cutting off all the branches 15 feet from the ground, a proceeding which raised the most terrible opposition in my family circle. I was accused of destroying the trees, of turning them into mops or broomsticks. Such, I must confess, appeared to be the result of my foresting for several years, but results have followed, in the course of time, to which I wish to draw attention.

Firstly, the mutilation of the trees was carried out in the spring, on my return from winter exile. In every instance the wounds made healed readily during the summer period of active growth. Now the trees operated on—Firs, Chestnuts, Birch, Sycamore—have columnar shafts, like marble pillars, with scarcely any perceptible scar left. This I have not found to be the case with trees operated on in the autumn, when growth is all but suspended. But the fact which has principally struck me is, that these trees, thus deprived of their lower branches for 15 feet from the ground, have all shot up perpendicularly. No large branches have formed, only a mass of small branches, and the trees have all grown rapidly in height. It would seem as if all the branches that are destined to make timber branches come naturally from the lower part of the tree, and that once they are removed only small branches appear, the vitality of the tree centres in its trunk, and the tree grows upwards. Thus there are many Scotch Firs, exposed nearly all round to the air and sun, that have gone up perpendicularly like an arrow, just as they do when planted closely together in a forest. The artificial removal of the lower branches for 15 feet appears to have produced the same effect as the absence of light and air produces in crowded forests—to have run them up perpendicularly; above the amputated region small branches have grown, and are gradually forming handsome trees. The Scotch Firs are becoming fine, tall, elegant trees 50 or 60 feet high. The Birches and Beeches are assuming the same form, a vertical one. The Spanish Chestnuts are ascending, and appear likely to become handsome trees, although still rather too globular. The Oaks alone seem rebellious; true to their nature, they will spread.

The practical fact that the elimination of the lower branches entirely modifies the growth of Conifers and other trees, running them up vertically even when fully exposed to sun and light, is probably well known to foresters; but it is new to me, and probably will be new to many of my readers. It is a valuable fact in landscape gardening, as it renders it possible to preserve many trees, destined to become handsome majestic denizens of the shrubbery or park, which otherwise would have to be sacrificed for the sake of the view.

I may add that I have been clipping for some years Cedars, Deodars, and Wellingtonias peripherically, in open situations, where they are fully exposed to light, for want of space, with the same result. They have not made any large inferior branches, but have run up, forming handsome pyramidal columns.

As the light and sun penetrated everywhere in my shrubbery the Heather has clothed the ground; I have had it clipped with the shears every autumn for the last five years, and now it entirely covers the soil with a swarth of Heather. Recently, when in flower, the ground was one sheet of bloom, and the effect was very good—the Heather with the tall trees rising out of it. *Henry Bennet, M.D., The Ferns, Weybridge.*

Orchid Notes.

DR. AINSWORTH'S ORCHIDS.—I was much pleased a few days ago, when calling at Dr. Ainsworth's, Lower Broughton, to find in flower several plants of an unusual character. The rarest was a plant of the true Masdevallia chimæra. This had been bought about eighteen months ago at Stevens' Rooms—one of a lot sent there by Mr. Sander. It has grown freely, and now has three blooms upon it, measuring 15 inches from tip to tip of its peculiar tails. The whole of the flower is densely covered with spots of a deep chocolate colour, and though the spike is a little more upright than chimæra, it is a stretch of the imagination to say it is erect. It has to be looped up, and evidently appears to need it. The other plants were two of Masdevallia Backhousiana. These had been purchased some years ago for chimæra, but turned out to be this variety. They are now fine bushy and healthy plants; on one I counted twenty-five flowers, on the other sixteen. In the Cattleya-house I also saw the true Cattleya Mitchelli × in flower, a triumph of patience and skill. *W. Swan, Fallowfield, Sept. 19.*

DENDROBIUM CHRYSANTHUM.

For hanging-baskets, or when grown strongly in small pots, and suspended from the roof of an Orchid-house, this charming high-coloured variety is a telling plant whenever ordinary care can be taken of it when in flower. It is best grown as a basket-plant, and if, when the flowers become first visible upon the growths, the surface of the baskets were draped or rather planted over with green moss, what a lovely hanging-basket one of these plants would make for a sitting-room!

ODONTOGLOSSUM MADRENSE.

A sweet-scented variety of much value at this season wherever Orchids are a speciality. In small pots it makes a neat little plant for front rows, or for grouping where Orchids are specially used for such purposes.

ONCIDIUM ORNITHORRYNCHUM.

A variety of considerable worth for supplying cut sprays for vases. The habit of the plant is good, and its flowers are produced in rich profusion every season. It also has the merit of lasting long in flower in an intermediate rather dry temperature. Large plants of it have been found most useful for cutting purposes during the autumn months, when its spray-like flower-spikes have assisted materially in giving a quiet but natural effect to a vase or stand of flowers.

ZYGOPETALUM GAUTIERI.

This dwarf-habited plant, while it is less stately than the commoner and better-known species, Z. Mackayi, will be found much more useful to gardeners for furnishing. Both should be grown in every collection, however small, and the dwarf one will not be the least appreciated when it is better known.

Garden Operations.

HARDY FRUIT GARDEN.

The brighter weather which we experienced last week has been of inestimable benefit in assisting the ripening of all late fruits, while at the same time the wood has greatly improved in appearance, and consequent promise for next year. As other fruits are gathered the late Peaches on walls are apt to be attacked by birds, and will require netting to protect them. The removal of all fresh growing points of all wall trees should be no longer delayed, as it is useless to encourage growth made at this time, and its removal will generally cause a sufficient check to trees that are in good condition. Trees that persistently continue to push out strong fresh laterals plainly show that their roots require attention at an early date, of which more anon. As the individual trees are cleared of fruits let them be freely syringed to clean the foliage, but do not now apply a heavy drenching of water to the borders, which received a sufficient supply during last month. In fact, fruit trees generally have responded to the stimulating element by making more growth than is satisfactory. The gathering of Apples and Pears will now require attention in order to secure such sorts as are ready for taking in during fine weather, leaving all that are not in a sufficiently forward state a little longer, or even until the late-keeping sorts are gathered in October, rather than run any risk of their shrivelling which will certainly follow premature gathering. Damsons will require to be gathered as soon as ripe, for if neglected for only a few days the birds will have the best share of them. Morello Cherries hanging on walls and protected by netting should be kept as long as possible, to come in after the glut of other tart fruits is over, but they must be watched after this time, and if any decay is seen to be commencing let them be gathered at once. Where autumnal-bearing Raspberries are cultivated they will now be turning in, and must be carefully protected with netting, as there is no fruit of which birds are fonder. The framework for supporting the nets, whether of wood or iron, should be sufficiently high to admit of the fruit being gathered without much stooping. If boards are set on edge all around the enclosure they will effect the double purpose of preventing the entrance of birds at the most vulnerable point and of saving the nets from rotting, by being fixed to nails or tenter-hooks instead of being pegged to the damp earth, where they speedily rot at this season of the year. Trees must now be selected that are to fill blanks on walls, or are wanted in order to be brought on to such size as to be available for filling speedily the place of any that, through ill health or other causes, such as inferiority of variety, it may be found necessary to remove. Where a space or two can be found on which to forward some young trees it is well to use it, and especially is this necessary in the case of Apricots, which frequently become unsightly by loss of branches in a single season. In order to ensure the best trees it is well to choose them early, or if it is inconvenient to select them personally an early order given to any respectable nurseryman will certainly have a better

chance of securing good trees than a late one. The Moor Park Apricot still holds its position as the most certain and generally useful fruit, and the Breda is the best as a fruit for preserving or for tarts, being exceedingly prolific, but lacks both the size and flavour of the former variety. Unlike the Apricot, the Peach affords evidence of great recent advance—at least in time; and those intending to plant ought to select at least one of the newer early varieties. Early Rivers, Early Louise, and Hale's Early are all sorts that may be depended upon as being early and of good flavour. One or more may be planted according to the amount of Peaches grown; for they do not in any sense supplant such old trusty sorts as Royal George, Grosse Mignonne, Noblesse, Bellegarde, Barrington, and Late Admirable (which may all be recommended for planting), but simply are noted as the best of their season. Any gardens not already furnished with a tree of Lord Napier Nectarine, should have that variety planted in a good position on the earliest opportunity, as it is superior in earliness and size to any other sort, and is, at the same time, equal in flavour to the Elruge and others of our best varieties. Any Figs remaining unripe upon the trees will be greatly assisted by any spare lights being put before them. Grapes will require to be kept well pinched back, and the bunches fully exposed to the sun. Filberts and Cobnuts may now be gathered and stood in a cool situation. *R. Crossling, Castle Gardens, St. Fagan's.*

FRUIT HOUSES.

ORCHARD-HOUSE.—The fruit has all been gathered now, with the exception of a few of the very latest varieties of Peaches. Lord Palmerston is later than Barrington or Late Admirable, and it is useful for coming in between those and Salwey, and it will also hang long upon the trees after it is ripe, but so far none of these late Peaches can be depended upon to give really good fruits. Lord Palmerston is very large, and a good-looking Peach, but it is a clingstone, and, like all of that class, it is usually tough. Salwey will hang on the tree in the dry air of the orchard-house up to November. The fruit of this is very beautiful, and the flesh a deep yellow colour, but the flavour is only good under very favourable circumstances. Now is the time to repot any of the trees that require it. If they are done at once, fresh roots are rapidly formed, and the trees become well established before the leaves fall off. When the trees are large, and it is not desirable to shift them into pots larger than those they were growing in, we take a chopper and cut an inch all round from the ball, cutting it across the base also above the crocks. We drain the pots carefully with clean potsherds or oyster-shells, and for potting use a compost of good turfy yellow loam with a fourth part of rotten stable manure, ramming the compost in firmly. The leaves are not likely to flag after this date, but it may be as well to keep the house rather close for a week after the trees are potted. I need not state that the trees should be fully exposed to the sun. If the leaves are green, and the wood not well ripened, the house should be kept rather close, to maintain a high temperature until the fruit buds are prominent. Pear and Plum trees are better out-of-doors in a warm open position. There ought to be no pinching of the shoots after this. *J. Douglas, Loxford.*

ORANGE TREES IN POTS.

As the fruit is approaching the ripening stage it is necessary not only to withhold manure water, but water of any kind must be given carefully, else the rapid swelling of the fruit bursts the skin and spoils it. If there are trees with ripe fruit, they may be removed into a late vinery where Grapes are hanging. It is one of the good traits of the Orange tree that it may be removed from a warm to a cool house, or *vice versâ*, without any probability of constitutional derangement. The fruit may hang on the trees until it is wanted, and when cutting it a few leaves should also be cut with it. When the trees with ripe fruit can be moved in this way, it allows of the right kind of treatment being given to those that may be bearing fruit not fully developed. The temperature should be kept up to 65° or 70° at night, if the fruit is green. *J. Douglas, Loxford.*

PINES.

This is the month when growers take stock, as it were, of the varieties they intend to grow for next season's succession. It is important that the character of each variety should be thoroughly understood. The Smooth Cayenne is a good reliable Pine, both for winter and summer use; its flavour is not so sweet as that of the Queen, yet it is all that can be desired. Four varieties of Queens are worth growing, viz., the old Queen, a well known variety; the Moscow Queen, a very good sort; the Lemon Queen, which produces large fruits, and is easily recognised by its leaves, which are grooved or channelled; and the Ripley Queen, which is often preferred to the others, as it is not so subject to throw up suckers. Charlotte Rothschild answers well both for winter and summer, and its keeping qualities rank next to the Queen—the flavour is also very good. Black Jamaica is a good winter kind, of excellent flavour, and, like other black kinds, requires plenty of heat to grow it well. It, however, has a tendency to crack if ripened during the summer. The Enville is a good early sort, but does not keep long, and the base of the fruit is apt to become discoloured before the top is ripe. The White Providence is a large variety, and this is its only merit, the flavour being only second-rate. The Prickly Cayenne has a luscious flavour, but ripens capriciously; sometimes one or two of the pips become black before the other part of the fruit is ripe. Oats' Seedling I consider a worthless variety, as the plants waste themselves by bearing enormous suckers. Hurst House Seedling was brought out with a great flourish, the plants fetching three guineas each, but it has entirely failed in its reputation as a standard variety, and its flavour is only passable. Black Prince is a large, noble-looking Pine, but is also deficient in flavour. Prince Albert is well worth growing, being a free starter, and one of the most handsome of Pines. It is better classed as a summer kind, as it is apt to get a little dark under the rind when ripened in mid-winter. It bears suckers freely, and the flavour is very good. We are indebted to Mr. W. Thomson for bringing this variety into prominence. There are many other varieties, but some have not been sufficiently tested to recommend them as standard sorts. The Queens, Smooth Cayennes, and Charlotte Rothschilds, form a good stock in themselves, and supply fruit all the year round of the highest quality. The practical directions given hold good for the present. *D. Wilson, Castle Hill, Devon.*

VINES.

The earliest vineries will now have the wood well ripened, but if the Vines are young and the growth extra strong, continue to use a little fire-heat in the daytime only, with abundance of air for a short time longer, till the wood is thoroughly matured. Those houses that are thoroughly well ripened can now be pruned, cutting back to a good eye, and a few hours after pruning apply styptic to the cuts, which will prevent bleeding; then thoroughly wash the Vines, tying them down in a horizontal position, and keep back and front ventilators open night and day until forcing commences. Now is the best time of the year to paint early houses inside; if done at once they will sweeten before forcing commences. Black Hamburgh Grapes that are ripe and wanted to keep for some time on the Vines will require very little water, but if the borders are dry choose a fine day and water early in the morning, with a little fire-heat turned on to dry up the surface moisture, turning it off again early in the afternoon; give plenty of air on bright days, but when the weather is foggy keep the front ventilators closed. The latest houses of Black Hamburghs should now be ripe; those that are not must have fire-heat still kept on until ripe; those that are now ripe will keep well till January, and if the borders are moist now and covered with Fern or dry litter to prevent evaporation very little more water will be required at the roots; the atmosphere must be kept as dry as possible, and plenty of air be admitted on bright days. Hamburghs for keeping late should be more severely thinned, so that the air can circulate among the berries. Muscats that have been ripe some time and are wanted to keep some time longer on the Vines can now be kept cooler, but they will want a little fire-heat on all the time, say a night temperature of 60°, and when the nights are colder 55°. If a lower temperature is kept the berries will turn brown and not keep so well. The latest Muscats should be well ripened, and if the foliage is thick cut out any that can be spared, to admit all the light possible. If the border is dry, water well with clear tepid water on a bright day, giving a little extra fire-heat and air to dry up the surface-moisture. Damping down the borders can now be dispensed with except on bright days, when damping them down in the morning only will be of benefit. Late varieties of Grapes, if started as recommended in previous Calendars, will now be thoroughly ripe, but if started later and not yet ripe the fire must be kept going for some time longer, but they will neither finish nor keep so well as if ripe now. If the borders are dry a good watering now will carry them on for a long time, and the outside borders are better with something to shoot off the water if the rainfall in the autumn is excessive. Newly planted vineries must have plenty of air and fire-heat in the daytime only, until the wood is well ripened and the leaves begin to fall; then fire-heat can be dispensed with altogether. The earliest pot Vines can now be pruned as soon as convenient, and all the cuts well covered with styptic to prevent bleeding. They had better be kept cool a few days after pruning before commencing to force them. Those for next year's planting can be stood close together in rows, and the pots well covered with fibre to keep the frost from breaking them, and the Vines secured to stakes to prevent them being broken by the wind. *Joshua Atkins, Lockinge Gardens.*

PLANT HOUSES.

STOVES.—Advantage should be taken of a fine drying day to get the blinds well aired and free from damp, previous to their being taken down and stored away for the winter. All shading in this structure should now be dispensed with till the return of spring; and the glass kept as clean as possible, in order to admit the maximum of light. This point should on no account be overlooked in the vicinity of large towns or cities. Ventilate rather freely in this structure during bright weather, and also to slightly dry up the moisture on dull cloudy days. If the night temperature can be kept at about 68° for a few weeks longer, it will be better for the plants, allowing of course a corresponding rise during the daytime. Keep all fine-foliaged plants syringed freely at least once a day, unless the weather should be very dull and damp, in which case damping them overhead will be sufficient. Look after any stove plants that may still be standing in cooler houses; this point is often overlooked at this time of the year and a little later on. Clerodendrons are very sensitive in this respect; if they are allowed to remain many nights in a house dropping below 50°, they will soon suffer; and though not observed perhaps at the time, when they are again required to be started into growth failure will oftentimes ensue through loss of flowering wood, and roots also. Where any summer-flowering stove plants have to be housed in a lower temperature during the winter, give them the warmest corner that can be afforded, and commence at once to keep them somewhat drier at the root; this will check superfluous growth, and tend to ripen that already made. A few plants of Epiphyllum truncatum may now be introduced into a little more warmth; the earliest will be seen to be showing flower, and they will be of great service during next month, when good flowers will be getting scarce. Gesneras will now commence to do good service. G. Donckelaari will be in flower, to be followed by zebrina, and later on by cinnabarina. Newer kinds, I am fully aware, are to be had, but these well tried sorts are good still. A few cuttings of each kind that it is desired to keep should now be struck of the fancy kinds of Coleus, the old plants may then be very well dispensed with as they become used up from the conservatory and other purposes.

GREENHOUSE, &c.—Where the hard-wooded occupants of this structure have been housed, close attention should be given to all Cape and New Holland plants in respect to watering. Many will have become somewhat saturated if they have been exposed to heavy rains, the more so if they have been recently shifted into larger pots. Do not water till quite convinced that the plant requires it, then give sufficient to penetrate the entire ball. Continue to ventilate freely, leaving both top and bottom air on all night in fine weather. Statice profusa in particular, and also other kinds, will throw up a few late flower-spikes, if the plants are kept in a little warmth; these will develope themselves and come in useful for cut bloom. Celosias will be the safer if they are allowed a little warmth, so also will Globe Amaranthus (Gomphrena globosa). These will both be invaluable for cut bloom next month. Give abundance of air and a little fire-heat in damp weather to the zonal Pelargoniums coming into flower for autumn and winter display. The show and fancy kinds, having been cut back, should be breaking freely. If not already reduced and potted into smaller pots, this ought not to be delayed any longer, keeping them afterwards near the glass. Late batches of Chinese Primulas may be potted into large 60's, in which pots they will come in most serviceable for the conservatory in the spring. Cinerarias still in small pots should have a shift before they get pot-bound, or they may show flower prematurely. Prick off herbaceous Calceolarias before becoming drawn in the seed pans. In potting Solanums that have been turned out of pots, reduce the ball as much as will be consistent with safety to the plant, or the large pots they will otherwise occupy will render them unsightly objects. Tea Roses grown in pots and now in the open air should be removed into a little warmth, if it is desired to secure the late buds, which on many sorts will still be showing. These will prove most useful later on when the open-air plants are exhausted. Annuals grown in pots should now be protected by a frame at least. The dwarf Scabious and blue Cornflower (Centaurea Cyanus minor) will make a good display during the late autumn. Young plants of Nemophila insignis potted now, four or five into a 4-inch pot, and kept in a cold frame during the winter, will make a pleasing change and variety for blooming early in spring in pots.

CONSERVATORY.—Do not allow the free-growing climbers to become too dense in growth now that more light ought to be admitted. Thin them out judiciously and keep them to their allotted space. Camellias turned out in conservatory borders should be well supplied with water. The buds of these will soon commence to swell rapidly if an early growth has been secured. Those in pots and now in the open air should be housed as soon as possible, taking the first opportunity of sponging the foliage, all the more so if there are any insects about them. *James Hudson, Gunnersbury House Gardens, Acton.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 26	Sale of Bulbs, at the Auction Mart, by Protheroe & Morris.
TUESDAY,	Sept. 27	Sale of Plants, at Peed's Nursery, Streatham, by Protheroe & Morris.
WEDNESDAY,	Sept. 28	Sale of Plants, at Woodroffe's Nursery, Harrow Road, by Protheroe & Morris.
THURSDAY,	Sept. 29	Sale of Plants and Orchids, at Parker's Nursery, Tooting, by Protheroe & Morris.
FRIDAY,	Sept. 30	Sale of Imported and Established Orchids, at the Auction Mart, by Protheroe & Morris.

AT one of the evening *fêtes* of the Royal Horticultural Society some two or three years since, when the tents containing the plants exhibited at the great summer show were first illumined by the electric light, we were struck by the probability of a great future for the ELECTRIC LIGHT FOR CULTURAL PURPOSES. Our enthusiasm was at the time shared by but few; nevertheless, the subsequent march of events has certainly justified our hopes, and we can now look forward even more confidently to the future than was then possible. The results obtained by Dr. SIEMENS have from time to time been chronicled in these pages, and by Dr. SIEMENS and others, and one of the most important communications at the late meeting of the British Association at York was that wherein Dr. SIEMENS related the results of his experiments with the light, and the uses to which he applied the electric force in his garden and home farm. Nevertheless, and rightly so, the results hitherto obtained have not carried conviction home to the mass of practical gardeners. In truth, the experiments, so far, have not been sufficiently numerous, sufficiently comparative, or sufficiently decisive, but in any case they are important enough to make us earnestly desire that those who have the means to prosecute these costly experiments should do so as completely as possible, and endeavour to solve the question whether in the electric light we have a substitute for solar light available for practical purposes. In theory the matter was proved as long ago as 1861 by HERVÉ MANGON, who showed that the same chemical changes were wrought in and by the leaves through the agency of the electric light as by the sun's rays. The principle established, its application to practice would seem to be a matter of money and time. It is, therefore, with the greatest satisfaction that we learn that the hitherto unrivalled resources of the International Electric Exhibition at Paris are to be turned to good account for purposes of vegetable physiology by our friend, M. DEHÉRAIN. A greenhouse has been specially fitted up, and MM. GRAMME and JABLOCHKOFF have undertaken to furnish the machinery for providing continuous electric light, the Ministry of Agriculture has supplied funds, and the Jardin des Plantes and other public cultural establishments of Paris have furnished the requisite plants. The points to be determined are the degree of efficiency of the light in favouring the phenomena of vegetation and the practical value of the results to be obtained from exposing plants during the day to the solar rays and during the night to the electric light. The general facts at present ascertained as to the action of light on plants are pretty generally known, and have often been the subject of comment in these pages. It must suffice therefore to point out that the electric light contains many more of the very refrangible rays, and many less of the heat-giving rays than any other source of artificial light, in other words, that it is much more blue and much less yellow than any other light. Now the very refrangible blue or chemical rays act very strongly on silver salts, as in photographic work, but are supposed to have but a comparatively feeble effect in the decomposition of carbonic acid if unaided by the heat rays. The efficiency of the electric light has therefore to be made the subject of precise inquiry, and for this purpose five sets of experiments are devised, as follows:—

1. Plants so placed as to be subjected day and night to the electric light only.

2. Plants exposed to the feeble daylight of the Exhibition building by day and to the electric light by night.

3. Plants exposed to the feeble daylight in the Exhibition and suffered to remain in the dark at night.

4. Plants exposed to the light in the open air in the Champs Elysées by day, and subjected to the electric light at night.

5. Plants (of similar kinds we presume) grown under ordinary conditions in the open air at the Jardin des Plantes.

It is expected that the plants of the first series will be superior to those of the third, owing to the insufficient supply of daylight in the Exhibition at the Palais de l'Industrie.

The comparison between the first and second series will be specially instructive as showing the relative efficiency of the electric light. The plants of the two series will both receive the same light by night, but while those of the first series will be submitted during the day to the electric light, those of the second series will only be subjected during the day to the feeble daylight of the Exhibition building; hence, if the first set proves superior to the second, it may be concluded that the electric light may be advantageously used for cultural purposes during the winter.

The third set of plants will certainly be blanched and drawn, and will perhaps perish, because the daily illumination will be feeble, and they will remain in obscurity during the night. The comparison of this set with those of the second series, which are subjected to the same light during the day, will show to what extent the illumination by night is advantageous. The plants of the first three series will always, it must be admitted, be under abnormal conditions, for daylight will be wanting in one case, and very feebly supplied in the other two. It may happen therefore that these plants will develope less than those which will remain in the open air throughout the whole period. To ascertain if the electric light is sufficiently efficacious to warrant the cost of an expensive apparatus, it has been determined to leave some of the plants in the open air during the day, and then to place them at night in the greenhouse, where they will be exposed to the electric light. This fourth series will afford valuable information. We shall only require the electric light to continue the work already carried on by the sunlight during the day and if it does this, as the illumination will then be continuous, the development of the plants may become very rapid. This is the second point of extreme importance that the experiments may elucidate.

It has long been known that in high latitudes where the sun during the summer remains for a long time above the horizon, the vegetation goes on with extreme activity. This may be illustrated by a single example out of very many that have been placed on record. At Halsnoe, in lat. 59° 47′, where the mean temperature of the year is 6°.3 C. (say 43° F.), Barley requires 117 days to ripen; while at Skibotten, in lat. 69° 28′, where the mean temperature of the year is 2°.3 (36° F.), Barley only requires ninety-three days. Thus the duration of vegetation is less the higher the degree of latitude, which would seem anomalous if we did not take into account the length of time which the sun remains above the horizon; but if it be borne in mind that the sun, instead of remaining fourteen and a-half hours above the horizon during the period of vegetation, as in the latitude of Paris, remains eighteen hours at Halsnoe, and twenty-two hours at Skibotten, with a mean temperature during the period of vegetation of 55° at Halsnoe and 50° at Skibotten, it will be seen that the product of the temperature during the number of hours in which the plant is subjected to the sun's rays is about the same in each case.

It is clear that light continued during the night will abridge the duration of vegetation by an appreciable number of days. It may, therefore, be to the interests of a horticulturist to establish a system of lighting which will permit him to gain an advantage of a month or six weeks, or perhaps more, over his rivals who do not avail themselves of these means.

It is, therefore, the plants of the fourth series which will be of most interest. It is evident that if the nocturnal illumination permits them to develope continuously without check, they will grow with a rapidity proportionate to that which is observed in high latitudes.

It may also be remarked that the plants of high northern regions not only develope rapidly but transmit their precocity to their seedlings, so that, for instance, Barley ripened at Alten, N. lat. 70°, and sown at Christiana in lat. 60°, furnishes a plant which arrives at maturity much quicker than the Barley grown in the last-named situation. This precocity is maintained for one or two generations. It would be interesting to see if similar phenomena are produced by the agency of the electric light.

We attach great importance to a proper selection of plants for the experiments in question, and to the method of experimenting: the light, for instance, should not strike one side only of the plant, but should be so placed as to diffuse the light as equally as possible on all sides. M. DEHÉRAIN, in the paper before us, says nothing as to these points, though they have doubtless not escaped his consideration. The most conclusive experiments would be derived from plants grown from the seedling stage to full maturity. By taking such plants which, immediately they have exhausted the food supply stored up in the seed, must avail themselves of the resources supplied from outside, rather than plants which have already stored up in their tissues a supply of available food which renders them comparatively independent of outside supply, a fairer result will be obtained. Annual plants, therefore, which immediately after germinating are dependent directly upon the light and heat to which they are exposed, would be better for the purpose of these experiments than woody or perennial plants which have a store of food already in their tissues, and which would be more or less available, even under adverse conditions of light and heat. The points to be ascertained are, not merely what chemical and morphological changes take place—how much carbon is fixed, how much oxygen and water eliminated—but also what actual increase in weight, and especially of what chemists call dry matter. It remains also to be seen how far the action of continuous light may be analogous to what we see in the case of plants of temperate regions cultivated in the tropics, where, for instance, the Vine becomes an evergreen, but where the fruit is not produced.

It is obvious that at present no practical result in the sense of direct pecuniary profit can be hoped for. The matter must be much further threshed out in the laboratory of the experimenter before practical men can hope to obtain success from their point of view. All that can be said at present is that the results already obtained are such as to hold out reasonable hope that the operations of forcing may in due time be accelerated, and the grower rendered in a measure independent of the defective light which we in this climate suffer from. Heat and moisture and other elements of plant food are already more or less under our control. It remains to be seen whether we shall be able to obtain like control over light. Every one must wish all success to the experimenters, the more so as it is certain that no established fact of pure science is likely to remain sterile of practical

tical results. All experience indeed goes to prove the contrary, and to show that experiments made in the first instance from the point of view of pure science, are ultimately far more productive of practical utility than those which are undertaken solely with a view to immediate results. Patience then, and a cordial support to those willing and competent to undertake the cost and labour of such experiments as we have alluded to, are imperatively requisite.

—— New Knights.—That the gentlemen heretofore known as Dr. Birdwood and Dr. Kirk respectively should receive some mark of recognition for their services in and to India and to Eastern Africa respectively, as well as for their devotion to science and art, is most fitting. That the gentlemen in question should receive the same honours as are bestowed on a successful contractor or merchant, and less than those bestowed on a Lord Mayor, is not quite so appropriate. However, every one who knows what the two men have done honours them, and those that do not will at least know that Sir George Birdwood and Sir John Kirk must at least have deserved recognition at the hands of the State.

—— The Ghent Fruit Show. — In some respects our Belgian neighbours are more practical than ourselves—their School of Horticulture is a department of the University, their Botanic Garden is utilised on occasions to show the practical results of applied science. We can hardly conceive such a thing as a fruit show in a botanic garden here, and yet there can be no doubt, from our point of view, of the appropriateness of the locality. The show, it appears, was a great success, no fewer than 3400 plates of fruits being exhibited, in addition to the large collections. In some of the classes as many as seven or eight exhibitors competed. Vegetables and flowers were intermixed with the fruit, and among the flowers was a wreath supported by leaves of Cycas draped with black, and serving as a mark of respect for the memory of the late Madame van Houtte, so recently removed from the scene of her labours. The exhibition was visited by the King and the young Princess Clementine. His Majesty takes great interest in the development of market gardening, and the exportation of market garden produce to England.

—— The Dominy Testimonial.—Sir Trevor Lawrence writes :—Will you kindly make known the result of our endeavour to raise a small fund as a recognition of the services to horticulture and the personal worth of Mr. John Dominy, on his retirement from the service of Messrs. Veitch & Sons? I have received £262 10s. 6d. from 114 subscribers. After paying for advertisements £13 4s., and a few other small expenses, I shall have £250 to present to Mr. Dominy. I should mention that many of the subscriptions were accompanied by letters which showed that the writers had a great regard for Mr. Dominy. Indeed, the testimony to his personal qualities and to his skill as a raiser and grower of Orchids has been most emphatic. With the consent of the Council of the Royal Horticultural Society, I propose to present the fund to Mr. Dominy after the Council meeting on October 11, at 3 P.M. I beg to thank the subscribers to the fund for the liberality and ready kindness with which they have contributed. The following subscriptions have not been acknowledged :—Earl of Latham, £1 1s.; Arthur Potts, Esq., £2 2s.; General Horticultural Co. (John Wills), Limited, £5; James McIntosh, Esq., £5 5s. In the list of July 11, for "A. Page, Esq., £1 1s.," read "A. George, Esq."

—— Woolhope Naturalists' Field Club.—The last field meeting of the year will be held at Hereford, on Thursday, October 6, for a foray among the funguses. There will be an exhibition of funguses in the museum room at the Free Library, and an evening meeting will be held there on Wednesday evening, October 5, at 8 P.M., to name and study them. The foray will be made in Stoke Edith Park and grounds, by the kind permission of Lady Emily Foley. A meeting of the members will be held in the Woolhope Club-room at 3.45, to elect the officers for the ensuing year, and to transact the ordinary business of the Club. The dinner will take place at the "Green Dragon Hotel," at 4.30 P.M., and a soirée will be held at the house of Thos. Cam, Esq, at 8 P.M., to which he kindly invites all who may be present at the meeting. After dinner, or at the evening meetings, papers will be read on the following subjects :—"The Progress of Mycology," by Dr. Bull; "Fungus Mimics," by M. C. Cooke, M.A., LL.D., &c.; "The Herefordshire Carices," by the President of the Club; "The Fungi of the Dolomites," by Thos. Howse, Esq., F.L.S., &c.; "The Fungi which Attack the Wheat," by the Rev. John E. Vize, M.A.; "The Germination of the Ure-

Fig. 78.—"Burghley House by Stamford Town." (see p. 400.)

dines," and "The Relationship of Æcidium berberidis to Puccinia graminis," by C. B. Plowright, Esq.; "Protococcus," by the Rev. John E. Vize, M.A.; "Monstrosities in Fungi," by W. Phillips, Esq., F.L.S., and a curious and abnormal cellar Polyporus will be shown by Mr. Phillips; "Two Tomato Diseases," by C. B. Plowright, Esq. The Pomona Committee of the Club have decided to hold an exhibition of Apples and Pears on Wednesday and Thursday, October 26 and 27, and schedules of the prizes offered may be obtained from the Hon, Secretaries, Woolhope Club-room, Free Library, Hereford.

—— BOUVARDIAS.—Mr. WOODBRIDGE has at Syon some of the finest Bouvardia plants we have seen. He has white, carmine, and scarlet, all growing alike on stout bushy plants, 18 inches in height and as many through, and when in heat at Christmas the plants are in full bloom they will be nearly twice the size. But when we saw them the other day they were not in pots, but growing on a spent dung-bed in a sheltered place, and were to be lifted into 9-inch pots at once to be housed. These were turned out of their pots last May, the roots rubbed partially down and shortened, and the heads also, then planted out in this spent bed, which had been used to raise tender annuals. How the plants had liked the treatment was pretty evident; they were first-rate. It was feared that the lifting, and the needful reduction of the roots to fit 9-inch pots would cause a loss of leaves. Mr. WOODBRIDGE thinks that if such plants could be lifted with a good mass of undisturbed roots, and be planted into a soil-bed in a house near to the glass, that the result would be much better. Perhaps a shallow pit specially set apart for their culture, and from which the lights could be removed in summer, would, after all, be the best plan.

—— THE EPPING FOREST AND COUNTY OF ESSEX NATURALISTS' FIELD CLUB.—The annual Cryptogamic meeting of this Club will be held on Saturday, October 1, in the northern section of Epping Forest (High Beech, Monk's Woods, Theydon Woods, &c.), and the following well known botanists have kindly promised their valuable aid as referees and conductors of the meeting:—For fungi: Dr. M. C. COOKE, Mr. WORTHINGTON SMITH, Dr. H. T. WHARTON, and Mr. JAMES ENGLISH; for mosses, lichens, and phanerogams: Dr. BRAITHWAITE, and Mr. E. M. HOLMES. The Club will assemble in the woods about 1 o'clock, and tea will be taken at the "Crown Hotel," at about half-past 5; after which a discussion of the gatherings and discoveries of the day will take place, and Dr. M. C. COOKE will give a short address:—"Half-an-hour with the fungi of the Loughton district."

—— MUSAS.—Always excepting the wondrous bit of tropical vegetation in the big conservatory at Syon, few things give a more vivid notion of what tropical vegetation and its atmospheric associations are than do the Musa-houses. Steaming and reeking with not too pleasantly perfumed odours, the product of the many animal manures by which the plant-beds are surfaced, the atmosphere makes those who may inhale it very anxious to get outside quickly, but how the Musas like the steam and the ammonia the noble plants plainly show. What magnificent leafage they have, and how truly grand it is! for the growth has been exceedingly rapid. The foliage wears a very different aspect from what is seen on Musas subject to subtropical treatment, and the bunches of fruit coming promise to be enormous. Mr. WOODBRIDGE understands these tropical giants full well.

—— ENGLISH POTATOS ABROAD.—"I have just finished (writes a Belgian correspondent) harvesting the Potatos I ordered last spring from a list you kindly made up for me. I found nothing extraordinary about them, either for their large cropping or their immunity from disease, nor were they preferable in those respects to my old sorts. Their good point is the shape of the tubers, but, as I saw some one else stated in some article on the subject in the *Gardeners' Chronicle* last year, we do not like their flavour, or rather want of flavour. Mealy enough they are, but tasteless to a degree; besides, most have a whitish appearance like frozen Potatos, which we do not like. It must (partly), as was said last year, depend upon the different way of cooking and dishing them. I wonder how you get on with Potatos imported into England, seeing how different they are from the English grown ones. Nevertheless, I am very glad I made the experiment, since I am perfectly sure the sorts tried were chosen amongst the best English varieties." A Dutch variety, imported last spring, has proved an utter failure with a friend of ours.

—— THE VIRGINIAN CREEPER.—This fine deciduous creeper is largely employed at Syon to cover the stems of tall trees, and under the shade of the overhanging foliage the now decaying leaves of the Ampelopsis wear a pink or flesh-coloured hue that is exceedingly charming. In time, when the climbers get up into the heads of the trees, as some of the Clematises have done, they will give in the autumn very beautiful masses of colour.

—— THE GASTROSCOPE.—One of the most recent developments of the electric light is its application as a means whereby the interior of the stomach may be surveyed. A long flexible tube, like that of an ordinary stomach-pump, is provided at the tip with a tiny lantern, in which is a loop of fine platinum wire connected with an electric battery by wires passed through the tube. When an electric current is sent through the wires the loop of platinum wire becomes incandescent, and thus lights up the interior of the stomach, the light being transmitted to the eye of the observer by means of series of prisms arranged within the tube.

—— DESMODIUM PENDULIFLORUM.—This is probably the most beautiful of all hardy late-flowering shrubs, or perhaps it would be more correct to say half-shrubby perennials. From the present time until the frosts prove too much for its lovely racemes of vinous-red flowers with purplish-red standards it will be a mass of bloom. It was long ago introduced from Japan by SIEBOLD, but does not seem nearly so well known as its merits deserve. It attains a height of about 6 feet, and is not particular to any soil. Nicely staked, a good plant forms a living fountain of charming colour. Now in flower in the Leguminous collection at Kew.

—— MR. BRUCE FINDLAY.—At a meeting held at Manchester, on the 7th inst., the MAYOR in the chair, it was unanimously resolved that a substantial presentation to Mr. BRUCE FINDLAY be made, in recognition of his long and eminent services in the general spread of horticulture and floriculture, and a handsome subscription was at once commenced. The Treasurer to the fund is Mr. SAMUEL BARLOW, Stakehill, Castleton, near Manchester; the Secretary Mr. ROBERT TAIT, 43, Corporation Street, Manchester.

—— SELECT CROTONS.—Mr. BAUSE, of the Melbourne Nursery, Anerley, made the astounding statement the other day that he has now under cultivation about 140 different varieties of Crotons. Looking over this large collection one was able to select some of the best for certain purposes. For exhibition the following will be found distinct and highly effective:—Disraeli, Queen Victoria, Baronne James de Rothschild, Interruptus aureus, Hawkeri, Imperator (Challenger), Warreni, Bergmanni, Evansianus, Chelsoni, Lord Derby, and Massangeanus. For general decorative purposes:—Evansianus, Fordii, Disraeli, Lord Derby, Williamsii, Imperator, Mutabilis (princeps), Queen Victoria, Baronne James de Rothschild, Bergmanni, Triumphans (Harwoodianus), lati-maculatus, Sunset, Stewartii, Mortii, and Massangeanus. For table decoration the following will be found very serviceable:—Majesticus, Weismanni, interruptus aureus, elegantissimus, Countess, Rodeckianus, and Lady Zetland, the last four being new varieties of the present year; Prince of Wales, Princess of Wales, Johannis, nobilis, Warreni, picturatus, Chelsoni, and Droustii. For growing into large specimens the following varieties are well adapted:—Imperator, large leaved; Queen Victoria, medium leaf; Warreni, long narrow leaves; Sunset, medium long leaf; Henryanus, medium large leaf; and Baron Frank Sellière, large leaved. One of the prime features of the Melbourne Nursery is about 400 plants of Crotons in 48 and 32-sized pots, every plant of which has very finely coloured leaves. The plants were potted in strong soil in moderately sized pots, which no doubt induces them to colour early. If the plants are strong, and a quick growth is encouraged, the leaves grow larger but seldom colour well, even if they have as much sun as it is possible to give them. Mr. BAUSE does not give manure of any kind to his small and highly coloured Crotons.

—— HEDYCHIUM VIRIDIFLORUM.—Under this name a new species, which will ere long appear in the *Botanical Magazine*, is flowering at Kew. Several of the near relatives of this charming plant, although handsome enough in themselves, are hardly what one can call "nurseryman's plants;" but the subject of the present note, owing to its dwarf habit and very free-flowering properties, decidedly deserves to be placed under that category. The Kew plant is a recent introduction from Sikkim, grows about 2 feet in height, and, although in a rather small pot, has a large number of stems, nearly every one of which has borne a fine spike of white flowers.

—— BAUMFORTH'S SEEDLING RASPBERRY.—Mr. E. P. DIXON, of Hull, has issued a second coloured drawing of this fine new variety, of which we had formed a very high opinion, and one which has, we understand, been fully confirmed by the experience of the present season.

—— POLYGONUM ORIENTALE.—Nearly a century ago this handsome species was figured in the *Botanical Magazine* (vol. vi., tab. 213). From the letterpress accompanying that figure it would appear that this plant was common in gardens about that time. It states that it often grows 8 or 10 feet high, and becomes a formidable rival to the gigantic Sunflower. It has large leaves and drooping spikes of deep red flowers. A plant at Kew, about 6 feet high, has for some time been one of the most conspicuous objects in the herbaceous department. According to AITON it was cultivated in 1707 by the Duchess of BEAUFORT.

—— CRATÆGUS TANACETIFOLIA.—"A very desirable shrub for plantations on account of its highly-scented corymbose flowers and yellow fruit, which resembles a small Apple, and has the scent of one. By culture and grafting it promises to become an acquisition to our table." So wrote Sir JAMES SMITH in REES' *Encyclopædia* many years ago. Certainly, this species and its varieties, with fruit varying from red of various shades to golden-yellow, with a rosy side next the sun, are conspicuous and very handsome objects in the shrubbery. A good series of them is now in good condition at Kew. Nothing seems to have been done towards developing any of them into a new table fruit—at any rate in this country; but in the Levant and throughout Syria baskets of their pretty haws are, it is said, to be seen offered for sale in nearly every bazaar.

—— EUPATORIUM PURPUREUM.—A good plant for the mixed border or the wild garden, and one eminently fitted to take care of itself, is the one here mentioned. At Kew it grows about 6 feet high, and forms a striking clump with its large heads of light purplish flowers. According to GRAY'S *Manual* it varies very much in size in the United States, ranging from 2 feet to 12 feet in height; its English names are Joe-Pye Weed and Trumpet Weed. A pretty companion plant is the white Snake-root, E. ageratoides, a dwarfer grower (about 3 feet high), with pure white flower-heads. This is a good thing for furnishing cut flowers.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending September 19, issued by the Meteorological Office, London:—The weather has been finer and brighter than of late, but is still rather cloudy, with occasional showers. A thunderstorm occurred in some parts of England on the 15th. The temperature has again been below the mean in all districts, the deficit ranging from 1° to 3°. The maxima, which were registered on the 18th, were rather high, varying from 75° in the eastern, central, and southern parts of England to 66° in most other districts. The thermometer was lowest either on the 16th or 17th over Great Britain, when readings as low as from 35° to 37° were recorded over central and southern England; but in Ireland the minima occurred on the 19th, and at Markree a reading of 34° was recorded. The rainfall has been decidedly less than the mean in all districts. Bright sunshine shows an increase in all districts except "Scotland, E.," the percentages ranging from 46 in "England, S.W.," and 44 in

"England, S.," to 5 in "Scotland, E." Depressions observed :—During the first few days the pressure was very uniform, but rather higher in the south-west of our islands and over the Channel, and lower over Scandinavia than elsewhere, so that very variable airs or light north-westerly breezes were general. On the 17th, however, pressure was decreasing quickly in the west, and the wind, though still light, had shifted to the south on all our coasts. During the 18th two small shallow depressions, accompanied by very variable breezes, passed over our islands from the westward. At the close of the period the barometer was again falling in the west, with fresh or strong S.S.E. winds.

—— Gardening Appointments.—Mr. Blackwood, who for the last few years has had charge of the Eden Hall Gardens, Penrith, has resigned his situation, and is about to take the management of Mrs. Tremble's well-known nurseries at Penrith.—Mr. W. B. Ward, late Gardener to Mrs. F. G. Wilkins, Westwood, Forest Hill, Kent, has been appointed Gardener to J. Waddle, Esq., Shenley House, Stony Stratford, Bucks.—Mr. William Kettlewell, for the past three years Foreman at Powerscourt, Co. Wicklow, has been engaged as Gardener to C. A. Nicholson, Esq., Balrath Burry, Co. Meath.

ALPINE PLANTS.

(*Continued from p.* 339.)

Transplanting.—It often happens that alpine plants which are cultivated upon rockwork have been brought directly from the mountains. We Swiss almost always collect plants in the course of our rambles in the Alps, and many English travellers do the same thing. Nevertheless, I often hear complaints that such plants soon die. It generally happens, indeed, that such specimens do not readily establish themselves. The method of transplanting which appears to be most convenient is, nevertheless, the least efficient. There are a certain number of species, however, which may be transplanted from the Alps to the plains without any difficulty. Upon this point I may give the following directions :—

1st. The uprooting and removal of the plant should not be effected in summer time, during the flowering period, as is usually done, but in autumn, when the plant has completed its annual cycle of growth. By autumn in the mountains I mean September, when a special journey to the mountains should be made, with the sole object of collecting plants. At this time the seeds are already ripe, and we may thus gain a double advantage. Another advantage is that the flower-buds for the succeeding year are at this time formed, so that we may confidently look forward to the production of flowers on our specimens, which would not have been the case had the plants been gathered at an earlier period.

2. Large specimens must not be dug up, although they strike the eye, and seem best for our purpose. We should, on the other hand, select the smallest specimens, as they will succeed better, and will soon attain the dimensions of the larger ones.

3. As far as possible all the roots of the plant should be dug up, and with a small ball of earth around them. This is easily done in the case of plants growing in pastures and in sandy soils, but almost impossible in the case of true rock plants, such as Phyteuma, Campanula Raineri, and other species, whose roots penetrate deeply into the clefts of the rocks. Plants growing on the sandy soils in the vicinity of torrents, moraines, and boggy places, are easily uprooted.

Among plants which may be conveniently transplanted in this manner may be mentioned the following :—Almost all the Composites, especially the Asters, the Artemisias, the Edelweiss, the Senecios, Violets, Chrysanthemums, many Primulas, Saxifrages, all the Sedums and Sempervivums ; Silenes, except S. acaulis and S. excisa ; the species of Dianthus, Androsace, Soldanella, Poppies, Orchids, some of the Ranunculaceæ, and especially the Anemones, of which young plants only should be taken ; Campanula cenisia, Scheutzeri, cæspitosa, pusilla, pulla ; the Potentillas, Alchemillas, Geums, Dryas, Veronicas, most of the Cruciferæ, some species of Salix and, in general, all plants with fine fibrous roots. On the other hand, species with tap-roots but little branched can only be transplanted with difficulty.

Multiplication and Propagation. — After much experience, I am of opinion that plants raised from seed are far preferable to those which have been uprooted, because, having been raised in the air of the plains, they flower more easily and develope more rapidly. Seeds afford the surest and most efficacious means for obtaining and adapting to our gardens species belonging to the glacier regions. By this means I have obtained magnificent results, even with the species usually considered impossible to cultivate in the plains. Stronger and more robust plants, and especially more free flowering plants, can be obtained from seed than by transplanting. All alpine plants, however, are not adapted for this method of multiplication, and for Ericaceæ, Daphnes, Linnæa borealis, Willows, and in general all plants whose growth is slow, grafting or budding, but especially the transplanting, of very young specimens, is preferable. Nevertheless, it may be said that three-fourths of the alpine plants may be conveniently raised from seed. This operation should take place in autumn as late as possible, so that the seeds may not germinate before the advent of frost, and that they may be stratified in the earth. The mould which I employ for this purpose is composed of leaf-mould mixed with sand, a little sawdust, or sphagnum cut into fine pieces. I sow the seed, cover it lightly with soil (not sifted), and I place my seed-pans in a northern aspect, covering them over with branches of Spruce Fir, and leaving them until spring. In March, when the days get longer, I place them in a cold frame, or anywhere where the necessary shade can be given. As the seedlings develope I prick them out into little pots, which I place in the position and aspect most suitable for them. The plants which grow most rapidly from seeds are the Caryophylleæ, the Cruciferæ, the Composites, the Violets, &c. Primroses sometimes take more than a year to germinate, and there are species which necessitate a great deal of patience on the part of the cultivator. Lilies, Irises, and many Ranunculaceæ take a very long time in germinating. I have lately seen in the fine collection of M. Prévost-Ritter, at Chambéry, near Geneva, a very good method of sowing the seeds of Anemones, Orchids, the larger kinds of Gentian, and other plants which take a long time to germinate. M. Prévost has constructed a mound of ordinary soil mixed with one-third of leaf-mould. He has sown this mound with grass, using some weak-growing species. In the turf so produced are sown the seeds of Anemone sulphurea, A. alpina, Gentians, Orchises, &c. This was a very successful plan. In another place he has sown in the open ground on moist leaf-mould several species of Pedicularis, which have done very well. The species of Pedicularis, it will be remembered, are considered by many botanists to be parasitical plants. In the same garden I have seen magnificent tufts of Androsace carnea obtained from seed. This plant does not generally do well in cultivation. I might cite several other facts to show how preferable the cultivation of seedling plants is to any other method of propagation. Nevertheless, as I have said, there are plants which cannot be grown in this way, because their growth is too slow, as for instance Rhododendrons, Ericas, Andromedas, Arbutus, Azalea procumbens and Vacciniums, which must all be transplanted in the form of young plants. We have here at Geneva a specialist, Mr. T. T. Paris, who devotes himself to this matter. I saw in his garden during the last spring a large quantity of Rhododendrons in pots, such as R. hirsutum R. ferrugineum, R. intermedium, and R. Chamæcistus, which were in full flower. These plants have been cultivated in pots by Mr. Paris for the last twelve or fourteen years. He makes use of the same description of soil which I have already recommended.

Another means of obtaining alpine plants is by dividing the tufts. This "parting of the roots" should be effected in August and September while the temperature is high enough to allow of the plants making new roots before the advent of frost. The species which succeed best in this way are those which have a branched and spreading rootstock, giving off roots into the soil—such, for instance, as almost all the Composites, Linnæa borealis, the Crassulaceæ, most of the Saxifrages, and Silenes except S. acaulis, S. pumilis, and S. excisa, all the Primulas, Veronicas, Dianthus, Crucifers, Androsace, Potentillas, Campanula cenisia, C. pusilla, C. pulla, C. cæspitosa, Viola, &c.

The method of multiplication by cuttings is only suitable for a few species, especially the arborescent ones. As for the Daphnes I graft them all upon Daphne Laureola or D. Mezereum. Bulbous plants such as Lachenalia serotina, Hyacinthus amethystinus, Scillas, Lloydia serotina, Crocus vernus, Gagea, &c., are treated in the usual way. *Henry Correvon, Botanic Garden, Geneva.*

BRITISH ASSOCIATION.

Dr. Siemens gave a detailed account of his experiments in plant growing by means of the electric light, the results of which went to prove, among other things, that plants as a rule do not require a period of rest during the twenty-four hours of the day, but make increased and vigorous progress if subjected in winter time to solar light during the day and to electric light during the night. The experiments were commenced on October 23, 1880, and continued to May 7, 1881. The general plan of operation consisted in lighting the electric lights every evening except Sunday, continuing their action until dawn. The house was planted in the first place with Peas, French Beans, Wheat, Barley, and Oats, as well as with Cauliflowers, Strawberries, Raspberries, Peaches, Tomatos, Vines, and a variety of flowering plants, including Roses, Rhododendrons, and Azaleas. The early effects observed were anything but satisfactory. While exposed to a naked electric light they soon manifested a withered appearance, but when under the influence of a light screened by a clear glass lantern the plants throve. On placing a sheet of clear glass so as to intercept the rays of the electric light from a portion only of a plant—for instance, a Tomato plant—it was observed that in the course of a single night the line of demarcation was most distinctly shown upon the leaves. The portion of the plant under the direct influence of the naked electric light, though at a distance from it of 9 to 10 feet, was distinctly shrivelled, whereas that portion under cover of the clear glass continued to show a healthy appearance, and this line of demarcation was distinctly visible on individual leaves. Mustard and other quick growing seeds placed under glasses of different colour gave the following results : —Under the clear glass the most vigorous growth was induced ; under yellow glass the plants, though nearly equal in size, were greatly inferior in colour and thickness of stem to those under the clear glass ; red glass gave rise to lanky growth and yellowish leaf, while blue glass produced still more lanky growth and sickly leaf, and seeds under the naked light showed a stunted growth, with a very dark and partly shrivelled leaf. Under a clear glass Peas sown at the end of October produced a harvest of ripe pods on February 16. Raspberry stalks put into the house on December 16 produced ripe fruit on March 1, and Strawberry plants put in about the same time produced ripe fruit of excellent flavour and colour on February 14. Vines which broke on December 26 produced ripe Grapes of stronger flavour than usual on March 10. Wheat, Barley, and Oats shot up with extraordinary rapidity under the influence of continuous light, but did not arrive at maturity ; their growth, having been too rapid for their strength, caused them to fall to the ground after having attained the height of about 12 inches. Seeds of Wheat, Barley, and Oats planted in the open air on January 6 germinated with difficulty on account of frost and snow on the ground, but developed rapidly when milder weather set in, and showed ripe grain by the end of June, having been aided in their growth by the electric light until the beginning of May. The Peas gathered on February 16 from the plants which had been grown under almost continuous light action were replanted on February 18. They vegetated in a few days, showing every appearance of healthy growth. As the result of all his experiments, extending over two winters, Dr. Siemens held that, although periodic darkness evidently favoured growth in the sense of elongating the stalks of plants, the continuous stimulus of light appeared favourable for healthy development at a greatly accelerated pace through all the stages of the annual life of the plant, from the early leaf to the ripened fruit. The latter was superior in size, aroma, and colour to that produced by alternating light, and the resulting seeds were not at any rate devoid of regerminating power. The beneficial influence of the electric light had been very manifest upon a Banana, which at two periods of its existence—viz., during its early growth and at the time of fruit development—was placed (in February and March of 1880 and 1881) under the night action of the electric light. The result was a bunch of fruit weighing 75 lb., each Banana being of unusual

size, and unsurpassed in flavour. Melons also of remarkable size and aromatic flavour had been produced under the influence of continuous light in the early spring of 1880 and 1881. Better results, he thought, might be realised when the best conditions of temperature and proximity to the electric light had been thoroughly investigated. He felt that the time was not far distant when the electric light would be found a valuable adjunct to the means at the disposal of the horticulturist in making him really independent of climate and season, and furnishing him with a power of producing new varieties.

FRUIT NOTES.

Apples.—I am glad to see that fine Apple, the Frogmore Prolific, brought prominently before the public, as it deserves all the praise that can be bestowed upon it. In the nurseries here it has always shown its capabilities of bearing in adverse seasons on young trees three and four years old; this year some of the young trees have their branches borne down to the ground with the weight of fruit hanging on them. I should also like to mention another very fine Apple, viz., Emperor Alexander; although not such a reliable cropper as Frogmore Prolific, the size and quality of the fruit will fully recompense for the deficiency in cropping. I also see that Mr. Roberts mentions another very fine Apple in his notes, viz., Pott's Seedling: I can quite endorse all that he says about its productiveness, although the fruit here is not quite as large as either of the preceding. There are also other excellent cooking Apples bearing fruit here this year, viz., Cox's Pomona, Ecklinville, Stirling Castle, Tower of Glamis, Rioger, &c.; amongst dessert fruit there is Irish Peach, Kerry Pippin, Court of Wick, Thorle Pippin, Cockle Pippin, and King of the Pippins, these being but a few of the best. *P. Ireland, The Nurseries, Kelso.*

Autumn Plums.—Coe's Golden Drop and Jefferson still hold their own as the best autumn dessert Plums, and are so good that no garden should be without them, for besides being large, handsome in form, and most beautiful in colour, they will hang long on the trees after being ripe, and improve by the keeping. Just as they are beginning to shrivel, and have obtained their high colour, Coe's are exceedingly luscious, and of the most honied sweetness; and the same may be said of the Jefferson, which, combined with its other good qualities, is a very free bearing sort. With us both do best on west walls, a situation very suitable to Plums, as there they get sufficient sun to ripen and finish them properly without suffering from too much heat, as they often do on aspects facing more south. Reine Claude de Bavay, however, requires a warm position, and when so favoured is almost equal to the finest Green Gage, and as it hangs very long and late on the trees is a most valuable Plum for dessert. To plant in orchard-houses the above-mentioned Plums are quite unsurpassed, as there, however bad the season turns out, they may be preserved safe from the weather. *J. S.*

Dowson's Scarlet Incomparable Apple.—I met with this very handsome autumn Apple a few days since, some twenty trees of it in a market orchard being literally loaded with rich coloured fruit. The Apple bears a close resemblance in shape to King of the Pippins. It is conical, has a closed eye set in a deep basin, and is over three-parts of its surface striped with red, whilst next the sun it is loaded with a crimson-scarlet hue. On the trees the fruit are borne in clusters, and glowing in the warm sunlight it made a charming sight. The flesh is crisp, juicy, and well flavoured. It is a very favoured Apple at the shops. This, with Worcester Pearmain, and the Duchess' Favourite, are the three richest coloured dessert Apples we have at this particular season: add Cox's Orange Pippin, Kerry Pippin, and King of the Pippins, and half-a-dozen dessert Apples are found that would be unbeatable. *A. D.*

Apple Devonshire Queen.—Were the Fruit Committee right in pronouncing the beautiful Apple shown at South Kensington last week by Mr. Burnett, of The Deepdene, Dorking, to be the Red Astrachan? Dorking is not a cool locality, and is some way south of this place, yet all my Astrachans have been ripe and disposed of weeks since. Besides, were the committee aware that there is a Devonshire Queen Apple described in Hogg's *Fruit Manual*, and that it seems that the fruit is large, ovate, and entirely covered with rich dark crimson and a delicate bloom? Except that Mr. Burnett's fruit were not large, they came up to Dr. Hogg's description in colour and bloom. With me the Astrachan was much more conical in form than were Mr. Burnett's Apples. Whatever it may have been it was a very beautiful sample. *A. D.*

Cox's Orange Pippin Apple.—Trees of this show up conspicuously among others by the quantity of fruit they are bearing, the branches being quite weighed down from the load; but although this is the case the Apples have already attained the size usual for this variety, and are now colouring finely, the weather of late having been all that can be desired towards assisting late autumn fruit to finish up well. Considering the great merits of this Apple the wonder is that it is not more largely planted, as besides being a very free cropping variety, and a good grower, it is equal in every respect as regards good qualities to a Ribston Pippin, and that is saying all that can be said in its praise. *J. S.*

Duchess' Favourite Apple.—I find this Apple to be also known as the Strawberry Pippin. This may help some who have it under the latter designation to identify it. As it is a free bearing kind, and so beautiful, it is surprising that it is not more widely grown. *A. D.*

Muscat of Alexandria Grape.—Any of your readers interested in this first-class variety would be amply repaid for their time, by paying a visit to Hookfield Grove, Epsom, Mr. Omant having a vinery 15 feet square, containing three Vines carrying a crop of 133 bunches of well finished fruit, grown on the extension system; most of the bunches are produced in pairs. One does not often see a sight like this. *J. G. Hill, Messrs. Wm. Cutbush & Son, Highgate and Barnet.*

Mr. Wm. Cole's Muscats.—The long Muscat-house which Mr. Cole has at the Grove Vineyard, Feltham, is indeed a sight calculated to extract high praise from any Grape grower. Having regard to existing notions as to the need for abundant ventilation, airy houses, and rich borders for Muscats, the results obtained by Mr. Cole may be regarded as almost marvellous; for from end to end of this low house the bunches are good, the berries large, and the crop exceedingly even. The house is 206 feet in length and 13 feet in width, without a break; therefore, seen from the entrance, there is one long delightful vista of bunches of Grapes. The Vines have about 5 feet of inside, and 9 feet of outside border, the soil consisting entirely of the virgin loam of the meadow on which the houses are built. The Vines have been planted seven and six years, and the house is full of good wood throughout. Those worked on the Gros Colmar and Lady Downe's now show little or no divergence from the normal type of bunch and berry. As the Grapes are not required till November the Vines are not started early; in fact, Mr. Cole aims to keep them somewhat in check, as if the berries colour too early they do not hang so well. At the present moment colour is but just showing, but the present warm sunny days are helping them on fast, and presently the desired amber hue will not be wanting. The roof of the house springs almost from the border level, and nearly all the ventilation is obtained from the upper flaps. As an example of how easily Muscats could set the crop is conclusive. Mr. Cole believes in plenty of heat, and that as near the bunches as possible; but then in a low house that object is easily secured. Other low span houses without side ventilation are used also for Muscats and for pot Vines, whilst some 6000 Strawberries in pots will fill them next winter. Maidenhair Ferns for cutting are doing splendidly in these houses; in fact, low houses, cheap and warm, and without strong ventilating currents of air, seem to be the secret of Mr. Cole's success.

Notes on Peaches.—I am glad to see a space devoted to fruit notes, as now trees are in bearing comparisons may be made and correct conclusions drawn as to the free-bearing qualities and value of different sorts, which cannot be done at any other time. In making a few remarks on Peaches I would strongly recommend Walburton Admirable as a late sort for open walls, where it can have a sunny aspect as, when it is so favoured and ripens properly, it i the best late Peach in existence, being far superior t the old Admirable, which, although a very fine noble-looking fruit, is often mealy, and lacks th rich, luscious flavour of the Walburton, which i equal in quality to a Noblesse, the best perhaps of al Peaches. Lord Palmerston is a large, remarkabl fine-looking kind, but not so good as the Walburton from which it appears to be a seedling, but as it is little later than that sterling variety, and more showy it is quite worth having where space can be spared. I will be remembered that Goshawk was spoken ver highly of a short time back, and deservedly so but I find it is identical with one I had grown for years under the name of Pourpre Hâtive, th latter being synonymous with Early Purple. Barring ton is a grand autumn Peach, coming in before th Late Admirable or Walburton, and is so good in al respects as to be deserving a place in every garden Can any one tell me anything about Sea Eagle, as valued correspondent of mine writes favourably of it and as yet I have not made its acquaintance, nor do see any notice of it in Hogg's *Fruit Manual*, but ther may perhaps be in later editions. [It is figured in th *Florist and Pomologist* for May last. EDS.] As regard Nectarines, I cannot speak too highly of the merit of Lord Napier, which is a great advance on all othe early kinds, as it is quite equal, if not superior to an as regards flavour, and is a very prolific bearer, an much larger than the Elruge or Violet Hâtive, tha have always been in such high favour for forcing, bu which will now have to give place to his lordship Among the late kinds my opinion inclines to Pin apple as the best, for with us just now on an eas south-east wall it is particularly large and fine, an of such a deep rich colour as to be most tempting t look on. It is, however, a close run between thi Rivers' Orange, and Pitmaston, as they bear a remarl ably close family likeness, and it would puzzle man to tell one from the other. *J. Sheppard.*

Jefferson Apple.—Is this kind generally known It is here very prolific, and is just ripening. It yellow, covered with bright red stripes, just slightl conical, and resembles Kerry Pippin somewhat. is crisp, juicy, and very piquant. *A. D.*

Large and Small Grapes.—Although I rea over the article headed as above two or three times must confess that I could not understand the meanin of a good deal of the first part of it, which ma perhaps, be my fault or misfortune, as the case ma be, but if it is intended to show that small Grape like Chasselas Musqué, or Grizzly Frontignan, whic are at best very uncertain and bad doers, shoul be grown instead of some others, few, if an will be found to agree with the writer. Chassela Musqué, as every one knows, splits, and on th account chiefly has been given up by even the be cultivators, besides which many connoisseurs of Grape do not care for the flavour, and to finish Frontignar well requires a great deal of heat. Some thirty yea ago they used to be well done at Longleat, where the grew over the Pines, but since then I have not see them worth having. Why people grow Foster Seedling is because there is no better early white, others, such as Golden Champion, Duke of Buccleuch and Golden Queen are found to have many defects, an the reason of such sorts as those Mr. Hinds enumerat being in favour is because most employers and th public want Grapes nearly the whole year throug and of course without late keepers like Alicante, Lad Downe's, and Gros Colmar, a supply for such a lengt of time could not be kept up. Instead of some these being easy to grow they require more skill an knowledge than most other kinds. Take Lad Downe's, for instance, and treat it as one would house of Hamburghs, and I venture to predict th failure would be the result; and so also with Gr Colmar, which likewise is a Grape that requires good deal of finishing. Gardeners as a rule are pret good judges as to what to grow, and I do not think at all likely that the rising generation will be far behin or let slip out of cultivation such sterling Grapes the Black Hamburgh and Muscat of Alexandria favour of those Mr. Hinds names. *J. S.*

American Mother Apple.—This is one of t most peculiarly flavoured Apples we have, and is, October, a fine handsome dessert kind. The flavo is termed balsamic, whatever that may be, but it very pleasant, and presents a nice change from th found in most dessert kinds. It fruits well on stro trees. *A. D.*

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 337.)

75. MASDEVALLIA SEVERA, Rchb., f., *Gard. Chron.*, n.s., iii., p. 170.—New Grenada, Shuttleworth. Introduced for Mr. Bull. We have found no record of its having flowered under cultivation.

76. M. SHUTTLEWORTHII, Rchb. f., *Gard. Chron.*, n.s., iii., p. 170; *Bot. Mag.*, t. 6372.—New Grenada, Shuttleworth. Introduced for Mr. Bull. Flowered by Mr. Punchard, of Twickenham, in 1878. A very pretty species, having rosy, dotted, spreading sepals, with long tails.

77. M. SIMULA, Rchb. f., *Gard. Chron.*, n.s., iii., p. 8.—New Grenada. Discovered by Mr. Chesterton, by whom it was sent to Messrs. Veitch, with whom it flowered in 1874. Flowers very minute, but elegantly coloured.

78. M. SPECTRUM, Rchb. f., *Gard. Chron.*, n.s., iii., p. 429.—Habitat not given. Discovered by Mr. Shuttleworth, and sent to Mr. Bull; whether alive or not does not appear.

79. M. SPLENDIDA, Rchb. f., *Gard. Chron.*, n.s., ix., p. 493.—Western South America. Imported by Messrs. Veitch. Described as an exceedingly handsome species of the Veitchiana type, though no further notice of it has come under our observation.

80. M. SWERTIÆFOLIA, Rchb. f., *Gard. Chron.*, n.s., xiv., p. 390.—New Grenada, Lehmann.

81. M. TOVARENSIS, Rchb. f., *Linnæa*, xxii., p. 818; *Bot. Mag.*, t. 5505; *Gard. Chron.* 1865, p. 514, with a woodcut; 1871, p. 1421; n.s., ii., p. 715; *Ill. Hort.*, série 3, t. 343; *M. candida*, Klotzsch and Karsten *ex* Rchb. f., Walp. *Ann.* vi., p. 192.—Columbia. It appears to have first flowered in this country, in Mr. Rucker's garden at Wandsworth. A very handsome white-flowered species. Hort. Kew.

FIG. 79.—A, MASDEVALLIA VEITCHIANA; B, M. TOVARENSIS.

82. M. TRIANGULARIS, Lind., *Orch. Lind.*, p. 5; *Bonplandia*, ii., p. 23.—Caracas. Flowers yellow, dotted with purple. Hort. Kew.

83. M. TRIARISTELLA, Rchb. f., *Gard. Chron.*, n.s., vi., pp. 226, 559, fig. 108; *Bot. Mag.*, t. 6268.—Costa Rica, Endres. First flowered by Messrs. Veitch in 1876. A singular and interesting little species, having the tails of the lateral sepals inserted below the apex.

84. M. TRIGLOCHIN, Rchb. f., *Gard. Chron.*, n.s., viii., p. 639.—Ecuador, Lehmann. Introduced for Messrs. Low, who flowered it in 1877. Described as a lovely gem of the same affinity as M. triaristella.

85. M. TRIQUETRA, Scheidw., Otto and Dietr. *Allg. Gartenz.* 1839, p. 146.—This name is taken up by Morren in an enumeration of the known species of Masdevallia, *Belg. Hort.* 1873, pp. 353—361.

86. M. TROGLODYTES, Morr., *Belg. Hort.* 1877, t. 5; *Gard. Chron.*, n.s., viii., p. 300.—New Grenada. Flowered by Mr. Lamarche, of Liège, in 1876. Allied to M. chimæra.

87. M. TUBEANA, Rchb. f., in *Gard. Chron.*, n.s., ix., p. 234.—Ecuador, at 900 feet, Lehmann. I am not sure whether this was imported alive.

88. M. VEITCHIANA, Rchb. f., in *Gard. Chron.* 1868, pp. 814, 1338; 1871, p. 1421, fig. 310, A.; *Bot. Mag.*, t. 5739; *Floral Mag.*, t. 481; *Fl. des Serres*, t. 1803, copied from *Bot. Mag.*—Peru Pearce, who introduced it for Messrs. Veitch, with whom it flowered in 1868

89. M. VILIFERA, Rchb. f., in *Gard. Chron.*, n.s., i. p. 406; ii., p. 98.—Habitat unrecorded. Collected by Patin for Messrs. Williams. Allied to M. mastodon.

90. M. VELUTINA, Rchb. f., in *Linnæa*, xli., p. 12; *Gard. Chron.*, n.s., p. 420.—New Grenada Wallis, Roezl. Imported by Messrs. Veitch. Flowers rosy-violet and white, velvety within, and as large as those of M. Estradæ.

90*a*. (M. VENUSTA: apparently a catalogue name. See *Gard. Chron.*, 1871, p. 1421.)

91. M. VESPERTILIO, Rchb. f., *Gard. Chron.*, n. s., vii., p. 272; xiii., p. 712. New Grenada, Wallis, Roezl, and others. First flowered by Sir Trevor Lawrence. Flowers yellow and brown.

91*a*. (M. VIOLACEA: a name in Mr. Bull's catalogue for 1880.)

92. M. WAGENERIANA, Lind., Lindl. and Paxt. *Fl. Gard.*, iii., p. 74, with a woodcut; Rchb. f. *Xenia*, i., p. 199, t. 75; ii., fig. 2—4; *Gard. Chron.*, n.s., xv., p. 720.—Venezuela, Wagener. Flowered by Linden at Brussels in 1851. Hort. Kew.

93. M. XANTHINA, Rchb. f., *Gard. Chron.*, n.s., xiii., p. 681.—Cultivated by Messrs. Veitch in 1880. Near M. Wageneriana, having yellow flowers, with some dark violet near the base.

94. M. XANTHODACTYLA, Rchb. f., *Gard. Chron.* n.s., viii., p. 552.—Habitat not given. Discovered by Roezl, and flowered in the Hamburg Botanic Garden in 1877. Allied to M. melanopus. *W. B. H.*

(*To be continued.*)

Home Correspondence.

Tritoma Uvaria.—Many of my friends have expressed surprise that when all their Tritomas have been killed by the winter there are no gaps amongst mine, which are all flowering as well as if last winter had been mild. About November I put leaf-mould to a depth of 3 or 4 inches round the sides of the clumps, and leave all the leaves, tying them up in a knot, where they look untidy. These bunches are cut off with a sickle about the end of March, and the leaf-mould is spread over the crowns. I never lose a plant of those that are so treated, and now nursery gardeners are begging a stock of me of what they have entirely lost. I may add that my soil is cold clay and the situation exposed. *C. Wolley Dod, Edge Hall, Malpas, Sept.* 18.

Rudbeckia and Helianthus.—During the last two years I have endeavoured to obtain all the Rudbeckias enumerated in the catalogues of nurserymen, but have only found five decidedly distinct, exclusive of those now called Echinacea, and of two different kinds of which the seed came under the name of R. maxima, neither of which have yet flowered. By far the best of those I have yet flowered is one generally called R. Neumanni, which flowers from the beginning of August until stopped by severe frost. I have also received from a good botanist, by the name of R. hirta, a plant I cannot distinguish from R. Neumanni and one from another quarter named R. speciosa, very similar, but having the disc green for some time after the flower opens. It cannot, however, be the same as the R. speciosa figured this week in the *Gardeners' Chronicle*, as the tips of the floret rays are pointed, instead of being broad and indented. R. laciniata is a fast growing, showy, rather coarse plant, 5 feet high, and flowering from July to October. The withered flower heads are untidy if not removed. R. californica has larger flowers, but produced less freely; the leaves are also larger and not laciniate. R. subtomentosa is a very good free flowering plant, just now beginning to flower, and

lasting far into autumn. R. fulgida is much smaller, about a foot high. The flowers are poor, having narrow and pointed floret rays, with large gaps between them. Of perennial Sunflowers, besides H. rigidus, which I mentioned three weeks ago, and which is by no means over, I have one very like it, but flowering later, and not running at the root. It is a very desirable plant. It was given to me as H. pubescens, but named by an expert H. tuberosus. Of H. lætiflorus, with small light yellow flowers, produced on stems 8 feet high, I have two forms, one with green stalks, the other with black, agreeing in all other points. H. decapetalus is a much branched free flowering species, growing about 4 feet high, and as showy as any. Perhaps the most beautiful of the late perennial Sunflowers, which certainly bears the largest flowers, is the single form of H. multiflorus. [Quite so]. The double form is too well known to need description. [There are two double forms, one with ligulate and the other with quilled central florets. EDS.] The tallest Sunflower, which is here 10 feet high, is H. giganteus. It produces lateral branches from the bottom to the top of the stem, and if these are protected by tying, makes a very fine pyramid. The flowers are of moderate size and elegant shape. H. orgyalis will beat H. giganteus in height, if not stopped by frost, for it never ceases to grow. It is remarkable for its strange mop-like head of drooping leaves; the flowers are poor. H. angustifolius does not exceed 3 feet in height, and is a plant of very good habit, but late in flowering: as is also H. Maximiliani, a tall and rather coarse species with very rough leaves. Heliopsis lævis, a plant with light orange coloured flowers, nearly allied to the Sunflowers, is now very conspicuous. *C. Wolley Dod, Edge Hall, September* 20.

Town Trees for Manchester.—It has been a vexed question among our citizens of Manchester, whether or not trees could be grown in the empty spaces, such as churchyards that have long been closed for sepulture. Now it is easy enough to say that trees would not live in such an atmosphere, and having said this much let the matter rest; but when people are in earnest, they try experiments, and both sides of the question have to be argued. Accordingly, trees were got and planted, and many of them did not do well; and the last verdict of a gardener was that owing to the state of the atmosphere one-half of the trees planted were dead. Now, the intense frost of last winter did not spare any green thing, and the same kinds of trees were frost-bitten, and that many miles away from the foul air of this and other places. I reckon it unjust to lay the burden upon our good city that ought to be borne by the terrible visitation that froze so many things to death. If this idea were to go forth to the world, that trees would not live with us, we should lament and bewail this state of things; at all events it is well to know the disease before we speak of the remedy. Before the late winter set in we had many deciduous trees and a host of evergreens that had stood many winters in an unprotected state, proving clearly that the intense frost was unusually severe, killing large old trees, and damaging others down to the ground. It is a very simple tale that trees which the atmosphere failed to kill in years gone by were killed by the frost of last winter, and no one is responsible for what no one had any power to relieve. But let us turn now to what we have the power and the good will to do, namely, to plant the ground afresh, and make good where the trees have failed. There is an avenue of mixed trees lately planted about 2 miles from the city, on which no expense has been spared. Unfortunately the trees of this avenue were planted too late, and never recovered. This avenue is called the Langworthy Road, and fair hands helped to plant this pet walk, each lady putting in a tree. The elegant iron tree guards, and the dressed stone pavement, has only to be seen to be admired, but what concerned me most was the growth and well-being of the trees, which were planted with such honour, for every tree was hemmed in with hewn stone, so that rain or even an artificial watering could hardly reach its roots. I am sorry to say half are dead, and much good masonwork and ironwork will have to be taken to pieces before the Langworthy Road renews its trees. As you go from the city to Alexandra Park you pass the end of an elegant church, and at that end there are a number of healthy Poplar trees, some twenty or thirty, all in a clump, and with plenty of foliage; they appear to have been some years in their present site, and to have done well in it. The elder Pugin employed Elms for his churchyards, and if I remember right his reason was, that the Elm was a coarse feeder, and did churchyard work rapidly. The Poplar family is not slow in finding where aught has been buried. It is a pious duty to plant trees and otherwise to ornament the resting-places of those who have gone before us—for this we have precedent of no ordinary kind, since we read of the Eden of Scripture, the Paradise that was planted by no mortal hands, the trees of which were the grandest point of importance. Some trees are venerable for their age; I have clasped in my arms part of a tree in Bagot's Park, a Staffordshire Oak, which was certainly 1000 years from the acorn. *Alex. Forsyth.*

Retinospora plumosa.—As most people like to have something green to adorn their windows outside during the winter many will be glad to know that Retinospora plumosa may be relied on as one of the hardiest and best for the purpose, and it is unquestionably one of the most elegant-habited plants in existence, as it is very graceful and Fern-like in the character of its branches and foliage, the latter of which is of a very pleasing green colour. We all know how trying is the outer sill of a window for plants, as there they are subjected to keen cutting winds, and have their roots much exposed by being in pots; but for all that I had some Retinosporas pointed out to me that had been so exposed the whole of last winter, and they passed through the trying ordeal unscathed, and are now pictures of health and beauty, thus showing that they are more hardy than Aucubas and many other shrubs that are often made use of. *J. Sheppard.* [When our plants, similarly placed, become shabby we sink them, pot and all, in a north border, where, after a few months, they recover their appearance and can be used again on the balcony. EDS.]

Dinner Table Decorating.—In most places the above falls to the lot of the gardener and his assistants, and the time has now arrived when in the great majority of large country establishments the work commences in earnest, and continues with almost uninterrupted intermission to the close of the shooting and hunting season. Where the resources for growing and supplying materials are ample, and where there is no stint of labour, I know of no work connected with gardening which is more pleasing and agreeable; but on the other hand, where assistance is insufficient, and the structures for growing decorative subjects are not adequate to supply the demand, there are few things which bring more discomfort and anxiety of mind for the time being, than a succession of large parties through the autumn and winter months. Still, of the man who is placed in this latter predicament it may be truly said, the greater the amount of worry and trouble he experiences whilst the work continues, the greater is his joy when he sees the end of it, and this in itself is certainly worth something. With these few preliminary remarks I will at once come to the practical points of the subject. In the first place we may, strictly speaking, say that there are three different styles of table decorating in vogue at the present day, each of which affords plenty of scope for any one to display his taste and abilities in the art, and which for want of better names I will designate as the heavy, light, and medium. To carry out the first, the material employed must all be in a growing state—plants of various kinds, both flowering and ornamental foliaged. The most common practice of making use of plants for decorating is the one of putting single specimens in vases, cups, and other ornaments, and covering over the surface with moss; but, speaking for myself, I must say that I have a decided preference for arranging them in groups on circular boards 1 inch thick, and varying in size from 1 to 2 feet in diameter. True, this plan entails a vast amount of labour, comparatively speaking, and is far more destructive to the subjects used than is the one of placing single specimens in vases; since the plants must all be turned out of the pots, and in some cases the balls have to be reduced, and to a certain extent the roots mutilated. It ought, therefore, never to be attempted except in those places where the gardener has plenty of strength, and an extensive and varied collection of plants under his charge. Let the reader picture to himself for a moment, if he can, the difference between a single plant in a vase for the centre of a table, and a group arranged on a 2-feet board, and made up of the following, viz.: centre plant, Cocos Weddelliana, or some other light and graceful Palm 2 or 3 feet high, with a row next to it of Eucharis amazonica and Dracæna Cooperi; then you may use a couple of plants each of Adiantum farleyense and scarlet Bouvardia, or a small plant or two of some choice Orchid; these in their turn to be followed by a row of Adiantum cuneatum and Caladium argyrites: the whole being fringed with a circle of Selaginella cæsia arborea, the latter to be arranged so as to hide the board and to droop gently over and come in contact with the cloth. There can be no question as to which of the two he would choose if he saw them. The whole of the plants should be arranged so as to form a complete pyramid. For a table large enough to dine from twenty to thirty persons there ought to be at least seven groups: three of the large size placed in a line down the middle of the table, the centre one being made up somewhat differently and with a taller centre plant than the two end ones; and four of the small size, the latter being made up to match each other, and stood on the table in pairs half-way between the centre and end ones, and about a foot outside of the line of the same. The effect of such an arrangement must be seen to be fully appreciated. We will now take that style of decorating we have called light, and this, I may here remark, is the one we invariably see carried out at horticultural shows, the material which is used being all in a cut state and consisting mostly of grasses, flowers and leaves. That dried grasses should be considered as almost indispensable in the dressing up of epergnes, &c., is not to be wondered at, for if used judiciously they add much to the elegance and beauty of a floral arrangement, but to see them in such profusion as we sometimes do at exhibitions reminds one more of a hay-field than a dinner-table; I would therefore strongly recommend their being more sparingly used than they generally are. In the putting up of cut flowers we have, I think, with the exception of the above defect, got as near to perfection as is possible, and I will not dwell on the point further than to remind those who still persist in walking in the old and more beaten tracks of the past that it is not altogether the quality and quantity of the material employed which makes the choicest and prettiest display, but it is rather the art of trying to imitate Nature to a certain degree, so as to produce that which by a proper blending of hues and tints, and with some regard to outlines, you may obtain that which may be fittingly described as a harmonious whole, light and graceful, and devoid of all stiffness and formality. The medium style does not call for any lengthened description or comment, it is simply a combination of the other two, both plants and cut flowers being used. To do it thoroughly, a complete set of shallow tin troughs and pans about 1½ inch deep, and of various shapes and dimensions, may be reckoned as a *sine quâ non.* There are few things in table decorating which have a more telling effect than a number of these tins when arranged into various geometrical designs and figures, and filled with Selaginella denticulata, scarlet Pelargoniums, or other bright coloured flowers. In connection with this mode of decorating there is one more point I will briefly allude to, viz., that of laying leaves on the cloth: this is frequently overdone. A single row round the table with quadrants formed at the corners I hold to be quite sufficient, and there is nothing more useful or which has a more charming effect than the common Bramble and Berberry leaves, but they ought only to be used late in the autumn, when they are well coloured. Ampelopsis Veitchii and Selaginella denticulata are also exceedingly useful for this kind of work, and in some places are largely employed. In dinner-table decorating changes are often taking place, and the day is perhaps not far distant when we shall have some kind of ornament for a centre-piece, which, besides containing small recesses for plants, will also have a miniature fountain and waterfall. To some persons this idea will doubtless appear to be rather far fetched; however, there is hardly anything impossible in these days. *J. Horsefield, The Gardens, Heytesbury, Wilts.*

Trusses and Bunches of Cut Flowers.—Knowing my friend Mr. Shepherd so well, and also the case to which he refers, though not the perturbed gentleman referred to, I am rather surprised at his opinion on the matter. Twelve trusses means so obviously single trusses, not bunches, that the word single was left out of the schedule to avoid tautology. In the case to which Mr. Shepherd refers, there were twelve bunches of three trusses each—that is, thirty-six trusses—and it would have been manifestly unjust to have allowed thirty-six trusses to have carried the prize away from twelve. Permit me also to say that I do not think your comparison of the truss of a Verbena or a Pelargonium with that of the Rose a happy or a correct one. A truss of Roses mostly means one fully expanded flower, with any number of unopened buds for foliage, or a part of a branch with any number of blooms; a truss of a Verbena, or a Pelargonium means any number of flowers carried on one flower stem. [Where is the difference?] There are also most excellent reasons for retaining the single truss rather than the bunch. It is in these units that the merits of skilful cultivation are most readily and surely tested. Were the object in view merely to please the eye and prove effective, bunches might be best; but in these classes the great object is to reward perfection of culture in detail, or in other words the concentration of the highest amount of vigour and beauty in single trusses. As one who has tried to grow good trusses as well as plants which have not seldom secured Mr. Sheppard's approval, I may say that the first is the more difficult feat of the two. It is astonishing what may be done by culture to develope size of pips as well as of truss—both points of the highest importance, that would command less attention the moment the individual flower is merged into the bunch. Bunches also open the door to fraud. Of course, if permitted, a limit to the number of trusses in a bunch should be imposed. Three is often adopted as the limit, and the difficulty of examining and testing these numbers increases the time of judging and is no benefit to any one. Besides, I contend that well-grown Pelargoniums, Verbenas, Phlox Drummondi, &c., actually look best in single trusses when nicely arranged, and

is astonishing how effective even Verbenas are in ngle trusses when well grown, as I have had several pportunities of observing when judging at flower hows within the last few weeks. As one who had me share in wording the schedule Mr. Sheppard fers to, I can assure him that the committee meant nd mean to adhere to single trusses, and not bunches f Pelargoniums, Verbenas, &c., and that they are nanimous in thinking that the former never did and ever can mean the latter. *D. T. Fish.*

—— I find the opinion of the Editors is against me regards the meaning of the word "truss," and no oubt they are right as the term is generally underood when applied in relation to the inflorescence of ich things as Verbenas and Pelargoniums; but are ot double or treble trusses admissible unless the hedule is differently worded, and single trusses ecified? [No.] According to most dictionaries a uss is said to be a bunch or bundle of anything, and truss—to pack up close together; but then comlers would not have in their minds the flowers of ants like those already mentioned. *J. Sheppard.*

Potato Dux.—With reference to the note from e raiser of this Potato, I wish to point out that I did ot say it was a seedling from Schoolmaster, but that was a reproduction or identical with that well own kind. This much I have been satisfied of, ter having seen it growing both at Chiswick and at nge. It may be a very good kind, but all new sorts Potatos should have an individuality about them, th in tuber and top, showing a difference from hers already in existence. Our Potato lists have en literally swamped from time to time with mere productions. *A. D.*

Pereskia aculeata as a Stock.—This is an inluable stock for grafting the Epiphyllum truncatum on. It is easily raised from cuttings, and cuttings uck in the spring of the year and grown on will ke by the autumn, or in the spring of the following ason, suitable stocks for the purpose for which they e intended. Having selected a number of the best d strongest of these, and with a healthy quantity of truncatum cuttings or grafts, proceed, in the first ce, to make an incision, or a number of incisions, wards or downwards (as either of the two ways will ceed) in a sloping direction upon the outer edge of e stock; then pare the grafts on both sides a little, d remove a little of the wood out of the incision de upon the stock, to make the one fit into the her as neatly as possible. The grafts having been inrted into their respective places, should be tied and und round with a piece of soft matting, to secure ion, which they will speedily do. Keep them in a shady rt of the house for a few weeks after the operation. uring the spring and early summer months syringe e plants twice daily, shutting the house close up in e afternoon with a temperature of from 80° to 85°, adually, as the season advances, exposing the now tablished plants to a cooler, arid, and ripening mosphere. Having formed nice bushy plants by the tumn, as no doubt will be the case if they have been operly managed, they can be successionally forced and devoted to ornamental greenhouse and conrvatory decorative purposes. *G. Drummond, Brosouth Gardens, N. B.*

Saxifraga propaginea, raised this year from ed sent by Mr. Max Leichtlin, is now in blossom at e Edinburgh Botanic Gardens. It has three termil flowers on each spray of the panicle, but the rest the inflorescence is represented by perfect little ants. The leaf is like that of a large form of stellaris. The flowers resemble those of S. caroiana in being irregular, though much less so than are ose of S. sarmentosa and S. japonica. *C. M. Owen.*

Lapageria alba and rosea.—At Storr's Hall, indermere, the beautiful estate of the Rev. Thomas aniforth, is to be seen a fine sight. In one of the n-to houses, trained upon a trellis 2 feet from the ass, the above are in beautiful condition, growing ost luxuriantly: they are intermixed; the white at e present time has many hundreds of its beautiful re white flowers, covering a space 26 feet by 8. ice these were planted they have made extraordinary owth. *A. O.*

Wasps.—Although we have been tolerably free m wasps up to the present they are now putting in appearance in great numbers, and if we get a conuance of the present beautiful sunny weather, as it to be hoped we may, I fear gardens will be much ubled with them, as they increase at a great rate, d gain much in strength and activity when the ys become bright and warm. More voracious and xatious insects than wasps cannot well be, and it uld have been some consolation in return for the d seasons had the wet slain the lot, but as it has t done so there is no help for the failure but to ge war again. This may be done in two ways, and hough it is a bold stroke to beard the lion in his n it is best to tackle wasps there if you only wait till they get fast asleep, and attack them quickly at that unguarded moment. The most expeditious and easiest way to annihilate them there is to stuff wadding or tow soaked in turps into their hole, and then close it up tight, when they will soon become stifled, or they may be destroyed by making a squib with a mixture of saltpetre, sulphur, and powder, or the two latter compounds alone in about the proportion of one of fine gunpowder to four of dry flowers of sulphur, which mixture may be put in a Bamboo reed or piece of dry Elder and fired in the hole, and to keep the fumes and smoke in a sod or some soil should be laid over the opening. In a few minutes they will be quiescent and may be safely dug out, but as the stupefying effect does not last on them long they must be dealt with quickly, and smashed up before they come round. A few stragglers may appear at the place where the nest was, but they soon get weak and die. As to paying a shilling a nest, as "H. W. W." states he does, we only give half that, and I find the men willing enough to take them at the price. The way to lessen the number of wasps is to trap for queens now, for, as becometh royalty, they take their airing in fine weather, and being fond of good fare, are easily enticed into clear wide-mouthed bottles partly filled with the alluring bait of sugar, or treacle and beer; and if bottles so charged are hung about the fruit trees and places where they frequent great will be the catch, and loud the notes of wail when they find themselves entrapped. In the spring the queens get on the wing again, after having lain dormant for the winter, and they should then be caught and killed, as every one of them, barring accidents, makes a nest and stocks it by the eggs she deposits. Here we offer the children a penny each, and pay up to the end of May or later, according to the season. *J. Sheppard.*

The Lapageria-house at Milnerfield.—At the present time there cannot be less than 5000 flowers in full bloom in this single house, and hundreds of sprays had been cut before we counted them. The special Lapageria-house is 36 feet by 18, the trellis being some 9 feet from the floor; the house faces east and west, and is kept at the ordinary temperature of the air, except in winter, when fire-heat is only used to keep the frost out. In fact, the plants thrive luxuriously at Milnerfield without any special temperature precautions, the house being not even shaded in the hottest weather, and the plants merely supplied with abundance of water. Once each year the plants are taken down from the trellis, sponged, pruned, and retied. Extensive pruning is necessary, as the growth is remarkably rapid. Some of the finest plants now in bloom were put in only three years ago, and a single shoot of the white variety has broken this season, 2 feet from the ground, into eight strong shoots, which give promise of next year bearing abundance of flowers. The white variety is quite as vigorous and as easily raised as the red, and is as profuse in its bloom; hence, though it is now a prized possession at wedding breakfasts, it will, we hope, become more and more obtainable for all decorative purposes. The successful cultivation of this noble flower reflects great credit on Mr. Anderson, the head gardener at Milnerfield. *W. F. Barrett, Royal College of Science, Dublin.*

Clematis Jackmanni. — I notice on one of my plants that a large number of the more recently expanded flowers have stamens only without pistils. It is to be presumed that development has been arrested—but by what cause? I am inclined to attribute it to the excessive heat we experienced in July. *M. T. M.*

Seedling Potatos.—A large batch of hybridised, or rather crossed seedling Potatos, have turned out well, although many were very much demoralised in growth by the very queer season we have had. My excellent friend, Mr. Fenn, used to sow and rear his seedlings under glass, and of course the first year's produce was small. I could not take so much trouble with some 600 or more, and having pricked out the seedlings into large shallow pans, dibbled them out into rows 2 feet apart in the open ground later on, and left them to take their chance. One of the most productive crosses was that of Beauty of Hebron × Woodstock Kidney, and of this I fear I saved more than I ought to have done, as even then it was necessary to reject scores that a few years since would have been regarded as meritorious. From this cross came round and kidney, all white, early and late, and evidently many large croppers. As to further merits nothing can be said till after further trial. Early Rose × Bountiful has given, as I anticipated, several fine handsome red kidneys, and Vicar of Laleham × Magnum Bonum some very fine sorts and big croppers, chiefly white in colour. From this, as also from Magnum Bonum × King of Potatos, and the same × Woodstock Kidney, I hope to get some disease-resisting kinds. The latter, however, seems a doubtful cross, as the Woodstock Kidney has diseased so badly. The other cross with King of Potatos is the most promising, and some half dozen roots show heavy clean crops. One root gave forty good seed tubers—enough to give a bushel or two next year, although the season has been so unpropitious for Potatos here. In the raising of seedling Potatos, however, one's troubles do but now begin, as next year there will be about fifty seedlings in various numbers to grow, and if after that three-fourths do not meet with a short shrift they will soon become as great an incumbrance as Sinbad found the Old Man of the Sea. However, if there are no profits arising there remains the comforting assurance that humanity may benefit eventually from the result of one's labours. *A. D.* [Why confine yourself to mere kaleidoscopic changes of the same materials? There are nearly a thousand distinct species of Solanum, of which one only is utilised. Our botanic gardens are herein at fault. They should introduce and experiment with likely species, or at least help others to do so. Eds.]

Large Peaches.—It is unfortunate that my letter was not written to the *Gardeners' Chronicle* when the large Peaches were hanging on the tree. However, I did not anticipate that people would be found to doubt the accuracy of the fruit having scaled 18 oz. up to 23¾ oz.; nor do I feel inclined to trouble myself next year to substantiate my statements by sending samples of my fruit up to you, because I feel that those statements ought never to have been doubted. It has always been my custom to welcome at any time any visitor with cordiality to see through my houses, and receive whatever information he may ask for, and I may add that visitors need not anticipate any diminution of that cordiality even should they trouble themselves to bring their own weights and scales. *A. T. Goodwin, The Vineries, Maidstone.*

How to Exterminate Cockroaches.—I would recommend "G. H." to get a pint of beer, and to heat it in a saucepan, dissolving as much sugar in it as will sweeten it nicely. Then procure two or three common 1 lb. jelly cans, fill them half full with the beer and sugar and stand them where the cockroaches are likely to run. Put them down in the evening and in the morning he will have from six to a dozen of the pests in each jar. The same mixture will do for two nights, when if desired the dose should be repeated. As the jars are smooth outside it is desirable to tie some rough material round about them such as a bit of netting or shading material. I found this plan more effectual than any poison I could procure. *Thos. Fraser, The Gardens, Gordon House, Isleworth.*

Choretis glauca.—The reason why this very handsome and botanically interesting plant is never seen in the catalogues is a very simple one. With one exception it has been lost in this country for somewhere about forty years. Only one or two persons flowered it, and it seems to have died out very shortly after its introduction. The late lamented Mr. Wilson Saunders kept it alive for some years, and was, I believe, the only possessor of it in later times. Several of the larger-flowered Hymenocallis do duty for it in the trade. I have two under the name myself, but the true plant *non est.* Who will reintroduce it? Herbert's description of it is so clear and full that no one need be in doubt as to the correctness of a specimen. *R. T. Clarke.*

Love in a Mist (Nigella damascena).—What plant is that with the lovely pale blue flowers and finely divided green leaves? is the question not unfrequently asked in reference to this hardy plant. And this—though the plant ought to be better known—is not to be wondered at, for it is admiration for the colour which prompts the question, considering that the colour is quite distinct from any blue flower that we are acquainted with, and it possesses a softness not met with in any other. The plant grows to about 2 feet high, and is easily raised from seed sown in the spring in the same way as Stocks and Asters, and subsequently treated the same as them, and when planted in masses or associated with Stocks, Asters, Gladioli, and white Pelargoniums it is very effective. *H. W. W.*

The Maréchal Niel Rose.—I do not know what amount of truth there may be in the statement that this fine Rose is a sport and not a seedling; it however is entirely opposed to all that I have ever heard, either in France or England, as to its origin, the idea being that it is a seedling from Chromatella, or Cloth of Gold as we call it; but the latter part of the story as cited by "F. W. B." is, I am convinced, entirely mythical. I can speak with some certainty on this point, as I believe I was the first Englishman who saw it. I was in Paris, I think it was in 1865—I have no note of going there in 1864, the year in which it is stated (though, I believe, erroneously) to have been sent out—when M. Eugène Verdier brought to the Hôtel Mirabeau where I was staying a box of Roses, which he said he was going to send into commerce that autumn; he brought them out one after the other, they were pretty, but how I opened my eyes when from underneath all the rest he drew out a magnifi-

cent yellow Rose. I gave an involuntary exclamation, "Oh! that is worth all the rest put together." "Do you think so?" "Yes," I said, "and if you are wise there is a fortune in that Rose. Take some blooms over to the Floral Committee of the Royal Horticultural Society, let it be well seen, and you can make what you like of it." Instead of doing this, M. Verdier sent out some fourteen or fifteen Roses, and gave a plant of Maréchal Niel to those who ordered the set; what he may have done the following year, when the English nurserymen saw what it was, I know not, but I am quite sure in the first year he did not make great deal by it. *D., Deal.*

Radishes at Christmas.—At no season of the year is a good salad more welcome than at Christmas, when every one goes in for good things who has the means to obtain them. Radishes in midwinter are rather a scarce commodity, notwithstanding that there is no difficulty in having them very crisp and good at that season. On September 20 last year a sowing was made, which yielded an excellent supply the following Christmas. A cold pit having a south aspect and fairly well sheltered was selected. The pit had been previously used for pricking out plants of different kinds, and so was already filled with soil to the necessary depth, the only addition that was made being about 3 inches of rich vegetable mould and soil, which was used in about equal proportions and scattered over the surface of the bed before the seeds were sown in the usual way, and the pit left open, just the same as if the seeds had been sown in the open garden. In due course the seeds germinated and the plants were thinned, and as winter advanced and the nights grew cold the lights were put on at sunset, in order to afford the necessary protection. Had we required the crop sooner, of course we would have used the lights sooner, but as Radishes were not required before the middle of November, and as the autumn was favourable, we found much nursing unnecessary. The varieties used were Wood's Early Frame, French Breakfast, and the Scarlet Turnip-rooted, all of which did well and yielded a much esteemed supply of Radishes—so good that I think we are hardly justified in being without them for so many months in the year. Of course climate will have something to do with the time of sowing and production. The crop referred to was grown in Dorsetshire, where the autumn air is balmy and genial, and is very favourable to the growth of vegetables generally. A sowing made at once and intelligently handled will be found of much service in most places, and the crop will be much appreciated with other good things later in the season. *W. Hinds.*

Single Dahlias.—Permit me to draw your attention to an error appearing in your report of the 13th inst. touching on single Dahlias. I beg to say the "White Queen" shown has no relation whatever to Alba, shown by Mr. Cannell. Crimson Beauty, Brightness, and Vivid, were not shown by me, and I do not grow any of the four varieties attached to my name. The most noteworthy on my stands were White Queen, pure white, and the finest of the white varieties; Duke of Teck, a pretty mauve tint; Beauty of Cambridge, rich crimson, very large, of heavy substance; Yellow Queen, flat petal, circular flower—a good companion to the white; also Lutea grandiflora, very large flat-petalled yellow. *Thomas S. Ware.*

Meconopsis nepalensis?—Has any one observed that the leaves of this species curve inwards at night so as to protect the "heart" of the plant, and unfold again in the morning? The leaves are thickly covered with coarse reddish down, another protection against the chilling effects of radiation, and the evil effects of too much moisture. As my plant has not bloomed, I am not sure as to the species. *M. T. M.*

Obituary.

FELLOWS of the Linnean Society will learn with great regret of the death, at the age of sixty-two years, of Mr. FREDERICK CURREY, who for many years acted as Secretary, and lately as Treasurer, to the Linnean Society, in which capacities his legal knowledge often stood the Society in good stead. As a botanist Mr. Currey was best known by his publications on Fungi, and also rendered good service by his translation of Hofmeister's work on the *Higher Cryptogamia and Coniferæ*, and of Schacht's work *On the Microscope*, a most useful book for students of vegetable physiology in this country, who up till that time had no such manual at their disposal. At the Linnean Society he succeeded as Secretary the late Mr. J. J. Bennett; and those who remember the zeal and courtesy of that gentleman will best appreciate the tact and good feeling of his successor, which were such as to provoke no unfavourable comparison with any of his predecessors. Mr. Currey was an occasional contributor to these columns.

Reports of Societies.

The International Potato Exhibition: *Sept. 20 and 21.*—The great show of Potatos which, under the patronage of the Lord Mayor and the Sheriffs of Middlesex, opened on Tuesday at the Crystal Palace, still farther displayed the results of the labours of those who, if naturally anxious to secure prizes, not less wish to assist practically in the promotion of those specific objects of the exhibition, "the encouragement of the best methods of Potato culture, and the introduction and diffusion of new and improved varieties." Visitors unacquainted with the cultural detail relating to Potatos, or with the many and various sorts in cultivation, and whose knowledge of the tuber is chiefly drawn from what may be seen in Potato stores or greengrocers' shops, very naturally exhibit surprise at what they behold at the show-tables, and are often almost incredulous as to the reality of the samples shown. In all the best collections there is so much of elegance, colour, and beauty, that the admission must at once be made that the successful grower is something more than a digger and delver of the soil; he is an artist, if not in execution, at least in training, for only a well taught eye could select such forms and such refined samples as are staged.

But unsatisfactory indeed would be the results of this great annual display of Potatos did they end in mere art teaching. Delightful as beauty always is, yet in matters of food such a commonplace consideration as utility must have full weight, and therefore the awards always keep that in view. The Potato is now one of the most important articles of food for the people; it has survived Cobbett's anathemas and much worse, for afflicted, as it has been, by the most destructive disease which attacks vegetable life, the Peronospora infestans, it has yet survived annual repetitions, sometimes light, sometimes very heavy, for the past forty years, and is now more widely cultivated and more largely consumed than ever. Whilst, therefore, in the general competitions the promoters of the International Potato Show have done honour to the sorts that are, they have, in pursuance of the object in view, gone farther, and have set apart special classes for new and certainly improved kinds, even making an important stipulation that before the awards can be made the old maxim about the proof of the pudding shall be put into practice, and therefore tubers of each new kind have to be cooked and tasted—a most useful and essential ordeal. Out of the perhaps hundred sorts that were staged, many, though large croppers and beautiful in appearance, yet lack that table quality without which a Potato is almost valueless. If, therefore, it be possible within a few years to get rid of these inferior kinds and substitute for them sorts of undoubted high table quality, a very valuable work will have been accomplished.

But we want other improvements; we want more large cropping, earlier kinds, and of the late sorts considerable disease-resisting powers. First, early sorts are rarely affected by the destructive fungus. Their season is short, their haulm growth usually of a medium character, and, as a rule, they ripen ere the disease becomes dangerous. Large cropping kinds, that will give a big bulk of good tubers capable of carrying on the needful supply for the family, or for the nation till Christmas, yet lifted ripe in August, would be an immense boon; and these, t is hoped, may come soon, because well-directed efforts in the shape of cross-fertilisation to secure the desired end are being made. Then there is yet need for great improvement in our late and strong-growing kinds, Robust haulm is an inevitable accompaniment to late sorts, and in the peculiar nature of that robustness seems to lie their comparative immunity from the attacks of the disease. We have no kind that resists disease entirely, although the Magnum Bonum and the Champion have in years past withstood its effects more generally than most others; but even these seem to be about to fail us, as they have had to meet the attacks under exceptional circumstances. In ordinary seasons the haulm would in the month of August be firm and nearly matured; but this season, owing to the heavy rains of August following upon a hot and prolonged spell of drought, new life and energy were infused into the Potato plants, and when they had to meet the attacks of the disease it was with stems and leafage full of sap and with tubers but half developed. That the chief resisting power to the disease is found in the hard woody fibre of the plant stems of these popular kinds there can be little doubt, and we can but hope, that under more favourable weather conditions, they will return to that disease-resisting form which renders them so valuable. To encourage the further production of disease-resisting kinds may well exercise the minds of the Potato show promoters, and though no special prizes were offered for these, there can be no doubt but that the special encouragement given to new sorts will tend to promote that desirable object.

Though the exhibition is termed "International" no grower from any other countries than England and Scotland has yet been bold enough to enter into the competitions, and this year the number of Northern exhibitors was less than usual, while Ireland, the land of the "Pratie," has, strange to say, never sent a tuber to any of the shows. The exhibition this year was not so extensive as some of its predecessors, neither were the samples shown so good all round as in some previous years. Drought has netted and ruptured the skins to an unusual extent, and many otherwise handsome kinds were out of form. So much, indeed, has the influence of the season been felt by some growers that Mr. McKinlay, Mr. Dean, Mr. Pickworth, Mr. Howard, and others were unable to contribute anything like their previous collections; but the trade growers to some extent made amends for this, as Messrs. James Carter & Co. and Messrs. Sutton & Sons each staged an extensive collection, while the Royal Horticultural Society sent from Chiswick a very interesting collection of the sorts grown there this year for trial; the veteran, Mr. Robert Fenn, staged a collection of about forty seedlings of his own raising; and such growers as the Messrs. Harrison, of Leicester, Webb & Sons, of Wordsley, and Lee, of Hammersmith, each contributed their quota to the general display.

A collection shown by Mr. Shirley Hibberd failed to create the interest hat the exhibitor reasonably expected it would do, but for the grower it was a lesson not to be lost. The collection comprised forty dishes, each dish representing the exact total produce of one root, save only that diseased tubers had been thrown out. These were grown on a loam of average quality without manure; they were planted April 22, and lifted (for the most part unripe) September 12. The principal object in thus presenting them was to give practical illustration of the relative productiveness of the several sorts:—Farren's Kidney, a white handsome variety of excellent quality total weight from one root, 6 lb. Collins' Kidney, a white sort of middling quality: 2 lb. 3 oz. Carter' Silverskin, a neat white round of excellent quality 6 lb. Holborn Favourite, a handsome white round 4 lb. 2 oz. American Purple, a smallish and very pretty purple kidney: 2 lb. 7 oz. American Purple a dish of the same consisting of the produce of three roots grown in pure coal-ashes; an ugly sample: total weight of three roots, 2 lb. 1 oz., or 11 oz. each root Fenn's Bountiful, a pretty red kidney of good quality 2 lb. 7 oz. Sutton's Reading Hero, a white round of intermediate character; quality excellent: 3 lb Fenn's Seedling No. 1, a very neat white round; nice nutty flavour: 4 lb. 2 oz. The Queen, a neat smallish round white, of fine quality: 4 lb. 5 oz Woodstock Kidney, a white variety of the finest quality, requiring a lighter soil than this sample was grown in: 2 lb. Fenn's No. 6, a handsome white round of the finest quality: 5 lb. Fillbasket, pretty white round: 3 lb. 6 oz. Rev. W. F. Radclyffe a neat white round of fine quality: 2 lb. 7 oz. Sunrise, a neat white round: 3lb. White Elephant, large long, coarse; better than Chardon for cattle food 9 lb. 12 oz. Extra Early Peach Blow, white round with blush of pale pink: 4 lb. 12 oz. Masterpiece white round, long and flat: 2 lb. 2 oz. Wiltshire Snowflake, a handsome white round, quality fine too many chats: 3 lb. 9 oz. Mammoth Pear an ugly white round, of poor quality: 3 lb. 2 oz St. Patrick, a white kidney of good quality; the sample shown was finger-shaped and twisted, but very bright: 4 lb. 8 oz. Beauty of Norfolk, a very fine white kidney: 7 lb. 5 oz. White Star, a handsome kidney of fine quality, and a good keeper; the sample shown was not up to the mark, Mr. Hibberd reporting that it needs a lighter soil than it was grown in: 4 lb. Armstrong's Prolific, an ugly white round of no quality: 2 lb. 12 oz. Peerless Rose, a small red kidney, suitable for exhibition; quality good 3 lb. Surrey Gatepost, a finger-shaped white kidney of good quality: 2 lb. 6 oz. Advancer, a pebble shaped white of good quality: 4 lb. 3 oz. Pink Flounder, an ugly oblong root, of a pale pink colour 7 lb. Queen of the Valley, a coloured kidney good quality: 5 lb. 8 oz. Queen of the Valley another stool of the same, grown in lime rubbish 4 lb. 1 oz. Victoria Regina, a smallish round white early and good: 2 lb. 12 oz. Pink Pyramid, an ugly oblong root of a pale pink colour: 3 lb. 8 oz. Pink Pointer, a neat elliptical kidney of a tawny pink colour deep pink at nose end: 2 lb. 14 oz. Pink Domino, pink kidney of good quality: 3 lb. Daniel's Silver skin, a neat white round: 4 lb. 8 oz. Handsome Round, a smallish white of fair quality: 2 lb. 12 oz Wormleighton's Seedling has not made a good crop at Stoke Newington, and was lifted too early: 3 lb. Improved Shaw, an early white round of good quality but rather wanting in size: 3 lb. 2 oz. Johnston's Downshire has never been a good cropper at Stoke Newington; the sample shown was wanting in size 2 lb. 14 oz. The awards of the judges in the various classes were as follows:—

TWENTY-FOUR VARIETIES, DISTINCT.—1st, Mr. Ellington, West Row Gardens, Mildenhall, with International Kidney, Manhattan, Mammoth Pearl, Vicar Laleham, Schoolmaster, Trophy, Bedfont Prolific Blanchard, Magnum Bonum, Purple King, Wilts

nowflake, Beauty of Hebron, Woodstock Kidney, eauty of Kent, Pride of America, Early King, Jack-on's White Kidney, Matchless, Porter's Excelsior, rampian, Covent Garden Perfection, Triumph, Bresee's rolific, and Rector of Woodstock; 2d, Mr. W. Kerr, argavel, Dumfries; 3d, Mr. James Lye, gr. to the Hon. Irs. Hay, Market Lavington; 4th, Mr. Finlay, gr. to olonel North, Wroxton Abbey, Banbury; 5th, Mr. Iillen, Hamstead Park Gardens, Newbury; 6th, Mr. I. E. Gribble, gr. to Sir R. Malins, Maidenhead.

Eighteen Varieties, Distinct. — 1st, Mr. J. Iatthews, gr. to E. Twopenny, Esq., Sittingbourne, ith Beauty of Kent, Wiltshire Snowflake, Schoolmaster, icar of Laleham, Trophy, Excelsior, Early Goodrich, ate Rose, Reading Abbey, Manhattan, Superior, Pride Ontario, Triumph, Pride of America, Holborn avourite, Woodstock Kidney, Beauty of Hebron, and agnum Bonum; 2d, Mr. W. Crump, gr. to the Duke Marlborough, Blenheim; 3d, Mr. James Miller; 4th, Ir. James Lye; 5th, Mr. Wm. Finlay; 6th, Mr. F. ooper, gr. to Lieut.-Col. Long, Saxmundham.

Twelve English-raised Varieties, Distinct.—t, Mr. W. Ellington, with Bedfont Prolific, Beauty of ent, Vicar of Laleham, Woodstock Kidney, Covent arden Perfection, Magnum Bonum, Schoolmaster, lanchard, Early King, Grampian, Porter's Excelsior, nd Model; 2d, Mr. W. Crump; 3d, Mr. Jas. Lye; h, Mr. John Reid, Mid Sanquhar, Ayr, N.B.; 5th, r. J. Matthews.

Nine American Varieties, Distinct.—1st, Mr. m. Finlay, with Trophy, Pride of Ontario, Superior, arly Rose, American Purple, Beauty of Hebron, Snow-ake, Matchless, and Manhattan; 2d, Mr. Wm. Kerr; l, Messrs. Lott & Hart, Whitehill Nursery, Faversham; h, Mr. W. Sedge, gr. to the Rev. J. W. Mellor, Sit-ngbourne; 5th, Mr. J. Reid.

Six Varieties, Distinct.—1st, Mr. Wm. Finlay, th Salmon Kidney, Model, McKinlay's Pride, Ameri-n Purple, Lye's Favourite, and Edgcotte Seedling; , Mr. L. Stanton, Maidford, Towcester, with White ephant, Mammoth Pearl, Schoolmaster, Centennial, ophy, and Snowflake; 3d, Mr. F. Miller, gr. to J. T. iend, Esq., Margate; 4th, Mr. W. Crump.

Three New Varieties, Distinct, and not in mmerce before the season of 1880.—1st, Mr. R. ean, Ranelagh Road, Ealing, with Matchless, Mr. esee, and Reading Hero; 2d, Mr. W. Kerr, with atchless, Adirondack, and Queen of the Valley; 3d, r. F. Miller; 4th, Mr. J. Read.

Three White Round Varieties, Distinct. — t, Mr. W. Kerr, with a variety not named, Climax, d Schoolmaster; 2d, Mr. J. Matthews, with Porter's celsior, Early Goodrich, and Schoolmaster; 3d, Mr. Miller, with Silverskin, Devonshire Plum, and School-ster; 4th, Mr. W. Ellington, with Bedfont Prolific, iltshire Snowflake, and Schoolmaster.

Three Coloured Round Varieties, Distinct. 1st, Mr. W. Ellington, with Vicar of Laleham, anchard, and Triumph; 2d, Mr. W. Kerr, with rampian, Vicar of Laleham, and Triumph; 3d, Mr. Miller, with Blanchard, Vicar of Laleham, and Rad-ock Beauty; 4th, Mr. H. E. Gribble, with Grampian, ndstock Beauty, and Vicar of Laleham.

Three White Kidney Varieties, Distinct.—t, Mr. R. Dean, with Advance, Pride of America, and iltshire Snowflake; 2d, Mr. F. Miller, with Yorkshire ero, Woodstock Kidney, and Wiltshire Snowflake; l, Mr. Thomas Pickworth, Loughborough, with Lady ordon, International and Wiltshire Snowflake; 4th, r. J. Wormleighton, Guilsborough.

Three Coloured Kidney Varieties, Distinct. -1st, Mr. W. Kerr, with a long blue kidney, Brownell's nperior, and Trophy; 2d, Mr. J. Matthews, with eauty of Hebron, Superior, and Trophy; 3d, Mr. W. llington; 4th, Mr. J. H. Hill, gr. to A. W. R. Brise, sq., Witham, Essex.

Best Dish of Magnum Bonum.—1st, Mr. B. Vest, Nuneham, near Oxford; 2d, Mr. C. Ross, gr. to . Eyre, Esq. Welford Park, Newbury; 3d, Mr. L. ornish, gr. to J. Abbiss, Esq., Enfield; 4th, Mr. F. iller.

Best Dish of Schoolmaster.—1st, Mr. G. Blox-m, gr. to Sir P. Duncombe, Bart., Bletchley; 2d, Mr. eopold Stanton; 3d, Mr. W. Ellington; 4th, Mr. James lillen.

Best Dish of Woodstock Kidney.—1st, Mr. L. tanton; 2d, Mr. F. Miller; 3d, Mr. C. W. Howard, anterbury; 4th, Mr. W. Finlay.

Best Dish of Reading Abbey.—1st, Mr. James lillen; 2d, Mr. W. Finlay; 3d, Mr. James Matthews; h, Mr. Charles Ross.

Best Dish of Reading Hero. — 1st, Mr. James lillen; 2d, Mr. F. Miller; 3d, Mr. S. Haines, gr. to e Earl of Radnor, Coleshill; 4th, Mr. James Lye.

New Varieties.—Although the executive com-ittee intended orginally this year to offer only Cer-ficates of Merit for new or seedling varieties of cknowledged merit, yet through the liberality of Messrs. onper & Co., and Mr. John Laing, of Forest Hill, ey were eventually enabled to add a prize of 20*s.* to e best selected seedling in each section of white dneys, coloured do., white rounds, and coloured unds, but the important condition was affixed in ch case that with the dish sent for competition ould be added a few other tubers of the kind, which ere to be cooked and so tested ere the awards were ade. White kidneys made the strongest class, but on spection of the various kinds they showed so many sparaging features, and proved to be so much like d named varieties, that it was difficult not to regret at the recommendation as to the growth of all such mples at Chiswick before they are qualified to competete had not been made compulsory. All new kinds should possess some element of distinctness in the tubers, and this was too often wanting. Mr. J. Hughes, gr. to Colonel Cartwright, Byfield, had a kind the exact counterpart of Magnum Bonum, said to be a seedling from Victoria. Messrs. Lott & Hart, of Faversham, had Kentish Invicta, described as the product of Beauty of Hebron × Snowflake. This was certainly a white Beauty of Hebron. Magnet, a large lapstone-like kidney, described as a seedling from the American Excelsior, a deep-eyed round kind, came from Mr. C. Ross, of Welford Park. Early Sunrise, another smooth, pretty, lapstone-like tuber, came from Mr. John Reid, Ayr, N.B. Cosmopolitan, a large white kidney, something like International, but having a netted skin, came from Mr. R. Dean. This has already received a First-class Certificate at Chiswick for cropping and for quality. It proved there to be quite a first early. Lye's Prolific, from Mr. James Lye, was a seedling from Mona's Pride, having very pretty lapstone-like tubers. Millar's Kidney came from Mr. Millar, the parentage not being given. It resembles a nice form of the Ashleaf. Mr. W. Kerr, Dumfries, sent an unnamed kidney that also came too near to the Ashleaf. Messrs. F. & H. Myatt, of Evesham, had a kind that looked like good Covent Garden Perfection. Coloured kidneys were a poor lot, the best being Mr. Fenn's new red kidney, certificated recently at Chiswick, where it proved to be the finest red kidney, inclusive of table quality, in the gardens, was here shown, but not yet named. It is a seedling from the Late Rose × Bountiful. Mr. Kerr had a pretty white kidney heavily tipped with carmine, something like Princess of Wales, no pedigree being given; and Mr. Caunce, of Garstang, had a purple-blotched kind that was something like Heather Bell, and was very ugly.

In the white rounds Mr. Ross showed his Dux, the tubers resembling Schoolmaster even more than ever, though a seedling from Victoria. Mr. Parker's seedling was our old friend Climax; and Mr. Ball, of Lutterworth, had a kind that could not well be distinguished from Bresee's Prolific. Mr. Fenn had four sorts, all of a round, rough-skinned type, unnamed, but all from his Anglo-American cross, and looking distinct and valuable. Mr. Dean had Lord Mayor, already certificated at Chiswick, a seedling from the Early Rose × Early Market. Mr. J. Clarke, of Nea Farm, Christchurch, had Pride of the Market, a fine Victoria-like flat round, the product of Magnum Bonum × Victoria; and Mr. Crump had a flat round sort of a semi-Regent type, unnamed. The only good coloured round was a handsome red seedling from Mr. Fenn out of Bountiful × Late Rose, evidently a most promising sort. One other kind was only Paterson's Princess Louise, and came from Mr. James Caunce. In the general collections there were no seedlings of merit, excepting a handsome long purple kidney shown by Mr. Kerr in one class, and which seemed to be identical with Lee's new Defiance, a very handsome and prolific kind, that is to be sent out this season. In the Chiswick collection we noted Rand's Seedling No. 11, a white round kind flushed with pink, and having carmine eyes, as distinct and pretty; and the same raiser's No. 15, a flat white, heavily flushed with purple, was very distinct and promising, Several of Mr. Fenn's and Mr. Dean's new kinds, as already noticed, were well shown here.

The awards to the seedling kinds were not completed on Wednesday, but so far it was decided that in consequence of the very indifferent form of those shown in the classes for coloured kidneys and coloured rounds, no prizes would be given now. In the white kidney class Magnet (Ross) was selected, being very handsome as well as of good quality, for the prize of 20*s.*, and to receive a Certificate of Merit. Kentish Invicta (Lott & Hart) it was agreed should have a Certificate also. In the class for white rounds Fenn's No 3 was awarded the money prize of 20*s.* and a Certificate; and Lady Truscott (Fenn) also received a Certificate. It was stated that some other kinds in both these classes had yet to be cooked; but it is to be regretted that this very important matter could not have been arranged on the first day, and in the presence of the judges.

Early in the afternoon of the first day the exhibition was visited in civic state, and declared open by the Right Hon. the Lord Mayor, who was accompanied by Mr. Sheriff Waterlow, Mr. Alderman Hadley, and other city friends of the committee. Subsequently the Lord Mayor and his friends accompanied the judges and members of the Association to luncheon, at the conclusion of which his lordship, in proposing the toast of the day, "Prosperity to the International Potato Exhibition," said that it was thought by some that the constant use of one sort and one method of culture had been the means of either introducing or developing disease. This received confirmation from experience in Ireland, and he was glad to hear that the Association had been able to offer advice and assistance to growers in that country which would doubtless be productive of the best results. The chief merit of a Potato lay in its amenability to cooking operations, and he would be delighted to hear that the Association, in addition to encouraging the introduction of new varieties, and establishing the best methods of culture, had been able to do something towards introducing a good method of cooking the Potato. Mr. Shirley Hibberd responded in a characteristic speech, and Mr. Peter McKinlay also replied. Other toasts followed, but for the first time in our recollection the time-honoured toasts of "The Judges," and "The Exhibitors," were omitted.

STATE OF THE WEATHER AT BLACKHEATH, LONDON

For the Week ending Wednesday, September 21, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In.
15	29.97	+0.10	63.0	49.5	13.5	54.5	− 2.6	50.0	86	N.	0.00
16	30.01	+0.15	61.5	42.0	19.5	50.9	− 6.0	47.8	90	S.	0.00
17	29.80	−0.05	68.0	48.5	19.5	57.4	+ 0.8	51.8	80	S.	0.01
18	29.49	−0.36	67.6	49.3	18.3	58.3	+ 1.9	50.2	76	S.W.	0.15
19	29.72	−0.11	66.5	54.5	12.0	59.5	+ 3.4	54.4	82	S.; S.W.	0.01
20	29.57	−0.25	71.0	51.0	20.0	60.1	+ 4.3	56.2	88	S.W.	0.03
21	29.29	−0.51	62.5	54.2	8.3	57.8	+ 2.3	52.2	82	S.W.; S.S.W.	0.44
Mean	29.69	−1.03	65.7	49.9	15.8	56.9	+ 0.6	51.8	83	S.W.	0.64

Sept. 15.—Fine morning, but foggy. Overcast generally. Fine night.
— 16.—A moderately fine day, but mostly overcast. Fine night, but cold.
— 17.—Fine day, fine till 9 P.M.; lightning 10 till 12.
— 18.—A dull overcast day; fog from 11 P.M. to 1 A.M.; then fine.
— 19.—A dull overcast day. Fine night.
— 20.—Fine, but cloudy and overcast. Thunderstorm between 2 and 3 in the morning.
— 21.—A cloudy, dull, damp day. Fine calm cool night.

London: *Atmospheric Pressure.*—During the week ending September 17, the reading of the barometer at the level of the sea decreased from 30.02 inches at the beginning of the week to 29.96 inches by 9 A.M. on the 11th; increased to 30.14 inches by midnight on the 13th, decreased to 30.11 inches by 3 P.M. on the 14th, increased to 30.23 inches by 9 A.M. on the 16th; and was 29.88 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.08 inches, being 0.27 inch lower than last week, and 0.02 inch above the average for the week.

Temperature.—The highest temperature in the shade during the week was 68°, on the 17th; the next in order was 66°.8 on the 14th. On September 12 the temperature did not rise above 57°.5. The mean of the seven high day temperatures was 62°.8.

The lowest temperature in the week was 42°, on the 16th; on the 12th the lowest temperature was only 52°.5. The mean of the seven lowest temperatures was 49°.3.

The greatest range of temperature in one day was 19°.5, on the 16th and 17th; the smallest was 5°, on the 12th. The mean of the seven daily ranges was 13°.5.

The mean daily temperatures were, on the 11th, 53°.7; on the 12th, 54°.5; on the 13th, 56°.4; on the 14th, 56°.8; on the 15th, 54°.5; on the 16th, 50°.9; and on the 17th, 57°.4. On the 17th the temperature was 0°.8 above the average, while on the 11th, 12th, 13th, 14th, 15th, and 16th it was respectively 4°.1, 3°.1, 1°, 0°.4, 2°.6, and 6° below the average. The mean temperature for the week was 54°.9, being 1°.2 lower than last week, and 2°.3 below the average for the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 120°.5 on the 14th; the highest on September 12 was only 64°. The mean of the seven readings was 97°.8.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 43° on the 16th. The mean of the seven readings was 47°.2.

Rain.—Some fell on three days, to the amount of 0.18 inch.

ENGLAND: *Temperature.*—During the week ending September 17 the highest temperatures were 70°.2 at Cambridge, 69° at Truro, and 68° at Blackheath. The highest temperature at Leeds was 61°, at Bradford 62°, and at Liverpool 62°.2. The mean from all stations was 64°.9.

The lowest temperatures in the week were 36° at Truro, 37° at Hull, and 37°.5 at Nottingham The lowest temperature exceeded 44°.5 at Sunderland, Liverpool, and Brighton. The mean from all stations was 41°.7.

The greatest ranges of temperature in the week were 33° at Truro, 29°.2 at Cambridge, and 27°.3 at Nottingham. The least ranges were 16°.9 at Liverpool, 17° at Leeds, and 18°.3 at Brighton. The mean from all stations was 23°.2.

The mean of the seven high day temperatures was or exceeded 63°.7 at Brighton, Cambridge, and Truro, and was less than 59°.5 at Liverpool, Wolverhampton, and Bradford. The general mean was 61°.4.

The mean of the seven low temperatures was or exceeded 49°.3 at Blackheath, Liverpool, and Brighton, and was less than 46°.1 at Hull, Nottingham, and Sheffield. The general mean was 47°.2.

The mean daily range was 21°.3 at Truro, 17°.2 at Cambridge, and 16° at Plymouth; and was only 9°.3 at Liverpool, 11°.4 at Leeds, and 11°.6 at Bradford. The general mean was 14°.2.

The mean temperature for the week was 54°.9 at Blackheath, 54°.6 at Cambridge, and 54°.3 at Truro, and was less than 52° at Wolverhampton, Sheffield, and Nottingham. The general mean was 53°.

Rain.—The greatest amounts registered were 0.46 inch at Hull, 0.44 inch at Sunderland, and 0.39 inch at Bradford. The least fall was 0.11 inch at Truro and Leeds, at Plymouth and Bristol there was no rain. The mean from all stations was 0.20 inch.

SCOTLAND: *Temperature.*—During the week ending September 17 the highest temperature was 67°, at Dundee. At Paisley and Leith the highest temperature was only 63°. The general mean was 64°.2.

The lowest temperature was 39°, at Dundee and Paisley; at Leith the lowest temperature was 44°.8. The general mean was 42°.

The mean temperature for the week was highest at Edinburgh, 53°.9; and lowest at Paisley, 51°.5. The general mean was 52°.8.

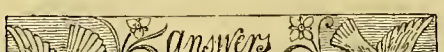
Rain.—The largest falls were 0.45 inch at Edinburgh, and 0.32 inch at Leith; no rain fell at Glasgow and Paisley, and only 0.01 inch at Aberdeen. The general mean was 0.18 inch.

JAMES GLAISHER, F.R.S.

Variorum.

THE CEDARS OF LEBANON.—The Vienna *Politische Correspondenz* says:—"The once famous Cedar forest of Lebanon, formerly so extensive, has dwindled down to the dimensions of a mere thicket, numbering about 400 trees. To save it from complete destruction, and preserve it at least in its present extent, Rustem Pacha, the Governor-General of the Lebanon, has issued a special ordinance, containing a series of stringent regulations calculated to check, if not quite to put a stop to, the vandalism and carelessness of most travellers. It is expressly forbidden to put up tents, or other kinds of shelter, within the district of the trees, or to light fires, or to cook any provisions in their vicinity. No one is allowed to break off a bough or even a twig from the trees. It is forbidden to bring any beasts of burden, be they horses, mules, asses, or any other kind of animal, within the district. Should oxen, sheep, goat, or other pasturage cattle, be found within the proscribed limits, they will be irredeemably confiscated."

TIMBER IN BRITISH COLUMBIA. — Though the agricultural capabilities of British Columbia may not be so great as other parts of Canada, its mines are doubtless very rich, and from a recent report of Professor Dawson, of the Dominion Geological Survey, its forests are of great importance. Many first-class mills have been established in various parts of the country, and the total annual product is stated to be about 200,000,000 feet, of which 25,000,000 feet is exported to other countries, 25,000,000 feet used at home, and 150,000,000 feet sent to California. Professor Dawson estimates that 110,000,000 acres (or two-thirds of the whole province) are covered with timber. The Douglas Fir, or Oregon Pine, is the most valuable commercial tree. It frequently exceeds 8 feet in diameter above the ground, and rises to a height of from 200 to 300 feet, forming large and dark forests. The Western Hemlock and Red Cedar are the other important trees of the province, both of which, the latter especially, grow to a great size. When the great plains of Canada become populous, the mines and forests of British Columbia should be of great importance, and their produce ought to provide a large and profitable traffic for the Canadian Pacific Railway. *Times.*



AMERICAN BLIGHT: *J. W. Tryon.* You must persevere in scrubbing the trunk and limbs with a stiff brush, applying train oil to the places whence they have been dislodged. Do this thoroughly during the winter, and follow it up whenever and as soon as they make their appearance next year.

BATTERSEA PARK: *H. T. B.* We are not aware that there is any such book as you mention.

BOOKS: *E. H. M. S.* Williams & Norgate, Henrietta Street, Covent Garden.

CORRUGATED IRON WALL: *J. Z.* If trained to a trellis some 4 or 6 inches distant from the surface of the wall, we should not anticipate any injury to fruit trees from excessive heat. The north aspect would suit Morello Cherries. This is supposing the situation to be otherwise favourable as to soil, drainage, &c. You must not expect it to answer so well as brick walls.

CHINA ASTERS: *I. O. W.* In your specimens the scales of the receptacle are developed while the florets are proportionately abortive. The result is not wholly unsatisfactory, as the whitish scales are not ineffective, and they remain much longer than the flowers.

DROPPING OF THE BRANCHES OF THE OAK: *M. Y.* This is Nature's method of pruning. When a check is received by overshading or other causes, a line of separation is marked off at the base of some of the branches, which gradually extends inwards, and ultimately causes the detachment of the now useless branch. The process is exactly the same as that which causes the leaves or the ripe fruit to fall. In your specimens the leaves look as if they had been scalded by the sun when wet with rain or dew. In Conifers, such as Thuyas, Retinosporas, &c., the process is very common, and as we think in such cases, due to the obstruction of light and air caused by the thickly set branches. Pruners should note the clean cut close to the trunk, no long slivers!

ERRATA.—At p. 374, in the notice of the Grapes at Ashton Court, for "Mr. Meredith's Grapes, shown at Edinburgh," read "Hamburgh."—At p. 375, col. *c*, for "Ruba," read "Kuba."

EVERGREEN CLIMBER: *R. Evans.* We can suggest nothing better than some of the hard-leaved kinds of Ivy, of which dentata is the best we know.

EXHIBITORS AND ASSISTANTS: *C. B.* asks us two questions relating to the assistance which exhibitors have a right to claim, and which we print in full, as the subject may be of more than local interest:—1. Should any assistants be allowed in the case of an exhibition of table-decorations at a flower show, such as a person to wait on the exhibitor by handing him or her any flowers or other articles that may be required, wiring flowers, &c.? And may the assistant offer any remark or advice, so long as he does not actually do the decoration? [Certainly. Assistance of the kind pointed out is as legitimate as the assistance an exhibitor of plants is ungrudgingly permitted to avail himself of.] 2. May any such assistant be allowed to a person exhibiting a bouquet at a flower-show, the assistance being confined to handing up flowers and Ferns, and wiring the flowers made use of; and may the assistant give advice to the person making the bouquet? It is assumed in both cases that the decorations or bouquets respectively are to be made up in the exhibition tent, as specified in the schedule. [We answer, Yes; the same as in the other case, so long as the "arrangement," which is the test of merit, is wholly carried out by the exhibitor.]

INDIA-RUBBER PLANT: *J. Smith.* Keep the plant in your sitting-room window, and in winter out of the reach of frost. Give water only when required, and sponge the leaves at least once a week.

JUDGING AT COUNTRY SHOWS: *Horticus.* Three Allamandas in a collection of ten is too large a proportion, but if of different kinds they would meet the requirements of a schedule asking for "distinct" kinds. Such a collection would have to take second place in competition with one of equal merit and greater variety. It is not advisable for the judges to have any intercourse with the exhibitors. There is little advantage, however, in raking up grievances of this kind when the affair is over.

MADRESFIELD COURT GRAPES CRACKING: *Constant Reader.* There are many conjectures as to the cause of this; we have never found it to do so; the most probable remedy would, no doubt, be a drier border and a heavier crop.

MILDEW ON ROSES: *C. M.* Apply sulphur to the branches. It should be applied on the first appearance of the disease. Prune away, during winter, all the old affected wood which is not required.

NAMES OF FRUIT: *J. Goodacre.* A, Gravenstein; B, Alfriston; C, Pomme de Neige; D, Rhode Island Greening; F, Beauty of Kent; G, Fearn's Pippin; H, Adams' Pearmain.—*W. H.* 2, Dutch Mignonne; 3, Blenheim Orange, probably; 4, Keswick Codlin; 5, Fearn's Pippin; 6, Brabant Bellefleur; 7, Dutch Codlin; 10, Blenheim Orange; 12, Scarlet Nonpareil. Others unknown.

NAMES OF PLANTS: *Thomas Parker.* Staphylea pinnata.—*J. Metcalf.* Smashed beyond recognition.—*G. G.* 1, Epipactis latifolia; 2, Thunbergia coccinea; 3, Tournefortia heliotropioides.—*Daniels Bros.* Euonymus europæus (the common Spindle-tree).—*S.* Limnanthes Douglasii, valuable for spring bedding.—*J. H., Stone.* Staphylea pinnata.—*T. M.* 2, Phlomis fruticosa; 3, Campanula sarmetica; 4, C. persicifolia plena; 5, C. persicifolia; 7, Sedum kamschaticum; 8, Sedum Ewersii; 9, Veronica carnea; 10, Galatella hyssopifolia; 12, Veronica incana. — *J. Fletcher.* 1, Dahlia Juarezii; 2, Rhus cotinus; 3, Acer Negundo; 4, Melianthus major.—*C. Lucas.* Hippophae rhamnoides. — *T. Hare.* 1, Hyoscyamus niger; 2, Peperomia arifolia.

OAK LEAVES: *R. Barrington.* The common Oak spangles; the work of an insect (Neuroterus lenticularis).

ORCHID LIST: *W. T, Draper.* It is being published in successive numbers as quickly as it can be prepared for the press.

PELARGONIUM: *C. K.* The scarlet is a very good flower, but not better than scores now in cultivation.

PETUNIA: *C. K.* The double fringed variety, named Pæony, is a good one, bold, high-cultured, and very prettily fringed at the edge. The others do not appear to rise above mediocrity.

SURVEYORS' FEES: *W. J.* Yes, we believe so.

TUBEROSES: *Reader.* They require to be potted in good rich soil, and brought forward in a forcing-house where they are the better for being supplied with mild bottom-heat. They should be potted in succession, to secure a succession of flowers.

VENTILATING VINERIES: *Hortensius.* As we do not know all the local circumstances, we cannot undertake to give a definite opinion on the point. So far as we know, your gardener may have sufficiently good reason for his practice.

*** Correspondents are specially requested to address post-paid, all communications intended for publication to the "*Editors*," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.

JAMES YATES, Stockport—Dutch, French, and German Flowering Bulbs.

WM. PAUL & SON, Waltham Cross, Herts—Rose, Fruit Trees, Ornamental Trees and Shrubs, &c.

C. H. CLISSOLD, Priory Nursery, Warwick—Dutch Bulbs.

PAUL & SON, Old Nurseries, Cheshunt—Bulbs, Roses, Strawberries, &c.

SHERRATT & POINTON, Biddulph, near Congleton—Dutch Flower Roots, &c.

R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston, Birmingham — Dutch Bulbs, Spring Flowering Roots, &c.

WILLIAM RUMSEY, Joyning's Nursery, Waltham Cross, N.—Roses, Trees, Shrubs, Fruit Trees, &c.

COMMUNICATIONS RECEIVED.—H. M.—G. R.—W. D. & S.—H. K.—W. H.—E. W. & Sons.—J. T. L.—A. B.—R. D.—J. B.—J. R. J.—P. G.—W. C.—W. G.—A. R.—S. & S.—R. S.—W. B. H.—W. H. F.—T. M. S.—P. Wolkenstein.—J. V. & Sons.—A. F. B.—H. G. Rchb. f.—C. L.—J. M.—J. K. K.—W. S.—H. M.—I. O. W.—C. W.

DIED. — On the 17th inst., aged forty-nine, deeply regretted, GEORGE REID, seedsman, of 20, Castle Street, Long Acre, W.C., and 10, St. Peter Street, Islington.

Markets.

COVENT GARDEN, September 22.

Trade quiet, with prices somewhat lower. Peaches in better demand, as also Pines. Kent Cobs selling freely. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s.
Apples, per ½-sieve	1 0– 3 6	Melons, each	1 0– 2
Damsons, ½-sieve	3 0– 3 9	Peaches, per dozen	2 0– 6
Figs, per dozen	0 6– 1 0	Pears, Eng., ½-siev.	2 6– 3
Grapes, per lb.	0 6– 2 6	— French, per. doz.	1 6– .
Kent Filberts, per lb.	0 8– 0 9	Pine-apples. Eng., lb.	3 0– 4
Lemons, per 100	4 0– 6 0	Plums, per ½-sieve	3 6– 5

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s.
Artichokes, Globe, per doz.	3 0– 6 0	Lettuces, Cabbage, per doz.	0 6– 1
Aubergines, each	0 4– ..	— Engl. Cos, score	1 6– .
Beans, French, p. lb.	0 4– ..	Mint, green, bunch	0 4– 0
Beet, per doz.	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0– .
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– .
Cauliflowers, English, dozen	4 0– 6 0	Parsley, per bunch	0 4– .
Celery, per bundle	1 6– 2 0	Peas, per bushel	5 0– 8
Cucumbers, each	0 6– 1 0	Radishes, per bun.	0 2–
Endive, per doz.	1 0– 1 6	Small salading, pun.	0 4– .
Garlic, per lb.	1 0– ..	Spinach, per bushel	3 0– .
Herbs, per bunch	0 2– 0 4	Tomatos, per lb.	0 9– 1
Horse Radish, p. bun.	4 0– ..	Vegt. Marrows, doz.	2 0– .

Potato trade very heavy, and prices much lower, as follows: Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatts 120s. to 120s.; Magnum Bonums, 90s. to 110s. The decrease having set in, all kinds of Potatos are lower 20s. 40s. per ton.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
butilon, 12 blooms	0 2- 0 4	Mignonette, 12 bun.	1 6- 3 0
sters, 12 bunches ..	3 0- 6 0	Pelargoniums, 12 sprays	0 9- 1 0
ouvardias, per bun.	0 9- 1 0	— zonal, 12 sprays	3 0- 6 0
amellias, 12 blooms	6 0- 9 0	Primula, double, per bunch	0 6- 1 0
arnations, 12 blms.	1 0- 2 0	Rhodanthe, 12 bun.	8 0-12 0
hrysanth., 12 bun.	4 0- 9 0	Roses (indoor), doz.	1 0- 3 0
ornflower, 12 bun..	1 0- 3 0	— (outdoor), 12 bun.	4 0- 9 0
ahlias, 12 bunches..	4 0- 6 0	Stephanotis, 12 spr...	4 0- 6 0
ucharis, per doz. ..	4 0- 6 0	Sunflowers, 12 blms.	0 9- 2 0
everfew, 12 bun. ..	3 0- 6 0	Sweet Pea, 12 bun..	3 0- 6 0
ardenias, 12 blms..	3 0- 8 0	Sweet Sultan, 12 bun.	4 0- 8 0
ladioli, 12 sprays ..	0 9- 1 6	Tropæolum, 12 bun.	1 0- 3 0
eliotropes, 12 sp. ..	0 6- 1 0	Tuberoses, per dozen	0 9- 2 0
apageria, white, 12 blooms	2 0- 4 0	Violets, 12 bunches..	0 9- 1 0
— red, 12 blooms..	1 0- 3 0		
arguerites, 12 bun.	4 0- 6 0		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
ralia Sieboldii, per dozen	18 0-42 0	Ferns, in variety, per dozen	4 0-18 0
sters, per dozen ..	4 0- 6 0	Ficus elastica, each	1 6- 7 6
rbor-vitæ (golden), per dozen	6 0-18 0	Foliage Plants, various, each	2 0-10 6
— (common), dozen	6 0-12 0	Fuchsias, per dozen	3 0- 9 0
egonias, per doz. ..	4 0-12 0	Lilium lancifolium, per doz.	12 0-36 0
hrysanthemums, per dozen	6 0-12 0	— auratum, p. doz.	24 0-60 0
issus discolor, doz.	18 0-24 0	Marguerite, white, per dozen.. ..	18 0-24 0
yperus, per dozen	6 0-12 0	— Yellow, per doz.	12 0-30 0
racæna terminalis	30 0-60 0	Myrtles, per doz. ..	6 0-12 0
- viridis, per doz...	12 0-24 0	Palms in variety, each	2 6-21 0
uonymus, various, per dozen	6 0-18 0	Pelargoniums, scarlet, per dozen ..	3 0- 6 0
vergreens, in var., per dozen	6 0-24 0	Solanums, per dozen	9 0-12 0

CORN.

At Mark Lane on Monday the supply of English heat was only moderate, but except for exceptionally ood lots prices ruled 1s. under the currency of Monday nnight. For foreign the trade was slow, at a pretty eneral decline of 1s. per qr. Foreign flour was firm; nglish rather easier. Grinding Barley was also easier, hilst Beans and Peas were unchanged. Maize was m, with moderate supplies; and in Oats, Swedish re rather lower.—On Wednesday buyers of Wheat in l positions were scarce, and easier rates were in some ses conceded to induce purchases. India Wheats re, however, held for firm rates. Flour was quiet and nchanged; Maize scarce and dearer on the spot; and ats were in good supply.—Average prices of corn for e week ending Sept. 17:—Wheat, 51s. 1d.; Barley, s. 7d.; Oats, 22s. 8d. For the corresponding period st year:—Wheat, 39s. 11d.; Barley, 33s. 5d.; Oats, s. 7d.

CATTLE.

At the Metropolitan Market on Monday the cattle ade was dull, but best qualities, from scarcity, upheld te value. The limited number of sheep at market sold owly, but some choice qualities offering gave quotations ther a higher range. Calves were unaltered in value. uotations:—Beasts, 4s. to 4s. 6d., and 5s. to 5s. 8d.; lves, 4s. 8d. to 5s. 10d.; sheep, 5s. 2d. to 5s. 8d., and . 4d. to 7s.—On Thursday the trade was quiet. Beasts ere dull, and inferior breeds were drooping. Sheep ere quiet at about Monday's rates, but calves were wer to sell.

HAY.

Tuesday's Whitechapel Market report states that there ere fair supplies, and a quiet demand at the following uotations:—Prime old Clover, 105s. to 140s.; new, 0s. to 130s.; inferior, 80s. to 90s.; prime old meadow ay, 100s. to 134s.; new, 100s. to 123s.; and straw, 30s. 54s. per load.—On Thursday there was a good supply offer. The trade was steady, and prices were without teration.—Cumberland Market quotations:—Superior eadow hay, 126s. to 135s.; inferior, 90s. to 112s.; perior Clover, 130s. to 147s.; inferior, 100s. to 112s.; d straw, 48s. to 54s. per load.'

POTATOS.

The Borough and Spitalfields Markets reports state that e demand is quiet, and though supply is light, prices e barely supported.—Quotations:—Kent Regents, s. to 90s.; Essex, 60s. to 80s.; Magnum Bonums, 70s. 90s. per ton; German reds, 4s. the bag.—The imortations into London last week were 7327 bags and rrels from Germany.

COALS.

The following are the quotations current at market ring the week:—East Wylam, 16s. 6d.; Ravensworth est Hartley, 15s. 3d.; Walls End—Hawthorns, s. 3d.; Hetton, 18s. 6d.; Hetton Lyons, 16s.; ambton, 18s.; Original Hartlepool, 18s. 6d.; Ryhope, s.; Tunstall, 16s.; East Hartlepool, 18s.; Tees, s. 3d.; Wear, 16s.; South Hetton, 18s. 6d.; Chilton ees, 17s.; Caradoc, 18s. 6d.; South Hartlepool, s. 9d.; Harris Deep Navigation, 18s.; Radford Navition, 17s. 6d.

Government Stock.—On Monday the closing ices of Consols were, for delivery, 99 to 99⅛, and 99⅝ 99¼ for the account. Tuesday's final quotations were to 99⅛ for both delivery and account. On Wednesy the closing figures were, for delivery, 99⅛ to 99¼, and ⅛ to 99⅜ for the account. Thursday's final transacns were recorded as 99¼ to 99⅜ for delivery, and 99 1/16 99 7/16 for the account.

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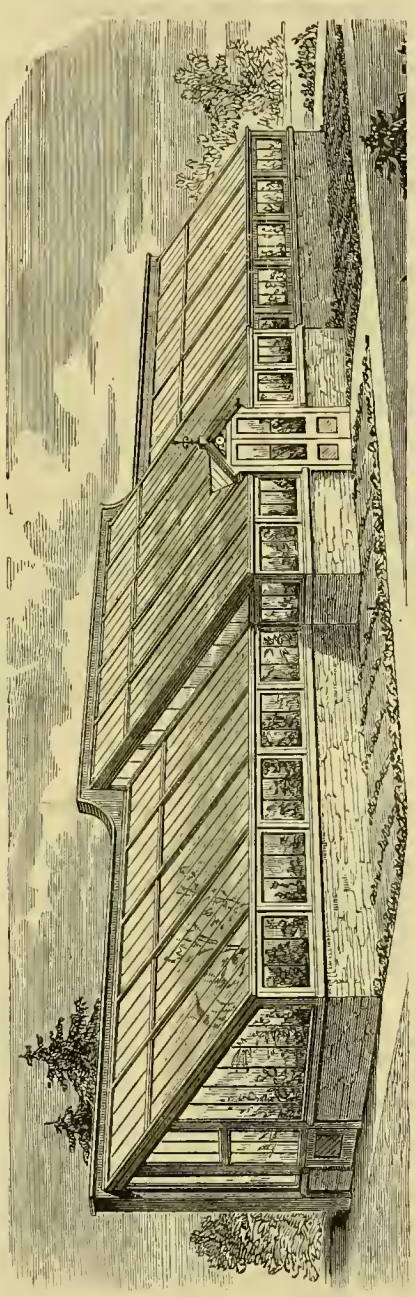

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11 × 9 to 14 × 10	..	10s. 0d., 11s. 6d., 12s. 6d.,	13s. 6d.
15 × 10 to 18 × 12	..	11s. 0d., 12s. 0d., 13s. 0d.,	14s. 0d.
20 × 12 to 20 × 18	..	11s. 6d., 12s. 6d., 13s. 9d.,	15s.; if 21-oz., 14s., 15s. 6d., 17s. 6d., 19s.

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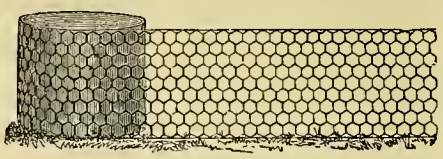


GOLD MEDAL,
ADELAIDE EXHIBITION, just awarded.

FIRST PRIZE AWARDS
SYDNEY and MELBOURNE,
and every International First Prize Award during the last 12 years.

IRON HURDLES, BAR and WIRE FENCING.

BEST GUARANTEED JET BLACK VARNISH,
for Coating Iron Fencing and Woodwork, drying quickly and applied cold by any labourer. 1s. 6d. per gallon, carriage paid, in 18 and 36 gallon casks. No charge for casks.

J. B. BROWN & CO.,
90, CANNON STREET, LONDON, E.C.

Under the Patronage of the Queen.

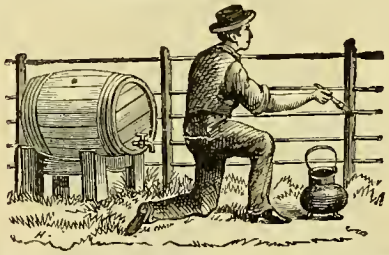
J. SMITH'S IMPERISHABLE STRATFORD LABELS.

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.
The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."
Samples and Price Lists free.
J. SMITH, The Royal Label Factory, Stratford-on-Avon.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of
WATSON AND SCULL, 90, Lower Thames St., London, E.C.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone.
(Registered Trade Mark.)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.
Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

Large Illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c., sent free on application to
HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 180, Buchanan Street, Glasgow.

PIPES and FITTINGS,
FOR HEATING APPARATUSES.
The largest stock in the Kingdom. 4-inch pipes, 1s. 7d. per yard.
SILVESTER & SAINSBURY,
Castle Hill Foundry, Newcastle, Staffordshire.

THOS. W. ROBINSON,
DENNIS PARK IRONWORKS STOURBRIDG
MANUFACTURER OF
HOT-WATER PIPES,
IMPROVED "EXPANSION JOINT" PIPES,
BOILERS,
SPOUTING, PUMPS, TANKS, WROUGHT-IRON TUBING, And every description of Ironwork for Horticultural a Building Purposes.

SOCKET HOT-WATER PIPES.

	s. d.		s. d.		s. d.	
Pipes (6 ft. long)—	2-in., 1 6	..	3-in., 2 8	..	4-in., 3 4	eac
,, (9 ft. long)—	,, —	..	,, 3 9	..	,, 4 6	,,
Elbows (No. 12)—	,, 1 1	..	,, 1 8	..	,, 2 0	,,
Tees (No. 33)—	,, 1 5	..	,, 2 4	..	,, 3 3	,,
Syphons (No. 23)—	,, 1 3	..	,, 2 0	..	,, 3 0	,,

"Expansion Joint" Hot-water Pipes.

The "Expansion Joint."

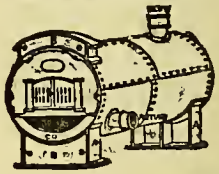
The Best and Quickes Made.

This Joint, being easily removed, is specially adapted fo Tenants.

	s. d.		s. d.		s. d.	
Pipes (6 ft. long)—	2-in., 1 5	..	3-in., 2 3	..	4-in., 2 11	eac
,, (9 ft. long)—	,, —	..	,, 3 4	..	,, 4 3	,,
Elbows (No. 3)—	,, 0 8	..	,, 0 10	..	,, 1 0	,,
Tees (No. 13)—	,, 0 11	..	,, 1 2	..	,, 1 4	,,
Syphons (No. 16)—	,, 1 0	..	,, 1 4	..	,, 1 6	,,

Joint complete, with Rubbers and Pins, 2-in., 10d. each; 3-in., 1s. 2d.; 4-in., 1s. 4d.
Delivered into Trucks or Boats. Illustrations and Price Lists fr
Terms—Cash against Invoice less 2½ per Cent. Discount.
Estimates for Heating given from Plans.
ALL CASTINGS SUPPLIED OF FIRST QUALITY ONLY.

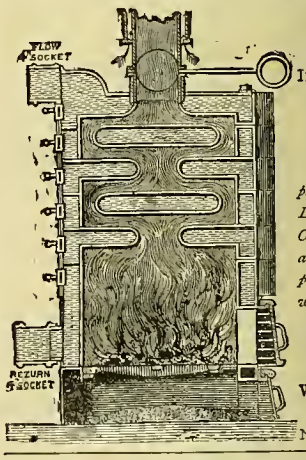
REDUCED PRICES
STEVENS'
TRENTHAM GREENHOUSE BOILER,
After long experience, has proved the most SIMPL ECONOMICAL, EFFECTUAL, and LASTING BOIL extant; recently improved.



Sole Makers,
SILVESTER & SAINSBURY,
CASTLE HILL FOUNDRY, NEWCASTLE
STAFFORDSHIRE.

Sole English Medallists at Philadelphia for the Hot-water Apparatus.

Wright's Patent "Endless-Flame Impac Hot-water Boilers.



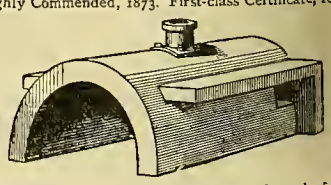
New Malleab Iron and Tubu Series.

Descriptive P phlets. New P LIST of 175 Boil Opinions of the P and 24 pages of ports from those work, on applicat

Over 400 at wor

Wm. Wright & AIRDRIE,
Near Glasgow, N

Silver Medal, 1874. First-class Certificate, 1
Highly Commended, 1873. First-class Certificate, 1875.



Mr. W. THOMPSON, Tweed Vineyard, has written the follo letter to a gentleman who inquired respecting this Boiler:—
"Galashiels, February 4, 18
"The Terminal Saddle Boiler is BY FAR the best one we here, and we have had all sorts. It does its work well, and less fuel than most Boilers. It is the most economical and cient Boiler we have, and has not cost sixpence since we fix some eight years ago."
Illustrated Prospectus Post-free.
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STOVES—STOVES.

Terra-Cotta! Portable! For Coal.

ROBERTS'S PATENT.

Healthy Heat twenty-four hours or longer for about 1*d.*, without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,

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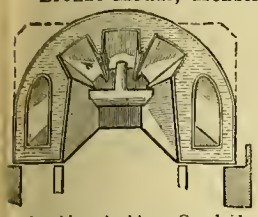
BEN'S BOILER

(REGISTERED).

Bronze Medal, Kensington, 1881.



To Heat of 4-inch Pipe

1000 feet	£16 10
1200 feet	18 0
1600 feet	23 10
2000 feet	28 0
3000 feet	40 0

Made with and without Crossbridge; also with Top-feeder and Tubular Fire-bars (Wrought or Cast); and as an Independent Boiler without Outside Brick Flues.

Descriptive Circulars, with Prices, free. Also for BUTT'S PATENT COMBINED SADDLES. To be had only from

B. W. WARHURST,

3, HIGHGATE ROAD, LONDON, N.W.

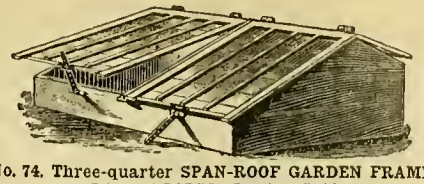
"CHECK-END" SADDLES, to Heat 500 feet, £7 10*s.*; 1000 feet, £13; and 1500 feet, for £19, Carriage paid to any English Railway Station.

Gas Stoves, Gas Boilers, Bentley's Water Spray, &c.

DIE'S PATENT LAWN EDGER.

THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and" he further adds, "the use of it will, we have doubt, become general." Prices 27*s.* and 30*s.*

LAWN EDGER CO., 15, Pall Mall, London, W.



No. 74. Three-quarter SPAN-ROOF GARDEN FRAME.

CASH PRICES—Carriage Paid.

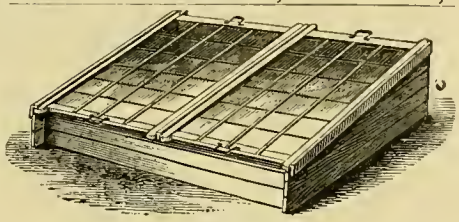
No. 2 size	8 ft. long	6 ft. wide	£4 15 0
No. 3 size	12 ft. long	6 ft. wide	6 10 0
No. 4 size	16 ft. long	6 ft. wide	8 5 0

These Frames give greater height in the centre. They are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Set-opes are provided for ventilating. Are made of the best hard red deal, all painted four coats of best oil colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales, also to Edinburgh and Dublin.

Estimates for Garden Frames, Pit Lights, Sashes, &c.

"Mr. HENRY McCOMAS, having had 64 ft. of the No. 74 Frame, he considers it very satisfactory."—*Homestead, Dundrum.*

BOULTON & PAUL, NORWICH,



Cucumber Frames.

R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England, also Dublin and Belfast:—

	£	s.	d.
2-light frame, 8 feet by 6 feet	3	10	0
3-light frame, 12 feet by 6 feet	5	5	0
6-light frame, 24 feet by 6 feet	10	0	0

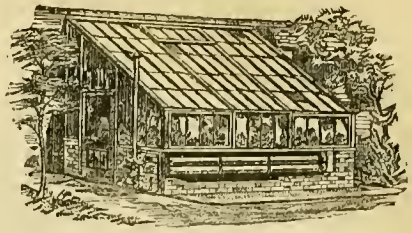
The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

R. HALLIDAY AND CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.

THE COTTAGE POULTRY HOUSE, TENANT'S FIXTURE.

Of improved construction, can be erected in a few minutes, with Roosting House, Covered Run, Nests, Perches, &c., complete, 12 feet long, 4 feet wide. Price £6 10*s.*, carriage paid. Write for Illustrated Catalogue, containing useful Treatise on Poultry Management, free by post.

BOULTON AND PAUL, Manufacturers, Norwich.



The Amateur's Span and Lean-to Greenhouses.

SHOWING HEATING APPARATUS.

THE "LOUGHBOROUGH" BOILER, now introduced, is intended to supply a want long felt, of a cheap Boiler for small Greenhouses, requiring neither brick setting nor iron case. The Boiler is placed in the wall of the Greenhouse, so that the heat from the Boiler itself is utilised in heating the house.

Price with fittings, £2 25.

The apparatus for a Greenhouse, 20 feet by 12 feet, complete for £6 8*s.* Prices and full particulars on application.

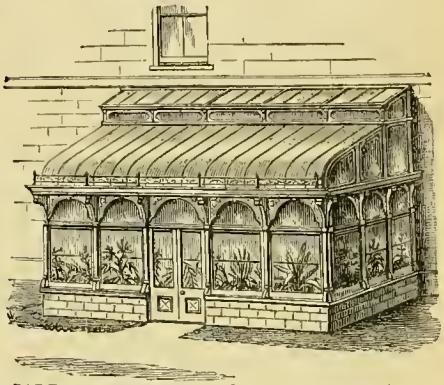
MESSENGER AND CO., Loughborough.

W. H. LASCELLES,

HORTICULTURAL BUILDER,

121, BUNHILL ROW, LONDON, E.C.

Special DESIGNS and ESTIMATES given for Ornamental CONSERVATORIES, without charge, and for all Horticultural Work of all kinds.

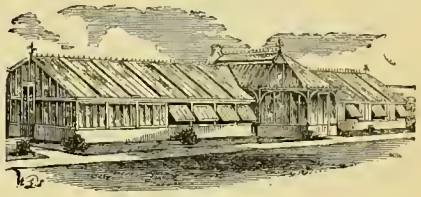


GARDEN BOXES and LIGHTS are generally kept in Stock, and WOODEN HOUSES suitable for Store-houses, Tool-houses, &c.

Illustrated Sheets sent, post-free, on application.

RICHARDSON'S PATENT

HORTICULTURAL BUILDINGS



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Illustrations, Price Lists, and Testimonials free.

Hot-Water Apparatus fixed in any part of the Kingdom, and guaranteed.

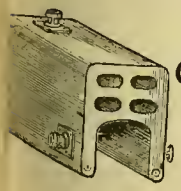
Send for particulars to

W. RICHARDSON & CO.,

Horticultural Builders & Hot-Water Engineers,

DARLINGTON.

GRAND INTERNATIONAL HORTICULTURAL EXHIBITION, MANCHESTER.



Section 10.—*IMPLEMENTS and DESIGNS.*

Class 216.—The Best Boiler, practically and scientifically considered.

THE SOCIETY'S MEDAL

WAS AWARDED TO

JOSEPH BRAMHAM, 104, DALE STREET, LIVERPOOL,

FOR HIS

ALLERTON PRIORY BOILER.

The SADDLE BOILER with Waterway Back, is also still being fixed.

SEND FOR BOOK OF TESTIMONIALS.

THE THAMES BANK IRON COMPANY

UPPER GROUND STREET,

LONDON, S.E.,

Have the largest and most complete stock in the Trade to choose from.

HOT-WATER BOILERS, PIPES, AND CONNECTIONS,

AND all CASTINGS for HORTICULTURAL PURPOSES.

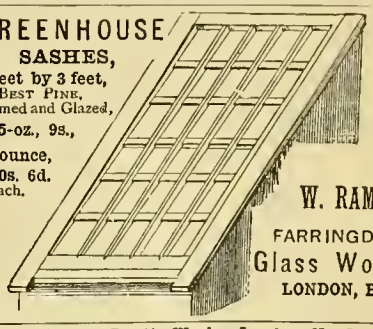
Their New Illustrated Catalogue, 12th Edition, now ready (price One Shilling).

Hot-water and Hot-air Apparatus erected complete, or the Materials supplied.

Price List on application free.

GREENHOUSE SASHES,

6 feet by 3 feet, BEST PINE, Primed and Glazed, **15-oz., 9s.,** **21-ounce, 10s. 6d.** each.



W. RAMSEY,

FARRINGDON Glass Works,

LONDON, E.C.

Holloway Rustic Works, London, N.—See

J. TROTMAN'S PORTABLE RUSTIC SUMMER HOUSES, all sizes, ready for delivery to all parts, and all kinds of Rustic Work. See Plate. Some fine specimens £30 each. Discount 5 per cent.

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8 ,,	..	..	0	5	0	19 ,,	..	..	0 10 6
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11 ,,	..	..	0	6	6	22 ,,	..	..	0 12 0
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AND SIXPENCE FOR EVERY ADDITIONAL LINE.

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GARDENERS, AND OTHERS, WANTING SITUATIONS.
26 words 1s. 6d., and 6d. for every additional line (about 9 words) or part of a line.

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BIRTHS, DEATHS and MARRIAGES, 5s. each insertion.

Advertisements for the current week MUST *reach the Office by Thursday noon.*

All Subscriptions payable in advance.

THE UNITED KINGDOM: 12 Months, £1 3s. 10d.; 6 Months, 11s. 11d.; 3 Months, 6s.

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PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS, 41, Wellington Street, Strand, London, W.C.

THE FLORIST and POMOLOGIST, and SUBURBAN GARDENER, for October, will contain a Plate of NEW HEATHS, from the Bothwell Castle Collection, and a portait of STIRLING CASTLE APPLE, one of the best in cultivation, with the following articles:—

Archdeacon Lea's Fruit Trees.
The Orchid Album.
Vines and Vine Culture; descriptions of varieties.
Sea Eagle Peach.
Gloxinia Culture.
Running in Carnations, &c.
The International Fruit Show: its Lessons.
New Carnations and Picotees: Gorton's, Hewitt's, Dodwell's.
Large Gooseberry Tree.
Peat as an Antiseptic.
Asparagus on Clay Soils.
Manchester Carnation and Picotee Show.
National Carnation and Picotee Society's (North) Show.
Suburban Gardening.
Garden Gossip. In Memoriam.

Monthly, Price 1s.

London: W. KENT AND CO., 23, Paternoster Row, E.C.

Moles. — Moles. — Moles.

Just published,

MOLES and MOLECATCHING. By EDWIN GREGORY, Molecatcher to His Grace the Duke of Devonshire, Chatsworth.

Should be read by Farmers, Gardeners, and all who want information respecting Moles or the killing of them.

Post-free for thirteen-pence, in stamps or otherwise. Address, E. GREGORY, Curbar, *viâ* Sheffield.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her possessions, and in the Principal Towns of the Brazils.

This paper offers an excellent medium for Advertisements of every description of industry and of every article of Consumption in the countries and places above mentioned.

Advertising charges, 8d. per square inch, Translation included. Ten per cent. Discount for six months; 20 per cent. Discount for twelve months, if paid in advance.

Address, the Editor of the *Cultivator*, St. Michael's, Azores.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865, by F. BURVENICH, F. PAYNAERT, E. ROOIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post-paid, 10s. per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

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Children's, 2/6 per doz.		HEMSTITCHED.	
Ladies' .. 2/11	,,	Ladies' .. 5/11 per doz.	
Gents' .. 4/9	,,	Gents' .. 7/9	,,

All Pure Flax.

SAMPLES POST-FREE.

POCKET HANDKERCHIEFS.

"The Cambrics of Robinson & Cleaver have a world-wide fame."—*The Queen.*

ROBINSON and CLEAVER,
MANUFACTURERS TO THE QUEEN, BELFAST.

SALUTARIS WATER,
TWO SHILLINGS PER DOZEN IN LONDON,
or Half-a-Crown packed for the Country.
LARGE CHAMPAGNE BOTTLES.
GUARANTEED PURE DISTILLED WATER,
Aërated with Carbonic Acid Gas and nothing else!
No Soda! No Minerals! No Impurities!
ORDERS BY POST TO
SALUTARIS WATER COMPANY,
236, FULHAM ROAD, LONDON, S.W.

FOR LIVER, KIDNEY, AND STOMACH TROUBLES.

HOLMAN'S PAD

THE ONLY TRUE ANTIDOTE FOR DISEASE.

DR. HOLMAN'S PAD IS NOT A GUESS-WORK REMEDY—IT IS THE **Original and only genuine curative Pad,** THE ONLY REMEDY THAT HAS AN DONESTLY-ACQUIRED RIGHT TO USE THE TITLE-WORD **"Pad"** IN CONNECTION WITH A TREATMENT FOR CHRONIC DISEASES OF THE **Stomach, Liver,** AND **Spleen.** HOLMAN'S PAD HAS SUCH COMPLETE CONTROL OVER THE MOST PERSISTENT FORMS OF **Chronic Disease** OF THE **Stomach** AND **Liver,** AS WELL AS **Malarial Blood-Poisoning,** AS TO AMPLY JUSTIFY THE EMINENT **Prof. Loomis'** HIGH ENCOMIUM: **"It is nearer a Universal Panacea than anything in medicine!"** The HOLMAN PAD, placed over the Stomach and Liver, from which nearly all diseases have their origin, will exert a never-failing beneficial influence over the vital forces — nerves and blood. It contains wonderful properties, consisting of healthy tonics that are sent into the system by ABSORPTION, stimulating the great nerve centres that pervade the digestive organs, without which digestion and good vitalising fluid (blood) is impossible. Pamphlet with description of cases free to any address. The principle is logical and natural, and is universally acknowledged to be correct; the practice is simple, easy, and effectual. Price, regular size, 10s. If not readily obtained of nearest chemist, sent by post, free, on receipt of cheque or P.O. order, payable to order of J. M. RICHARDS, Gt. Russell St. Post Office, London. THE HOLMAN PAD COMPANY, Gt. Russell St. Buildings, London, W.C. (late Argyle Street, Regent Street).

SILVER SAND.—Fine, 10s. per ton; Coarse, 11s. and 9s. per ton, by truck-loads. Kent and Surrey PEATS and LOAMS, at moderate quotations, by truck-loads, &c.—W. SHORT, Horticultural Depôt, Redhill, Surrey.

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BRYANT & MAY'S MATCHES.

TRADE MARK SECURITY

EIGHT PRIZE MEDALS.

ADVANTAGES.
Are entirely free from SMELL
Are not POISONOUS
Are manufactured without PHOSPHORUS
Are perfectly harmless to the OPERATIVES employed
Are very Damp Proof
Are not liable to Spontaneous Combustion
Light only on the Box.

PERRY DAVIS'

VEGETABLE

PAIN KILLER.

Diarrhœa, Dysentery, Summer Complaint, Cholera, Cramp, Dyspepsia, Liver Complaints, Rheumatism, Neuralgia, Sciatica, Gout, &c.

At this season, various diseases of the bowels are prevalent, and many lives are lost through lack of knowledge of a safe and sure remedy. PERRY DAVIS' PAIN KILLER is a sure cure for Diarrhœa, Dysentery, Cholera, Cholera Morbus, Summer Complaint, &c., and is perfectly safe.

A Cold or Sore Throat may not seem to amount to much, and if promptly attended to can easily be cured; but neglect is often followed by Consumption or Diphtheria. No medicine has ever been discovered which acts so quickly and surely in such cases as PERRY DAVIS' PAIN KILLER. The prompt use of this invaluable remedy has saved thousands of lives.

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To Land Stewards and Head Gardeners.

WANTED, an active, intelligent man, SUPERINTEND a very Large Establishment, must have had great practical experience in Forcing Fr Vegetables and Flowers, in Growing Bush Fruit on a l scale, in Market Gardening, and a General Knowledg Farming, including the extensive Rearing of Poultry and P A liberal salary will be given to a person with unexception references, fully competent to discharge the abovenamed du —Apply, by letter only, stating fullest particulars and sa required, to M. P., Mr. Walther, 446, West Strand, W.C.

WANTED, a GARDENER.—M thoroughly understand Greenhouse Work, Vines, Flowers. Must be a married man, without children, age 2 35. There is a four-roomed cottage residence in the Gar Good references as to character, sobriety, and ability wil required.—Apply to WILLIAM H. HOVEY, Esq., Ne Lodge, Grove End Road, St. John's Wood, N.W.

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B. S. WILLIAMS begs to intimate that he has at present in the Nursery and upon his Register me excellent Men, competent either to fill the situation of EAD GARDENER, BAILIFF, FOREMAN, or OURNEYMAN. Ladies and Gentlemen requiring any of the ove will please send full particulars, when the best selections r the different capacities will be made.—Holloway, N.

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LITTLE AND BALLANTYNE, NURSERYMEN, Carlisle, have exceptional opportunities for assisting Noblemen and Gentlemen in securing the services of first-iss GARDENERS, UNDER GARDENERS, BAILIFFS d FORESTERS. They have at present several very excellent men on their Register, and will be glad to send parulars of them to any in want of such.

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FOREMAN, or SECOND, in a Nobleman's Garden.—Aged 23; three years' good character. Nine years' experience in a Nobleman's Garden.—Apply, stating wages, &c., to W. H. JONES, Brymbo Hall, near Wrexham, Denbighshire.

FOREMAN, in a Gentleman's Garden, where several are kept.—Good character from present and previous employers.—J. H., Mr. Martin, Knight's Hill Nursery, Lower Norwood, London, S.E.

FOREMAN, in a Nobleman's or Gentleman's establishment.—Age 27, single; eleven years' experience in all branches. Has served as Foreman before. £2 Bonus will be given to any Gardener, Nurseryman, or others, who may be the means of assisting the Advertiser into a good situation as above.—M. L., 9, Granville Road, Garston, Liverpool.

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NURSERY FOREMAN.—Well acquainted with Growing and Propagating all kinds of Nursery Stock; also Seed Trade. Twenty years' practical experience. Can be highly recommended. Has been accustomed to attend Markets.—P. G., 36, Upper Berkeley Street, Portman Square, W.

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To Nurserymen and Others.

PROPAGATOR and GROWER of Soft-wooded Plants for Market.—Well acquainted with the Cultivation of Pelargoniums, Ferns, Cucumbers, &c. Eleven years' experience.—T. F., 9, Percy Terrace King's Road, Mortlake, Surrey.

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JOURNEYMAN, in a good establishment.—Age 20; can be well recommended.—W. DARBY, Sileby Road, Barrow-on-Soar, Loughborough, Leicestershire.

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IMPROVER, in a large Gentleman's Garden.—R. EVANS, 5, Penmaen View, Llanfairfechan, North Wales.

TO NURSERYMEN.—A young man (age 20) desires a situation in a good Nursery. Good character.—W. PRIOR, 40, Argyle Road, Garston, Liverpool.

COLONIAL.—A young man desires a situation as ASSISTANT on a TEA or other PLANTATION; has had a thorough training for such, with good commercial experience as well. Highest references for ability and character. CINCHONA, *Gardeners' Chronicle* Office, W.C.

SHOPMAN.—Age 26; is open for engagement in the beginning of October. Has had good practical experience in leading Scotch Houses.—SEEDSMAN, Messrs. Downie & Laird, Edinburgh.

SHOPMAN, or TRAVELLER.—Age 33; eighteen years' first-class experience. Thorough knowledge of all departments.—J. D. T., 43, Frederick Street, King's Cross, London, W.C.

To the Seed Trade.

SHOPMAN, or SHOPMAN and BOOK-KEEPER.—A young man, with six and a half years' experience, desires a situation. Good references.—M., Messrs. Downie & Laird, Edinburgh.

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BOOK-KEEPER, or other position of Trust in a Nursery or Seed Business.—Age 36; first-class references.—A. B., Mr. Bennett, 78, Mansfield Road, Gospel Oak, London, N.W.

TO THE SEED TRADE.—Wanted, by a young man (age 20), a situation in the above trade.—G. A. G., Grange Farm, Bury St. Edmunds.

TO THE SEED TRADE.—A young man, having seven years' experience, desires an engagement. Good references.—W. ALPHA, Post-office, Tynninghame, Prestonkirk.

To the Seed Trade.

DOWNIE AND LAIRD can at present recommend a young MAN, whose apprenticeship has just been completed.—DOWNIE AND LAIRD, Seedsman, 17, Frederick Street, Edinburgh.

KINAHAN'S LL WHISKEY

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Pure, Mild and Mellow, Delicious and Most Wholesome. Universally recommended by the Profession. The Cream of Old Irish Whiskeys.

KINAHAN'S LL WHISKEY.
Dr. Hassall says—"Soft and Mellow, Pure, well Matured, and of very excellent quality."

KINAHAN'S LL WHISKEY.
Gold Medal, Paris Exhibition, 1878; Dublin Exhibition, 1865, the Gold Medal.—20, Great Titchfield Street, London, W.

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OLD DOCTOR JACOB TOWNSEND'S SARSAPARILLA is the most effective and pleasant Remedy for all Blood and Skin Diseases, Gout, Pimples, Eruptions, &c. Invaluable during Autumn and Spring. In Bottles, 2s. 6d., 4s. 6d., and 11s.—131, Fleet Street, E.C.

DINNEFORD'S MAGNESIA.
The Medical Profession for over Forty Years have approved of this pure solution as the Best Remedy for
ACIDITY OF THE STOMACH, HEARTBURN, HEADACHE, GOUT, AND INDIGESTION,
and as the safest Aperient for Delicate Constitutions, Ladies, Children, and Infants.

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HOLLOWAY'S OINTMENT and PILLS.—For the cure of Burns, Scalds, Wounds, and Ulcers, this justly celebrated Ointment stands unrivalled. Its balsamic properties, immediately on application, lull the anguish, protect the exposed nerves from the air, give to the vessels the vigour necessary to heal the sore, and confer on the blood a purity which permits it to lay down healthy flesh in place of that destroyed. Holloway's Pills, simultaneously taken, greatly assist the Ointment's purifying and soothing power. Together these medicines act like a charm; no invalid, after a fair trial, has found them to fail to relieve his pain, or completely cure his disease. The combined action of the Ointment and Pills, in all disorders, is all-powerful and too irresistible to be withstood.

NEW RASPBERRY

BAUMFORTH'S SEEDLING.

Since I had the pleasure last season of introducing this new Raspberry, I have taken ample means further test its value, and I am happy to say the results have not only justified my previous description, but far exceeded my most sanguine expectations. Indeed, to give anything like a definite description of it now I cannot do better than refer my Customers to the numerous Testimonials I have already received respecting it.

The season has undoubtedly been very trying for Raspberries. Whilst the usually good and robust Northumberland Fillbasket has nearly succumbed to the excessive drought, the Baumforth's Seedling has shown a great vigour, and carried through a crop of fruit which has been the admiration of all who have seen it.

In my plantations at Burton Constable I have gathered nearly 3000 quarts off barely 3 roods of land, and yet, though possessing such a marvellously prolific constitution, the fruit has maintained one grand uniform size, of the most beautiful crimson colour, and finest possible flavour.

I have no hesitation in pronouncing it the greatest acquisition in Raspberries of the present day.

TESTIMONIALS.

From the Rev. CHAS. J. WALL, *Sproatley Rectory.*—"I am of opinion that the new Raspberry, Baumforth's Seedling, sent out by you this last year, will prove a most valuable acquisition to all fruit growers. We got only a dozen canes this spring, and had a very good crop of fine fruit off them this July. The fruit was finer even under that treatment than any of my Raspberries. Please let me have two dozen more canes as early as possible."

From Mr. R. DRAPER, *Gardener to the* Marquis of Londonderry, *Seaham Hall.*—"The Raspberry has not had a fair trial, being only planted this year, but from what I can see of it, it is a very promising variety; fruit large, which is what we require."

From Mr. J. ALLSOP, *Gardener to* the Right Honourable Lord Hotham, *Dalton Hall.*—"I have great pleasure in saying that your new Raspberry, Baumforth's Seedling, has fully borne out all you have said in its favour. The canes you supplied us with last autumn have carried a fine crop of large fruit. I consider it a prolific and superior variety, well deserving the notice of intending planters. I may add that the weather has been too dry for Raspberries this summer, but on comparing fruits of Baumforth's Seedling with Northumberland Fillbasket the former were much the largest and best fruit."

From Mr. R. C. KINGSTON, *Gardener to* C. Sykes, Esq., M.P., *Brantinghamthorpe.*—"I have a very favourable opinion of Baumforth's Seedling Raspberry. I have seen it several times exhibited in 1880 and 1881; it is a splendid fine flavour, invariably has taken 1st prize. I purchased plants last autumn. I find it has a strong, healthy, vigorous habit."

From Mr. GARDNER, *Gardener to* Sir J. D. Astley, Bart., *Elsham Hall.*—"Baumforth's Seedling Raspberry, of which you supplied me with some canes last autumn, is a great acquisition, and when it becomes better known I am pretty certain that it will be much sought after."

From B. H. BROOKSBANK, Esq., *Tickhill.*—"The few canes of Raspberry supplied by you last autumn have borne me some very fine fruit, and I hope to have some more plants from you."

W. E. GUMBLETON, Esq., *Belgrove.*—"Is well pleased with the size of the few fruit produced by the Baumforth Seedling canes this season."

From P. BOIS, Esq., *Jersey.*—"I am pleased to say with reference to the new Raspberry, Baumforth's Seedling, that it has met my expectation from what I had read about it. I planted the Baumforth canes at the same time and together with some Northumberland Fillbaskets, some Carter's Prolific, and a large sort of which I do not know the name, that has long honoured my garden. The Baumforths brought some of their fine large fruit ripe first—being some eight or ten days in advance of Carter's, which followed—and when the four varieties where in full fruiting, the Baumforths were quite conspicuous among the others by their large, dark foliage, and much larger fruit. I have found them also more prolific, and they have given me a regular supply during a rather longer period than the others. For transplanted canes, the Baumforths you sent me have given an abundance of extra fine fruit which has surpassed my anticipations."

From Mr. SAMUEL BRADLEY, *Littledale.*—"I beg respectfully to acknowledge the receipt of your letter respecting Baumforth's Seedling Raspberry. Owing to the exceedingly dry and hot weather, and recent planting, I have not had the pleasure of seeing the fruit fully developed, nevertheless the fruit was fine and of excellent flavour. I am quite convinced it is a real acquisition: I hope to see it next season in its full vigour and perfection."

From Mr. H. BARKER, *Gardener to* Lady Julia Middleton, *Settrington Hall.*—"I beg to inform you that the new Raspberry sent out by you last season, named Baumforth's Seedling, has given the greatest satisfaction here. I obtained from you a hundred canes—not the largest size, but the second size—they have borne a remarkably good crop of very fine fruit, considering the very dry season we have had. I planted them between rows of Northumberland Fillbasket and the old Fastolf. I consider it a decided improvement on these two good old varieties. It is of large size and very fine colour, the flavour is good, not being so tart as Fillbasket; it parts very freely from the stalk, which I consider a great point in its favour; it is a fine variety for dessert, the colour being a very fine bright red, and for preserving it cannot be surpassed. I consider it a great improvement on all other varieties, it only wants to be known to become a universal favourite. I may add, it is almost perpetual bearing, as it is at present bearing very fine fruit upon this year's young wood."

From Messrs. STUART, MEIN & ALLAN, *Kelso.*—"Your new Raspberry, Baumforth's Seedling, so far as we can judge from this season's experience, is well worthy the high commendation so generally given it by those who have fruited it. Its rich flavoured fruit is supplied abundantly in clustering racemes of full-sized berries, which are rich crimson in colour; moreover, its constitution appears vigorous from the young growths produced on every plant this summer."

From ROBERT WYSE, Esq., *Auburn Hill.*—"Your Baumforth's Seedling Raspberry is an excellent one; some of my canes have done remarkably well."

From Messrs. H. CANNELL & SONS, *Swanley.*—"The unprecedented dry, hot season has been all against your Raspberry; it has, however, exceeded our expectations, and seems to be a decided improvement on Carter's Prolific."

From Mr. W. B. SMALE, *Torquay.*—"Respecting the Raspberry, Baumforth's Seedling, it has suffered greatly from the drought, but it shows great promise of being a fine Raspberry."

From Messrs. JAMES BACKHOUSE & SON, *York.*—"In reply to your enquiry respecting Baumforth's Seedling Raspberry, we beg to say that although the first season after planting cannot be considered a fair trial of any Raspberry, we are very well pleased with it. The plants, allowing for the dryness of the season, have grown well, promising a strong, vigorous habit, and also borne well for their strength; the fruits were abundant, of good size, good colour, and good flavour."

From Messrs. EWING & CO., *Eaton, near Norwich.*—"Respecting Baumforth's Seedling Raspberry, we beg to say that from what we can see of this kind at present it appears to be a *very superior* one indeed."

From the GARDENERS' CHRONICLE, *July* 30.—"I am always anxious to try anything new in the way of fruits, and with this view I gave Baumforth's Seedling Raspberry a trial this season, and so striking is the plant and fruit that every gardener calling here has noted it. It is no doubt the best of its kind yet out; the habit is strong, the fruit large and handsome, with plenty of it; for the dessert it is a great acquisition. I shall increase it and make it my principal stock here.

"H. CULVERWELL, *Thorpe Perrow.*"

From Mr. G. B. TILLYARD, *Gardener to the* Right Honourable the Earl of Yarborough, *Brocklesby Park.*—"Your new Raspberry, Baumforth's Seedling, has done wonders with me, when taken into consideration that the canes were only planted last winter, and the fruit finer than that well known old kind, Fastolf."

From Mr. JOHN NELSON, *Thorn Bank Nursery.*—"In reference to the new Raspberry, Baumforth's Seedling, of which you supplied me, the fruit has been very large, and I think it will be a grand acquisition."

From Mr. HY. ALLEN, *Gardener to* Sir R. Sheffield, Bart., *Normanby Park.*—"I have great pleasure in expressing my favourable opinion of your Raspberry, Baumforth's Seedling. The fruit is very large, excellent flavour, and abundant bearer."

From Mr. HENRY A. MANN, *Gardener* to Mrs. R. Horner, *St. Vincent's, Grantham.*—"Your new Raspberry, Baumforth's Seedling, most decidedly surpasses all the Raspberries I have come under my notice either for exhibition or general purposes. The extreme uniform size, with quantity and quality combined, and exquisite flavour, renders it quite an acquisition. The season has not been a good one for testing Raspberries, in spite of this we have gathered some fine bold gigantic fruit of Baumworth's Seedling, from canes supplied by you last autumn. I also find another point in its favour, viz., it is ten to ten days in advance of the older varieties in ripening. The qualities altogether are so good that it must find its way to the front rank, and be placed A 1 for both private and market purposes."

From Mr. D. WALKER, *Gardener to* B. H. Collins, Esq., *Dunorlan.*—"When I saw your advertisement and description of the Baumforth's Seedling Raspberry, which you were offering out last season, I thought if it was anything near the description given it must be very good indeed, so I procured and planted some of it, and every one of the canes have grown exceedingly well; the fruit has far exceeded my expectations for the first season of planting; they were very fine indeed. It has made some fine canes for another year. I intend to get more of it this autumn."

From Mr. JOHN FORBES, *Buccleuch Nurseries, Hawick.*—"Most of the canes received from you of Baumforth's Seedling were planted in my own grounds for stock. This season they produced a very heavy crop of extra large, highly flavoured fruit. I am quite of opinion that it has in every respect justified the high character you gave it, and that it will at no distant date assert its superiority over all other varieties with which I am acquainted."

From Messrs. JOHN JEFFERIES & SONS, *Cirencester.*—"We have been rather unfortunate with part of the canes of Baumforth's Seedling Raspberry we received from you, having lost several through the continued drought early in the season. We may, however, safely say we have formed a high opinion of it; it is the most productive Raspberry we are acquainted with of good size and quality—and we hope to grow it extensively."

From Mr. JOHN CLARK, *Gardener to the* Marquis of Ripon, *Studeley Royal.*—I am glad to be able to speak favourably of your Raspberry (Baumforth's Seedling). It has borne very well with me this year, and the fruit has been remarkably fine, but owing to their being recently planted and not being netted, the birds spoiled the greater part of them. I think, however, it will prove a great acquisition, and I have no doubt it will do better next year."

From JAMES CYPHER, *Queen's Road Nursery, Cheltenham.*—"Your new Raspberry has proved very good with me, but the season has been all against it. I believe it will prove a grand acquisition."

From Mr. J. GOLDING, *Hastings.*—"I have not been able to give the Baumforth Seedling Raspberry a fair trial, but from what I can see they are of a superior description."

Price, per dozen Canes, 7s. 6d.; per 100, 50s.; Extra Strong, per dozen, 10s. 6d.

Price to the Trade on application.

EDMUND PHILIP DIXON,

SEED GROWER, MERCHANT, AND NURSERYMAN,

HULL.

Editorial Communications should be addressed to "The Editors;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Now Ready, in cloth, 16s.,
THE GARDENERS' CHRONICLE,
Volume XV., JANUARY to JUNE, 1881.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

ALEXANDRA PALACE, N.
CHRYSANTHEMUM SHOW.
from December 9 to 13.

ALEXANDRA PALACE, N.
CHRISTMAS FRUIT SHOW
AND HARDY EVERGREEN PLANTS,
from December 24, 1881, to January 7, 1882.
J. FORSYTH JOHNSON, Horticultural Director.

RICHMOND Horticultural SOCIETY.
President—H.S.H. the Duke of Teck, G.C.B.
The THIRD ANNUAL AUTUMN EXHIBITION of CHRYSANTHEMUMS, FLOWERS, FRUIT and VEGETABLES, will be held in the Assembly Rooms, Castle Hotel, Richmond, on THURSDAY and FRIDAY, November 10 and 11. Schedules may be obtained of
GEORGE EVLES, Lesham Villa, Kew.

WESTMINSTER AQUARIUM.—CHRYSANTHEMUM, FRUIT and VEGETABLE SHOW, NOVEMBER 17 and 18. Liberal scale of Money Prizes, Silver Cups, Medals, &c. Schedules on application to
WILLIAM HOLMES,
Frampton Park Nursery, Hackney, London, E.

WELLINGBOROUGH FLORAL and HORTICULTURAL SOCIETY.
A SHOW of CHRYSANTHEMUMS, FLOWERS, FRUIT, and VEGETABLES will be held in the Corn Exchange, Wellingborough, on FRIDAY and SATURDAY, November 25 and 26. Rules and Schedules of Prizes can be obtained of JOSEPH PENDERED, GEO. F. BEARN, JOSEPH DULLEY, } Hon. Secretaries.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.
The object of this Institution is to provide PENSIONS for *bonâ fide* FARMERS, their WIDOWS, and UNMARRIED ORPHAN DAUGHTERS. Nearly 600 persons are now being maintained, at an annual cost of £12,000, and more than 350 Candidates are waiting for Election. The Clergy are earnestly solicited to forward Collections resulting from "HARVEST THANKSGIVING SERVICES."
Particulars of the Society may be obtained of the SECRETARY, Royal Agricultural Benevolent Institution, 26, Charles Street, St. James's, London, W.

LAPAGERIA ALBA, the finest and largest stock in Europe, strong hardy plants, which have been wintered in cold frames, from 15s. to £15 15s.
LAPAGERIA ROSEA, good specimen plants, from 21s. to £10 10s. each. The Trade liberally treated, for cash.
W. HOWARD, Southgate, N.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD and SON, 25, Savage Gardens, Crutched Friars, London, E.C.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application.
Lion Walk, Colchester.

Bulbous Flower Roots, finest quality, carriage free.
JAMES DICKSON and SONS have just received, in excellent condition, their first large annual consignment. Priced CATALOGUE post-free.
108, Eastgate Street, Chester.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

Single Dahlias.
THOMAS S. WARE has much pleasure in announcing that a grand display of these may now be seen at his Nurseries, consisting of the finest varieties, including the beautiful pure white, "White Queen."
Hale Farm Nurseries, Tottenham, London.

FOR SALE or EXCHANGE.—Large DÆMONOROPS PALEMBANICUS, 14 feet, in large Pot.
THOS. PATTISON, Rose Bank, West Hartlepool.

WANTED, 10,000 MANETTI STOCKS, 10,000 SEEDLING BRIERS, CUTTINGS of GERANIUMS—Wonderful, Mrs. Pollock, M. Christine, White Clipper, W. Vesuvius, Mesdames Vaucher, Baltet, and Thibaut, Dukes of Edinburgh and Bedford. Sample and price per 1000.
G. H., The Hall Nursery, Bushey.

WANTED, Established in Tubs, a few handsome PYRAMID, BUSH, and STANDARD SHRUBS of the following kinds—Variegated Hollies, Laurustinus, Portugal Laurels, Yuccas, Aralia Sieboldii, Kalmias, &c., or any other kinds of Hardy Ornamental Shrubs suitable for Terrace Decoration during the winter months.
A. B. C., Mr. Sales, 1, Bertha Villa, Avenue Road, Acton, W.

Young Plane Trees.
WANTED, a number of healthy YOUNG TREES, 8 to 10 feet high, to be delivered as required. Send lowest price to
SUTTON and DUDLEY, Telford Park, Streatham Hill, S.W.

Black Thorns or Sloes.
WANTED, strong transplanted BLACK THORNS, well rooted. State height, price and quantity to
F. & A. DICKSON & SONS, The "Upton" Nurseries, Chester.

WANTED, Six large HYDRANGEAS; LOMBARDY POPLARS, 25 to 30 feet; HORSE CHESTNUTS, 25 to 30 feet; IRISH YEWS, 12 to 15 feet. State exact sizes and price. All the Deciduous Trees must be guaranteed as having been properly prepared for removal.
Address, Box 20, *Chronicle* Office, Shrewsbury.

To Nurserymen.
TENDERS ARE REQUIRED for the Supply of seven PYRAMIDAL BOX TREES, well furnished, in good condition, from 5 to 6 feet high, and suitable for planting in large slate tubs.
FRANCIS DRAKE, Borough Surveyor, High Wycombe.

WANTED, TELEGRAPH CUCUMBER SEED; must Warrant it true, and saved from Clean Fruit. Send price per ounce.
G. WALKLING, College Park Nursery, Lewisham, S.E.

WANTED, CONSIGNMENTS of Choice FRUITS, CUCUMBERS, TOMATOS, Choice CUT FLOWERS, &c.—WISE and RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, Standard PLUM TREES.
500 BUSH PLUMS.
500 CZAR.
500 POND'S SEEDLING.
Quote Prices to
H. GIBBON, Fruit Salesman, Borough Market, London, S.E.

Queen Pines.
WANTED TO PURCHASE, good FRUIT of above, at best Prices.
WISE and RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

Cineraria and Calceolaria Plants.
THOMAS BUNYARD begs to offer his unsurpassed strain, post-free, 8s. per 100, 1s. 4d. per dozen.
THOMAS BUNYARD, Florist, &c., Ashford, Kent.

T. MILNER and SON solicit offers, for Cash, of CUTTINGS of GERANIUMS—TRICOLOR, BRONZE, VESUVIUS, &c., Rooted or Cuttings. Also CUT FLOWERS.
Bradford, Yorkshire.

PINKS.—The finest Exhibition Sorts; 15,000 Plants. The Trade supplied.
WM. PAUL and SON, Florists, Paisley, N.B.

FORTY SPECIMEN FINE FOLIAGE and FLOWERING PLANTS, including Fourteen Specimen and Half-Specimen ERICAS, good varieties, and in fine condition, to be Sold cheap, for Cash. Wanting room for otherthings. LIST, Sizes, and Price on application to
THOS. POPE, Blackburn Road Nursery, Astley Bridge, Bolton.

ROSES.—The best that can be procured, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.—Dwarf Roses.
GEO. COOLING and SON have a large stock to offer, extra fine Plants, and all leading varieties; also TEA-SCENTED, in pots. Prices on application.
The Nurseries, Bath.

Roses.
W. GROVE, Tupsley Rose Nursery, Hereford, offers choice Dwarfs; the plants are very fine and strong. Order before prices advance.

English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS and SON, 52, Market Square, Northampton.

FOR SALE, Cheap, a large lot of DWARF BOX, for Stock Purposes. Please apply to
R. H. POYNTER, Taunton.

Vines.—Vines—Vines.
B. S. WILLIAMS has much pleasure in intimating that his stock of VINES is unusually fine this year, the Canes being very strong and well ripened. For List of Prices see B. S. W.'s BULB CATALOGUE for 1881.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Fruit Trees.—Fruit Trees.
R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.
The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

Raspberry Canes.
MR. BATH is now booking orders for his noted FASTOLF, for delivery during October and November. 4s. per 100, packing included.
Crayford, Kent.

To the Trade.
E. P. DIXON, Hull, can offer, cheap, the following STRAWBERRY RUNNERS:—
PRESIDENT | BLACK PRINCE
SIR HARRY | SIR J. PAXTON.
Also a quantity of CANES of NORTHUMBERLAND FILLBASKET RASPBERRY.
Prices on application.

To the Trade.—Strawberries.
H. CANNELL and SONS offer all the best Market kinds in any quantity, during October, at a low price. Good plants, and all warranted true to name. Special prices for large quantities.
Swanley, Kent.

STRAWBERRIES.—Strong roots for fruiting next year. 4s. per 100. Descriptive LIST on application.
RICHARD SMITH and CO., Nurserymen, Worcester.

GOOSEBERRIES, CURRANTS, &c.—The undersigned is desirous of RECEIVING CATALOGUES of Fruit-bearing Shrubs, such as Gooseberries, &c.
HENRY STAPELBERG, Odessa.

SEAKALE CROWNS for SALE.—Large and well selected. Also ASPARAGUS. Orders carefully executed.
T. BROSNAN, Market Gardener, Norman Farm, Fulham, S.W.

GARDEN POTS—GARDEN POTS.—From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

To the Seed Trade.
CORRY, SOPER, FOWLER and CO. (Limited) beg to claim special attention to their Season's Assortment of DRIED FLOWERS and GRASSES, of excellent quality, made up in Bouquets, Wreaths, Crosses, &c., and suitable for the autumn and winter trade. Price Lists on application to 18, Finsbury Street, E.C.

SALES BY AUCTION.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.

On view the mornings of Sale, and Catalogues had.

Thursday Next.
IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 6, at half-past 12 o'Clock, precisely, by order of Messrs. Shuttleworth, Carder & Co., 191, Park Road, Clapham, S.W., a fine importation of CATTLEYA TRIANÆ species, Ibague varieties; ODONTOGLOSSUM CORONARIUM, O. PESCATOREI, O. CRISPUM (in grand masses), O. PHALÆNOPSIS, (splendid pieces), ADA AURANTIACA, ONCIDIUM WELTONI (true), O. KRAMERIANUM, CATTLEYA MOSSIÆ, MAXILLARIA VENUSTA GRANDIFLORA, and others, all in the best possible condition.

On view morning of Sale and Catalogues had.

Cattleyas.

MR. J. C. STEVENS has received instructions from Mr F. Sander to SELL by AUCTION, at his Great Rooms, 38, King's Street, Covent Garden, W.C., on THURSDAY, October 13, several fine CATTLEYAS, believed to be distinct: one unusually fine mass is among the importation. Further particulars next week.

On view morning of Sale, and Catalogues had.

Extensive Clearance Nursery Sale.

MESSRS. LYON AND TURNBULL have received Instructions from the Curator Bonis on the Estate of the Sole Partner of Messrs. James Dickson & Sons, Nurserymen and Seedsmen, to Sell as follows, within Inverleith Nurseries, Edinburgh, on WEDNESDAY, THURSDAY, and FRIDAY, October 5, 6, and 7, at 11 o'Clock each day:—

FIRST AND SECOND DAY'S SALES.—FOREST TREES, ORNAMENTAL SHRUBS, CONIFERÆ, &c.

THIRD DAY'S SALE.—STOVE and GREENHOUSE PLANTS, Choice HOLLIES, CONIFERÆ, and ORNAMENTAL SHRUBS.

Particulars in other Advertisements and Catalogues, which may be had on application to LYON AND TURNBULL, Auctioneers, 51, George Street, Edinburgh.

Monday Next.
UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, and every following Monday, extensive consignments of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, lotted to suit the Trade and private buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

South Acton, W.
EXPIRATION of LEASE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Day to SELL by AUCTION, on the Premises, the Nursery and Market Garden, South Acton, W., on WEDNESDAY, October 5, at 12 o'Clock precisely, the Erections of Eight GREENHOUSES and several PITS, 2000 feet of HOT-WATER PIPING, Three BOILERS, 40,000 capital BRICKS, the whole of the GREENHOUSE PLANTS, 2000 Geraniums, 1000 Ferns, 80 specimen Camellias and Azaleas, 100 Eucharis grandiflora, fine clean-grown plants; 500 Cyclamen, 1000 Vallottas, 60 large Tea Roses, 2000 dwarf Roses, 1000 Cloves, 1000 Spiræas, 350 named Chrysanthemums, and other Stock.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

Frindsbury, near Rochester, Kent.
CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Miss Beadle, who is retiring from business, to SELL by AUCTION, on the Premises, the Bill Street Nursery, Frindsbury, near Strood, Kent, about a mile from Strood and Rochester Bridge Stations, on WEDNESDAY and THURSDAY, October 5 and 6, at 12 o'Clock precisely each day, the whole of the well grown NURSERY STOCK, in good condition for removal, comprising an assortment of Evergreen and Coniferæ Shrubs, 1000 Aucubas, 2000 Privet, Ornamental and Forest Trees, 1000 Limes, 10,000 Ash, 7000 Quick, 800 Fruit Trees, 4000 Gooseberries and Currants, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leystonstone, E.

Hornsey Road, Holloway, N.
WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Tollington Nursery, Hornsey Road, Holloway, N., on FRIDAY, October 7, at 1 o'Clock precisely, the Erections of Eight GREENHOUSES, Four RANGES of PITS, BRICKWORK, HOT-WATER PIPING and BOILERS; also the whole of the GREENHOUSE PLANTS, comprising 5000 Geraniums, the collection of New Double Geraniums raised by Dr. Denny, and sent out for the first time last year; 100 Camellias and Azaleas, Chrysanthemums, UTENSILS in TRADE, and SUNDRIES.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

Acton, W.

By order of the Executors of the late Mrs. J. Hopgood,

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Vale Nursery, Acton, W., on TUESDAY and WEDNESDAY, October 11 and 12, the whole of the well grown NURSERY STOCK, many thousands of Limes and other Ornamental Trees, Three GREENHOUSES, and UTENSILS in TRADE.

Further particulars will appear next week. Catalogues had of Mr. CARPENTER on the Premises, and of the Auctioneers and Estate Agents, 8, New Broad Street, E.C., and Leytonstone.

Plants from Ghent.—Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the Auction Mart, Tokenhouse Yard, E.C., on FRIDAY, October 14, a consignment of CAMELLIAS, AZALEAS, FICUS, &c., from Ghent; DUTCH BULBS, &c.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Lea Bridge Road, Leyton.
THIRTEENTH ANNUAL TRADE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Leyton, near Hoe Street Station, on THURSDAY, October 13, at 10 for 11 o'Clock precisely, on account of the large number of lots, 20,000 Winter Blooming HEATHS, remarkably well grown, and including about 8000 Erica hyemalis, 2500 gracilis, 700 Wilmoreana, large quantities of Regerminans, grandiflora, persoluta alba, caffra, and others; 1000 EPACRIS, of the choicest kinds; 1000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS; SOLANUMS in berry; an assortment of STOVE and GREENHOUSE PLANTS, fine plants of LAPAGERIA ALBA and ROSEA, 1000 AZALEAS full of bloom-buds, 400 early flowering and other CHRYSANTHEMUMS, 300 AMPELOPSIS VEITCHII, 200 Maréchal Niel and other ROSES, 7 to 10 feet; VINES, 100 young plants of the new and beautiful double white BOUVARDIA, 800 pots of the pretty white-tipped LYCOPODIUM, and a quantity of small HEATHS for growing on.

May be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone, E.

N.B. The plants offered on this occasion are, without doubt, the best lot of this description ever submitted to public competition.

Postponement of Sale.—Lee, S.E.

MESSRS. PROTHEROE AND MORRIS beg to announce that the SALE of PLANTS advertised to take place at the Lee Park Nursery, Turner Road, Lee, on Tuesday next, is POSTPONED UNTIL OCTOBER 18.

Particulars in future advertisements. Catalogues at 8, New Broad Street, E.C.

Manchester—Friday, October 7.
IMPORTANT SALE of ESTABLISHED ORCHIDS.

Valuable Collection of Rare ADIANTUMS and other choice FERNS, STOVE and GREENHOUSE PLANTS, &c., many of which are fine specimens of Floriculture.

MESSRS. ARTINGSTALL AND HIND beg to notify the receipt of instructions from a Gentleman removing to the South of England to DISPOSE OF, by AUCTION, at their Large Sale Rooms, 45, Princess Street, Manchester, on FRIDAY, October 7, the whole of his Collection of Valuable PLANTS.

May be viewed on the afternoon prior and morning of Sale, when retailed Catalogues may then be obtained, or earlier on application to the Auctioneers, at their Offices, 45, Princess Street, Manchester.

At the Botanic Gardens, Hillhead, Glasgow, on WEDNESDAY, October 19, at 12 o'Clock, a PUBLIC SALE of 4 GREENHOUSES, 64 feet by 17 feet, 66 feet by 16 feet, 55 feet by 17 feet, and 51 feet by 15 feet; 4 Large CONSERVATORIES, PLANT PITS, FRAMES, BOILER, HOT-WATER PIPES, 3 WOODEN ERECTIONS, 73 feet by 36 feet, and 30 feet by 24 feet; 64 PITCH PINE SEATS, 119 Painted SEATS, 16 dozen Cane-seated CHAIRS, BROKEN CHAIRS and SEATS, OLD WOOD, &c.: sold by instructions of the Trustees.

MESSRS. MORRISON, DICK, and McCULLOCH will SELL by AUCTION as above, at the Botanic Gardens, Hillhead, Glasgow, on WEDNESDAY, October 19, at 12 o'Clock exact.

On view any time prior to Sale. Details in Catalogues to be had on application at our Office, 98, Sauchiehall Street, Glasgow, or forwarded post-free on request.

FOR SALE, by Private Bargain, an extensive NURSERY and FLORIST BUSINESS, at Sunnypark and Morningfield, near Aberdeen. In consequence of the death of Mr. James Cocker, senior partner of the firm of Messrs. James Cocker & Sons, Nurserymen, Seedsmen and Florists, it has been resolved to Dispose of the Nursery Business carried on by the late firm at Sunnypark and Morningfield. The Stock is healthy, and consists of a large and fine collection of Forest Trees, Ornamental Shrubs (Coniferæ), Roses, Greenhouse and Bedding Plants, &c. Morningfield Nursery is 40 acres in extent, and Sunnypark and Froghall covers 15 acres or thereby. Tramway Cars pass within five minutes' walk of each of the Nurseries.

Inventories and Valuations of the Stock may be seen in the hands of Messrs. HENDERSON AND CATTANACH, Advocates, 130, Union Street, Aberdeen, who will give further particulars to intending Purchasers, and receive written offers for the Stock until October 1, 1881.—Aberdeen, Sept. 14, 1881.

To Nurserymen and Others.
IMPORTANT and VALUABLE NURSERIES FOR SALE.

TO BE SOLD, as a Going Concern, all those beautifully situate and highly productive Nurseries, comprising about 7 Acres, known as TRESEDER'S NURSERY, close to the city of Truro. The same is well supplied with a well-grown Nursery Stock of Forest and Ornamental Trees, Shrubs, Evergreens, Fruit Trees, &c.

May be viewed at any time, and immediate possession can be had. For further particulars, apply to W. J. JOHNS, Auctioneer, &c., Truro.

SEED SHOP TO LET.—A very desirable Shop, fitted up for the Seed Trade. No charge for Goodwill. A good opening. Particulars from WM. WISEMAN, Nurseryman, Nairn, N.B.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. SHAW, LANDSCAPE and GARDEN ARCHITECT, Shifnal, Salop, prepares DESIGNS for all classes of Horticultural Work.

RICHARD WALKER can supply CABBAGE, Red Dutch plants, for Pickling, 5s. per 1000; Green plants, East Ham and Enfield Market, 3s. per 1000. Connover's Colossal ASPARAGUS PLANTS, 2-yr. old, £1 per 1000. Best Sovereign RHUBARB ROOTS in cultivation, no other can touch it for earliness; good roots for planting out, 2s. per dozen. LEMON THYME, PENNYROYAL, and RUE ROOTS, 8s. per 100. SAGE and BLACK THYME, 5s. per 100. Splendid SEAKALE for forcing, 10s. per 100. Terms cash.

Market Gardens, Biggleswade, Beds.

STRAWBERRIES.
The best sorts for Forcing.

V. H. DE THURY, SIR JOSEPH PAXTON, PRESIDENT, } Strong plants, all well rooted, fr small pots, specially prepar 4s. per 100, 35s. per 1000—s of a crop next year.

Also strong plants of the above, from open ground, 2s. 6d. 100, 20s. per 1000. Package free. Extra plants for carria Cash from unknown correspondents.

H. J. HARDY, F.R.H.S., Stour Valley Seed Groun Bures, Suffolk.

NEW CLOVE PINK.

For full description and price of this desirable Nov see New LIST of HARDY FLORISTS' FLOWERS for mediate Planting, containing also Single and Double Pyr rums, Pansies, Pæonies, Pinks, Yellow and Border Carnati &c. Free upon application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenh London. Trade Terms on application.

A B C Bulb Guide for 1881.

I have pleasure in announcing that this CATALOGUE is now ready, and contai most complete collections of Hyacinths, Tulips, Lilii Narcissus, Gladiolus, &c. Fine selections of Hardy Orch Primula Sieboldii and Helleborus; Hardy Perennials autumn planting; also Climbing Plants, Aquatic and Plants, Herbs, &c. Gratis and post-free upon application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenh Londoo.

International Horticultural Exhibition, Manchest August, 1881.

FREDERICK PERKINS is now offeri 36 HARDY HERBACEOUS PLANTS, which gai the 1st Prize at the above Show, in LARGE ROOTS, principa from the Open Ground, including the best varieties of I phiniums, Lychnis, Pyrethrums, (Enotheras, Potentillas, The Collection, 36 Varieties, package included, for 30s.; Varieties for 21s.; 12 Varieties for 12s. To Gentlemen Amateurs forming Collections this is an opportunity wl seldom occurs. Price to the Trade op application.

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New Catalogue of
BEAUTIFUL FLORISTS' FLOWERS,

Garden Decoration or Exhibition, should be plante bought now for next year's bloom, all named, fine varieties common Seedlings).

DELPHINIUMS, PYRETHRUMS, and PÆONIES per dozen; 12 of each for 21s.

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Show or Fancy PANSIES, the finest sorts, PHLOX PENTSTEMONS, ANTIRRHINUMS, 3s. 6d. per dozen of each (5 dozen) for 15s.

CATALOGUES, post-free; terms cash.

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HERBACEOUS PLANTS.—Selections

the finest sorts for Garden Decoration, cheap, all nan poor weedy varieties not included. The present is the time to plant.

	Per dozen.	Per 50.	Per 100.
	s. d.	s. d.	s. d.
The Finest Sorts	6 0	21 0	35 0
Good Sorts	3 6	13 0	25 0
Rock Plants	3 6	13 0	25 0

Spring Flowering PERENNIALS (not Violas or Pans the brightest, the finest, the hardiest—colours White, Yel Red, or Purple—including DAISIES, 5s. per 100, exclu Daisies and the red colour, 8s. per 100.

BEDDING VIOLAS or PANSIES, fine named sorts Seedlings), in colour as desired, per dozen, 2s.; per 100, 10s., or 12s., according to variety. One of the finest collecti and thousands of strong plants.

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STOVE and GREENHOUSE PLANTS

The cheapest in the Trade. All buyers invited to ins the large fine stock of clean, healthy, low priced plants of t at the Oldfield Nursery, 8 miles from Manchester, 25 miles f Liverpool, 30 miles from Chester, 32 miles from Cre Altrincham, West Timperley and Broadheath Stations, all i the Nursery.

WM. CLIBRAN AND SON, Altrincham.

THE FOLLOWING, of t

Finest Strains:—		From stores.	In 5-inch p
CINERARIAS ..	.. per doz.,	1s. 3d. good plants:	5s.
PRIMULAS ..	.. ,,	— ,,	5s.
RHODANTHE, coming in bloom ..	.. ,,	— ,,	5s.
Herbaceous CALCEOLARIAS ..	.. ,,	2s.; in 3-inch pots, 4s.	

New Catalogue of
DUTCH and FRENCH BULBS, HY CINTHS, CROCUS, TULIPS, and other BULBS ROOTS. In this department we combine the best quality i can be bought with moderate prices, by adopting the princ of small profits and quick returns. Terms cash.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrinchar

STRAWBERRY PLANTS.—Before buyi see our List, about 50 varieties, true to name. Purchas selection, 3s. 6d. per 100; ours, 2s. 6d. per 100; 500, in sorts, FRUIT and FOREST TREES, ROSES, RHODODI DRONS, CONIFERS, THORN QUICKS, &c., all goo quality and low in price, from

WM. CLIBRAN AND SON, Oldfield Nursery, Altrinchar

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STRAWBERRY PLANTS,

Splendid quality, in pots and out of pot

DR. HOGG	KEENS' SEEDLING
BLACK PRINCE	BRITISH QUEEN
BELLE DE PARIS	COCKSCOMB
ELTON PINE	HELENA
PRESIDENT	PREMIER
SIR J. PAXTON	SIR C. NAPIER

Lowest Prices on application.

CARTERS, 237 and 238, High Holborn, LONDO

For Autumn Planting.—Now Ready.

GEE'S superior Bedfordshire-grown CABBAGE and OTHER PLANTS; ASPARAGUS, SEAKALE and RHUBARB ROOTS; 1, 2 and 3-yr. old QUICKS; WALLFLOWERS, DAISIES, and many other Spring-flowering Plants, &c. Cheap and good.

FREDK. GEE begs to inform his many Friends and Patrons he is again prepared to supply the above in any quantity, and which for quality and price cannot be surpassed. Large Buyers liberally treated with. LIST for present season, also General CATALOGUE, &c., on application to

FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

GREEN HOLLY, 2-yr. Seedlings, 5*s.* 6*d.* per 1000, or £5 per 20,000, nett cash.

RICHARD MASON, Nurseryman, Windlesham, near Bagshot, Surrey.

PHEASANT-EYED NARCISS.—Bulbs of this sweet-scented Narciss, 10*s.* per bushel, 6*s.* per half bushel, 3*s* 6*d.* per peck; also Double White Narciss, 5*s* per peck. Terms cash with order. Package free. Post-office Orders payable Walton-on-Thames.—J. E. ALDERSON, Bell Farm, Hersham, near Walton-on-Thames, Surrey.

J. CROUCHER, F.R.H.S. (from Royal Botanic Gardens, Kew), GENERAL HORTICULTURAL AGENT and ADVISER, The Excelsior Nurseries, 64 and 65, Brook Green, London, W., has just imported the finest lot of New CACTI yet introduced to this country. Inspection invited.

Hyacinths, Tulips, &c.

BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.

B. B. have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

Deutzia gracilis and Dwarf Roses.

WILLIAM FLETCHER will be pleased to submit Prices of the above-named, per 100 or 1000. Ottershaw Nursery, Chertsey.

To the Trade.

EDWIN HILLIER has to offer DAPHNE INDICA RUBRA, Double White PRIMULAS, and Maidenhair FERNS, good plants in 48-pots; also Dwarf ROSES, and Trained Apples. Cash prices on application. The Nurseries, Winchester.

For Immediate Sale.

AZALEAS, of all sizes, including many specimens and half-specimens of the leading varieties. Owing to want of accommodation we are now offering the above at greatly reduced prices. Size and price on application to T. JACKSON AND SON, Nurseries, Kingston, Surrey.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading. Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

SPIRÆA PALMATA, the largest stock of Forcing Plants in Europe.
SPIRÆA JAPONICA, fine forcing plants.
ANDROMEDA FLORIBUNDA, the finest blooming plants I have ever seen.
RHODODENDRONS, covered with buds, for forcing.
STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.
CHARLES NOBLE, Bagshot.

Dutch Bulbs.
To SUPPLY the TRADE.

SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, beg to announce that their Crops of HYACINTHS, TULIPS &c., look very fine

Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.

☞ Please observe Name and Address.

Carnations and Picotees.

J. BOOTH, FLORIST, Failsworth, is now Booking Orders for the above from his unrivalled collection of choice named sorts. Plants ready in October. CATALOGUES and prices on application.

Standard and Dwarf Roses.

THOMAS S. WARE'S Autumn CATALOGUE of the above, also Climbing, Noisette, Tea, Moss, and all the finest Single Roses, Standard Ornamental Trees, Miscellaneous Hardy Shrubs, a most complete List of Hardy Climbing Plants, including grand specimen Magnolias, 4 to 6 feet, is now ready. Post-free upon application. Hale Farm Nurseries, Tottenham, London

To the Trade Only.

TEA ROSES, on own roots, extra strong, out of 4½ in. pots, £2 per 100, for cash. Now ready, many thousands of Isabella Sprunt, Gloire de Dijon, &c. MAIRIS AND CO., Weston-in-Gordano, Bristol.

The Cape Flora.

JOHNSON AND HARMAN, The Metropolitan Nurseries, Rondebosch, Cape Town, have much pleasure in announcing to the Horticultural World that, having commenced business as Nurserymen and General Exporters of Cape Plants, they are now prepared to execute in quantity orders for the following:—CAPE BULBS, ORCHIDS (Terrestrial), including DISAS of sorts, SUCCULENTS, FERNS, &c. J. & H. would further respectfully solicit the attention of the Trade (Continental please note) to the fact of their having, at a very considerable expense, recently taken over from Mr. Joseph Upjohn, of Rondebosch (for the last fifty years the well-known collector and exporter of Cape Bulbs), his entire collection of this beautiful but as yet comparatively little known class of plants. This unrivalled collection, the only established one of its kind in South Africa, comprises upwards of 150 distinct species, each with its endless varieties, being all accurately named. The extensive nature of this collection enables J. & H. to make special offers to the Trade on very advantageous terms, for collections varying from £1 to £50 and upwards in value—prompt attention, liberal terms, and quick dispatch being guaranteed.

In addition to the foregoing J. & H have now for disposal many extra fine clumps of STRELITZIA REGINA, NYMPHÆA SCUTIFOLIA, APONOGETON DISTACHYON, WATSONIA ALBA and ODORATA, and RICHARDIA ÆTHIOPICA—this last, in immense cultivated crowns, by the 100 or 1000.

CAPE EVERLASTING FLOWERS a speciality.

TO THE TRADE.

SPECIAL OFFER OF PLANTS.

			s.	d.
ANTHURIUM SCHERZERIANUM, in 60's	..	each	2	6
GARDENIA GRANDIFLORA, in 48's	..	dozen	24	0
CROTONS, splendid variety, from	..	,,	12	0
DRACÆNAS, splendid variety, from	..	,,	15	0
ADIANTUM CONCINNUM, in 60's	..	,,	9	0
,, FARLEYENSE, in 60's	..	,,	24	0
BOUVARDIA, ALFRED NEUNER. The new double white—the finest stock in Europe, doz., 55*s* &		100		0

JAMES CARTER & CO.,
237 and 238, HIGH HOLBORN, LONDON, W.C.

NARCISS.—DOUBLE WHITE N. odoratus alba-plena.
,, PHEASANT-EYED.
,, ,, ORNATUS (early blooming).
,, DOUBLE DAFFODILS.
,, ,, INCOMPARABLE.
SNOWDROPS.—DOUBLE and SINGLE, firm samples, &c. For Prices of these and all sorts of Dutch and English Flowering Bulbs, see our Wholesale CATALOGUE.
WATKINS & SIMPSON,
Seed and Bulb Merchants, 1, Savoy Hill, Strand, W.C.

NOTICE TO INTENDING PLANTERS.

On account of the expiration, next March, of the Lease of a portion of

"THE FULHAM NURSERIES,"

OSBORN & SONS

are prepared to offer, at exceptionally Low Prices (as the ground must be cleared), a quantity of

Ornamental Evergreen and Deciduous Trees and Shrubs;

Also some large Specimen Plants of

RHODODENDRONS and HARDY AMERICAN AZALEAS.

THE FULHAM NURSERIES, LONDON, S.W.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

CRANSTON'S NURSERY and SEED CO. (Limited), KING'S ACRE, near HEREFORD.

Ferns a Specialty.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

Come and See

Our Dahlias, Salvias, Primulas, Zonal Pelargoniums, Early-flowering Chrysanthemums. They are now coming nicely into flower (the former quite fully). Colours of our Primulas really surprising.

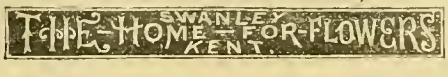
Illustrated Catalogues Now Ready.

H. CANNELL AND SONS beg to announce the following to the Public:—

CATALOGUE of ROSES. The best only.
CATALOGUE of CHRYSANTHEMUMS. The most correct.
CATALOGUE of BULBS. Most select and cheapest.
CATALOGUE of SPRING-FLOWERING BEDDING PLANTS.
CATALOGUE of NEW PLANTS. Many most valuable.
CATALOGUE of SINGLE and DOUBLE DAHLIAS.
CATALOGUE of PRIMULAS. The best.
CATALOGUE of WINTER-FLOWERING PLANTS.
CATALOGUE of SALVIAS. All the best.
CATALOGUE of VIOLETS. All the best.

And GENERAL FLOWERING PLANTS. Sent post-free. Should any of the above fail to reach any customer we beg they will inform us of the same, and one shall be immediately sent.

H. CANNELL & SONS,



ANTHONY WATERER respectfully invites the attention of intending Planters to the following List of desirable and in every way first-class Nursery Stock:—

BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
YEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
,, Golden, many thousands, 3, 4, 5, to 10 feet high.
The Golden Yews in this Nursery are quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
,, Irish, hundreds of fine specimens, 6, 7, and 8 feet high.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10, and 12 feet high.
,, LAURIFOLIA MYRTIFOLIA, SCOTTICA, HODGINS, and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high.
,, Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high.
,, Golden Queen, many handsome specimens, 4, 5, 6, to 10 feet high.
,, Silver, in variety, 4, 5, 6, to 10 feet high.
,, Waterer's, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 high; hundreds.
PICEA PINSAPO, 5, 6, 7, 8 to 10 feet high; hundreds.
,, NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds.
CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet hight, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choic to be met with in no other Nursery.
,, ,, GRACILIS, 4 and 5 feet high.
,, ,, ARGENTEA, 4 and 5 feet high.
,, ,, LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIBOCEDRUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6 and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine Plants, 3, 4, and 5 feet high.
THUIOPSIS BOREALIS, 4, 5, and 6 feet high.
,, DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high; splendid specimens.
THUYA WEAREANA, an immense quantity of fine specimens up to 10 feet.
,, AUREA, 2, 3, and 4 feet high.
,, SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
,, Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.
The Plants referred to in this Advertisement have all been recently transplanted.
Knap Hill Nursery, Woking, Surrey.

New Raspberry.

BAUMFORTH'S SEEDLING.—Orders are now being booked for delivery in October and November. Price per dozen Canes, 7*s.* 6*d*; per 100, 50*s*.

For Description and Testimonials see *Gardeners' Chronicle*, September 24, p. 420.

EDMUND PHILIP DIXON, Nurseryman, Hull.

ABIES PARRYANA.—A most beautiful Spruce Fir, combining the extreme hardiness and silvery hue of the White Spruce with denser and longer foliage, and a more robust growth. As an ornamental tree this is specially handsome, and will certainly take first-rank position both for Parks and Forests. Fine healthy plants from Seed—

9 to 12 inches, 12*s.* per dozen, 80*s.* per 100.
12 ,, 15 ,, 15*s.* ,, 100*s.* ,,
15 ,, 18 ,, 18*s.* ,, 130*s.* ,,

JAS. BACKHOUSE AND SON, York Nurseries.

To Gentlemen, Nurserymen, and Builders.

R. AND G. NEAL, having to give up a portion of their Nursery for building purposes, beg to inform the Trade, and others engaged in planting, that they have a large and varied Stock that they can offer at a great reduction in prices to effect a clearance. An early inspection invited.

The Nurseries, Wandsworth Common, S.W. one mile from Clapham Junction, on the high road from Wandsworth to Tooting, and a quarter of a mile from Wandsworth Common Station, London, Brighton, and South Coast Railway.

TO BE SOLD, a Small and Choice Collection of HOTHOUSE PLANTS in excellent order; can be removed at once. Apply to

Mr. GOLDSMITH, Gardener to P. C. Hardwick, Esq., Hollanden, Tonbridge, Kent.

Fruit Trees.

FOR SALE, Maiden PEACHES, NECTARINES, PLUMS, and PEARS. For LIST of sorts, and prices, apply to

CRANSTON'S NURSERY AND SEED CO. (Limited), King's Acre, Hereford.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1*d.* stamp. R. S. & Co.'s selection of 100 good showy varieties for 25*s*.

RICHARD SMITH AND CO., Nurserymen, Worcester.

JULES DE COCK'S SPECIALITIES.—AZALEA, indica, mollis, and pontica; CAMELLIAS, DEUTZIA GRACILIS, HELLEBORUS NIGER; SPIRÆA, japonica, variegata, and palmata. Many thousands are for disposal at

JULES DE COCK'S Nurseries, Ghent, Belgium.

To the Trade.

J. MOOY, FLORIST and SEEDSMAN, Haarlem, Holland (established 1830), begs to inform his Commercial Friends that he has arrived in London as usual with a good selection of FLOWER ROOTS, and is staying at 29, Norfolk Street, Strand, W.C.

TO THE TRADE.
GREVILLEA ROBUSTA, 60's and 48's.
ARALIA SIEBOLDII, 60's and 48's.
ASPLENIUM BULBIFERUM.
Price on application.
H. STROUD AND SONS, Green Lanes, Finsbury Park, N.

J. LINDEN'S Illustrated CATALOGUE

OF

NEW, RARE, AND BEAUTIFUL PLANTS,

AZALEAS, CAMELLIAS, &c.,

Is now ready, and will be sent on application.

J. LINDEN'S ROYAL EXOTIC NURSERIES, GHENT, BELGIUM.

LARCH and SCOTCH SEEDLINGS, 1-yr., Native. Price and samples on application.
PETER BLAKE, Dangan, Summerhill, Co. Meath, Ireland.

WEBBS' BULBOUS FLOWER ROOTS

WEBBS' 21s. COLLECTION

For Outdoor Cultivation contains 654 selected Bulbs :—

36 *ANEMONES, double.*
25 „ *fine single.*
200 *CROCUS, choice varieties.*
1 *CROWN IMPERIAL.*
20 *HYACINTHS, mixed*
30 *IRIS, Spanish, mixed.*
12 *JONQUILS, Campernelle.*
1 *LILIUM candidum.*
25 *NARCISSUS Poeticus.*
12 „ *double white.*
25 „ *Van Sion.*
0 *POLYANTHUS Narcissus.*
50 *RANUNCULUS, double.*
25 „ *Turban, scarlet.*
100 *SNOWDROPS, double and single*
6 *TULIPS, Duc Van Thol.*
6 „ *early double, mixed.*
6 „ *La Candeur, double*
6 „ *Parrot, fine mixed*
12 „ *single, mixed*
50 *WINTER ACONITES.*

Other Collections from 10s. 6d. to 105s.

FOR PRICES AND FULL PARTICULARS SEE

WEBBS' AUTUMN CATALOGUE,

A most reliable Guide to the Successful Cultivation of Bulbous Flower Roots, Gratis and Post-free.

5 per cent. discount for cash. 20s. value carriage free.

THE QUEEN'S SEEDSMEN,
WORDSLEY, STOURBRIDGE

CHRISTMAS FLOWERS

CARTERS' PICKED BULBS,

THE BEST IN THE TRADE

For EARLY FORCING, suitable for the Decoration of the Conservatory, Drawing-Room, Etc.

	Per 1000 s. d.	Per 100 s. d.	Per Doz. s. d.	Each. s. d.
Early White Roman Hyacinths	—	25 0	3 6	0 4
Early Blue Roman Hyacinths	—	12 6	1 9	0 3
Light Blue Neapolitan „	—	15 0	2 0	0 3
Dark Blue Neapolitan „	—	15 0	2 0	0 3
Early Double Roman Narcissus	—	—	2 0	0 3
Early Paper-white „	—	—	2 0	0 3
Early Saffron Crocus (Autumn Flowering) ..	—	2 6	0 6	—

	Per 1000 s. d.	Per 100 s. d.	Per Doz. s. d.	Each. s. d.
Double Snowdrops, large	21 0	2 6	0 5	—
Single Snowdrops, large..	21 0	2 6	0 5	—
Duc Van Thol Tulips, red and yellow, single	—	12 6	2 0	—
Dielytra spectabilis, rosy red	—	—	6/ to 12/	/9 to 2/6
Lily of the Valley, white, strong clumps for forcing ..	—	—	12/ to 26/	1/5 to 2/
Spiræa japonica, pure white	—	45 0	6 0	—
Deutzia gracilis, pure white	—	—	10 6	1 0

Collections of the above, price 5s., 7s. 6d., 16s., 24s., 45s., and 65s.

20s. value Carriage Free. For full particulars see

CARTERS' ILLUSTRATED CATALOGUE,

THE HANDSOMEST AND MOST USEFUL CATALOGUE PUBLISHED.

Gratis and Post-free on application.

THE QUEEN'S SEEDSMEN, and by Royal Warrant to H.R.H. THE PRINCE OF WALES,

237, 238, HIGH HOLBORN, LONDON, W.C.

LOUIS VAN HOUTTE

ROYAL NURSERY, GHENT, BELGIUM,

Begs to offer fine and bushy Plants of the following :—

AZALEA MOLLIS, 4-year old seedlings, with about 8 buds, at £5 per 100; with fro 12 to 15 buds, £6 per 100. All nicely round shaped, and well adapted for forcing in po

AZALEA INDICA, best and newest varieties, well budded, £5 per 100; Specim Plants, from 5s., 10s., to 20s. each.

CAMELLIAS, in varieties, including Double Whites, from £7 to £20 per 100.

GLOXINIAS, fine strong mixture, mostly erect-flowering varieties, 20s. per 100.

GLOXINIA CRASSIFOLIA, with very large flowers, 24s. per 100.

TUBEROUS-ROOTED BEGONIAS, best mixed kinds, and very distinct colou strong bulbs, 20s. per 100.

CATALOGUES, giving particulars of every Class of Plants, Hyacinths, Tulips, and other Flower Roots, gratis on application.

THURSDAY NEXT.

IMPORTED ORCHIDS

MR. J. C. STEVENS will SELL by AUCTION, at his Gre Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October at half-past 12 o'Clock precisely, by order of Messrs. SHUTTLEWORTH, CARDER & Co., 1 Park Road, Clapham, S.W., a fine Importation of CATTLEYA TRIANÆ species, (bag varieties; ODONTOGLOSSUM CORONARIUM, O. PESCATOREI, O. CRISPUM grand masses), O. PHALÆNOPSIS (splendid pieces), ADA AURANTIACA, ONCIDI WELTONI (True), O. KRAMERIANUM, CATTLEYA MOSSIÆ, MAXILLAR VENUSTA GRANDIFLORA, and others. All in the best possible condition.

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BEECH—(Fagus sylvatica) Common Beech, extra transplanted, very fine well-rooted trees, 6 to 8 feet, 9s. per dozen; 8 to 10 feet, 12s. per dozen
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,, Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 8 to 10 feet, 18s. per doz.; 10 to 12 feet, 24s. per doz; 12 to 15 feet, 36s. per doz.
POPLAR—Golden-leaved Canadian, 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
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SYCAMORE (Acer Pseudo-Platanus)—Very fine, extra transplanted trees, 8 to 10 feet, 9s. per dozen; 10 to 12 feet, 12s. per dozen; 12 to 15 feet, 24s. per dozen.
THORN, or MAY TREE—Paul's Double Scarlet, fine Standards, 18s. per dozen; fine Pyramids, 12s. to 24s. per dozen.
WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
EUONYMUS—radicans argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2s. per doz., 12s. per 100; 4 to 6 in., 3s. per doz., 16s. per 100.
ELDER (Sambucus nigra)—variegated: a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 1, 1881.

FLOWER LORE: OCTOBER.

As autumn creeps on, bringing with it less sunshine and more chilly and ungenia weather, the country fast loses all signs of its summer beauty, one flower after another dying off in rapid succession. Amongst those, however, which still bloom during the present month, may be mentioned the Field Gentian, a handsome little flower, the Baldmoyne of Chaucer's time. In days gone by it was much in request, not only for medicinal purposes, but was used for bittering ale instead of Hops. The rich Pheasant's-eye still blossoms, so called from its bright red corolla and dark centre. It has various nicknames, such as "Rose-a-ruby," "Red Morocco," and "Red Mayd Weed," and Gerard tells us that in his day the country people called it "Red Camomill."

There are several species of Polygonums in bloom during the autumn months, one of the most common being the spotted Persicaria. The black spot in the centre of its leaf was, according to legendary lore, caused by the plant receiving the drops of our Saviour's blood as He toiled up the Via Dolorosa. The generic name is derived from the Greek "many-knee," in allusion to the numerous knots in the stalks. Another species is known as the Water Pepper, or "Biting Persicaria," so called on account of its pungent properties. Several other popular names have been ascribed to it, such as "Red Knees," from its red angular joints, and others suggestive of the irritating effects of its leaves. Its leaves when chewed were formerly considered a cure for toothache. Once more, we must not omit to mention that well-known variety, the Knot-grass—a low, straggling weed, growing in every wayside corner. According to an old belief, the growth of children could be stopped by a diet of Knot-grass, in allusion to which Shakespeare in *A Midsummer Night's Dream* (iii. 2) makes Lysander say—

> "Get you gone, you dwarf,
> You minimus, of hindering Knot-grass made—
> You bead, you acorn."

And in Beaumont and Fletcher's *Coxcomb*,—

> "we want a boy
> Kept under for a year with milk and Knot-grass."

Swine are said to be fond of it, hence its name is "Swine's Cress" and "Hog Weed." Amongst its other names are "Sparrow-tongue," "Cumberfield," and "Pinkweed." It has also been termed "Bird's Tongue" from the shape of its leaf, and Johnstone informs us that, in the North, "being difficult to cut in the harvest time, or to pull in the process of weeding, it has obtained the soubriquet of the Deil's lingels."

Again, if the weather be warm the Ragwort continues in blossom during the early part of the present month. It has been popularly nicknamed "Staver-wort," from its being supposed to cure the stavers, or staggers, in horses. The Viper's Bugloss, too, still puts forth its blue bells, one of the most beautiful of our wild flowers. Its name arose from the fancied resemblance of its ripe seeds to a viper's head:

and hence the plant was supposed to possess sovereign virtues against snake-bites. A common plant which is found in most old greenswards is the Yarrow or Milfoil. Its English name, "Nose-bleed," may have been given it either because, as Gerard tells us, "the leaves being put into the nose do cause it to bleede, and easeth the pain of the megrim," or, as Parkinson says, "because it will stay the bleeding of it." Two of its popular names were "Soldier's Woundwort" and "Knighten Milfoil." It is frequently sold at the herb shops, its former reputation as a vulnerary not having become yet obsolete. Its use in love divinations has been, from time immemorial, most extensive, and it is still in request for this purpose. Thus Forby, in his *East Anglia*, tells us that a girl will tickle the inside of the nostril with a leaf of this plant, saying,—

"Yarroway, Yarroway, bear a white blow :
If my love love me, my nose will bleed now."

In many of our country villages girls pluck this plant from a man's grave, believing that if they place it under their pillow and repeat the following lines, their lovers will appear to them in their dreams :—

"Yarrow, sweet Yarrow, the first that I have found,
And in the name of Jesus I pluck it from the ground ;
As Joseph loved sweet Mary and took her for his dear,
So in a dream this night I hope my true love will appear."

Another famous vulnerary is the Self-heal, meaning, as its name implies, that with which one may cure oneself without the help of a surgeon. Thus Ruellius quotes a French proverb that "no one wants a surgeon who keeps Prunelle." Some of its other popular names are "Carpenter's Herb," "Hook Heal," and "Sickle Wort."

The Wormwood was formerly of very high reputation as a medicine, and was supposed to be an effectual protection against insects of all kinds. Tusser, referring to it, tells us that—

"Where chamber is sweeped and Wormwood is shown,
No flea, for his life, dare abide to be known.
What savour is better, if physic be true,
For places infected than Wormwood or Rue?"

Its use in weaning infants is spoken of by Shakespeare in *Romeo and Juliet* (i. 3), who makes Juliet's nurse say—

"When it did taste the Wormwod on the nipple
Of my dug, and felt it bitter, pretty fool."

The Mugwort, which is another species, was called by our forefathers "Motherwort," and was much worn as a charm against ague. Another species, too, of the same plant is the Southernwood, abridged from "Southern Wormwood." It has been popularly termed "Boy's Love," or "Lad's Love," from an ointment made with its ashes being used by young men to promote the growth of a beard, whereas its common name is "Old Man." Again, amongst the flowers that still enliven the autumn days may be noticed the Tansy, which is frequently cultivated in cottage gardens on account of its aromatic feathery leaf, although its flowers are of no special beauty. The Red Crane's Bill, or the "Blood Geranium," continues to decorate the wayside ; and the most common species of the Geranium, the Herb Robert, remains more or less in bloom the greater part of the year, and in most localities. This last species has a medical reputation, having, says Dr. Prior, been used, according to Adelung, to cure a disease known in Germany as the Ruprechts Plage. from Robert, Duke of Normandy, for whom was written the celebrated medical treatise of the middle ages, *Schola Salernitana*. The Sun Spurge, so called from its flowers turning to face the sun, although it has little beauty to render it attractive, yet has been held in high repute as a caustic application to remove warts, from whence it has been called "Wart Weed. One of its numerous popular names is "Devil's Milk," from its acrid poisonous juice, and in some country places it is termed "Cat's Milk."

The Samphire, which grows on the sea-coast, is the Sampier or Sampire of our old writers, and in days gone was known as St. Peter's or the Fisherman's Herb. It makes an excellent aromatic pickle, and in former years was used as a salad. The gathering of this plant was once a regular trade, and attended with very great danger, an allusion to which is made by Shakespeare, who makes Edgar say, in *King Lear* (iv. 6) :—

"Half way down
Hangs one that gathers Samphire, dreadful trade !
Methinks he seems no bigger than his head."

In Smith's *History of Waterford* we are told that "it is terrible to see how people gather it, hanging by a rope several fathoms from the top of the impending rocks, as it were in the air."

Passing on to other flowers, which may still be seen lingering on in bloom if the weather remain warm, we may mention the Goat's Beard or Joseph's Flower, a plant which has various nicknames, such as "Go-to-bed-at-Noon," "Noontide," and "Noon-flower," from its closing its eyes at noonday, when, in the language of Cowley, it "shuts its flowers at noon and goes to sleep." Then there is the Fleabane, so called from its supposed power of destroying fleas ; and the English Mercury, known also as "Good Henry," or "Good King Harry." The Hawkweed, too, is an interesting plant, and, according to an old tradition, the hawk fed both itself and its young ones with it, so as to obtain clearness of vision. Coles writing on it in his *History of Plants*, 1657, says—"I shall treat of this plant as appropriated to the eyes ;" and Dale tells us that "taken inwardly it sharpens the sight, and expels black bile." One variety has been termed the "Mouse-ear Hawkweed" from the shape of its leaves. Many of the Mints, which are a numerous tribe of plants, may be found now in bloom, being indeed quite autumn plants. One species is popularly called "Penny Royal," a term derived from the Latin *Puleium regium*, from its supposed efficacy in destroying fleas. It has also been called "Pudding-grass" on account of its having been much used for making stuffings for meat, formerly called puddings. Turner says that it was especially "used in hog's puddings." In the old play of *The Ordinary* we read—

"Let the corporal
Come sweating under a breast of mutton stuffed with pudding."

The common green Mint has been nicknamed the "Spire," or "Spear Mint," from its spiry inflorescence ; and the Horse Mint is also known as the Brook, or Water Mint. Another flower which brightens up the roadside is the Hedge Mustard, popularly termed the "Scrambling Rocket," or "Bank Cress." To this class of plants belongs the "London Rocket," deriving its name Rocket from its leaves resembling those of an Eruca, and London from its having sprung up abundantly in the year 1667, among the heap of ruins left by the Great Fire. There is also the Flix or Flux Weed, with its pale yellow cruciferous flowers. In days gone by it was supposed to possess great medicinal virtues, and derived its name from its use in the cure of dysentry, a disease that was formerly termed "flix." A handsome plant, with a good many curious nicknames, is the Reed Mace, a plant which, although quite distinct is sometimes confounded with the Bulrush. "It derived its name 'Reed Mace,'" says Dr. Prior, "from the 'Ecce Homo' pictures, and familiar statues of Jesus in his crown of thorns, with this reed-like plant in his hand as a mace or sceptre." Another of its names is the "Water Torch," and in some places it is termed the "Marsh Beetle." Its downy heads are occasionally used for stuffing pillows and mattresses. This Rush, too, is used by weavers for cleaning their work in preference to a common brush. Referring to the Bulrush we may note that it was formerly termed Poolrush, from its growing in pools of water, and not, like other Rushes, in mire. In days gone by the Rush was assigned to various uses, one of the principal being to strewing the floors of houses and churches with them. A writer describing this custom says that it was continued even to our own day in Norwich Cathedral, and the picturesque custom still lingers in the West of strewing the floors of the churches on Whit Sunday with Rushes freshly pulled from the meadows. The custom attains its highest perfection in the church of St. Mary, Redcliffe, Bristol, the day being known as "Rush Sunday." Shakespeare has several allusions to this custom, as, for example, in the *Taming of the Shrew* (act iv., sc. 1), where he makes Gremio say, "Is supper ready?—the house trimmed, Rushes strewed, cobwebs swept?" Again, in *Henry IV.* (part i., act iii., sc. 1), Glendower says :—

"She bids you on the wanton Rushes lay you down,
And rest your gentle head upon her lap."

The pith, too, was formerly used for making the rushlight, and at the present day door-mats and chair-bottoms are very commonly made of them. There was, too, the rush-ring, which although originally, no doubt, used for the purpose of honest betrothal, was afterwards vilely employed for mock marriages. In *All's Well that End's Well* (act ii., sc. 2) the clown remarks :—

"As fit as Tib's Rush for Tom's fore-finger."

Once more, we may occasionally find one of the small species of Orchis popularly termed the "Lady's Tresses," a name given to it from the resemblance of its flower-spikes to a lady's braided hair. There is, too, the Dodder or "Strangle Weed" which often grows in the Clover field, and spreads with wonderful rapidity. It derived its name "Dodder," which means "hampered thread," from its resemblance to bunches of threads entangled on the plants on which it grows. Amongst its popular names we may mention "Lady's Laces," "Bride's Laces," and the not very complimentary term "Devil's Guts." A wild flower, too, that blows through the summer months late into the autumn, is the common Avens (Geum urbanum) bearing a strong though superficial resemblance to the Buttercup. It has been popularly styled the "Herb Bennett," and according to an old piece of folk-lore, "Where the flower is in the house, the devil can do nothing, and flies from it ; wherefore it is blessed above all other herbs." It was also said that if a man carried this root about him, he was perfectly safe against the attacks of venomous beasts. Its leaves were also considered a good remedy in allaying fever. In some places it goes by the name of "Star of the Earth," a name, by-the-bye, applied also to the Hart's-Horn (Plantago Coronopus).

New Garden Plants.

Odontoglossum excellens, *nov. hybr. nat.* (?).

The flowers of this are rather broader than those of Odontoglossum tripudians. Sepals yellow, with a few purple blotches, the odd one with a white central area. Tepals much broader, white, with yellow margins. Lip adnate to the base of the column, with a short stalk and a pandurate blade ; toothletted at the narrow superior part ; anterior part transverse, broader lobed, emarginate, with an apiculus in front, white, with yellow crests, numerous small purple blotches at the sides, and a few large purple blotches in front. Column white, with a few small purple spots on a yellow ground, and red limbs under the fovea. Borders of fovea purple ; wings entire, with fine small teeth, white, with great purple blotches. Anther purple-brown. The keels are very curious. An upright middle line has two long keels, one on each side, which are divaricate before their end, with one tooth at the back, and another at the end. On either side stands a series of adnate curved teeth projecting from a flat callous wall, as is seen in Odontoglossum Pescatorei.

If a guess were permitted, I would suggest that this might be a natural hybrid between Odontoglossum Pescatorei and tripudians. It is a wonderfully fine thing; Sir Trevor Lawrence, the lucky possessor, when

sending a four-flowered raceme, informed me the plant was introduced by Mr. Stuart Low, and that it was regarded as a yellow Pescatorei by the collector. Sir Trevor believes the flowers are not nearly so good as they will be, as the plant is yet in traveller's costume, with dried and shrivelled bulbs. Ah, Sir Trevor is so much accustomed to wonders of orchidic beauty that a new plant has no more claim to satisfy the possessor of Burford Lodge. *H. G. Rchb. f.*

Cattleya Chamberlainiana, *nov. hybr.*, Hort.

A hybrid between Cattleya guttata Leopoldi and C. Dowiana, the pollen parent. "In habit the plant resembles much more C. Leopoldi than C. Dowiana, but it is much dwarfer. The longest growth which it now blooming is 8 inches high. The plant has the bulbs two-leaved, and the leaves are 6—8 inches long by 2—2¾ inches wide. It therefore has the breadth of leaves of the one-leaved Dowiana, but not quite the length. However, as the plant grows it may be quite as long." So far Mr. Harry Veitch. The two flowers reach three-fifths of those of a fine C. Dowiana. The sepals are of rather strong texture, as in C. guttata, and are brownish-purple, at least at the margins. The rhomboid, retuse, very undulate petals are of the finest purple. The lip is cut, as in C. guttata, with triangular blunt side laciniæ, the anterior one with a distinct stalk and a broad abrupt anterior bilobed wavy blade, probably totally of the finest purple. I am very sorry to have seen only two well dried flowers, the beautiful curiosity having only reached my house in my absence. Thus it may have to be described as to colour a second time. It is named after the Right Hon. Joseph Chamberlain, M.P., who is a great amateur of Orchids, and whose collection is at Highbury, Moor Green, Birmingham. The raceme was sent to me by Messrs. James Veitch & Sons. *H. G. Rchb. f.*

Vitis (Cissus) striata.*

We have had several enquiries about an evergreen Ampelopsis lately advertised in our pages. Botanically, Cissus, Adenopetalum, and Ampelopsis now form part of the great genus Vitis, the differences being too inconstant to allow of their separation. Vitis striata is a species with the usual habit of Vines, with glabrous stems and tendrils, and rather thick, dark green, evergreen, digitate leaves, the leaflets sessile, oblanceolate, serrate, wedge-shaped at the base; the flowers are greenish, inconspicuous, in cymes opposite the leaves, the berries about the size of small Peas, reddish in colour. The plant is a native of South Brazil and Uruguay. Tweedie, who sent specimens to Sir W. Hooker, speaks of it as the ivy of Uruguay, one of the most beautiful climbers in the woods, covering the bushes with red berries in winter. We believe the plant is quite hardy, but what we have seen have been of very slow growth; perhaps the firms who advertise the plant will give us their experience on this point. *M. T. M.*

IMPNEY HALL.

Among the country seats and gardens of England Impney Hall, the residence of John Corbett, Esq., M.P., must be accorded a leading place. The Hall is but 1½ mile distant from Droitwich, a clean, pretty, and thriving little town, pleasantly situated in one of the most charming districts of Worcestershire. In 1645 Charles I. had his headquarters here, and besieged Hawkesley House, the Royal letter thanking the inhabitants for their attachment to him being long preserved. Dr. Nash, the historian of the county, was also buried here in 1811.

Droitwich has two fine churches, the early history of which is spoken of with pride by the inhabitants. Many other points of local interest might be touched upon, but I hasten to the chief object of these notes, viz., to write a brief description of Mr. Corbett's magnificent new gardens and grounds, which have been laid out in the most elaborate and princely style, far exceeding what I had previously heard of them. At the entrance gate there is an ornamental lodge, substantially built in the same style as the new mansion, which is designed and executed in the true French style of architecture, occupying a lofty situation, and externally as well as internally is embellished by the most elaborate modern style of workmanship and art.

The view from the drive is of the pleasantest kind, embracing as it does many miles of beautifully wooded country and a neighbouring landscape of peculiar beauty and richness. The terrace garden, like the house, is in the French style, and is one of the neatest in England designed by Marnock. At the first look you are convinced of the liberality, which has been the key to the success of so much that is chaste in conception and elaborate in workmanship. The terrace walls, the grand fountain at the bottom of the terrace garden, the smooth artificial-made walks all bear the look of appropriateness to their situations, and are in character with each and all of the objects with which they are architecturally associated and connected. The terrace garden, simple in design (Marnock's usual style), is laid out partly in grass and in Box, and Mr. Temple has substituted a dwarf variegated Thyme for an edging instead of the Box, which has a fine effect, the line forming the edging consisting of a low neat band about 3 inches in width of the variegated Thyme, which harmonises pleasingly with the greensward. The terrace garden is approached from the terrace by steps in the centre and at both ends. A series of lakes is also viewed from the south and south-west sides of the terrace, and the eye is drawn further in the distance by the spire of Doderhill Church and other objects of attraction in the distance. The conservatory on the north-east side has some fine specimen Palms and Dicksonias in pairs to match, as well as Araucaria excelsa and other suitable plants of various sizes. Camellias in fine health are also a prominent feature in the structure, where there is no patching and nothing that is one-sided or defective.

The pleasure grounds upon this side are artificially sloped, and look well in the twilight of the evening with a heavy dew glittering like beads upon the green carpet, and diversified by trees of many forms and varieties of foliage. In this portion of the grounds a sunk garden for spring flowers and bulbs, secluded, as it were, from the rest of the grounds, is very tastefully laid out, and will make a sheltered habitation for early spring flowers. The rock garden, too, not far distant from the mansion, is a place where there is much to interest the inquiring horticulturist who cares to add to his stock of general knowledge. The formation of such places—ay, the very conception of them—their general character and situation, the style of disposing plants, and the different kinds employed, are all points which are interesting to hear or read of, and for this reason—that the nature and situation of a new garden nearly always demand that a fresh line shall be taken, and new ideas conceived compatible with the nature of the ground to be operated upon.

At Impney what is done has been well done, and whether it be the rock garden, spring garden, the formation of lakes, or park planting for future effect, there seems to have been a properly considered programme, which has been carried out with consummate judgment and good taste. Perhaps the miles of shrubbery planting and walk making has been the most laborious part of the undertaking; no impediment which could be overcome by labour has been allowed to stop the general scheme of planting or mar the harmony that was aimed at, at the commencement. The Rose garden upon the north side of the kitchen garden, or rather running parallel with it, is well stocked with Roses in vigorous condition, the standards only having suffered from the effects of last winter. Mixed beds are introduced for the sake of variety, and Sedums and other plants are used for edging the beds. The outside walls and borders of the garden are cropped to the best advantage, the fruit crops (through management) being especially meritorious.

The kitchen garden is enclosed by 14-feet walls all round, the walks are edged with ornamental tiles, and hydrants are placed at several points in the garden in order that there shall be no dearth of water in dry summers. The garden takes the form of a square, which is divided into four quarters by two walks running lengthwise and crosswise the full length of the garden and communicating with the boundary walks in the usual way. Standard Pears, Apples, and Morello Cherries are planted at 10 feet apart all round the borders, and such handsome trees and crops too! In the vegetable plots crops of all kinds are in a thriving state, and in many cases (onions, for example) the yield is beyond the usual run of such crops, clean, hard, and keepers for the winter. Gooseberries are planted upon the north borders, and rows of big Lettuce or Turnips between—rather heavy cropping, but good soil and high cultivation accomplish a great deal with Mr. Temple. The crops of Pears, Plums, and Peaches upon the walls are—well, not an average crop, for the Plums and some of the Pears too are hanging like ropes of Onions. I took no hurried glance at the trees, and I may as well be candid—I was anxious to see for myself the results that are obtained from root-lifting, which is a system long adopted by Mr. Temple. His contention is that you force fruit trees into bearing by restriction at the root. If the first attempt fails, try again and again until the tree is forced into making "fruiting spurs" instead of the usual swarm of shoots which are grown and cut away year after year in succession. Mr. Temple also adopts another useful scheme in the management of walls, which is that of working in single or double cordons among young trees, which give an immediate return, and the sacrifice is not much to root them out after the permanent trees are established and in a fruiting state.

Training in any particular form has no special advantages beyond the fancy of the cultivator, or where the force of circumstances suggests a certain system as being best adapted to certain positions and situations. I could discern no difference as regards fertility between the largest fan-trained tree at Impney and the smallest cordon in the garden. All were bristling with "natural spurs," induced by constant and skilful attention to the roots. The varieties of Pears bearing the finest crops are Louise Bonne of Jersey, Marie Louise, Winter Nelis, Forelle, Van Mons' Leon le Clerc, Bergamotte d'Esperen, Passe Colmar, Brown Beurré, and Jersey Gratioli, which is a grand market Pear; also Pitmaston Duchess, often confounded with Duchesse d'Angoulême, but which is only a seedling from the latter, much larger but not so good.

Before I proceed to describe the glass structures I must first of all state that they are iron houses, erected upon the most approved principles, and well appointed in every respect. The doors are made of copper and iron, and the ventilators, too, are of the most substantial materials and easily worked. The internal fittings, paths, &c., are also made of solid material, and, what is better still, the crops are in character with the houses. The first house of the range is a Peach-house, with trees trained upon a trellis both at front and back. Over 700 fruits were gathered out of this house, and the trees are clean and in robust health. The next is a span-roofed plant-house, with one end facing the north. This house is gay with soft-wooded plants, such as Fuchsias, tuberous-rooted Begonias (many fine kinds), and the usual occupants of such houses in summer. No. 3 of the range is a late vinery, with grand bunches of Trebbiano, from 7 lb. to 10 lb. in weight; Gros Colmar, fine in bunch and berry; Black Alicantes and Lady Downe's. The early house comes next in rotation, and here the leaves are fast changing colour—a reminder to the gardener that preparations for the forcing season will shortly have to be taken in hand. Then comes a fernery which is stocked with a good variety of Ferns for cutting, and a few specimen foliage plants. The Muscat vinery comes next in order, and the crop is in all respects a splendid one. The bunches are large, tapering, with evenly-balanced shoulders and fine berries, indeed, better samples or a finer crop could not be wished for. There are also some large bunches of Raisin de Calabre in this house, well proportioned and a heavy crop. The plant stove is a span-roofed structure, and contains a useful collection of Palms, Ferns, Dracænas, and large numbers of plants of suitable size for furnishing. I noticed a standard Phyllanthus mimosæfolia, and a healthy Bougainvillea trained up the back wall in company with a Jacaranda mimosæfolia, which would perhaps do better in an intermediate temperature.

The last house of the range is a Peach-house, which is stocked with fine healthy young trees and fruiting Vines growing up the rafters. The Vines are Black Hamburghs, and are bearing bunches upon an average from 4 lb. to 6 lb. The Vines are only two years old, and are making splendid wood, notwithstanding the heavy impost they are bearing in the shape of a crop.

Plant pits and frames of all kinds are erected in the same first-class style as the houses, as well as offices, which are warmed and ventilated, and are both handsome and commodious. Strawberries in pots for forcing, and a liberal provision in the way of plants for winter flowering must be mentioned among my last remarks upon one of the most interesting and best managed gardens in the Midlands. *W. H.*

TRADE MEMORANDUM.

We are asked to state, for the information of the nursery trade, that there is a member of the "Long Firm" in Leicester who is ordering freely all descriptions of plants, shrubs, and horticultural sundries.

* *Vitis striata*, Baker, in *Flora Brasil.* (Ampelideæ), n. 32, 52.

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 409.)

8. Arpophyllum.—Stems rather long, with wide sheaths. Flowers small, numerous, in dense cylindrical spikes. Anther-bed broad, shorter than the broad rostellum. Pollinia 8. A distinct genus, comprising about four species, inhabiting Central America and Mexico, whereof one has lately been detected in Jamaica.

1. A. cardinale, Lind. et Rchb. f., *Bonplandia*, ii., p. 282; Walp. *Ann.* vi., p. 448; *Pescatorea*, t. 45; Warner, *Select Orch. Pl.*, t. 39.—New Grenada, 5000 to 6000 feet. Schlim.
2. A. giganteum, Hartweg, *Ann. Nat. Hist.* iv., p. 384; Walp. *Ann.* vi., p. 448; Warner, *Select Orch. Pl.*, t. 39; Baill. *Dict.*, coloured plate with part iv.—Mexico, Hartweg. Flowers lilac. Hort. Kew.
3. A. spicatum, Llav. et Lex. *Nov. Veg. Descr.* ii., p. 19; Lind. *Gen. and Sp. Orch.*, p. 151; *Bot. Mag.*, t. 6022; *Gard. Chron.*, n.s., i., p. 727.—Mexico, Guatemala, and Jamaica, in mountainous regions. Flowered at Kew 1872. Flowers in a dense spike, small, rosy-purple. Hartweg introduced it alive in 1839, according to Lindley, *Bot. Reg.* 1839, Misc., 16.

9. Octomeria.—Stems developed. Leaf oblong or linear. Flowers densely clustered, clusters sessile. Anther-bed rotundate, rostellum short. Pollinia 8. Mr. Bentham estimates the number of species at about six, though upwards of a dozen have been described. They have inconspicuous flowers, and inhabit tropical America, chiefly the eastern side; and they closely resemble some species of Pleurothallis in habit, differing in the number of pollinia.

1. O. Baueri, Lindl., *Gen. and Sp. Orch.*, p. 10; Bauer, *Orchid Gen.*, t. 4.—West Indies. Flowered in Kew Gardens in 1817.
2. O. cochlearis, Rchb. f., *Gard. Chron.*, n.s., xv., p. 266.—Brazil. Cultivated by the New Bulb Company, Colchester, 1881. "The flower is whitish-ochre, very Restrepioid from its tailed sepals and petals."
3. O. diaphana, Lindl., *Bot. Reg.* 1839, Misc., 146.—Brazil. Cultivated by Loddiges. "Flowers white, scentless."
4. O. gracilis, Lodd.; Lindl., *Bot. Reg.* 1838, Misc., n. 55.—Brazil. Loddiges.
5. O. graminifolia, R. Br., *Ait. Hort. Kew*, ed. 2, v., p. 211; *Bot. Mag.*, t. 2764.—West Indies. Originally introduced by Rear-Admiral Bligh in 1793. Flowers small, yellowish-white, said to be delightfully fragrant, especially in the evening.
6. O. grandiflora, Lindl., *Bot. Reg.* 1842, Misc., n. 80.—Brazil. Cultivated by Messrs. Loddiges. "The flowers are about four times as large as those of O. Baueri, and of the same pale yellow colour."
7. O. lobulosa, Rchb. f., *Hamb. Gartenz.* xiv., p. 215.—Native country not stated. Flowered in Consul Schiller's garden, Hamburgh, about 1858.
8. O. Loddigesii, Lindl., *Comp. Bot. Mag.*, ii., p. 354; *O. graminifolia*, Lodd., *Bot. Cab.*, t. 1891, *nec* R. Br.—West Indies. Cultivated by Loddiges in 1832. Lip with a single purple spot in the middle.
9. O. petulans, Rchb. f., *Hamb. Gartenz.* xv., p. 59.—Native country? Continental gardens in 1859.
10. O. pusilla, Lindl., *Comp. Bot. Mag.* ii., p. 354.—Brazil, Tweedie. Cultivated at Kew in 1861.
11. O. Saundersiana, Rchb. f., *Gard. Chron.*, n.s., xiii., p. 264.—Brazil. Flowered in the Hamburgh Botanic Gardens in 1880 from plants received from W. W. Saunders. Flowers ochre, striped with purple.
12. O. serratifolia, Hook., *Bot. Mag.*, t. 2823; *Bletia montana*, Rchb. f.
13. O. spatulata, Rchb. f., *Hamb. Gartenz.* xvi., p. 424.—Native country? Cultivated in Consul Schiller's garden in 1860.
14. O. tricolor, Rchb. f., *Gard. Chron.* 1872, p. 1035.—Brazil? Cultivated by W. W. Saunders.

10. Meiracyllium.—Stems very short from a creeping rhizome. Leaf sessile, broad, cordate. Flowers few, shortly pedicellate. Anther-beds almost concealed beneath the reclining rostellum. Three species have been described from Guatemala and Mexico. Botanically interesting on account of the remarkable position of the rostellum.

1. M. gemma, Rchb. f., *Gard. Chron.* 1869, p. 988; *Xenia*, iii., p. 13, t. 209; i. ii., fig. 1—9.—Mexico, Boucard, Roezl, &c. Flowers amethyst-coloured. Cultivated by W. W. Saunders. *W. B. Hemsley.*

(*To be continued.*)

GARDEN MISCELLANIES.

Apple Cordons at Normanton Park.—There can be no doubt of the advantage as well as of the great beauty and interest which attaches to this style of Apple growing. In Lord Aveland's garden at Normanton Park, a long row of horizontal cordons is so fertile, and the quality of the crop so good, as to afford the most ample testimony in favour of this system of growing the Apple. A prettier sight no one could desire to see, the different varieties of green, red and white coloured Apples, arranged alternately at the back of a long border that is used for spring bedding; and I am told when the little trees are in flower they are even more beautiful than when in fruit. *W. H.*

Lapagerias, &c., at Worksop Manor.—A few days ago there was to be seen here a most beautiful show of flowers of the Lapageria in three varieties, viz., rosea, alba, and rubra. The plants were trained to the roof of a house having a northern aspect, and showing hundreds of fully expanded flowers and great quantities coming on for succession, the growth of the plants being very luxuriant, by far surpassing any I have previously seen. I should say they have grown a distance of 40 feet from where they are planted, and give promise of soon covering the whole of the roof-space, which is of considerable extent. In some of the warmer houses the Stephanotis and Bougainvillea are successfully cultivated, and each in its turn and season yields quantities of bloom. I was pleased to see these plants (for they are general favourites) receiving so much attention from Mr. Sutton, the head gardener, who has the pleasure of seeing his system of growing the above plants crowned with such grand success. *J. Jefferson, Worksop.*

Notes from Sawbridgeworth.—In rambling through the famous nurseries at Sawbridgeworth last Saturday, I noted a few late Peaches and Plums, the former on trellises under glass, and the latter pyramids in pots. Golden Eagle is a magnificent Peach, very large and handsome, of a fine orange-pink on the sunny side. The flavour was remarkably rich and piquant. The old Salwey and late Admirable are not to be compared with this Peach for beauty or flavour. Comet also is a grand Peach, and so are Lady Palmerston and Princess of Wales—the latter very handsome, quite an artist's Peach. The Nectarines most noticeable for size, colour, and flavour were the famous Pine-apple, Humboldt, a larger variety, a seedling from the Pine-apple and the Orange Nectarine. Of dessert Plums the finest, perhaps, was a Rivers' seedling, the Grand Duke, a very large, handsome purple Plum, of fine flavour, and apparently a good doer. Late Prolific and Autumn Compote, a large red Plum of Victoria strain, great bearer, and three weeks or more late. Reine Claude de Bavay, one of the two latest of Green Gages, was still in bearing. The vinery just now presents wonderful evidence of successful culture; among the thirty-two Vines contained in this house (112 feet by 14 feet) were ten or a dozen varieties. Noticeable for their enormous berries and high finish were Gros Maroc and Gros Colmar; Madresfield Court, too, had magnificent bunches, but for flavour commend me to the Frontignac, Dr. Hogg; it more than makes up in quality what it lacks in size of bunch and berry. The most surprising evidence of the accommodating nature of the Vine was that of two plants, Black Hamburgh and Royal Muscadine. The pots in which they grew were 12 inches in diameter, but perforated, and standing on a small bed of compost, into which the roots were allowed to spread. This bed was scarcely a yard square, and not more than a foot in depth. Of course the roots were fed with liberal doses and dressings of manure. After the crop has been taken and the canes thoroughly ripened, the soil in the bed beyond a margin of 4 or 5 inches from the pot is entirely cut away, removed, and replaced with fresh compost. The two Vines in question were bearing each—and had borne for two years, I was told, previously—from twelve to fourteen splendid bunches. The Vines consisted, of course, of single canes, and stood on each side of a doorway in a house 9 feet wide, in which young Vines were grown. *T. W., Harrow.*

A Giant Apple Tree at Barleythorpe.—At Barleythorpe, in Rutlandshire, a huge Apple tree, 24 yards in diameter, is a very attractive sight upon a lawn at the north front of the house at the present time. The tree has lost one of its main limbs, but the loss is not perceptible at a distance. The tr has to be supported under the weight of its cro is something extraordinary, and which is t best example of Apple growing I have ever seen up a lawn or anywhere else. Of course, size is not to expected where the crop is so abundant. *W. H.*

Early Peas at Hindlip Hall.—Visitors Hindlip Hall gardens, near Worcester, are able notice some very early Peas growing in a co frame. Early Peas are much esteemed he and to provide a crop in November some Lit Gem is sown thinly in lines in a frame, from whi early Potatos have been taken. A successional sowi in pots to give Peas at Christmas is also made. T Peas in the frame are already developing their flow buds, while those in pots are some 2 inches height. Mr. Barker, the gardener at Hindlip, fin Little Gem decidedly the best for the purpose, as obtains from it a larger number, as well as fuller pod besides it is dwarf and robust, and easily manag with ordinary care. *Looker Round.*

The Pot Vines at Ashridge.—Seldom have observed anything more handsome or beautiful th the lot of fruiting Vines in pots grown by Mr. Sa at Ashridge, for the decoration of the dinner-tab Illustrations, with full particulars of Mr. Sage's mc of culture and preparation, were given in our colum p. 533, vol. x.; p. 205, vol. xi., of some plants ex bited before the Fruit Committee of the Royal Ho cultural Society, and which received the award o Silver Medal, so that it is not necessary to recapitul it here. It is, however, extremely gratifying to n that Mr. Sage not only continues to practise this char ing method, but, if we might hazard an opinion, bet than ever. Forming a line in front of a narrow le to house these pretty plants, rooted in 6 and 8-i pots, and trained, some spirally and some umbre fashion, about 3 feet in height, and bearing from to fourteen bunches of very fair Grapes each, are t pictures of beauty and high cultivation, and extremely suitable for dinner-table decoration. T sorts noted as good were:—Lady Downe's, Cio Alicante, and Muscat of Alexandria. *A. F. B.*

The Worcester Pearmain Apple at Ext Park.—If this variety were of no other use than ornament a garden at this season it would be wo cultivating it for this purpose alone. At Exton Pa the Earl of Gainsborough's place in Rutlandshire, Aherne has several nice bushes of it grown natu fashion among other varieties as back rows in borders by the main walks of the kitchen garden. evidently takes on a much higher colour in some s and situations than others. At Exton the trees fr a distance appear to be hanging with oval sca balls, which are strikingly handsome, and the vari I think will be found to succeed best under a natu form of growth. The variety is just the thing planting upon lawns, pleasure grounds, or in shr berries, where in the flowering and fruiting season branches, adorned either with fragrant flowers richly coloured fruits, would hang gracefully over undergrowth of green, and be as charming a sight any one could wish for who desire to combine useful with the ornamental. *Looker Round.*

THE PILTDOWN NURSERIE

These nurseries, which are famed for their lections of ornamental trees, shrubs, fruit trees, Roses, are but two miles distant from Uckfield stati on the London, Brighton, and South Coast Railw and are well sheltered and favourably situated, joying a fine deep soil, and a climate one of best in England. Messrs. James Mitchell & S the owners and occupiers, give special atten to the cultivation of the kind of plants enu rated above, and the general nursery stock certa bears ample testimony to the attention and skill the proprietors and their assistants. The nurse are intersected by hedges of more than the u height and thickness, which affords all the shel and more than is required in such a mild ge climate. The main road from Lewes to Nu divides the nurseries, which are of consider extent, and the soil of first-rate quality, as I h already stated. In near proximity to the Me Mitchell's residence are some fine specimen Ce and Picea Nordmanniana, Thuya aurea, Ber sanguinea, and Weigela rosea. The feath

Shumac, too, is very beautiful, being in grand health and richly coloured—a lovely plant for forming backgrounds to subtropical beds or borders, and an ornament in almost any situation. Cryptomeria elegans, Thuyopsis borealis, and Cupressus Lawsoniana, are really fine specimens; and a flowering shrub, Leycesteria formosa, is also a graceful plant for shrubbery borders, flowering in profusion for months in succession, and affording appropriate material for furnishing tall glasses and other purposes of decoration. The writer of these notes has used it largely, and can confidently recommend it in point of utility and general usefulness. Berberis Bealei was here in better condition than I have ever seen it before, no doubt owing to a genial soil and good drainage; and, indeed, all plants are in prime health and elegantly proportioned. Thuyopsis dolabrata, Wellingtonias, and Araucarias—several thousands raised from home-grown seeds—are as good as could be wished. I passed thousands of forest trees in a young state on my way to inspect the different specimens and specialities of the nursery. Here is a quarter of hybrid Rhododendrons, there a quarter of Kalmias or Andromedas, varied by smaller quantities of the common Blueboy Heath, which is prettily in flower at the present time.

Again my attention is drawn to specimens of Picea Pinsapo and Retinospora obtusa—very handsome samples of their respective kinds. Picea nobilis is finely coloured, as are Retinospora filifera and other coniferous plants, including Cryptomeria japonica.

By the margin of one of the nursery walks are two samples of Taxus adpressa and elegantissima, opposite a nice plant of the Red Cedar and a healthy plant of Pinus excelsa. An edging plant attracts the eye, which turns out to be Vinca major, an edging plant, which will be found useful for winter bedding. Other specimens worthy of notice are Retinospora pisifera variegata, the Siberian Arbor-vitæ or Thuya Warreana, the White Cedar, Chamæcyparis sphæroidea, and Thuya gigantea; Junipers in variety; Cupressus and Biota aurea elegantissima are lovely plants, while the Sweet Bay, Laurus nobilis, tender though it be, has here hardly had a leaf browned, the only instance which has come under my notice where the plant has passed the winter unscathed. One of the finest sights in the whole nursery, as an isolated plant, is a grand specimen of the variegated Wellingtonia, which is said to be the finest in this part of the country. There are also large bushes of Thuya aurea, Cupressus macrocarpa, and Juniperus aurea and chinensis. Another instance of the mildness of the climate is practically illustrated in the huge dimensions of some of the flowering shrubs, of which Deutzia scabra is a fair example.

Another striking plant in this nursery is Acer polymorphum atropurpureum, not far distant from standard Golden Queen Hollies, which would please those who are fond of trimness and formality of outline.

The Roses are one of the special features of this nursery, in which over 100,000 are grown; not struggling for existence, as many Roses are after the late scorching weather, but vigorous and healthy, with big glossy leaves the picture of health and a pleasure to look upon. Roses are grown upon standards, dwarf standards, and upon all stocks, as well as upon their own roots, in order to meet the wants of all who have any choice as regards shape or the stock upon which the Roses are worked. The dwarf Roses upon the Manetti stock are more than usually strong and healthy.

Leaving this part of the nursery and crossing the road from Lewis to Nutley, mentioned at the commencement of these remarks, you enter a gate, and turning to the left you enter the Araucaria Avenue—the finest in England. It is a sight, once seen, never to be forgotten. Let me first describe the giant of the whole collection. The plant is over 50 feet high, the trunk 10 feet round, spread of branches 84 feet, and was figured in the *Gardeners' Chronicle* a few years ago. But the avenue—what is it like? Does the reader think it is an irregular line of trees of unequal height, symmetry, and habit? No. If there be anything to find fault with, or rather to regret, it is that the two lines of trees which curve gradually with the walk, are so perfect in height, formation, and habit, and at present so near to each other that they are likely to sustain injury from contact before long. These are the trees which furnish the cones from which the seeds are taken to raise so many thousands of young plants, and are in a general way from 30 to 40 feet high, and planted about twenty years, the largest one being planted about thirty-seven years by the present owner's father. I believe this avenue is even more attractive in winter than it is in summer, when the trees are adorned with icicles of all kinds of fantastic and grotesque shapes as they were for a lengthened period last winter. In this portion of the Messrs. Mitchell's nursery grounds are many specimens, the specific names of which I need not repeat, having already referred to duplicates of them in these remarks. I think, however, I have omitted to mention the Chinese Yew (Cephalotaxus Fortunei), and a good example of Photinia serrulata. There are large brakes of common and Portugal Laurels, seedling Firs, and lines and plots of Yucca gloriosa of various ages and sizes, and quarters of fruit trees in fine health and great variety.

The general keep of the nursery is good, and the special attention given to the cultivation of such plants as I have described is as much to the advantage of the purchaser as to that of the proprietor, who grows everything that he attempts to grow well. Before leaving the nursery, I had the pleasure of a peep at the many trophies, local and otherwise, won by Messrs. Mitchell for Roses for some years past, which are very valuable cups in different sizes, quite a little exhibition in themselves, and calculated to tempt a covetous person to break the Tenth Commandment.

W. Hinds.

Fig. 80.—Achillea filipendulina: hardy perennial. Flowers yellow.

ACHILLEA FILIPENDULINA.

Among the very best herbaceous plants may certainly be reckoned the subject of this note. Its almost shrubby, compact, erect habit, finely cut leaves, and large flat masses of golden-yellow flower-heads, which remain in bloom for two to three months recommend it to all lovers of hardy plants. It is of the easiest culture, and readily propagated. Our specimen (fig. 80) was procured from the Royal Gardens, Kew.

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

(*Continued from p.* 368.)

Section *Reticulati.*—Autumnal.

27. **C. medius*, Balbis.—Corm about ¾ inch broad; the tunic consisting of strong, reticulated fibre. Sheathing-leaves falling short of the proper spathe. Proper leaves hidden within the sheathing-leaves at the flowering time, and produced to 1 foot or more in length in the spring, two or rarely three to a corm, $\frac{3}{16}$ to ¼ inch broad, the keel narrow, lateral channels wide and open, containing three ribs. Proper spathe monophyllous, foliaceous, 4 inches long, reaching nearly to the throat. Perianth: throat glabrous, nearly white, internally veined; segments ovato-lanceolate, 2 inches long and ¾ inch broad, the inner somewhat shorter than the outer segments, bright purple, paler towards the base, and internally veined with six or seven purple lines, extending one-third of their height. Anthers pale orange, about twice the length of the yellow filament; the scarlet style dividing at about the level of the summit of the anthers, and produced into a spreading mass of finely divided, scarlet stigmata. Seed orange, ovoid.

C. medius flowers in October, and extends along the mountains of the Riviera, from Mentone to Genoa, up to an altitude of about 4000 feet.

28. †*C. longiflorus*, Rafinesque; C. odorus, Bivona-Bernardi; C. visianicus, Herbert?—Corm nearly spherical, about ½ inch broad; tunic of distinctly reticu-

lated fibre on a membranous base. Sheathing-leaves slightly exceeding the basal spathe, and falling short of proper spathe. Proper leaves appearing with the flowers, and reaching to the level of the proper spathe at the flowering time, produced to a length of 8 or 9 inches at maturity, glabrous, about ⅛ inch broad. Basal spathe much exceeding the ovary, and nearly as high as the sheathing leaves. Proper spathe monophyllous, foliaceous. Perianth: tube yellow; throat orange, slightly bearded; segments about 1½ inch long, lilac, either self-coloured or externally veined with purple; in the Malta form, occasionally feathered with purple markings. Anthers orange, hastate, and tapering upwards, more than twice the length of the yellow filament; the scarlet style dividing at the base of the anthers, and produced into entire scarlet stigmata, which are occasionally split up into capillary divisions, reaching to the level or a little above the level of the anthers. Capsule purple. Seed spherical, scarlet.

C. longiflorus is an abundant species in the south of Italy, Malta, and neighbouring islands, flowering in October. It also occurs in Dalmatia. In the character of the stigma it somewhat approaches the species of the following group allied to sativus.

The following forms I have grouped as varieties of C. sativus (29), and C. hadriaticus (30), compose a well marked section, of which C. sativus may be taken as the type. In the whole of them the leaves are ciliated, appearing with the autumnal flowers; the stigmata are scarlet and entire; the pollen grains are of irregular outline, the proper spathe double, the throat bearded; the corm tunic consists of fine silky reticulated fibre, produced into a long bunch of points at the summit of the corm; and the seeds are madder-brown in colour.

29. ‡*C. sativus*, Linn.—I take the cultivated plant as the type for description, though no precisely identical form is known in a wild state.

Var. 1. *C. Orsinii*, Parlatore; "C. sativus sauvage," Tenore.—Monte de Fiore, Ascoli, Italy.
Var. 2. *C. Cartwrightianus*, Herbert; C. græcus, Chappellier.—Greece and Cyclades.
Var. 3. *C. cashmerianus*, Royle.—Cashmere; naturalised?
Var. 4. *C. Haussknechtii*, Boissier.—Kurdistan.
Var. 5. *C. Elwesii*, Maw.—Smyrna.
Var. 6. *C. Pallasii*, M. Bieb.; C. Thomasii, Tenore; C. hybernus, Fridwaldsky.—South Italy, the Morea, Dalmatia, and the Crimea.

‡*C. sativus*, type.—Corm large, with a flat base and vertical sides, 1 or 1¼ inch broad, and 1 inch high. Corm tunic of fine, silky, reticulated fibre, produced at the summit into a long bunch of free fibres, from 1 to 2 inches in height, sheathing leaves reaching nearly to the throat, and to the level of the proper spathe. Proper leaves ⅛ inch broad, appearing with and reaching to the flowers, and produced in the spring to a length of 18 or 24 inches, margins of blade and keel ciliated. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat white or purple, bearded; segments 2 inches long, bright lilac, purple towards the throat, and suffused throughout with purple veins. Anthers orange, longer than the white or lilac filament; the style dividing towards the base of the anthers, and produced into entire scarlet drooping stigmata, which are occasionally fringed, 2 inches in length, much exceeding the anthers, and often reaching beyond the segments. The cultivated plant never seeds; the seeds of the allied wild forms are nearly spherical, of a dull madder-red colour.

The several forms I have included as varieties of C. sativus range from Italy on the west into Kurdistan, through 35° of longitude. C. Orsinii, gathered by Orsine and Tenore on different occasions at a height of 3200 feet on the south-east side of Monte de Fiore, near Ascoli, Italy, appears only distinguishable from the cultivated Saffron by its more erect and somewhat shorter stigmata. C. Cartwrightianus, common in the mountains of Greece and the Cyclades, may be described as the cultivated Saffron in miniature. C. Thomasii, from Italy, and C. Pallasii, from Dalmatia, the Morea, and the Crimea, are identical, and differ from C. Cartwrightianus in their smaller corm and much shorter stigmata, which generally fall short of the anthers. There is no form of C. sativus with long stigmata east of Greece and the Cyclades. C. Elwesii is abundant on the mountains east of Smyrna. It is a plant with a large corm and flower, but with the short stigmata of C. Pallasii. C. Haussknechtii, from Kurdistan, seems nearly related to C. Elwesii, but is remarkable for the great length of the fibrous appendage (the skeleton of the previous year's foliage) to the cap of the corm tunic. The flowering time of C. sativus and its varieties is October and November to early in December. The cultivation of C. sativus for the production of saffron must have been of very early date; it extended into Persia and Cashmere, far to the east of the indigenous region of C. sativus. I propose in my monograph on the genus Crocus to give, as far as possible, all that is known of the early history of saffron, which seems to have been cultivated in Palestine at the time of Solomon.

30. ‡*C. hadriaticus*, Herbert; C. peloponnesiacus, Orphanides?

Var. 1. *chrysobelonicus*, Herbert.—Santa Maura.
Var. 2. *Saundersianus*, Herbert.—Albania.

Corm large, about 1 inch broad and ¾ inch high, with flat base and vertical sides; the corm tunic of fine silky reticulated fibre, produced at the summit into a bunch of free fibres about ¾ inch high. Sheathing-leaves nearly equalling the proper spathe. Proper leaves appearing with the flowers, and reaching to the throat at the flowering time, $\frac{1}{12}$ inch broad, produced in the spring to a length of 15 or 18 inches, ciliated on the margins of the blade and keel. Basal spathe exceeding the ovary, and containing several scapes. Proper spathe membranous diphyllous, almost hidden by the sheathing-leaves. Perianth: throat bearded, segments pure white, with purple or yellow base, about 1½ inch long and from ½ inch to ¾ inch broad. Anthers bright orange, tapering upwards, more than twice the length of the white or purple filament; the style dividing at the level of the middle of the anthers, and produced into entire scarlet stigmata, which exceed the anthers.

A native of the Ionian Islands, Albania, and the Morea, flowering from the end of September through October, a little earlier than any of the forms of C. sativus. The flower-colouring of the type is pure white; the Albanian form, Saundersianus of Herbert, has a rich purple throat; and the variety from Santa Maura, Herbert's chrysobelonicus, has a yellow throat, with a few reddish lines at the base of the segments.

I am only acquainted with C. peloponnesiacus, described by Professor Orphanides from the Morea, from herbarium specimens; in these there is no appearance of leaves at the flowering time, but this seems to be the only character which would distinguish it from C. hadriaticus.

(*To be continued.*)

THE SWANLEY NURSERY.

The Swanley "Home for Flowers" grows apace. Since our visit of last autumn four more of the parallel narrow span-roofed 100-feet houses adopted by Mr. Cannell have been erected, besides a very long wider span-roofed structure facing in the opposite direction, now filled with Begonias, but intended to accommodate during their blooming period a collection of upwards of 600 varieties of Chrysanthemums which has been got together here. Four of these long light houses are filled with Chinese Primulas from hybridised seeds, the plants remarkable for their sturdy, vigorous appearance, attributable to pure air, clear light, and Cannell's manure. The admirable plan originated in this nursery of warming the atmosphere of the houses by means of small hot-water pipes close up to the roof-glass is strictly followed up, for the very sufficient reason that it has been proved to be of immense advantage to the plants, permitting of a lively genial climate, well ventilated even in wintry weather, being maintained, instead of one in which the wretchedly damp, chilly atmosphere, which dare not be changed by ventilation because of the low temperature, leads to feeble growth, damping off, and all unsatisfactoriness.

At this season of the year one of the principal features amongst outdoor flowers consists of the Dahlias—show Dahlias, pompon Dahlias, bedding Dahlias, and single Dahlias, Dahlias after Nature's type, and Dahlias after the florist's model. Into the growth of these latter Mr. Cannell has entered in good earnest, as his position on the prize lists at some of the leading shows bears testimony. The plants are exceedingly well cultivated, bearing wonderfully fine flowers in the rich loam of the Swanley valley, and only needing skilful setting up to take honourable positions on the exhibition tables. All the best sorts of them are grown, as well as a full collection of the charming little pompons; also a very beautiful dazzling scarlet bedding variety called Fire King, which, pegged down for low beds and kept erect for taller ones of about 3 feet high, has a most brilliant effect.

The class of pompon Dahlias is an exceedingly popular one, and few flowers are more deserving of cultivation in private gardens where cut flowers are much used. The small size of their flowers, their neat appearance, their profusion, and the great variety of rich and varied colours which they present, all conspire to mark them out as fit subjects to attain popularity. In looking through Mr. Cannell's collection we find many exceedingly beautiful sorts, of some of the best of which we made notes as follows:—Amongst the dark maroon flowers, Prince of Lilliputians and Sappho were especially good, the former whole-coloured, the latter shaded with crimson. Rigolette was also very fine, and perhaps darker than either of the foregoing; Herr Lenné was a charming flower, of a deep bright carmine-rose; Little Bobby, with rather more purple or magenta, was very pleasing as was Bird of Paradise, a deep crimson-purple. Scarlets are well represented, the best being Northern Light, a very rich colour; Dr. Webb, which is one of the dwarf sorts, and Triumph, very neat, while Triomphe is a most symmetrical, bright orange scarlet, and Red Gauntlet a deeper reddish-scarlet darker than the rest. Brunette is an orange-red with the just visible reverse of the florets buff. Of dark-ground tipped flowers we preferred Osiris, rich maroon-purple with white tips; and Jewess, orange-scarlet with white tips, the latter being of fine dwarf habit. Of another type, more heavily tipped were German Favourite, which has the base of the florets white flushed with purple, and the whole upper part bright carmine; and Little Wag, marked in a similar way with dark rich purple, while the base of the florets shows a light purplish flush over the white ground. Of the lighter-tipped class, blush or pale lilac with purple tips, Little Dear stands first, and is quite a gem; very closely resembling it are Little Helena and Adonis. Little Philip is a buff-white edged with bright lilac, and Minnie, a deeper buff with purple tips on the reverse of the florets. Little Willie is a delicate flesh colour, and Snowflake and White Aster are two good whites. Dove is a white with yellow base. Lady Blanche is a pure white with elegantly quilled florets. Of yellows Lydia is a bright pure yellow of deepish tint, and Sensation a neat yellow of the primose hue. These form a very full selection of the various colours and amongst them Dr. Webb, Little Dear, Jewess and Little Helena are of dwarf habit and particularly useful as border flowers, while the others are somewhat taller and suitable to be planted for a supply of cut flowers.

Mr. Cannell also grows most of the best single varieties, respecting which it may be remarked that the large-flowered forms are not generally desirable being too much like the rejected singles of the florists' Dahlias. There is no conflict or rivalry, it should be known, between the single forms now enjoying popularity and the florist's Dahlias, as some persons seem to suppose: they are as distinct as if the name of either one of them did not happen to be Dahlia, that is to say, they belong to distinct and dissimilar species, and consequently are dissimilar plants, the florist's Dahlias being prized for size, symmetry, and doubleness, and intended for florist's tournaments and the singles being prized and used as border flowers or for decorative purposes as cut flowers. It should also be more widely known than it appears to be that there are two types of single Dahlias which are exactly suitable for these objects, and to these with one or two exceptions, the singles should be restricted. The types referred to are D. coccinea, orange-scarlet, with dwarf floriferous habit, dark foliage, and dark stems covered with grey hairs; and D. gracilis, brilliant scarlet, also dwarf and floriferous with light green elegantly cut foliage, and smooth wiry stems and branches, and flower-stalks. To the former type belong the sorts known as coccinea (true), coccinea lutea, Scarlet Dwarf, and Yellow Dwarf, all low-growing: and Scarlet Gem and Yellow Gem somewhat taller, but all remarkably free flowering and graceful in habit, with small, elegant flower heads. To the latter type, besides gracilis itself, belong gracilis perfecta, gracilis superba, and gracilis lutea, besides one or two others not yet named. Some or most of these we saw blooming abundantly in Mr. Cannell's collection.

The year 1881 has not been favourable to outdoor Pelargoniums, but in the houses at Swanley there has been throughout the season a splendid display, and even now there is an abundance of bloom. One of the two houses are devoted to plants for winter flowering, and splendid stocky plants they are, bound

yield in due time a grand exhibition of flowers. We noted the following as a few of the specially good ones, mostly rather new, and all very desirable, which were still blooming freely:—Of double zonals, Madame Léon Dalloy, a large flowered flesh-coloured variety, with faintly zonate leaves, the flowers having very large, broad, smooth petals, fine; Clara Pfitzer, also very large, deep rose-pink, the petals smooth-edged, and full to the centre; Edouard André, zonate, a deep magenta shade of pink, the flowers large and good in every way; Madame François Desbois, a zonate variety, and a fine bold flower of a very fine magenta-pink, deeper in hue then Edouard André; Paul Charbonnier, with very large flowers of a rich orange-scarlet; Henry Cannell, a fine deep richly coloured flower, magenta-crimson, with a dash of maroon, and with an orange tint at the base of the upper petals; Raspail, a zonate sort, with large, full, double, bright scarlet flowers, and a great advance upon Wonderful; Candidissimum plenum, with zonate leaves, the best white, the fully double flowers being greenish when quite young, but bleaching to pure white, without any of the blush tint which is so prevalent among the whites, single and double; Album perfectum, which is very similar to the last, but not quite so good; Aglaia, a variety with a fine dwarf, free habit, and closely built double flowers of a rosy crimson, having the top petals marked with scarlet; Mr. Cannell, a dark-toned sort, with bright orange-scarlet flowers, which are large, smooth, and full, rather paler than Raspail, but similar; and Darwin, a double Dr. Denny, producing good bold trusses of rich deep magenta and scarlet, the leaves without zones.

Of the single zonals, now nearly over, La France was one of the most striking, being a great advance on Dr. Denny, the flowers of a beautiful magenta, with a scarlet blotch at the base of the upper petals, free-flowering, and in every way good and desirable; Miss Hamilton, with a faintly zoned leaf, had very large, very smooth flowers, of a delicate blush, and is very constant as to form and colour, and good both in summer and winter; Constancy is a smooth bright peach-pink with a peculiar twin spot at the base of the top petals, giving the flower a singular Pansy-like appearance; Henri Jacoby is remarkable for its deep crimson colour, which is very intense.

Some of the new Ivy-leaved sorts are exceedingly fine, a great advance having been made in this class. Of these Anna Pfitzer is the most striking, and is a flower of great merit, the petals a deep rosy pink, smooth, large, broad, and rounded, forming a finely-shaped double flower. Madame Crousse is another very large double, with smooth-petalled free flowers of a pale blush-pink, rather larger and looser than Anna Pfitzer, and not so deep and striking in colour, but distinct. The now familiar Gloire d'Orléans is very free, its small trusses of bright rosy-pink double flowers being very effective. M. de Boringe is a good single, with very large bright rose-pink flowers, having a crimson feather and white blotch on the upper petals; its leaves have a dark blotch in the centre.

We must here bring this notice to a close, but the all has not been told. One house is full of the grand varieties of winter-blooming Salvias, with which Mr. Cannell created such a sensation last year; there are this season many additions to the group. Truly this is a marvellous manufactory of flowers for the million, and they find it a most congenial home. *T. M.*

FRUIT NOTES.

Pears and Apples.—The crops of these are so heavy that already there is a great cry out among growers that the fruit is a drug in the market, and Williams' Pears have been so plentiful that they could hardly be given away, and Apples are now being offered at 4*s.* per sack. Although these low prices may not suit sellers, they will be a great boon to those who reside in towns, to have a plentiful supply of fruit at a cheap rate. But somehow or other, however plentiful it is, the general public, who have to obtain their supplies from shops, do not often benefit by the glut nearly so much as they ought. As to pears, I have never seen them so abundant and fine, the rains, after the great heat, having set them off swelling at a fast rate. But what is sadly wanted is sun to ripen and finish them up, and if we do not get it is at once, I fear they will be very deficient in flavour, as the summer kinds have been. A fine October, however, will do much for the late sorts, which should be allowed to hang as long as they will, for, if gathered before their time, instead of keeping plump and good, and ripening properly, they shrivel, and never set well. Some kinds we are picking already, but the Glou Morçeau, Bergamotte Esperen, Joséphine de Malines, Easter Beurré, and Ne Plus Meuris, will, I hope, for another fortnight at least, remain where they are; and the same with Sturmer Pippin, Blenheim Orange, and other late Apples, if the wind will only leave them alone. *J. Sheppard.*

Notes on Pears.—I send you the names of those Pears which have borne good crops of fine fruit here this season. Wall trees: Doyenné d'Eté, Jargonelle, Williams' Bon Chrétien, Beurré d'Amanlis, Marie Louise, Seckle, Duchesse d'Angoulême, Passe Colmar, Napoléon, Beurré d'Aremberg, Glou Morçeau, Winter Nelis, Chaumontel, Beurré Rance, and Ne Plus Meuris. Pyramids: Williams' Bon Chrétien, Colmar d'Eté, Souvenir du Congrès, Van Mons' Léon le Clerc, Louise Bonne of Jersey, Beurré d'Anjou, Vicar of Winkfield, Beurré Bachelier, Bergamotte d'Esperen, and Zepherin Grégoire. *Edward Ward, Hewell Grange, Bromsgrove.*

The Finchley Vine. — If the Speddock Vine (see p. 304) is better than the one at Finchley it is a good one indeed. This season there has been cut from this one Vine over 700 lb. weight of Grapes, and some of the bunches have turned the scale at 3 lb. The quality has been simply A1, both as to size of berry and colour, and I did not see any to surpass them in this respect at the Manchester International Show. To bear me out in this statement, I would add that six bunches were shown at Brighton last week, in the open class, and took first honours. Three bunches were also shown from the same Vine in the open class, and came off second. *H. Mobbs.*

Beauty of Hants Apple—Some years since considerable discussion was raised over this Apple, as it was regarded as Blenheim Orange only. The type of the fruit on the original tree was of a decided conical form, large, and very brightly coloured. This summer I have fruited it, having had a few years ago grafts from the original tree, and worked them on an old stem here. I find the fruits still retain that distinctive conical form and show more colour than do the fruits on the Blenheim Orange close by, whilst these latter in all cases have the flattish round form always associated with it. *A. D.*

Winter Peach Apple.—I should like to learn whether there is in commerce any Apple known under this designation. The kind I have here growing as such was obtained from a private garden. It has a somewhat erect habit of growth, the foliage of a pale green, and the fruit—much like that of the Wellington—has a dull coating of red next the sun, and is covered with a pale bloom. It is a firm, crisp, juicy Apple, and is ripe about December. *A. D.*

An Exhibition of Hardy Fruits.—I find that there is to be an exhibition of Apples and Pears at the Royal Aquarium next November, but the classes are few, and therefore it is not at all probable that these fruits will be largely represented. What is chiefly wanted is not so much a prize competition as a collection to which all who may have good samples of Apples or Pears of any kinds, and of unnamed ones especially, should be invited to contribute, and where there may be an interchange of opinion, and discussion as to merits of sorts and of their identity. Somehow hardy fruit shows are seldom, perhaps never, utilised for this purpose, perhaps for the reason that competition is made to overshadow all other objects. A show of hardy fruits for educational purposes only may well be tried, and it is not too late to arrange for it. *A. D.*

Kirk's Fame Apple.—This variety cannot be too highly spoken of for its earliness and productiveness. I procured a dwarf-trained tree from the St. John's Nursery, Worcester, about seven years ago, and it has never failed to produce a crop since the second year of planting. In shape the fruit is flatter, and with me larger, and earlier, than Lord Suffield. *Geo. Read, Hawford Lodge, Worcester.*

Erythrina spectabilis.—This variety, which is a production of the present year, and has rich green leaves with a midrib and veins of deep yellow, is a beautiful plant for vases or small groups. If gardeners would go more about than they do it would be a relief to them to find out how many beautiful plants there are, and useful ones too, that are never seen or heard of in private gardens.

GLOXINIAS.

I can thoroughly endorse all that your correspondent, "A. D." (September 3, p. 315), says about the indoor cultivation of Gloxinias; I am only surprised that there should be any doubt on the subject. For several years past my sitting-rooms have been quite in a blaze with Gloxinias during the summer. I have seldom had less than from six to a dozen in the dining-room, drawing-room, and library, on tables near the windows—that is, in each room. Indeed, I know not any other flower that blooms equally well in inhabited rooms in the light, but entirely away from sunshine; nor do I know any flower more beautiful in its delicately varied hues. The collection of Gloxinias from the Chiswick gardens exhibited last July at the great horticultural show, South Kensington, was positively glorious, dazzling to a degree, finer than any I have ever seen either at home or abroad. When it is known that these very beautiful flowers will live in cool inhabited rooms as well an Aspidistra or an India-rubber plant, and will continue blooming for one, two, or three months, the smallest buds gradually growing, expanding, and flowering, at a temperature from 60° to 66° only, it will be seen what an acquisition the Gloxinia is to home decoration. At the same time to obtain this result they must be properly treated. The following is the plan adopted by my gardener, Mr. Gray:—About this time, or a little later, the plants are removed from the house and placed in a vinery used as a plant-house during the winter. We are now brushing away the Vine leaves to let in light, as the Grapes are all cut and the new wood well ripened. This vinery is only heated in the early part of the winter, when it is necessary to keep out the frost for the protection of the numerous plants therein stored. About the first week in February the Vines begin to burst of themselves, and then a little heat is kept on uninterruptedly. The Gloxinias, which until that time have been left entirely without water, are watered, and at once start into growth. As soon as the first leaves appear they are shaken out of the pots and re-potted in new soil, composed of light loam, leaf-mould, and a little bone manure. They are placed on shelves about 18 inches from the glass and regularly watered. In March, in April or May, other bulbs are treated in the same way for successional flowering. The first batch are ready to take into the house, full of flower, by June, when I return from the South. I have often had three-year bulbs with twenty or twenty-five blooms on at once.

At first we let the Gloxinias flower on as long as they liked for two or three months, but many of the plants that had flowered thus long died the following winter. My gardener thinks that they died of exhaustion from over-flowering, and this summer we have only let them flower for a month or six weeks, replacing them with others. This fact, however, shows how thoroughly congenial to their nature is the atmosphere of a well ventilated, well lighted room. My dining-room has two large bay windows. In each of these, about 3 feet from the centre of the window, I have oak tables, on each of which I have had all the summer six Gloxinias. They get thus plenty of light but no sunshine, for the windows are direct North. The effect has been lovely all the summer. The oak furniture and the delicate hues of the flowers, with their rich green leaves, harmonise thoroughly. On the oak sideboard at the end of the room—a long one—I have also had half-a-dozen more, which have thriven equally well, although not so much in the light. There is no gas, and the room is well ventilated. One of the other rooms is north-west, and only gets a few slanting rays of sunshine in the evening. The window used in the third is due west, and in the same condition as to light and sunshine. The Gloxinias are watered every morning by the gardener himself, and a little water is allowed to stand in the saucers in which the pots are placed. I would add that I grow exclusively the erect Gloxinias. The pendulous form is infinitely less graceful, the flowers requiring sticks to lift them up. When seedlings assume this habit we throw them away.

The above details establish, it appears to me, as a fact, that the Gloxinia is a shade plant, living no doubt on the margin of woods in its native country, at the base of rocks or in openings or glades in the woods. My gardener tells me that even when growing them on shelves in the vinery, shaded by the Vine leaves, he finds that they do better on the north side of the house than on the south; the plants are more vigorous, greener, and flower better. Several of my

country friends have adopted the Gloxinia as an indoor decorative summer plant, at my suggestion, with the same favourable result. How it would fare in cities, exposed to the contamination of gas and of pre-breathed air, and to all the atmospheric impurities which characterise all large agglomerations of mankind, I know not. My residence is quite in the country, in pure air, on a sandy soil and amidst coniferous vegetation. Perhaps the Gloxinia would refuse to bloom, as does the Rose, under such conditions of life. This, however, is a point for the denizens of towns to settle by positive experience. It would indeed be a boon if we could add a lovely flowering plant to the two foliage plants which are now in summer all but the forlorn hope of citizens, the Ficus elastica and the Aspidistra. *Henry Bennet, M.D., The Ferns, Weybridge.*

THE HYBRIDISATION OF ROSES.

All who write upon and love the Rose have their dreams of the future in regard to it—a hybrid-perpetual as yellow as Maréchal Niel, or as white as Niphetos, or a dark crimson as large and fine in build as Marie Baumann, while some long for dark coloured Teas with strength and vigour which shall always be as floriferous as the Teas are, but with the vigour and strength of the hybrid-perpetuals. All who express these hopes look to the artificial hybridisation of the flower to attain their object: and yet, strange to say, the Rose has hitherto not proved itself so amenable to the efforts of the hybridiser—the very finest Roses that we have up to this time have been the result of chance hybridisation, not of artificial impregnation. Pradel's great gain of Maréchal Niel was a chance find, probably from Cloth of Gold, though the grand old Gloire de Dijon came up in a walk in Jacotot's garden at Dijon. Marie Baumann was the result of chance fertilisation, and it would be hard to name any Roses which can equal them in their respective classes. I know not how far English Rose growers have adopted artificial crossing. Mr. Laxton certainly has done so; but then his Roses, though good, are not to be compared with the finest of the foreign raised flowers. We know of some instances where this has been done, but as yet the results have not equalled the expectations of those who have attempted it.

Many years ago old Margottin, of Bourg La Reine, near Paris, who was the raiser of that grand old Rose, Jules Margottin (a result of natural cross-breeding), felt that Rose growers were getting too much into the strain of Général Jacqueminot, and so he determined on trying what could be done by going back to those of his own strain, and crossing them with others; he has not, however, raised since then a Rose at all comparable to his first production, and his latest one, Gloire de Bourg la Reine, reminds one of the old Gloire de Rosaméne in the brilliancy of its colouring, and also in the fineness of its petals. In the year 1867 M. Guillot fils obtained the Rose La France, which has ever since been so highly thought of, and despite the adverse opinions of one or two rosarians, amongst them the late Mr. Radclyffe, who used to speak of it as "dog's-eared," it takes one of the very first places amongst hybrid-perpetuals. When Guillot obtained it he used to say that he hoped it would be the parent of a new race. This it certainly has not been; it still stands alone in its glory, but of late M. Guillot has classed it, not amongst perpetuals, but amongst hybrid Teas. I presume, although I am not aware that it is so, that he has been trying to cross-breed with it; if so, it has been without result, but it is a curious fact, as showing that it really is a hybrid Tea, that one of Mr. Bennett's seedlings is so like it that when in bud (and unhappily it proceeds no further) it is difficult to say that it is not La France, the foliage, however, being very different. Whatever may be the modern practice amongst French Rose growers, it certainly was not formerly the habit amongst them to artificially hybridise, and yet all the grandest Roses we have date back to long periods. Thus in an election of Roses which took place two years ago, and to which nearly fifty Rose growers contributed their opinion, I find amongst the best twelve, Charles Lefebvre, raised in 1861, twenty years ago; Alfred Colomb, in 1865; Marie Rady, 1865; Madame Victor Verdier, 1868; Marie Baumann, 1863; Baroness Rothschild, 1867; Louis van Houtte, 1869; Marquise de Castellane, 1869; François Michelon, 1871; while coming next to them are Dr. Andry, 1864; Comtesse d'Oxford, 1869; Duke of Edinburgh, 1868; Sénateur Vaisse, 1859, twenty-two years ago, &c.; and even now there are but one or two Roses of the last two years that are likely to displace these older varieties—A. K. Williams, and, it may be, Abel Carrière.

Let us now turn to English raisers. The grandest Tea Rose almost that we have—Devoniensis—was a stray seedling of forty years ago, and no Tea Rose has ever been raised in "Merrie England" since that time, for Letty Coles was only a sport; and it is to the French, and especially the Lyons growers, that we are indebted for the lovely flowers belonging to this class.

In 1862 Mr. Ward, of Ipswich, brought out that grand old fellow, John Hopper; and although other Roses have perhaps superseded him, and he is not as often seen in the post of honour in the exhibition stand as he used to be, yet no Rose grower, however small or large his collection may be, would consider his collection complete without John Hopper. Now, Mr. Ward is a careful hybridiser, but he has not since that time raised any Rose that is worth naming; he did send out two, but their life was a very short one, and they are probably unknown, even by name, to most Rose growers. Mr. Ward has been assiduously crossing the Teas and hybrid-perpetuals, but as yet his efforts have not been successful; he would not send out a Rose without giving it a good trial; and although he has more than once hoped that he had obtained his object, he has not, as far as I am aware, done so.

Cheshunt Hybrid, a Rose which has been generally admired (although I hardly ever met a lady who did not find fault with its colour), and which is grown in every garden, has a very doubtful origin; that it was not the result of artificial hybridisation is however clear. Mr. George Paul believes it to be a cross between Madame de Tartas (Tea) and Camille de Rohan (?), which were growing, one on the roof, and the other on the stage, Madame de Tartas being the mother plant; and his idea is that it is a seedling by insect fertilisation between the two. As a garden Rose it is very fine, standing apparently all climates, and vigorous in growth enough to prove a good climber, but it has not proved the forerunner of anything of the same class.

I now come to the latest and best known of all the attempts of artificial hybridisation which have been made with the Rose, that of Mr. Henry Bennett, late of Stapleford, near Salisbury, who some two or three years ago startled the Rose world with his statements regarding the success that had attended his efforts in hybridising the Tea and hybrid-perpetual; he announced nine as worthy of being sent out. It was stated that some of them at that time were less than two years old from the seed-pod—a great deal was written in their favour. One of his plants covered with seed-pods was exhibited at the Floral Committee of the Royal Horticultural Society, and he was complimented on his success. There were some doubtful and some adverse criticisms, but these were put down to trade jealousy or to prejudice, and one writer who had visited them at Stapleford, said that, however interesting they might be in the house, their claim to be exhibition Roses had yet to be established. Two Rose seasons have passed since then; in the catalogues for last year they were somewhat doubtfully described. There was hardly one of them seen last year, and the same has held good this year. There is one great fault that they all seem to possess—they grow well, come freely into bud, and there they stop; they will not expand. They are, therefore, in the open air useless, while even in the house it is with difficulty any one of them can be got to open. I am told that in the hot climate of America they open better.

Mr. Bennett would have seemed to have been on the right track; perhaps one of the parents he selected, Alba rosea, was too full; but it and President, and Madame de St. Joseph were the mother plants of the nine he sent out, and these were crossed with Countess of Oxford, Louis van Houtte, Lord Macaulay, Madame Victor Verdier, &c. I may, however, mention that it is currently reported that Mons. Lacharme, of Lyons, the best rosarian, and one of the most dependable of all the French growers, has obtained a pure white Victor Verdier, which is to be called, I believe, after one of the daughters of Mr. George Paul, and is to be sent into commerce this autumn. The yellow hybrid-perpetual, like the blue Dahlia, seems as yet only to be a dream, and not reality. *Wild Rose.*

[The success of haphazard procedures should cer tainly stimulate raisers to more systematic and care fully devised efforts. The lesson to be learnt is surel not the retrograde mode of trusting to chance, but th necessity of devising a well considered plan, an then selecting the proper sorts to interbreed with, s as to secure the object in view. The fault abo alluded to would seem to be due to weakness of co stitution; if this be so, the direction experiment shoul take is obvious. Eds.]

COLONIAL NOTES.

Forest Administration in India. — D Brandis, the Inspector-General, has issued his repo on forest administration in the several provinces und the Government of India for the year 1879-80. It a very important document, full of information ar statistical detail, which will be serviceable for futu comparison and reference. The general reader wi find the introductory portion the most instructive i him, while the statesman and administrator wi naturally turn to the ample statistical tables. Tl Indian forests are in some localities fully made use o every stick being made available, as in the drier par of India, and also at Darjeeling. In most place however, the forests are "mixed;" thus the Teak tre are intermingled with a large number of other tre of little or no value, so the valuable Deodar is ass ciated with Quercus incana, Q. dilatata, Pin excelsa, and Abies Smithiana, which are relatively little value.

The methods for protecting the forests again reckless cutting, fire, and other injuries, have bee successful; but when the valuable trees are cut tl ground is at once occupied by the less valuab trees, Bamboos, &c., so that the difficulty of profi ably working a mixed forest is considerable, ar the means to secure the predominance of tl more valuable kinds, such as girdling or killi the less valuable trees, can only be carried o on a very limited scale. Another alternative is endeavour to put the now useless wood some good purpose. To this end the makir of iron by means of charcoal is recommended, as al the impregnating the now useless wood with an septic substances, such as creosote, or metallic salt so as to increase their durability, diminish the liability to insect attack, and render them suitable f railway sleepers, for which a very large demar exists, though at present it is found cheaper to impo them from Europe than to convey them from tl Himalayan forests. Sleepers of Sâl, Teak, ar Deodar are in use as well as those of Burma iro wood, Xylia dolabriformis, and Anjan (Hardwick binata), while large quantities of the inferior Pine such as P. longifolia and P. excelsa, have lately bee cut in the north-west and exported to the plains. is therefore reasonable to infer that at some time demand for the wood now of little use may spring u In certain districts where fuel is scarce and expensi the supply of firewood needs to be increased. A augmented production of fodder-grass is a most in portant matter, and on the dry hills of Ajmere ar Merwara, an area of 100 square miles has been place under strict protection, with the result of large increasing the supply of grass. It is recommend that similar procedures should be carried out in tl drier parts of the country. In times of famine ar drought grain can be conveyed on roads and railwa made for the purpose, but cattle fodder cann to the same extent be distributed over the country— must either be produced on the spot, or the cattle mu be driven to places where pasture is available. Tl want of grass and consequent mortality among catt has always been one of the principal evils attendir famines in the drier districts of India. We cann follow Dr. Brandis in his detailed reports on tl work of the department in the various provinces India, but we note that in Berar, in December, 187 and the ensuing January, over 700 acres of Tea plantations, young and old, were completely destroy by frosts! The frequent occurrence of severe nig frosts in the tropical districts of Central India is mo remarkable. They only occur where the climate dry, and not in districts with a moister climate. T forest revenue in most of the provinces is steadi increasing; the total surplus revenue in 1879-8 being 20,49,462 rupees. During sixteen years t total revenue of the entire forest department has be

64,84,705 rupees, or, including Mysore and Hyderabad, 73,35,518 rupees; the expenditure, 47,38,676 rupees.

Jamaica.—We learn that the Government of Jamaica, having proved experimentally the feasibility of growing Cinchona to good profit in the island, is now offering grants of public lands to private individuals who will embark in the enterprise. The spot chosen is on the Blue Mountains, some 50 miles from Kingston, in a delightful climate, free from extremes. The Government not only offers land, but supplies plants and seeds at a reasonable rate. An ounce of seed, costing a guinea, will produce 20,000 seedlings, enough to plant 5 acres. We presume we shall now hear less complaint of Government intrusion into the domain of commercial cultivators. Directions for raising and cultivating Cinchonas have already been published and circulated by the Director of Plantations, Mr. D. Morris. The following are the conditions on which the Government will for the present make such grants:—

"1. The grantee shall pay to the Government before he enters into possession of the land as purchase-money for the concession to be made to him the sum of £ , being his bid at public auction at the upset rate of 2s. an acre on the estimated acreage.

"2. The Government, while not requiring that a certain fixed amount of land be planted year by year, will look for immediate steps being taken to establish the cultivation of Cinchona upon the land after the purchase-money has been paid. The grantee must, however, undertake that at the end of five years from the date of payment, he shall have cleared and planted with Cinchona a total extent of not less than one-sixth of the quantity of land actually granted to him.

"3. No timber shall be felled except on land about to be brought into cultivation. A certain quantity of timber may, however, be cut down on other portions of the land, provided it is used solely in the erection of necessary buildings on the land itself.

"4. The Government reserves the right to make public roads through the land to be granted without paying any compensation except for the value of Cinchona or other valuable trees actually destroyed in the course of the work.

"5. No land shall be cleared of forest within a distance of two chains from any spring or from the source or feeder of any stream, nor shall any land be cleared of forest within three chains of the centre of any prominent ridge or dividing line of watershed without written permission from the Director of the Public Gardens and Plantations.

"6. The land will be held by the grantee for the first five years on lease at a peppercorn rent. If any of the conditions herein mentioned be broken the Government may resume possession of the land without compensation of any kind, and the purchase money will be forfeited. If the conditions be complied with a patent of the land will be given to the grantee at the end of five years free of further cost, and the land will become his in fee simple, subject only to the reservation above mentioned in the matter of roads.

"7. Questions that may arise as to the efficiency of the cultivation established at any period, and as to the value of trees that might be destroyed in the construction of roads, and as to the extent of land necessarily cleared, shall be decided by the Director of Public Gardens and Plantations.

"8. A diagram of the lot to be granted will be furnished from the office of the Surveyor-General, but any expenses that may be incurred for surveying or running the lines at the request of the grantee will be borne by the grantee. If the lines be run by the grantee a copy of the plan of the same should be sent to the office of Director of Roads and Surveyor-General for examination.

"9. Intending applicants for the grant of land on these conditions should address themselves to the Director of Roads, by whom all requisite information will be afforded."

THE LAKE AT HECKFIELD.

It is not always that water—such a needful adjunct to landscape effect—is happily placed as we find it here, especially as seen from the front of the mansion, which occupies much higher ground than the lake, to which the land slopes quickly round much the greater extent of its banks, giving it a natural appearance not possible on a level plateau. The finely wooded surroundings are seen to much better effect on the spot than it is possible to convey by means of our illustration (fig. 81), which nevertheless gives some idea of the beautiful character of this portion of the grounds.

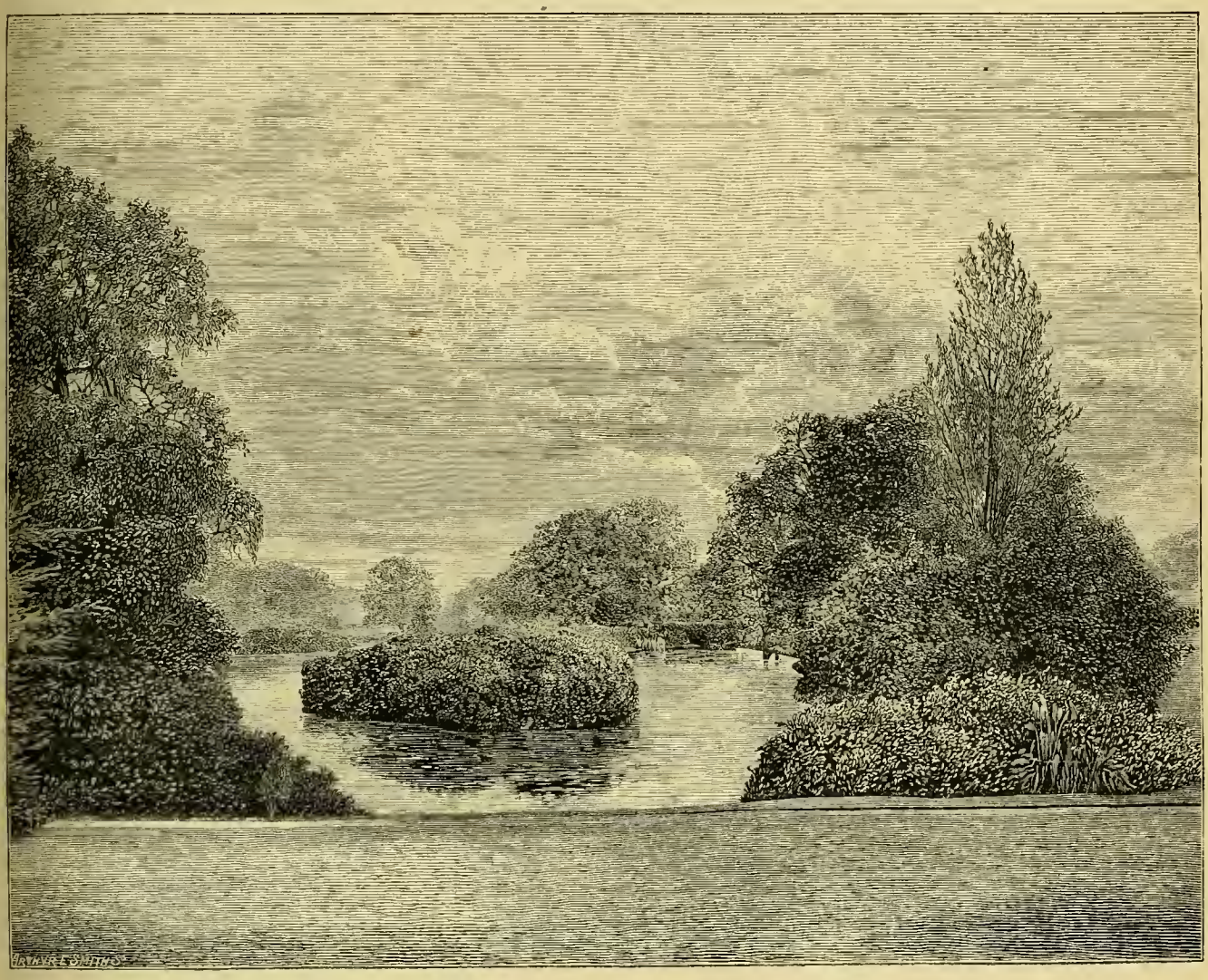

Fig. 81.—THE LAKE AT HECKFIELD.

Croton Lord Derby.—This is a very striking plant when its various colours are fully developed. Mr. Thomson, the gardener at Feniscowles, near Blackburn, has succeeded in bringing out the true character of the plant in this respect beyond anything I have seen. The plant is densely furnished with foliage, and most symmetrical, measuring 2 feet 6 inches in width, and rather more in height. *W. P. R.*

Florists' Flowers.

New Types of Primula sinensis fimbriata.

This useful section of greenhouse plants will soon be doing good work in the way of decorating the greenhouse, for it is now the practice with gardeners to have their early Primulas in flower by October and November, not deferring them until January and February, as was formerly the case. Having had an opportunity to inspect the fine collection in flower at Messrs. Sutton & Sons' Florist Seed Grounds at Reading last spring, we are enabled to furnish a few notes of some very fine types seen in flower on that occasion. Of those which Messrs. Sutton & Sons have by dint of careful fertilisation and selection already put into commerce we may mention Ruby King, rich deep ruby-crimson; Reading Pink, rich salmon-pink; Pearl, a very fine form of the fringed white, with a perfect habit of growth and very large flowers; and Rosy Queen, an exquisite Fern-leaved type, having an excellent habit and delicate salmon-rose-coloured flowers. How true all these come from seed can be seen by any one who may happen to pay the London Road Seed Grounds a visit in March and April. The invariable sameness of type is a product of the careful fertilisation of every flower intended to carry seed which is made by Messrs. Sutton & Sons. Gardeners who grow Primulas for decorative purposes should make a note of this, and were it more practised by those who make a point of saving their own seed, there would be less of poor flowers than one sometimes sees in a collection of Primulas.

With such a wealth of fine forms to work upon, it is not to be wondered that the selected seedling flowers of the present year exhibited characteristics of a high order. Precocity is one leading characteristic of the Reading Primulas. Rosy Queen, for instance, is very early, and has pink flowers, deepening to rose, which are very large, and handsomely fringed. This begins to flower in September, two months before Primulas generally are in bloom; it is very floriferous, and the colour unusually charming. There is a peculiar lacing of a darker shade of colour on the edges of the segments. From the seedlings raised from this has originated a very fine double form of a warm satin-rose colour, which deepens in hue as the flowers attain maturity. A very fine new type of the Fern-leaved section was especially noticeable. This has pure white flowers—certainly the purest white we have yet seen associated with the Fern-leaf foliage. Generally the flowers termed white are more or less faintly tinted with blush. Another very fine single form in this section was named Lilacina, of a beautiful pale lilac tint, and very effective indeed. If Messrs. Sutton & Sons succeed in fixing this fine type it will be an acquisition indeed. Another new type had semi-double flowers, pale rose round the eye, and with a broad marginal band of bright pink; this combination made the variety very pleasing indeed, and it was both very pretty and distinct. If this can be made to perpetuate itself by seed, it will be a welcome addition to the fine types already possessed.

The old Fern-leaved types of Chinese Primulas had, it will be remembered, somewhat loose spreading foliage; this has been remedied in the new types, and the close compact habit of growth is all that can be desired.

Of new plain-leaved types, of which there were several forms, one was of a particularly striking character. This had bright carmine-pink flowers with a distinct zone of white round the eye, the segments being also distinctly rayed with white. In this Messrs. Sutton & Sons find a marked advance towards a distinctly striped single Primula which many have longed to originate, and by means of intelligent fertilisation they hope to perpetuate and intensify this pleasing striped character. A double variety, named Prince Arthur, having bright salmon-red flowers, is a fine type of a striking character, and though not new, should be in every collection.

In remarkable contrast to the forcing new forms was a set of new Fern-leaved types from the Continent. They fell far behind the English flowers in respect of quality, refinement, and habit. Probably this is because the improvement of the Primula is being so much followed out in this country just now, and better forms are furnished to work upon. Still, we are indebted to the Continental raisers for some new tints of colour that English raisers have found useful for fertilising purposes.

A batch of the mossy-leaved Chinese Primula—Primula sinensis crassifolia, as it is termed—was an object of great curiosity in one of the Primula houses. The flowers of the type are quite poor; but with a view to improve them, Messrs. Sutton & Sons have crossed the blossoms with pollen from the fine, plain, and Fern-leaved varieties, and the first generation showed decided symptoms of improvement. P. crassifolia represents a type of a very curious character that will perhaps be grown by some for its distinctness; but it is well to develope the form, size, and colour of the flowers. This Messrs. Sutton & Sons are doing, and the good results that have already flowed from the attempt are full of promise for the future. *R. D.*

Orchid Notes.

Work in the Houses.—As many of the long bulb section of the Dendrobiums, more especially D. transparens, D. lituiflorum and its variety Freemani, D. Pierardi, D. primulinum, and the giganteum form of this latter species, as well as the nobile type in its many varieties, make up their new growths, and form stout plump bulbs, it will be advisable to give them a less amount of water than they had when in a quick-growing condition. Let the supply be reduced gradually, so that by the time the dull months of winter come round only the least possible amount need be given to keep the bulbs from excessive shrivelling. Many of this class will be the better for being placed in a cooler division, where, with the less amount of water, the necessary maturing and ripening may be perfected. These remarks also apply to such evergreen species as D. Farmeri, D. Schröderi, D. densiflorum, D. thyrsiflorum, D. chrysotoxum, D. suavissimum, and D. Farmeri aureo-flavum, the thick stout bulbs of which are such storehouses of moisture that for weeks in the winter it may be withheld altogether. These may also be stood in a cooler and drier division, presuming the growths are matured moderately early in the autumn. If, however, it is late ere the bulbs are fully made up there is some danger, more especially with the four last-named ones; it will occasionally happen that the new bulbs turn black and rot away, and, though it may be difficult to say just when they were damp and cold together, there can be no doubt that such a condition has been experienced, and its effects are apparent in the decaying bulbs and reduced and enfeebled plant. D. crassinode may be placed in an Odontoglossum-house until the buds begin to swell along the new bulb, when it must be taken back into heat again. If D. Wardianum is kept in heat it is certain to grow again, and the probability is that if it is placed in a cool-house it will be most likely to rot, for it is one that as yet we do not thoroughly understand, and fail to succeed in getting such stout plump bulbs as many of us saw about six years ago when Messrs. Low imported that extraordinary lot, and gave many of us an opportunity of securing some of them at Stevens' Rooms. When the bulbs are finished keep the plant dry and remove it to a division only a few degrees cooler, this will cause the bulbs to plump up, and though new shoots may start from the base they will not come away so rapidly as if kept in heat; for it is better to retain the plant in health even if it is growing a little during the winter, than to punish it to that degree that when we look for its growing and flowering we find the bulbs have rotted and only a little life is left at the tops of them. I find D. Ainsworthii × to be much more hardy in this respect than D. Wardianum; we always put our plant out in a cool house, and already it is placed in an ordinary greenhouse among the Azaleas, plenty of air is given on the sides and top ventilators and some is left on all night. Under this treatment our plant, which was but a small piece at first, had twenty flowers on a bulb last season and we had 120 blooms in all. This season it has twelve fine growths, and promises to be finer than ever. D. Falconeri will still be growing, its fine roots pushing away at the base of the new growths; these will most probably have no soil to run into, or block to cling to, still they must be fed, and this can best be done by syringing the plant overhead morning and afternoon, and at mid-day if it should be clear and bright. *W. Swan, Fallowfield.*

Dendrobium chrysanthum.

This old and well-known species well deserves the favourable notice you make of it at p. 402. Well do I remember a grand plant of it over twenty years ago when Mr. Stone had charge of Mr. Day's collection. This plant produced growths 5 to 6 feet long, and flowered for about three-parts of the whole length of the bulbs—a sight at once glorious and golden. A very similar plant came under my notice a few days ago at Mr. Toll's Nursery, Stretford Road, Manchester. This plant was grown in a basket and suspended from the roof; the new growths, of which there were no less than twelve, were still furnished with green leaves, and were flowering very freely for a good part of the length of the bulbs. When I say that many of the new growths were 5 to 6 feet long, and on one bulb I counted forty of its blooms, some idea may be obtained of the beauty and desirableness of still finding space for an Orchid that has often been classed as old and common. One other plant I saw there, which is by no means very plentiful, and which was also in flower—I refer to Oncidium dasytyle. This is a dwarf-growing species—in fact it was growing and flowering in a basket with Odontoglossum Rossii majus, and probably was bought for that species. Its bright yellow and purplish flowers, produced three and four on a spike, were very pretty, and well deserving of a place in every collection. A number of good things were also to be seen here, but not at present in flower. As soon as the blooms make their appearance, and the variety turns out to be good, it is almost a matter of certainty some one or two growers will be inquiring after them. *W. Swan, Fallowfield.*

Cypripediums.

These, as a rule, are easily managed, and some are rapid growers if their requirements are attended to. Some plants I saw in the collection of F. Yates, Esq. Feniscowles, bear out this statement well. One of Cypripedium Sedeni, which three years ago was in a 5-inch pot, is now throwing up twelve good spikes. Close by are C. Dominii and C. Harrisianum, the latter 2 feet 6 inches in diameter. Such plants require no making up. In the same house I saw a thriving little plant of C. Spicerianum with three flowers on. *W. P. Roberts, Cuerden Hall, Preston.*

Arundina bambusæfolia.

The "Reed Orchis" is now flowering freely in the collection of F. Yates, Esq., Feniscowles, near Blackburn. *W. P. R.*

Lælia Sedeni ×.

The observation that hybrids develope very quickly is once more corroborated by this one. I have before me a glorious raceme of six grand flowers, sent by Messrs. James Veitch & Sons. *H. G. Rchb. f.*

Dendrobium nobile and D. Wardianum.

It may not be amiss to draw attention to these two popular Orchids, as this is the time that they are going to rest. The earliest flowering plants have quite made up their growths, and should be forthwith removed to a cool-house, where they can go gradually to rest. I do not care to take them directly from the temperature of an East India house to that of an airy greenhouse, and would rather advise their being removed to an intermediate-house for a few weeks where water must be taken out of the warm house before they make a fresh start from the base of the old bulbs. D. Falconeri requires the same treatment, and is a worthy companion to the above. One of the best of Dendrobiums to flower at this season is the autumn flowering variety of D. formosum. We have numerous examples of it in flower now; its large waxy pure white flowers, with a bright yellow base to the lip, are excellent to work into choice bouquets, and the flowers last very long in beauty if left upon the plant. It succeeds best in baskets suspended near the glass. I tried it in pots, like D. nobile, but lost the plants altogether; and a gentleman who called here to-day told me that he could not grow D. formosum, but had only tried it in pots. Experienced growers know all this, but to many young aspirants the hint may be useful. *J. Douglas.*

Hardy Cypripediums.

These to all appearance are uninteresting enough just now, and present nothing to the ordinary observer but withered leaves and stems. It will be found however, on scratching under the surface, that they are starting to grow, and that it would be desirable to repot them. C. spectabile is the handsomest of all and succeeds best in good fibrous turfy peat, with some leaf-mould added to it, and we have also ventured to add a little rotten stable manure to the com-

post, with good results. C. pubescens is next best in our estimation; the golden colour of its lip is very conspicuous. This species we pot in good turfy calcareous loam, with leaf-mould and sand added to the compost. C. Calceolus not only grows well, but flowers and increases freely; we add a little peat to the loam. C. acaule did well in a compost of which the largest proportion was peat. Its large peculiar-shaped rose-coloured lip pleased us much.

Dendrobium formosum giganteum.

From Messrs. Heath & Son, of the College Road Nurseries, Cheltenham, we have been favoured with a bloom of this noble Orchid measuring 5¼ inches across, which they state was cut from a plant imported last July from a new district in Northern Burmah. The lip is 2 inches broad, and the yellow blotch very bright.

Comparettia speciosa.

This very rare species may prove to be as difficult to keep for any length of time as the other species of this small genus. I have at hand a three-flowered inflorescence kindly sent by Sir Trevor Lawrence, and no doubt of E. Klabochian origin. It has sepals and tepals of light orange, with a light cinnabar hue. The base of the lip is orange, and the blade of lip of the finest cinnabar. It comes near the rare Brazilian C. coccinea of Dr. Lindley. *H. G. Rchb. f.*

Orchids at Kew.

Amongst the more interesting and noteworthy of the Orchids now in bloom in the Kew collection may be mentioned the following:—A very fine variety of Cattleya elegans, remarkable on account of its purplish sepals and the great depth of colour in the rather large lip. Eria floribunda is represented by a finely flowered specimen. This genus seems almost neglected by Orchid growers, and is rarely to be seen except in a botanic garden. Some of the species, however, are decidedly ornamental plants. Dr. Lindley wrote of the present one as follows:—"Although the flowers of this plant cannot boast of large size and rich colours they are by no means destitute of beauty. Arranged as they are in long drooping racemes, glassy in texture and delicately touched with crimson, they are amongst the prettiest of the smaller kinds." Dendrobium aureum var. philippinense makes up in vigour of constitution and freedom of flowering for what it loses in scent and colour; in both these points it is inferior to the type often grown in collections under the name of D. heterocarpum. In recent importations of this variety some of the pseudobulbs measured as much as 9 feet in length.

Cattleya Harrisoni violacea.

A splendid specimen of this fine Orchid is now in flower at Mr. B. S. Williams' nurseries, Upper Holloway. The plant has nine flower-spikes, and is unusually welcome at a season when so few choice Orchids are in flower. *W. H.*

Garden Operations.

FRUIT HOUSES.

Peaches and Nectarines.—The indoor Peach season is now drawing to a close. As the trees in late houses become cleared of fruit go over them and take out all wood not required for fruiting next season. Stop close or take out altogether any gross watery shoots that are useless as regards fruit bearing. Still keep a little fire-heat on with a free circulation of air on late and succession-houses in which the wood is not thoroughly ripened. Attend to directions already given as regards any trees that it may be desirable to move or that require root pruning, as the sooner such work is done in early houses the better it will be for the future welfare of the trees. *J. Wallis, Keele Gardens.*

Melons.

A more unpropitious autumn for finishing off fruit crops than the present one I do not remember for some years. Changeable, but nearly always dull when we have a chance dry day, it is so gloomy, or the atmosphere is so charged with humidity, that the growth of plants of a succulent nature, like Melons, derives little benefit from free ventilation until fogs and mists are dispelled by the drier air and brighter sun of the afternoons. I do not for a moment lose sight of the fact that by warming the hot-water pipes sufficiently early in the day the heavy moist air referred to can be either driven out of the house altogether or so counteracted by contact with the dry air artificially produced that some benefit does accrue to the plants; the difficulty, however, lies in drawing a line at the exact point where artificial warmth is beneficial in changeable weather. To have the hot-water pipes a few degrees over-heated when the air is vigorous and the sun is powerful enough to supply abundant warmth is nearly if not quite as bad as erring upon the side of timidity by keeping the plants at a lower temperature than is good for them when the air is humid, and perhaps inclined to be chilly—what is commonly called a "raw" atmosphere. Perhaps a great many growers do not reason logically upon this question of air-giving, as they ought to do. Plants, and especially those that are of tender growth, bear a resemblance to human beings in many ways. After being kept close (unavoidably) for several days it is not good for them to be suddenly exposed to temperatures varying from 10° to 20°, higher or lower, in an hour; they should be gradually brought back to that firm state which they will indicate themselves by their ability to withstand sudden blinks of sun without drooping their leaves—a sure sign of softness of tissue, which is the unavoidable result of long-continued dull weather, and no fault whatever in the system of cultivation. The lesson to be drawn from these facts is, therefore, to keep the heat well in hand early in the day, and to ventilate moderately even in the brightest afternoons until the plants regain strength and are restored to that firm state which is recognisable by erect leaves and a general appearance of hardiness that cannot be mistaken. In case the hot-water pipes should by mishap get over-warmed, and the ventilators have to be opened wider than is thought beneficial, a piece of tiffany thrown temporarily over the open space will have the effect of keeping the temperature at the desired figure without exposing the plants suddenly to cold volumes of air. In order to get the fruits well ripened encourage no sub-laterals, and keep the roots of the plants that are approaching maturity on the dry side. *W. Hinds.*

Cucumbers.

Those who have followed up the directions I have given from time to time in these Calendars will not, I think, fall short of a supply for some time to come, indeed, I think no crop is more easily secured than Cucumbers up to Christmas, or even after. Plants that were planted out early—in the beginning of September—will have made considerable progress, and be travelling up the wires at a rapid pace. It should be the business of cultivators at this dull period to see that they do not travel too fast. If they are growing like weeds, as the common phrase goes, and there is nearly a foot between the joints, then the plants are likely to bear a few dozen fruits at the beginning of winter and be done with soon afterwards. It is important to relate the probable consequences of certain systems of treatment early enough to be of use to those of limited experience in winter forcing. Keep the plants short-jointed by giving air regularly and carefully; if the means of ventilation be not good there are lots of ways of making it better without employing a carpenter. Every cultivator must look to his own resources. If the front ventilators are too deep, and there is difficulty in admitting air gently, run a strip of thick tiffany inside the ventilators, which will always prevent cold currents of air from rushing among the plants. Cultivators have to be ingenious enough to baffle the clumsiness of bad architects, and it is surprising what can be accomplished by scheming even in houses that are badly appointed for late or early forcing. For the present the hot-water pipes should be but slightly warmed at nights, and as little artificial heat as possible used in the day when there is any probability of solar heat to raise the temperature to about 80° at closing time, which should be regulated by the weather rather than by the clock. After a few hours' sunshine do not let the harsh evening air play among the plants, but rather take advantage of the last bright blink to close in with. Give moisture through the day when there is air on by damping the paths and borders, but use it sparingly in dull weather. A late planting may still be made to come in early next spring; these should be kept just moving through the winter, and no more fire-heat should be given them than is necessary to warm the air sufficiently to keep them in a healthy state and quite hardy. At the turn of the year these plants will respond to sharp forcing with marvellous rapidity, and will yield Cucumbers in quantities during the early spring months. *W. Hinds.*

KITCHEN GARDEN.

Late Potatos should, if not already done, be taken up without delay. All those fit for table use should be picked up first when dry, and stored by themselves in narrow pits on high ground if convenient—say from 3 to 4 feet wide—taking care that the base of the pit is higher than the level of any water which would be likely to collect about them; and in order to guard against the possibility of water at any time rising to the level of the pits a track should be made, if considered necessary, around them for the purpose of carrying it away. We find our late Potatos keep very well formed into ridges, under which some dry Fern is placed, from 3 to 4 feet high from base to top of ridge, and covered first with dry Fern, and subsequently with as many inches of soil as the nature of the weather may render necessary to prevent the tubers from being reached by the frost. The Fern being of a light open nature, and not so likely to decay as straw, will admit of the escape of gases arising from fermentation necessarily ensuing the massing together of the tubers, and which is more or less in quantity according to the condition of the tubers at the time of being ridged. This, however, will have ceased before it will be necessary to add a covering of soil to the Fern. The Potato ridge should be covered as the building of the latter is proceeded with, in order not to expose the tubers intended for table use to light longer than is absolutely necessary, as it would have a tendency to turn them green. With those intended for seed, which should also be pitted, this does not matter; in fact, some people expose them intentionally for that purpose.

Ordinary Work.—Any blanks that may exist in autumn-sown Onions should now be filled up with plants thinned out from thick patches of the respective kinds. The transplanting, where necessary, is best done on a dull day, and when the ground is moist; the plants then not only draw better but can be transplanted more expeditiously, and receive less check in the procedure. Tomatos are rather susceptible to the effects of frost—a fact which we may now be reminded of any morning, by a visit from Jack Frost the preceding night; therefore all fruit commencing to colour should be gathered forthwith, and spread upon the staging or a few boards in a late vinery, or in any place where they would have a dry warm current of fresh air. Let Celery be well earthed-up, so that in the event of frost as little of the stems as possible consistent with keeping the soil out of the plants, be exposed to the influence of frost. With this object in view it will be advisable—indeed, necessary—to be provided with a good stock of dry Fern with which to protect such things as Lettuce, Endive, Celery, &c., from the effects of frost. Cauliflowers and Broccoli, too, which are now turning in should be either lifted and stored away out of the reach of frost, or have the leaves bent over the head, which will effectually protect them from injury from a few degrees of frost. See to collecting a good stock of French Beans and Scarlet Runners for seed, and place them in a Peach-house or dry shed to harden before being shelled; Peas for this purpose will have been seen to at an earlier date. Any blanks which have taken place in the ranks of recently planted Cabbages should immediately be filled up with plants of the respective varieties taken from the nursery beds. Look well after grubs, which are very destructive to the roots of these subjects, their presence at the roots of the individual plants being indicated by the leaves of the latter becoming sickly-looking and flabby; this should lead to the finding and destruction of the enemy, and, as before stated, the making good of the blanks thus caused. Run the Dutch-hoe between the plants, with a view to accelerating their growth and cutting down the small weeds—a procedure to be persevered in amongst similar crops with the same object in view.

Frame Ground.—As yet the subjects in this department have not had the sashes or shutters placed over them, the weather being such as not to necessitate their being covered, but both sashes and shutters are in readiness for placing over the plants should the appearance of the sky indicate the approach of inclement weather. From the time that plants of this description (Cauliflower, Lettuce, &c.) are planted in their present position until they are finally transplanted in the spring, they should have all the air it is possible to give them during favourable weather; more especially should this be persisted in at the onset, in order to ensure a sturdy growth in the plants, which will enable them the better to withstand the effects of such winters as the past two, should we unfortunately have a recurrence of such weather during the winter which is fast approaching.

Forcing Department.—Make another sowing of French Beans, in quantity according to the accommodation at command, and the demand for the same in each individual establishment, in the manner advised in our Calendar for September 3. A night temperature of from 55° or 60° will be congenial to the well-doing of the plants, which should be damped overhead night and morning on fine days. Tomato planting, where grown for fruiting during the winter and spring, whether in pots, or planted in a bed, must have attention in the way of thinning, stopping, and training the shoots and leaves: the latter should be kept well within bounds. *H. W. Ward, Longford Castle, Wilts.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 3	Sale of Dutch Bulbs, at the Auction Mart, by Protheroe & Morris.
Wednesday,	Oct. 5	Clearance Sale of Glass Erections and Stock in Trade, at Day's Nursery, Acton, by Protheroe & Morris.
		Clearance Sale of Nursery Stock, at the Bill Street Nursery, Frindsbury, near Strood, Kent, by Protheroe & Morris (two days).
Thursday,	Oct. 6	Fungus Foray at Hereford.
		Sale of Imported Orchids, at Stevens' Rooms.
Friday,	Oct. 7	Clearance Sale of Glass Erections and Stock in Trade, at The Tollington Nursery, Hornsey Road, by Protheroe & Morris.

In our recent articles relating to the application of Electric Energy to Horticulture and Agriculture, which has formed the subject of experiment by Dr. Siemens, we said nothing as to the actual cost of the experiment, from an impression that in the present purely experimental phase of the question such details would be misleading. But, in reply to questions which have arisen as to this point, we now think it better, subject to the qualification above expressed, to publish the following details, given by Dr. Siemens :—

"Before electro-horticulture can be entertained as a practical process, it would be necessary, however, to prove its cost, and my experiments of last winter have been in part directed towards that object. Where water-power is available the electric light can be produced at an extremely moderate cost, comprising carbon electrodes, and wear and tear of and interest upon apparatus and machinery employed, which experience elsewhere has already shown to amount to 6*d.* per hour for a light of 5000 candles. The personal current attention requisite in that case consists simply in replacing the carbon electrodes every six or eight hours, which can be done without appreciable expense by the under gardener in charge of the fires of the greenhouses.

"In my case no natural source of power was available, and a steam-engine had to be resorted to. The engine, of six nominal horse-power, which I employ to work the two electric lights of 5000 candle-power each, consumes 56 lb. of coal per hour (the engine being of the ordinary high-pressure type), which, taken at 20*s.* a ton, would amount to 6*d.*, or to 3*d.* per light of 5000 candles. But against this expenditure has to be placed the saving of fuel effected in suppressing the stoves for heating the greenhouses, the amount of which I have not been able to ascertain accurately, but it may safely be taken at two-thirds of the cost of coal for the engine; thus reducing the cost of the fuel per light to 1*d.* per hour; the total cost per light of 5000 candles will thus amount to 6*d.* plus 1*d.*, equal to 7*d.* per hour.

"This calculation would hold good if the electric light and engine-power were required during, say, twelve hours per diem, but inasmuch as the light is not required during the day-time, and the firing of the boiler has nevertheless to be kept up in order to supply heat to the greenhouses, it appears that during the day-time an amount of motive-power is lost equal to that employed during the night. In order to utilise this power I have devised means of working the dynamo machine also during the day-time, and of transmitting the electric energy thus produced by means of wires to different points of the farm where such operations as chaff-cutting, Swede-slicing, timber-sawing, and water-pumping have to be performed. These objects are accomplished by means of small dynamo machines, placed at the points where power is required for these various purposes, and which are in metallic connection with the current-generating dynamo machine near the engine. The connecting wires employed consist each of a naked strand of copper wire, supported on wooden poles, or on trees, without the use of insulators, while the return circuit is effected through the park railing or wire fencing of the place, which is connected with both transmitting and working machines, by means of short pieces of connecting wire. In order to insure the metallic continuity of the wire fencing, care has to be taken wherever there are gates to solder a piece of wire buried below the gate to the wire fencing on either side.

"As regards pumping the water, a 3-horse power steam-engine was originally used, working two force-pumps, of 3½ inches diameter, making thirty-six double strokes per minute. The same pumps are still employed, being now worked by a dynamo machine weighing 4 cwt. When the cisterns at the house, the gardens, and the farm require filling, the pumps are started by simply turning the commutator at the engine station, and in like manner the mechanical operations of the farm already referred to are accomplished by one and the same prime mover.

"It would be difficult in this instance to state accurately the percentage of power actually received at the distant station, but in trying the same machines under similar circumstances of resistance with the aid of dynamometers as much as 60 per cent. has been realised.

"In conclusion, I have pleasure to state that the working of the electric light and transmission of power for the various operations just named are entirely under the charge of my head gardener, Mr. Buchanan, assisted by the ordinary staff of under gardeners and field labourers, who probably never before heard of the power of electricity. Electric transmission of power may eventually be applied also to threshing, reaping, and ploughing. These objects are at the present time accomplished to a large extent by means of portable steam engines—a class of engine which has attained a high degree of perfection; but the electric motor presents the great advantage of lightness, its weight per horse-power being only 2 cwt., while the weight of a portable engine with its boiler filled with water may be taken at 15 cwt. per horse-power. Moreover, the portable engine requires a continuous supply of water and fuel, and involves skilled labour in the field, while the electrical engine receives its food through the wire (or a light rail, upon which it may be made to move about) from the central station, where power can be produced at a cheaper rate of expenditure for fuel and labour than in the field. The use of secondary batteries may also be resorted to with advantage to store electrical energy when it cannot be utilised. In thus accomplishing the work of a farm from a central power station considerable savings of plant and labour may be effected, the engine power will be chiefly required for day-work, and its night-work, for the purposes of electro-horticulture, will be a secondary utilisation of the establishment involving little extra expense. At the same time the means are provided of lighting the Hall and shrubberies in the most perfect manner, and of producing effects in landscape gardening that are strikingly beautiful."

A discovery of very great importance to Cotton planters is reported from America—a discovery destined, it is said, to be of more value in the South than anything that has been previously done by the Agricultural Department. A question having arisen as to the situation of the oil-cells in cotton-seed, the matter was referred to a microscopist, Professor Thomas Taylor. He found a series of oil-cells near the outer surface, and another row immediately surrounding the germinating point, evidencing the complete protection which the latter received. This fact led Professor Taylor to experiment with a view of ascertaining the amount of resistance offered to the attacks of agents generally supposed to be of a destructive nature to all organic life. In trying sulphuric acid, which had been previously used in a diluted form to agglutinate the cotton adhering to the seeds, so as to facilitate the expression of the oil, he found that acid of the commercial strength completely removed this without visibly affecting the outer brown shell. To test the actual effect on the germinating property, he handed some of the seed thus treated and afterwards washed to a gentleman, who planted it. To the surprise of every one except Mr. Taylor, who had foreseen this result if the germs had not been destroyed, the seed came up at least five days earlier than that in its natural state. To ascertain whether this might not be owing to the soaking the seed received, some was kept for several months, and then planted at the same time with seed of the same crop unprepared. The same results followed, showing the action of the acid in removing the adherent cotton to have been the same as performed by Nature—viz., the conversion of the insoluble amylaceous or starchy cellulose into soluble glucose. Professor Taylor's theory as to the action of the corrosive acid being arrested temporarily on contact with the ligneous cellulose of the shell, proved to have been correct.

The advantage to planters in having five or six days' start can scarcely be over-estimated, whether availed of in avoiding early frosts or raising early Cotton, for which premiums are offered by several Cotton Boards in the South. But this is not said to be the principal benefit conferred by the discovery. Hitherto Cotton planting has had to be done by hand and the seed sown broadcast, owing to the adherent Cotton preventing the seed being used in the planters which are usually employed for corn and other clean seed. After preparation the seed can be used in any planter, and by the regularity of growth resulting the subsequent cultivation is greatly facilitated. The mode of preparing the seed, which it is believed will be patented, is as follows :—The seed is placed in an earthen or glass vessel, and ordinary sulphuric acid poured over, so as to completely cover it. It is then stirred until the brown shell is left free from Cotton. The acid is poured off, to be used again, and the seed washed till all acidity disappears from the water, and dried. It is further stated in the report from whence the foregoing is taken that a large quantity of seed is to be thus prepared and distributed among Cotton planters for next season. The acid, after it has become saturated or exhausted, is to be experimented with to ascertain whether the glucose cannot be recovered. Experiments are also to be instituted with a view to ascertain the practicability of the process as applied to seeds slow of germination, such, for instance, as those of some Palms.

—— Puya Whytei (see fig. 82) was introduced by Messrs. Veitch from Chili in 1864, through Mark Whyte, Esq., and first flowered with them in 1868 in the open ground, and was figured in *Bot. Mag.*, t. 5732, where it is said to be similar to P. cœrulea, figured in *Bot. Reg.* 1840, t. 11, differing only in the colour of the flowers. Any one acquainted with the fresh flowers would fail to identify the plant from the coloured plate, which appears to have puzzled even Mr. Fitch. The colour is well described as "dull metallic blue shot with green:" I should call it malachite-green. The *Bot. Mag.* figure shows the bracts succulent, green tipped with red; in my plant they were dry, brown, and crumpled from the first. The plant from which my sketch was taken was presented to me by Messrs. Veitch in 1874. It was at once planted in a dry, sunny spot in the open border near the end of a vinery, and first flowered this season, throwing up one stout stem about 4 feet high. In the climate of Cornwall it is perfectly hardy, and I should think it would stand the ordinary winters of England if planted in dry, sunny situations on raised mounds in not over rich soil. It is a truly elegant plant, and well repays any extra care its culture may require. *J. Tyerman, Tregoney, Cornwall.*

—— County Potato Shows.—Essex has been during the past week holding its now annual Potato exhibition at Kelvedon, and because of the example thus set the suggestion is put forth that other counties might follow in the same direction, and thus create a stimulus in the culture of Potatos all over the kingdom. Essex limits its competition to its own radius; on the other hand, at Harborne, certain classes with good prizes were open to the kingdom. But in starting county Potato shows the question as to whether all or only a portion of the competitions should be limited to the county radius, is one that may well be left to the management, for the course that is natural in one place may be undesirable in another. But county exhibitions, or rather Potato Associations, if county in name, at least might well include wider areas in some cases than the county in which the show is held. Reading very naturally occurs as a town wherein a Potato show might be held with propriety, but though the chief town of Berkshire it is so situated that it adjoins Bucks and a large portion of Hants as well, and it should be the centre of a wide and important district. Kent might well have its show at Maidstone, and Surrey and Sussex could join conveniently at either Guildford, Croydon, or Tunbridge Wells; and in this way the entire kingdom might be mapped out if within such districts enterprising persons were found to take the matter in hand. The influence of the International Show is still spreading, and county shows universally would strengthen that central one materially.

—— The German Grass Crops.—Advices from Germany state that at one time it was hoped that the growers would have been able to report favourably as to the crop of natural grass seeds, but the long continuance of the dry warm weather in April, followed by heavy night frosts in May, destroyed nearly all

Fig. 82.—PUYA WHYTEI: FLOWERS GREENISH BLUE. (see p. 436.)

prospects of a good harvest, and the continual drought which prevailed during the further development of the seeds operated also to curtail the yield. Now that the seeds are coming in it would appear that the harvests on the whole have turned out smaller even than was latterly expected. The crops of Meadow Foxtail, Meadow and Tall Fescue, Cocksfoot, and Poas, are almost a complete failure; while of small-leaved Fescue, Crested Dogstail, Sweet Vernal and Timothy the crops are smaller than they have been seen for years past. In France the crops are no better than in Germany, and growers are already asking high prices for seeds. Already there is a great demand for Hard Fescue, Crested Dogstail, Poas, &c., and prices advance. Of Clovers there will be but a limited crop, and the samples of but medium quality. It is expected that all grasses and Clovers will attain to high prices during the next two months.

—— Single Dahlias.—Mr. W. H. Cullingford writes:—"As the single Dahlia is the favourite flower of the day, and justly so too, I shall be happy to show mine to any one who cares to call and see them. They are grown on a vacant piece of building land, at 200, Cromwell Road, South Kensington (Earl's Court Station is the nearest), and they can be seen on Monday, October 3, and two following days, between 9 and 5 o'clock."

—— Mr. Cuming's Orchids.—Mr. William Bull writes that he has purchased the entire collection of choice Orchids formed by S. Cuming, Esq. This collection is especially worthy of notice, as it contains some magnificent specimens; including fine pieces of Dendrobium Wardianum and others, and Mr. Cuming has been carefully selecting the choicest varieties for some years past, and constantly weeding out any of merely ordinary merit.

—— Hard-wooded Plants at Messrs. Cutbush's.—The Barnet nursery well maintains its reputation for hard-wooded greenhouse plants, now somewhat at the shady side of fashion, but where it is not to be supposed they will ever remain—for in small or medium-sized examples, with little training further than is required for support, they are equally adapted for general decorative purposes as the quantities of weedy soft-wooded things that the filling of a greenhouse often now wholly consists of, and they are infinitely more varied and interesting. Half and quarter specimens, along with numbers of ordinary-sized stock, are alike in excellent order; amongst them may be named Boronias, Chorozemas, Daphnes, Croweas, Correas, Aphelexis, Adenandras, Leschenaultias, Genetyllis, Eriostemons, Epacris, Tremandras, Polygalas, Pleromas, Phænocomas, Pimeleas, Dracophyllums, Statices, and Heaths, with many others in beautiful free-growing condition. The stock is conspicuous for the absence of the hide-bound old stagers, that are an infliction on plant growers, and to which a new-struck cutting is vastly preferable, for with fair treatment the latter will grow, but the former often keep on a dwindling existence, failing to either thrive or die outright.

—— University of Glasgow.—The following statistics are interesting, as showing the zeal with which teachers and students enter into their work:—

"Number of students in the systematic class, 202; of these 163 were first-year medical students, thirty were senior medical students, and nine were general and science students. Number of students in the botanic laboratory, fifty-two.

"Number of lectures and demonstrations, seventy-one; competitive examinations, two; excursions, eight.

"The following were the excursions:—1. Cambuslang and Newton; 2. Campsie Glen; 3. Milngavie and Strathblane; 4. Grangemouth and Polmont; 5. Millport; 6. Dunblane and Stirling; 7. Ben Lomond; 8. Arran (August 2 to 6).

"The number of students at each excursion varied from eighteen to 131. Expense of excursions (including four days' living at Arran), £2 8s. 6d. (per head)."

—— Flowers in Season.—Messrs. James Dickson & Sons, of Chester, send flowers of the green Dahlia, in which the scales of the receptacle are leafy without flowers in their axils, as well as others in which some of the flowers are developed producing a particoloured flower, which is a curiosity, but of little value otherwise.—From the Botanic Garden, Cambridge, come flowers of Chysanthemum lacustre, one of the best of autumn flowering Composites. It is a herbaceous perennial, 2—3 feet in height, with erect glabrous angular stems, and sessile, fleshy, lanceolate, coarsely serrate leaves and long-stalked flower-heads, the flowers of the ray white, strap-shaped, those of the disc tubular, yellow. It is like the common C. leucanthemum of our cornfields, but perennial.—Helianthus giganteus Mr. Lynch mentions as one of the finest of the genus. It reaches a height of nearly 10 feet, and forms a bush densely covered with yellow flower-heads. The stems are angular, purplish, with nearly sessile, rough lanceolate leaves. The flower-heads are nearly 3 inches across, with an involucre of many rows of lanceolate, acuminate, leafy bracts, less than half the length of the yellow ray florets. The disc is rather flat, and bears numerous blackish tubular florets. It is a common plant in the North-eastern States of the Union.

—— International Potato Show Statistics.—It is sometimes said that statistics may be made to prove anything; but in dealing with the actual number of dishes of various varieties found in the competitive classes at the Crystal Palace last week, statistics, if they departed from the truth, would only show lies, and that it is not our purpose to aim at. Indeed it may be said, that while such statistics may prove little or much, they cannot possess much interest, but that depends upon the bias of the reader, and certainly few of those who assisted at the Potato show will not be pleased to learn something about the sorts shown and their respective proportions. In going over the various exhibits, of course all trade or noncompetitive, as well as the seedling, collections were omitted, and the numbers limited exclusively to the classes lettered in the schedule from A to P. In the returns the American kinds will be found to have great prominence; not only has the season specially favoured these, but a class specially set apart for them was also well filled, and thus they figure high. Schoolmaster, which tops the list, was helped to its high position by a special class of thirty dishes, and Woodstock Kidney, Magnum Bonum, Reading Hero, and Reading Abbey, had similar helps. In some cases where new names were given to well-known kinds these dishes were placed under the proper headings, the Ashleaf and Bresee's Prolific specially being in this way largely sinned against. We found, after these matters had been arranged, some 148 sorts staged, as we have said, irrespective of seedlings, and of these not less than fifty-one kinds were represented by one dish only. Had time permitted, it is just possible that these might have been reduced by some ten or a dozen at east. There were seventeen kinds of two dishes each, ten kinds of three each, five of four each, seven of five each, four of six each, five of seven each, four of eight each, and two of nine each. This gives a total of 227 dishes. Coming now to double numbers we find Schoolmaster at the top, with seventy-five in the open competitions and with thirty in the single dish class, making a total of 105. Next comes the Vicar of Laleham, for which there was no special class, with seventy-four; and followed by Magnum Bonum, helped by its twenty-two dishes in the class for it with sixty-two. Beauty of Hebron shows fifty-two, and that indifferent red kidney, Trophy, fifty. Then follows International, with forty-nine; Grampian, with forty-seven; Woodstock Kidney, with forty-three; Beauty of Kent and Radstock Beauty, with thirty-seven; Bresee's Prolific and Matchless, or, as sometimes named, Holborn Favourite, with thirty-three; Pride of America, with thirty-two; and Blanchard and Superior, with thirty-one. Reading Hero, helped by the fourteen dishes in its class, had thirty; and Snowflake and American Purple twenty-nine each. Covent Garden Perfection follows, with twenty-eight; Triumph, with twenty-seven; Reading Abbey, with twenty-six; Manhattan and Porter's Excelsior, with twenty-five; Red Emperor, with twenty-four; Climax and St. Patrick, with twenty-three; Early Rose, with twenty-two; Ashleaf Kidney and Scotch Blue, with nineteen; King of Potatos, with eighteen: Wiltshire Snowflake and Mammoth Pearl, with seventeen; Late Rose, with sixteen; and Rector of Woodstock, Bedfont Prolific, and Peach Blow, with twelve each. Pride of Ontario got ten dishes, and was the only other kind which got into double figures. Amongst those which came next were Lapstone, Flourball, Edgcote Seedling, Brownell's Beauty, Garibaldi, Model, and M'Kinlay's Pride. Allowing thirty dishes of seedlings, there were thus shown in competition 1438 lots, and if to these were added all those shown by the trade, by Mr. Fenn, and from Chiswick, the number would not fall far short of 2000 dishes. Some strong effort is needed to reduce the assumed number of sorts shown. There are far too many synonyms as it is, and if the suggestion were put into practice that only known kinds in commerce would be permitted to compete in the large classes, it would considerably disturb the practice of some exhibitors when hard pressed for a twenty-four or eighteen kinds, of making a sort from some other and giving it a hitherto unknown name. Any kind shown as a seedling in a collection other than those for seedlings should disqualify. It is monstrous that with such an abundance of fine named kinds any exhibitor should introduce very doubtful sorts under that designation. Some sharp and decisive regulation in that direction would soon check the tendency to redundant nomenclature which some exhibitors seem so much to favour.

—— Supports for Melons.—At this season of the year, when condensed moisture is sometimes found to act injuriously upon Melons, it is a good plan to use a support upon which no lurking moisture can hang about, such as that employed by Mr George at Ockenden, Sussex. The supports are made of the same material as flower-pots, about the size of a large round biscuit, with holes made in it, so that anything like splitting is unknown among the fruits through their resting on damp supports. The holes are also handy to pass wires through at the rim by which they are suspended to the trellising, and much more convenient than the ordinary clumsy devices so commonly resorted to in supporting Melons.

—— Japanese Maples.—Messrs. Veitch send a series of leaves of Japanese varieties of Maple, to show their infinite variety in subdivision, and more particularly their rich colouring, passing from green to orange, claret, red, and brown. These plants add to their other attractions that of hardiness, so that they richly deserve to find a place in any garden.

—— Grape-growing for Market.—Those who are not acquainted with the "ins-and-outs" of fruit growing for the London market frequently wonder how it is that so many of the Grapes required are grown in the neighbourhood of London, instead of their being cultivated near where coal is got, and consequently cheap—remarking that it surely would cost much less in carriage to bring up the Grapes than it does to convey the coal wherewith to grow them, which is no doubt quite correct; but the matter has another aspect. When they have to travel anything above a short distance it necessitates their being packed together in considerable quantities; and when this is the case, no matter how skilfully packed, the loss of bloom makes more difference in the value of the fruit than is saved in carriage of fuel. This, of course, applies to Grapes of first quality, fully up to the mark in colour and bloom. Amongst those growers who are noted for highly-finished Grapes is Mr Thomas, of Whetstone. A house at his place over 100 feet long by 18 feet in width, is filled with Black Alicante and Gros Colmar, which for faultless condition and weight of crop it would be difficult to surpass. As usual with the market growers, the bunches are not large, but they are remarkable for the size and evenness of the berries, covered with thick bloom and free from spot, each bunch compact and so much alike that they might have been cast in a mould. The Vines have been planted seventeen years in an inside border which is full of roots; outside they have extended under a walk and hedge into a Filbert garden adjoining. At first they were Black Hamburghs, but seven years ago they were inarched with the above-named varieties. The crop is similar to last year's, which was 1200 lb. Cutting is begun in December, and kept on with through February. Mr. Thomas is a believer in plenty of water to the roots, literally flooding his inside borders during the summer. An adjoining house of the old Black Hamburghs and Mill Hill, with no particular border except the inside and such feeding ground as the Vines can find for themselves, in paths and other unprepared ground, is equally noteworthy for beauty of finish and even weight of crop.

—— Stomates in Relation to Climate.—A. Tschirch has been investigating the anatomical structure of the organs of assimilation in plants, more especially the stomatal apparatus, with reference to climate and locality, the results of which he gives

the *Linnæa*. This is a subject that has some bearing on practical gardening, and many gardeners have discovered that the same species grown under different conditions exhibits very diverse degrees of endurance without knowing the exact reason why. It is hardly necessary to state that most plants are provided with microscopical pores or openings (stomata) in the skin in connection with the cavities and channels between the cells forming the tissue of the leaves and other soft parts of plants. In some plants these pores are exceedingly numerous, in others they are comparatively few, and their position on the plant varies considerably. Their function seems to be twofold, serving as an outlet for superfluous watery vapour, and as an inlet for gases and moisture; and they close and open according to atmospheric conditions. Further, their development is greatly influenced by the degree of luxuriance of the plant, this being governed of course by the combined conditions of the atmosphere and nature of the soil. Dr. TSCHIRCH's researches were prosecuted with the view of ascertaining whether there is any, and if so, what relationship between the stomatal apparatus and the so-called "types" or "forms" of vegetation—whether indeed these "types" are the outcome of determinate climatal peculiarities. The author does not pretend to have solved the question; but his results are interesting. In the first place he classifies the stomates according to their structure. In many plants the stomates are level with the cuticle and open through their two "guard cells" direct into the surrounding medium, whilst in other plants they are protected by being placed in variously formed depressions, the entrance to which is free or more or less barricaded by hairs. The leaves of numerous plants inhabiting countries where long droughts prevail roll up very tightly, thus reducing evaporation to a minimum. In other plants, again, the stomates are in rows in longitudinal grooves, though otherwise unprotected; but in times of drought the opposite margins of the grooves are closely pressed together by the curvation of the leaf, forming air-tight channels over the stomates. HILDEBRAND has already shown that the same species of Marsilia, for example, grown on dry ground developed depressed stomates, whereas in water they were level with the cuticle. TSCHIRCH found that different species of Eucalyptus exhibited various forms of stomates, according to the locality in, and the conditions under which the species grew. Thus in E. globulus, populifolius, and colossea, which inhabit mountain ravines and forests, the cuticle is thin, and the intercellular air channels communicating are large; in E. tereticornis, marginata, and rostrata, which grow in dry places, though not in the arid interior, the tissue is denser and the cuticle strongly developed; in E. dumosa and other species inhabiting the very dry sandy regions the assimilating tissue is exceedingly dense, and the cuticle attains a thickness doubtless rare in the whole vegetable kingdom. However, it is possible and probable that the stomates vary according to the external conditions in the species named. We know, for instance, that if we cut a flower, or branch, or portion of a plant, from a vigorous individual, growing in a humid situation, and take it into a dry atmosphere, the temperature being either a little higher or a little lower than that in which the plant grew, but still not of itself inimical to the species in question, it will often wither, although placed in water immediately. The same thing will happen to some plants even when placed in water the instant they are cut, and before being taken into the drier atmosphere. Sometimes they never recover turgidity, sometimes only after several hours; but if they once do so they will keep for a long time if supplied with water. We remember a case in point. An inflorescence of Poinsettia pulcherrima withered the first day, and late in the evening the bracts hung down quite flaccid against the side of the vase; but by the following morning they had got up again, and they kept in good condition for more than a month. Now individuals of the same species grown under different conditions would endure much drier air without withering. One reason why some gardeners fail to grow certain subtropical plants out-of-doors as well as others is because they neglect to prepare them gradually for a drier atmosphere, thinking only about a sufficiently high temperature.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending September 26, issued by the Meteorological Office, London:—The weather has been dull and unsettled, with rain in all places. Over our northern stations the rainfall was exceptionally heavy on the 21st and 22d. A thunderstorm occurred over our south-eastern coasts on the night of the 21st. The temperature has been about equal to the mean value in all parts of the kingdom. The thermometer was highest either on the 20th or the 25th, when it rose to 71° at Nottingham and in London, and to between 65° and 70 at our other central and southern stations. The minima were registered generally on the 22d, and ranged from 38° at Churchstoke and Markree Castle to 47° in the north-west of England. The rainfall has been more than the mean in all districts except "England, S.W.;" in most places the excess was rather great, and in "England, N.E.," very great. Bright sunshine has been very little prevalent in most districts, the percentages varying from 18 in "Scotland, E.," and 19 in "England, E.," to 45 in "England, S.W." Depressions observed:—During the 20th and 21st depressions were passing across our islands from the westward, causing southerly winds, strong to a gale, in Ireland, moderate and fresh southerly winds in England, and strong south-easterly winds or gales over Scotland. By 8 A.M. on the 22d a disturbance had reached our south-east coast, where it gradually filled up; it caused the wind to shift to the westward or north-westward over the greater part of England, and to fall light; but on the two following days a fresh easterly to south-south-easterly breeze was blowing on nearly all coasts. At the close of the period the wind had again fallen light, and veered to the westward with a slowly rising barometer.

—— GARDENING APPOINTMENTS.—Mr. BLACKWOOD is succeeded as Gardener at Eden Hall, Penrith, by his late Foreman, Mr. CUCKNEY.

PLANT GOSSIP.

NYSSA MULTIFLORA.—Perhaps the most effective bit of autumnal colouring at present to be found in the arboretum at Kew is furnished by this, the Tupelo, Pepperidge, or Black or Sour Gum—for all these names are given in Gray's *Manual*—of the United States. The foliage is just now a bright crimson, and, particularly when the sun is shining upon it, presents a gorgeous appearance. The clear bright yellow assumed by the decaying leaves of the Honey Locust, Gleditschia triacanthos, the Water Locust, G. monosperma, and their numerous forms, is also very pleasing.

SPERGULA PILIFERA AUREA. — Time was when the green Spergula was to have produced a revolution in our method of making lawns, when grass was to be relegated to the meadow and the park, and scythes and lawn-mowers were to be hung up in the British Museum as objects of wonder to the sight-seers of future generations. The Spergula, however, soon had its day—a short and comparatively useless one—and now it may be said to be passed into the limbo of extinct garden specialities. But it has left behind a memento of its existence, and that, too, a golden one, not perhaps in that auriferous sense in which the yellow ore is regarded, but rather in a colour sense, for the sportive change produced has resulted in one of the prettiest of yellow carpet plants yet seen. All carpet-bedders—and these yet are legion—will be very anxious to secure this hardy little gem, and when they have it will find to their satisfaction that they may at least hope to be relieved from further tyranny of Golden Feather, the golden plant king which has ruled our gardens so harshly for years past. This Spergula is even dwarfer than the mossy Sedums. It has a very dense moss-like growth, and covers the soil well. It will save a lot of labour, because it needs little pinching or looking after of any sort. It seems to be flowerless, and therefore does not produce seed, and at all points promises to make as a yellow carpet what Herniaria glabra has for green ones, and Sedum glaucum for silvery ones. I do not know who holds the stock of this plant, but those who have it will do well to make it known. It propagates very freely if pulled to tiny pieces and each one dibbled out in sandy soil. It will probably derogate from its colour and constancy to plant it in rich ground, but as seen in conjunction with Sedums, Alternantheras, and similar carpet plants, it was most striking. *A. D.*

CYPERUS LAXUS VARIEGATUS. — This new and exceedingly pretty variety of Cyperus, an introduction of the present year, will make a good companion for the green kind, which is too well known to require description. The variegated form is dwarfer, and a plant that is so easily grown, and will stand so much rough treatment, has a future before it, and will soon be everybody's plant for furnishing, especially in winter, at which season it will come in well for furnishing the margins of staircases, or such-like places, where variegated plants that are nearly hardy are neither plentiful in point of number nor suited in habit for being squeezed in between larger pots.

YUCCA GLORIOSA VAR. ELEGANS VARIEGATA.—Probably the first example that has ever flowered of this scarce and beautiful plant can now be seen at the Original Nurseries, Epsom. The plant is a perfect specimen with one crown, and has about 200 leaves. Mr. Morse is trying to fertilise the flowers, but does not feel very sanguine of success. There is not the least doubt of the merits of this variety, and it will eventually drive out Y. aloifolia variegata, on account of its perfect hardiness and bold habit. *A. B.*

TOWN TREES AND TREE PLANTING.

THE stormy nature of the weather has so much hastened the fall of the leaf that the planting season is pushed forward at least a month before its usual time. Now there is a time in the life of a tree or shrub when dryness may be beneficial to it, and that time is after the leaf falls, for although the roots may be working the leaves are gone, and with them their service, and all good practice goes to confirm the notion that a rest in comparative dryness does no harm if not too long continued. The outer bark of most trees is certainly a good non-conductor, and preserves the warm and moist state of the inner bark against frost and from excessive dryness. The true feeders of the plant are the white soft fibrils, and small as they may seem they are the life of the plant, while strong pieces of root, however much they may help to make the plant stand upright, are of very little benefit, since their action is very slow. It is not so with the ordinary nursery stock where young trees are lifted in season, so that they do not appear to feel the change. A year or two in one of our largest nurseries would convert planters from selecting too late a period for planting, for there it is to be seen how plants behave on being transplanted. Early planting gives all the benefit of the winter rains, which is one of the necessary ingredients of good planting. Our great planters of a hundred years back would have cut a Peach tree back, and then plastered it up as if it had been a gathered finger, and not only would it grow but bear fruit, and that in the Royal Gardens of Kensington and St. James'. In the old kitchen garden at Kensington I saw the black Esperione Grape black as a Sloe on the gable end of a house, where I should have had some hesitation in putting a row of Raspberries. It is, therefore, clear that many things are possible if honestly tried by skilful hands at a seasonable time.

There are trees of various kinds now growing freely in and around London, and with all this before our eyes we, in Manchester, shy at getting green leaves to set off our bricks and mortar, forgetting that if some of our bare brick walls were covered with Pear or Apple trees, or Roses, they would pay half the rent of the house. I am not now blaming any one for neglect of duty, but I do think that a south wall covered with fruit and flowers would do both the landlord and the tenant some service. I saw a brick wall near Cheadle, Hulme, with say 200 Roses all open, and such are not uncommon. I grew the old Seven Sisters Rose in the garden at Alderley Park, Cheshire, and it covered 3 by 10 yards of a brick wall, and showed flowers of all hues, fading at last into white.

There has been a great *fracas* about our good city of Manchester trying to get green leaves in and through it. American plants were tried in clay and gravel, and they did not succeed, but the climate got the blame, and not the gravel, though, as usual in such cases, both were at fault. The experiment showed good intentions. Although many of our rich men stand high in machinery and with manufactures, it is surely no discredit that the "harmless art of horticulture" has not, with them, come to the fore; but Manchester can show skill of no mean kind in and around her dwellings, and when earnest men set about planting they will not be contented with Poplars and Willows. The northern frosts frequently kill down to the ground old favourites, but what of that?—they can usually be replaced with young ones, and nothing is safe under the sun for many years together. We

envy the southern and western counties, as they can grow more sorts than we can. Here the Gooseberry fancier can cover in a corner of his garden plot with a piece of old sack worth a penny; but the Tree Pæony may be left to strive with the frost where the pennyworth would do good service, and repay with rosy blooms the care bestowed to force it into flower at its too early time.

I saw with delight one of the Acacia tribe in fine foliage, hanging over Mr. Veitch's wall near the cottage in his garden by the well-known nursery of Orchid celebrity. Its beauty might only be for the summer season; but there it was in beauty, and it was only by the Fern tribe that such a plant could be rivalled. But some will say "You cannot bring Exeter to Aberdeen;" but where plants languish for want of rich soil, although the air may be somewhat sooty, we can mend the one although the other may be beyond our power. There is no excuse for our blunders with American plants in clay and stones.

Some years ago the late Mr. Cobbett had to reside beyond the Atlantic, and the change committed him to gardening, as it appeared, all new to his unpractised eye. His book on gardening was simply absurd, but he came across a kind of tree, the merits of which he made the most of, and tried his hand at spreading it through Europe, and especially in England. It was quite a timber tree, grew rapidly, had pinnate foliage, and was armed with horrid spines that kept strollers from trespassing on its plantations. This was the Robinia or False Acacia, the Robinia Pseud-Acacia of botanists, and Cobbett's Locust-tree of that author. The Locust-tree grows freely, and has the merit of bearing fine pinnate leaves; and this and its growing in confined spaces are all the merits I ever could see in it, for the wood is worthless beyond what it can do for shingles and hurdles. All trees exposed to wind should be planted thickly. You could not rear a single straw of Wheat by itself, but one stalk shelters the next, and so they stand bowing to the wind gracefully. The conclusion of the matter is this, that wherever in town or city the ground is open, it should be trenched before planting, and in every square yard there should be planted a healthy tree, and the same should be well watered when the weather is hot and dry. With this treatment it will in most cases succeed. *Alex. Forsyth.*

BOTANICAL COLLECTORS.

Allan Cunningham.—The subject of this notice was a son of Allan Cunningham, a gardener, native of Renfrewshire, and coming South became head gardener at Wimbledon House, Surrey, where he had two sons,* the first, Allan, born July 13, 1791, the second, Richard, born February 12, 1793. They both received a good education. After leaving school Allan entered the office of a conveyancer, but the technicalities of the law were not to his taste. He became known (through his father) to Mr. William T. Aiton, director of the Royal gardens, who was then preparing a second edition of *Hortus Kewensis*, a "Catalogue of the Plants Cultivated in the Royal Gardens, Kew," and both Allan and Richard Cunningham were taken into his service in order to assist him in carrying the work through the press. They thus came under the notice of Sir Joseph Banks, Mr. Robert Brown, and other botanists of the day. The work, when completed, was published in five volumes in 1813. Shortly after the publication of this work the subject of sending out botanical collectors was considered, and on the recommendation of Sir Joseph Banks, Allan Cunningham and James Bowie were appointed botanical collectors for Kew. Their instructions were to proceed to Brazil, and accordingly on October 3, 1814, they left England, arriving at Rio de Janeiro on December 28, of the same year; here they remained two years, and botanised in the vicinity of Rio de Janeiro, the Organ Mountains, the province of San Paulo, and other parts of Brazil, making large collections of herbarium specimens, plants, and seeds, adding considerably to the Kew collection, as certified by a letter from Sir J. Banks, which says "Both Mr. Aiton and myself have been entirely satisfied with your and Mr. Bowie's conduct during your stay in Brazil. We have already many valuable collections from thence, sent home by you, which do credit to your expedition, and honour to the Royal gardens, especially among the Epidendrons, Tillandsias, &c., such as were sent home in boxes; your bulbs also have produced some splendid flowers." In the month of August, 1816, they received instructions from Sir Joseph Banks to leave Brazil—Mr. Bowie to proceed to the Cape of Good Hope, and Mr. Cunningham to New South Wales, the latter arriving at Sydney on December 20; and early in the following year (1817) he joined Lieutenant Oxley's expedition to explore the Lachlan, and afterwards the Macquarie rivers. On completing the survey, which occupied nineteen weeks, he returned to Paramatta, where he found instructions which had arrived from England, desiring him to join the ship *Mermaid*, under the command of Captain King, who had arrived for the purpose of surveying certain parts of the coast of New Holland; this survey consisted of three voyages, which occupied four years, during which time they visited many parts on both the east and west coasts within the tropics, as also King George's Sound on the south-west coast, and Van Diemen's Land (Tasmania). After completing these voyages Mr. Cunningham again took up his residence at Paramatta; he made excursions to Illawarra, the Blue Mountains, and many parts of the country, and in 1823, in one of his journeys westward, he discovered an opening in the Blue Mountains which led to the rich pastured country known as Liverpool Plains. In August (28), 1826, he visited New Zealand, where he spent four months botanising, returning to Paramatta January 20, 1827. On April 20 he undertook a journey into the interior northward, and in latitude 28° S. entered the pastoral country known as Darling Downs, and turning eastward came upon the coast mountain range, where he found a gap or opening into the sea coast country of Brisbane and Moreton Bay. It is known as Cunningham's Gap, through which passes the main road from east to west; this part of the country is now called Queensland. After this discovery he retraced his steps, arriving safely at Paramatta August 21. In June, 1828, he again visited Brisbane, this time by sea; he explored a great part of the country, and discovered many new plants, especially trees, of which may be mentioned Grevillea robusta, Stenocarpus Cunninghamii, Castanospermum australe, Flindersia australis, Araucaria Cunninghamii, all of which have been grown at Kew. He returned to Paramatta in November.

Being desirous of visiting Norfolk Island, and opportunity of a passage occurring, he landed there in the early part of May, and made excursions to all parts of the island, as also the small island adjacent, called Phillip Island; he safely landed with a tent and provisions for himself and three servants for a week. This visit proved disastrous and nearly fatal to him; the circumstance is best told in his own words:—

"About 4 o'clock or thereabouts, whilst it was still dark, I was suddenly awoke in my bed by three men rushing into my tent, and, in an alarming boisterous tone, desiring me to rouse up, as they had taken the settlement, and had put the commandant in gaol, and hurried me to dress myself, as I was, they said, to go with them. In an instant, before I was well awake, or had time to consider the character of the individuals who were about me, a fire-stick was brought into the tent by one of the party, and on lighting a candle which they had found, they seized my firearms, and hastily turning over my baggage, carried off my bedding, wearing apparel, a hamper of cooking utensils, the whole of my provisions, &c. One of the party on placing my hat on his head turned out my watch, which I had placed within it for security the preceding evening. The watch was, as a matter of course, taken as a valuable prize, although I begged hard for it to be returned to me, on the ground of its having been lent me by a friend. The reply was that they would borrow it of me, as it would be of use to them in the long journey they had before them. This scene of plunder had gone on some minutes before my people, who were roused by the noise, made any attempt to approach me. In this they were prevented by others of the party, who had landed from a boat now perceived in the offing, and who seized their blankets and such of their provisions as they found within their hut. Hearing a parley between these strangers and my people, I was in the act of stepping out of my tent to see what was going on without when one of the unwelcome visitors, who was doing duty as sentry in the front of the tent, with my fowling-piece on his shoulder, thrust the muzzle of it towards me, desiring, with a horrid oath, that I should keep within or else he would shoot me. At this time we numbered eight persons about us, all men of determined character, who having laid claim to every article of property we possessed, immediately proceeded to strike my tent, the material of which, they said, they required for the voyage they had in contemplation, and it was instantly torn down, and with the other articles and a cask containing about 12 gallons of fresh water, carried off to the boat, which was kept in charge of three men. They repeatedly demanded, with much vehemence, my compass, and finding I had neither that nor any other instrument useful in navigation, they manifested great disappointment. As soon as those who had landed had again reached the boat by swimming through a heavy surf, she was put off, and was almost immediately in consequence of the continued darkness of the morning, out of sight.

"It was fortunate for us that the rain had ceased, as we now found ourselves but half-dressed, in our shirts and trousers, having neither hat nor shoes, and without the shelter of a tent. On the convicts being missed a boat was immediately sent in search, but neither the boat nor the eleven convicts were again heard of."

After an absence of twenty-one weeks Mr. Cunningham again returned to Sydney. He shortly after this received instructions to return to England, where he arrived in July, 1831. He took up his residence near Kew, and having retained a duplicate set of his collections, he employed himself in arranging and naming them and distributing duplicates to botanists and in preparing what he called a *Præcursor Floræ Novæ Zelandiæ*. In consequence of the death of Mr. C. Fraser, Superintendent of the Sydney Botanic Garden, in 1832 Richard Cunningham, the brother of Allan, was appointed to succeed him; he arrived at Sydney in 1833, and in 1835 was attached as botanist to Major Mitchell's expedition to the interior, where he met his death by the hands of the natives. The situation was offered to Mr. Cunningham, and on October 30, 1836, he left England, arriving at Sydney in February, 1837. The office he held was gazetted, "Colonial Botanist and Superintendent of the Botanic Garden;" but in consequence of duties being imposed upon him which he considered incompatible with the above title, he resigned his situation.

Being desirous of knowing more of the botany of New Zealand, he accordingly, after fourteen days voyage, landed in the Bay of Islands, April 28, 1838 and spent five months botanising in various parts of the island, making extensive collections of herbarium specimens, with which he returned to Sydney in October, but in a deplorable state of health. In a letter he says, "I am past further great exertion. I can neither undertake any more expeditions or walk about in search of any more plants. But a man cannot ever during life be on his legs. I have now been twenty-four years leading a vagrant kind of life and if I have done the least good in that long period so much the better." His health continued to decline and he died on June 27, 1839, aged 48.

A memorial window has been erected to his memory by his friends in the Sydney Botanic Garden, and in the Presbyterian church a marble tablet, on which is inscribed a record of the great services he rendered the colony by his explorations. By his will he left his journals and the whole of his herbarium to Mr. Heward, of Kensington, who, after arranging the latter, presented it to the herbarium of the Royal Botanic Gardens, Kew. By his labours the garden collection was greatly increased, especially in Proteaceæ and Leguminoseæ.

The Coniferous genus Cunninghamii (C. lanceolata) was founded by Robert Brown in honour of James and Allan Cunningham: the first, in 1698, was a surgeon in the East Indian Company at Amoy, and resided in Chusan for many years; he sent many plants to Petiver and Plukenet, as shown by their respective works; the second, Allan, the subject of this article.

* This is very questionable, as their mother lies buried near Shrewsbury, to which place, in 1832, the two brothers (her sons) made a pilgrimage, and put up a marble tablet to her memory.

DOUBLE LAPAGERIA.

We have received from Mr. Duffield, The Gardens, Bramford Lodge, Winchmore Hill, a very handsome double flower of Lapageria rosea, in which there is a double series of segments, and in addition some of the stamens are more or less petaloid. It is the finest double flower we have seen, and of the actual size shown in the engraving (fig. 83). Mr. Duffield states that it was cut from a plant which has only borne flowers of the ordinary single form, with this one exception.

THE FIJI ISLANDS.

General Remarks.—Until visited by the late Dr. B. Seemann, in 1860, very little was known by Europeans of this group of islands. Previous to the visit of the expedition of which he was a member, Mr. Pritchard, H.B.M. Consul in Fiji, arrived in England with a document purporting to be the cession of the islands to the Queen of Great Britain, but it was decided not to accept the offer before receiving more ample information, and the expedition in question was sent out to obtain the required information. The result of the labours of the expedition was most disappointing to at least one member, Dr. Seemann, the naturalist. Government declined to furnish funds to enable him to publish a *Flora Vitiensis*, yet he persevered in his purpose, and brought out such a work, though at a considerable pecuniary loss to himself. But what disappointed him, perhaps, more than all else was the decision of the Government not to extend its protectorate to these islands. Dr. Seemann advocated in vain, with all the power of his facile pen, the acceptance of the offer of the inhabitants to place themselves under the rule of this country. However, as is well known, the Fiji Islands have now for some years been subject to the British Crown, and in 1874 there were as many as 2000 white settlers. In 1877 Mr. John Horne, Director of the Botanic Gardens, and of Woods and Forests, Mauritius, accepted an invitation from Sir Arthur Gordon, then Governor, to visit the islands for the purpose of more fully examining their vegetable resources. Mr. Horne accordingly proceeded thither, where he spent a year traversing the islands in all directions, and collecting materials for a report, which has just been published,* and from which we extract the greater part of what follows, though we have rearranged the order of the material for the purpose of this paper. The number of islands comprising the Fiji group is over 200, and their aggregate area is estimated at about 7400 square miles. Vita Levu, the largest island, has an area of about 4100 square miles, Vanua Levu, 2432; Taviuni, 217; and Kadavu, 124 square miles. The other islands are of small extent—from Koro, 57 square miles, downward. They lie wholly within the tropics, and chiefly in the extreme eastern longitudes, some of the smaller ones, however, being in western longitudes. Generally speaking they are well watered, and the rivers wide and deep for their length. Most of the islands are high and mountainous, rising abruptly from the sea, as if they were the mountain-tops of a submerged continent. The mountains of Taviuni, Vanua Levu, Viti Levu, and Kadavu, rise to an elevation of 3000 feet, but in any of the others they rarely exceed 2000 feet. There is very little level land; hills and lovely valleys follow in rapid succession from the shore to the interior. For a tropical climate it is a very healthy one, yet it has a depressing influence on Europeans at certain seasons, inducing a disinclination to all active exercise. Perhaps the most surprising fact in connection with the islands is the rapid civilisation of the inhabitants. Previous to the cession of the islands to Great Britain the Fijians possessed an elaborate system of polity, by which all tribal and provincial matters were discussed and regulated, and it seems to work well under some modifications at the present day. Mr. Horne states that many of the grown-up people had been taught to read and write by the Wesleyan missionaries, and a church and school (or a school alone, which is also used as a place of worship) exist in every native town and village, and are well attended; and most of the rising generation can read, write, and cipher to some extent.

Fig. 83.—Double Lapageria. (see p. 440.)

Flora.

The indigenous flora of Fiji, as far as known, amounts to 1086 species of flowering plants, and 245 species of Ferns and allied groups. Of this number 635 have not hitherto been observed out of Fiji, but further exploration of adjacent groups of islands will doubtless reveal the fact that many of them have a wider range. Mr. Horne added three natural orders, thirty-four genera, and 363 species, to our previous knowledge of the flora; and he is of opinion that he has by no means exhausted the number actually existing. Of Ferns and allied plants Mr. Horne discovered fifteen new species, besides finding twenty others which had not previously been found in Polynesia. At present only the Ferns and allies have been critically elaborated; the flowering plants have, however, been compared and approximately named, and a list is given at the end of the book. The largest orders are—Leguminosæ, thirty-six genera and sixty-two species; Rubiaceæ, twenty-three genera and 122 species; Orchideæ, twenty-five genera and forty-nine species; Euphorbiaceæ, twenty genera and seventy-nine species; and Urticaceæ, twenty genera and fifty-two species. One of the great features of the flora is the presence everywhere of Ferns, from the sea-level to the highest mountain-tops, in the hottest and coldest parts, on the poorest and richest soils, and in the driest and wettest. They range in size from the tiny Hymenophyllum, scarcely ¼ inch high, to the gigantic Alsophila, having a trunk 50 feet or more in height, surmounted by a crown of beautiful feathery fronds. There are comparatively few species of Palm indigenous to Fiji, but they are well represented. Kentia exorrhiza is a tall graceful Palm, frequently rising to a height of 80 feet in favourable situations. It is common in most low-lying districts, and it ascends to the tops of the highest mountains. Pritchardia pacifica, and various species of Ptychospermum, are very handsome. Some of the latter do not exceed the size of a stout cane. A kind of Sago Palm, Sagus vitiensis, is also not uncommon. Large trees still abound, though in some localities the sawyers have committed great havoc. Among the larger growing trees Mr. Horne mentions Calophyllum Inophyllum, C. Burmannii, C. spectabile; Dammara vitiensis, Afzelia bijuga, Podocarpus vitiensis, Dacrydium alatum, Serianthes myriadenia, and Barringtonia speciosa. An example of the latter he measured had a trunk about 12 feet in length, and the loftiest branches were not more than 40 feet from the ground, but so wide-spreading that, although their ends had been lopped off, they still covered an area of about half an acre! Inocarpus edulis is one of the most singular trees. Its trunk is very deeply fluted, or buttressed, so that a cross section resembles a huge wheel without the felloes.

Soil and Cultivation.

The soil in Fiji is almost everywhere good, and exceedingly fertile; and not only settlers, but also many of the natives, are engaged in raising vegetable products both for home consumption and export. The instincts of the Fijian are agricultural, and it may be said that he finds a use for all the vegetable products of his country, and has a name—sometimes several—for each species. Moreover, he soon learns from colonists the best methods of cultivating the sugar-cane and other valuable crops. The principal vegetable food of the natives consists of Yams, Bananas, Bread-fruit, Taro, and Cocoa-nuts. Of these the Yam is their staple food. They have about twenty different sorts under cultivation, some of which are very fine and mealy, like a good Potato. The tubers of some of the kinds do not exceed 2 or 3 lb. in weight, whilst others weigh as much as 100 lb. Banana plantations abound everywhere, and are particularly abundant in the mountainous districts of Viti Levu. They are planted along the sides of the road to shade the traveller from the sun, sometimes forming avenues many miles in length. The fruit of these trees is forbidden to travellers, and the *tabu* is invariably respected by the natives. Among wild plants affording food are Amorphophallus campanulatus, Pachyrhizus angulatus, and Dioscorea nummularia, the part eaten being the tubers.

Agricultural Products and Exports.

The present agricultural exports are copra, sugar, Cotton, Maize, Tobacco, some Arrowroot, and now, perhaps, a little Coffee. Copra, the dried kernel of the Cocoa-nut, was exported in 1876 to the value of £45,908; in 1877, £79,403; in 1878, £122,194. The value of coir-fibre, produced from the husk of the Cocoa-nut, was for these years £2953, £2660, and £3133 respectively. There was also exported during these years Cocoa-nut oil to the value of £808 in the first, £941 in the second, and £150 in the third year. The value of Cocoa-nuts exported in 1876 was £318; in 1877, £461; and in 1878, £570.

* *A Year in Fiji; or an Inquiry into the Botanical, Agricultural, and Economical Resources of the Colony.* By John Horne, F.L.S., &c. (Edward Stanford, Charing Cross.)

Mr. Horne reports that the various branches of agricultural industry are capable of immense extension, the islands being better situated than any other tropical possession we have for disposing of their products, as they are within an easy run of Australia, New Zealand, &c. Labour is scarce, dear, and uncertain, but arrangements are now being made to employ Indian coolies. Another want is simple machinery for various operations. The Cocoa-nut is extensively grown, both by natives and settlers, and young plantations are yearly coming into bearing, and others being planted. Sugar and Coffee Mr. Horne regards as the staple products of the future. The manufacture of sugar has quite recently commenced, and is yearly increasing in importance. The value of the sugar and molasses made and exported during the last three years is as follows:—in 1876, £10,433; in 1877, £16,170; in 1878, £18,641. The value of rum made in Fiji, and exported during 1878, was £925. Since Mr. Horne's visit several additional mills have been erected, and the export of sugar in 1880 was estimated by him to reach £60,000. Furthermore, he estimates the total area of land suitable for growing sugar at 1000 square miles, mostly of a rich soil, on which a plough might be used. This land would yield about 200,000 tons of sugar annually, of the total value of more than five millions sterling. Coffee thrives remarkably well in Fiji, and the area of land suitable for the production of Coffee, Cacao, Tea, and Cinchona, is approximately estimated at from 2500 to 3000 square miles. Mr. Horne thinks that Coffee might be raised and exported to the annual value of between three and four millions sterling. In the same practical manner Mr. Horne examines the conditions favourable and unfavourable to the cultivation of Cotton, Tobacco, and various other vegetable products, including some tropical and subtropical fruits for the Australian New Zealand, and other markets; but we have not space to reproduce particulars. Any person interested in the subject would do well to procure Mr. Horne's eminently practical little book, wherein he treats of many other subjects than those to which the foregoing extracts refer. We must not conclude, however, without mentioning that, among other things, the book contains a scheme for forest conservancy, with rules and regulations for the management of forests, and penalties for infringements, &c. Also proposals for the establishment of a small botanic garden, primarily as a nursery and trial-garden; an industrial school; and a museum of objects calculated to educate the people.

Garden Memoranda.

Barleythorpe. — This charming country seat, at present occupied by Captain Blair, is situated but a short distance from Oakham, in the midst of the finest hunting district in Rutlandshire.

The house, a fine square stone block, stands upon a fairly elevated site, from which the beautifully wooded hills and green slopes are traversed at a glance by a quick eye for landscape scenery; indeed, the nature of the situation is such that one can hardly help admiring the lavish hand with which Nature has bestowed her fairest charms of hill and dale upon a district more dear to the sportsman than any one else except the farmer, who toils for a living in its fertile soil, and perhaps enjoys a day's hunting now and then into the bargain. The drive to the house from the main road is but a short one, but it is pleasant, and the Limes, Yews, Cedars, and other trees in the immediate vicinity are large, and much enjoyment is derived from an inspection of their symmetry and healthy leafage. Upon the east front there are several trimmed Hollies and specimen Wellingtonias, not too thickly planted, so that you can enjoy a look at them occasionally and the landscape as well. At the south side there is a fine lawn in front, enclosed by an irregular band of shrubs, giving much variety of flower and leaf. A huge Ash is the principal object upon this lawn, but the view is charming across the Ranksborough hills, where the hounds so often meet during the hunting season. Again there is a fine view of Mill Hill, another notable place in the neighbourhood, and one that is also much frequented during the hunting season. The north front is adorned with many fine Walnut trees, and a walk leading from the walled-in garden to the east front is bordered by many fine shrubs and a fine collection of Dahlias, Anemones, and other autumn flowers.

The flower garden, laid out in grass, is on the south front, and a pretty garden it is. It is arranged with Pelargoniums, Violas, and other showy flowering plants, and there are mixed beds of sweet-scented plants which give fragrance to the whole garden. There is a range of span houses (plant houses) close to the flower garden, in three divisions; the first one having a fine Allamanda flowering on the roof, and also a collection of Ferns, Dracænas, Coleus, Hibiscus, and other plants, neatly arranged upon the centre and side stages. The second division is occupied with the common favourites, Camellias and Dicksonia antarctica Ferns, which appear to like their quarters and thrive well. The third division has a general collection of greenhouse Palms, Azaleas, Lapagerias, Agaves, and several New Holland plants approaching to specimens. Hanging baskets of Ferns are here well done, and Chrysanthemums and other plants are grown in quantities for winter flowering.

In the fruit garden crops of Pears, Apples, Plums, Peaches, and Apricots, are, or have been, good; perhaps the Pear espaliers are the finest examples of fruit growing in the garden, a single sample of Beurré de Capiaumont being laden with bunches of fruits such as has not been seen for many a long day at Barleythorpe or elsewhere. The vegetable crops of all kinds are good, and the walks and roads are tidy and in the best of order throughout the gardens and grounds. *W. H.*

Ingestre Gardens, near Stafford.—When visiting these gardens the other day, I was glad to meet with the tuberous-rooted Begonias, bedded out and doing first-rate. They were one mass of flower, and this considering the heavy rains and cold changeable weather lately experienced in this neighbourhood, speaks volumes in their favour as bedding plants. Mr. Gilman has also a fine lot growing in frames, which are very valuable for the decoration of the conservatory. In the houses I noticed a fine batch of Euphorbia jacquiniæfolia, one of the grandest of winter flowering plants. They are grown in great quantities, in 48-pots mostly, and are good examples of cultivation. Gardenias are also extensively grown and well done, and are supplying their lovely white sweet-scented flowers, and will continue to do so all the winter. The vineries contain some fine Grapes of the most popular sorts, the bunches being of a nice table size, and well finished. The different departments of the garden are well done, and reflect great credit on the skill and abilities of Mr. Gilman as a gardener. *A. O.*

Home Correspondence.

Mr. Bruce Findlay.—The announcement in last Saturday's *Gardeners' Chronicle*, that the Manchester authorities had taken steps to present Mr. Findlay with a substantial mark of their appreciation of what he has done for gardening during the many years in which he has been the mainspring in the northern horticultural tournaments, will be received with unmixed approval by those who have the advancement of horticulture at heart. Those engaged in horticultural pursuits, who can remember long enough, know the advancement that has been made in gardening throughout the kingdom within the last quarter of a century, and to which the Old Trafford society, through the instrumentality of Mr. Findlay, have contributed their full share. But they who for a like period have been also acquainted with the district for a wide range around Manchester, and know what the gardening was, have now before them the even greater strides that have been made, to no small extent through the influence of the Old Trafford displays, and will, in common with the many who have assisted as exhibitors at these shows, feel that whatever is done for Mr. Findlay is well merited. Few men placed in a similar position to that which he has now so long held, have made so many friends, and kept them. His courtesy to all, and management of these exhibitions, quite as much as the liberal prizes offered, have never failed to draw exhibitors to Manchester. The extent to which it is evident that the Council have for a long time left matters connected with the exhibitions in Mr. Findlay's hands, has brought with it a corresponding amount of responsibility, which those who have had the best opportunity of seeing know to have weighed proportionately heavily upon him, and justly merits that liberal response which I feel sure will be forthcoming. *B.*

The Provincial Show of the Royal Horticultural Society at Preston in 1878.—Most of your readers will remember that at the above show the Council awarded me the Gold Lindley Medal for my group of plants. I could not, however, obtain it, and ultimately, acting on the advice of counsel, I commenced an action against the Society in the Chancery Division of the High Court, to compel them to deliver it. Few will credit the fact, that the Royal Horticultural Society would have recourse to the dishonourable subterfuge of pleading in their statement of defence, that it was illegal under the terms of their charter for them to award Medals, &c., at any place other than at South Kensington! This purely technical defence—they had of course none other—was enough. I had to discontinue my action, and I have recently paid £10 3*s.* 2*d.*, the Society's taxed costs — my own in addition. I abstain from any comment, and I simply beg of you to publish my letter. *T. M. Shuttleworth, F.L.S., F.R.B.S., Preston, Sept.* 20.

The Lily Disease.—After reading Mr. Wolley Dod's careful report on his Lilies, and Mr. Berkeley's painfully interesting discovery of their new fungus foe (p. 340), I looked over our L. auratum beds at Oakwood, in the hope of finding some further facts to bear on the question. On a hill-side, in light loam with a damp sub-soil, we planted in winter and spring many hundred bulbs of L. auratum, a smaller experiment the year before having proved successful. All through the hot weather these looked most happy and flowered beautifully, and up to the time when I went to Scotland, on August 12, though the great beauty was past, there were numbers of fine flowers out: one, the finest I ever saw, was, by no act of mine, displayed in the *Field* window, attracting a crowd of admirers. On my return, three weeks later "spot" reigned supreme. All the species planted in the strong moist soil were affected, the more recently planted the most so. I submit for the Editors inspection a couple of stems, which you will see are green, with the flowers badly spotted, and for the other side of the picture, a stem cut last night in the rain in our Rhododendron Lily bed here. When you tell weak-kneed intending Lily growers how much has still to be learnt, they say "Perhaps we had better not begin yet." This is a mistake, there is some hard ground; enough has been learnt to show, that in any reasonable climate and with shade, shelter, and a good depth of light open soil, many of the most beautiful species of Lilies are sure to succeed, whatever the season. I think we have absolutely proved this in a bed here. Last autumn, when remaking it, owing to the Rhododendrons having grown too thickly together, and replanting the old Lily bulbs where they had bloomed well year after year in all sorts of seasons, I wrote either to the *Gardeners' Chronicle* or one of its contemporaries, I forget which, that I was planting a bed which I could engage would succeed; it has done so, even in this curious season. L. Krameri were beautiful the stems have now three, and one, four seed pods. L. Szovitzianum, which had some loam added, has few flowers; L. speciosum, rubrum, and album, are now fine; the L. auratum I send speaks for itself; there is another in flower, much taller in stem between 8 and 9 feet high. I am thankful to say that the Lily I have had most trouble with, though it grows perfectly with no care in so many cottage gardens, L. candidum, is now growing thoroughly well at Wisley. *George F. Wilson.* [The specimens fully bear out our correspondent's remarks. Eds.]

Fuchsias for Hanging Baskets.—In your note the other day advocating the use of Fuchsias for hanging baskets, you seem to be unaware of the existence of a variety, Adria, particularly suited for this purpose, vases, &c.—in fact, its natural habit is to grow downwards; it is of free growth, freely branching. I have had it growing down over the edge of the pot and front of the stage to the depth of 2½ feet. Its flowers are large, red, almost self coloured, and produced in great profusion; in fact it is one of the best basket plants I know. It was raised by Mr. Lowe, of Nottingham. *J. Smith, Newry.*

Horticultural Boilers.—Permit me to call attention to a boiler which I think is not generally known but which for quickness and power of heating, economy in fuel, and small cost, is, I think, the best I have yet met with. It is manufactured by the Thames Bank Iron Company, and is numbered sixty-three in their catalogue, but is not illustrated, which may be the reason why it is not more often selected.

have one in use, 18 inches wide, 18 inches high, and 3 feet long, which does with the greatest ease 500 feet of 4-inch pipe, and the cost of them at the works is £6 6s. I have just fixed the second, which has been made to order: 5 feet long, of the same width and height as the former, and which I have no doubt will heat 1000 feet of 4-inch pipe, the cost of which was 25s. in addition to the 3-feet boiler. It is a horizontal tubular, one row of tubes on each side, and two rows over the top. It possesses all the advantages of the saddle boiler in burning any kind of rough fuel, and being easily banked up to keep the fire in during a long night, and the quick heating and powerful qualities of the tubular boiler, without the many disadvantages of the upright tubular. I burn town ashes, engine ashes, and anything which comes to hand in them, and nothing is taken away from them but the clinkers—all is burnt up. I am not acquainted with any boiler which can be purchased so cheaply and will do an equal amount of work with the same expense for fuel. *John Charlton, Summer Vale Nursery, Tunbridge Wells.*

Meconopsis nepalensis.—The peculiar turning inwards of the leaves of Meconopsis nepalensis has attracted my attention for a considerable time. Our plants looked healthy enough, but not having noticed as I have since) this to be a periodical affair until "M. T. M." brought the matter forward, I had begun to fear it was the symptoms of some disease peculiar to the plant. On Friday (noon) last I was pleased to observe, as I thought, the disease gone, whereas I find had I waited until the evening, the said peculiarity would have reappeared. Like "M. T. M.'s" plant, ours have not yet flowered, and may not be true; previous experience, however, has taught me to believe they are. *T. D. Hatfield, The Gardens, Southwood, Bickley, Sept.* 25.

Battersea Park.—Gardeners and amateurs who delight in so called "carpet bedding" would do well to visit Battersea Park before Jack Frost writes "Ichabod" over the still charming parterre. Your special reporter gave no doubt an accurate and very minute description of the bedding arrangements, but it is impossible to form an adequate idea of the beauty of some of the very numerous combinations without personal inpection. There is something repugnant to one's idea of gardening in the everlasting snipping and pinching absolutely necessary to keep ordinary carpet beds in proper trim; but some of the prettiest arrangements at Battersea are fortunately those that require least of this barbarous treatment. The bed I most admired was an oblong with rounded ends; it was about 9 yards in length, and 2 in width. At equal distances along the centre were four circles, each a yard in diameter. The bed was raised about 6 inches, and the bevelled edge was planted with a very light green Stonecrop, in which was embedded a line of medium sized Echeveria secunda glauca. Then came the triangular panels, Alternanthera magnifica edged with a thin ring of Cerastium, and within this circles of Echeveria secunda glauca, then another slender ring of Pyrethrum aureum. The carpets of the circles were Cerastium and Lobelia, and in the one I most admired the aforesaid pale green Stonecrop. Planted in the circle were six Acacia lophantha, the centre one, a little taller than the rest, was perhaps 2 feet high. In front of the Acacias were four small plants of a magenta-flowered Begonia. That one bed was worth a pilgrimage to see (it was on the north side of the lake), and will long remain in my memory as a "thing of beauty and a joy." There was a quiet elegance, a charming feathery grace, purity of form and colour quite delightful. The centre plants in the other circles were Pandanus Veitchii, Dracæna, and Grevillea robusta. I noticed another Acacia-like plant used with good effect in beds of high finish, Jacaranda mimosæfolia. I should have liked, however, to see my favourite Anemone alba in circular clumps rather than lines—say a bed of it 3 yards in diameter with a border a foot wide of Clematis Jackmanni. Both the able superintendent and his staff deserve to be complimented on the beauty, effectiveness, and high keeping of the park and gardens. *T. W., Harrow.*

Phlox Drummondii.—What a very effective summer and autumn flowering plant this is, when planted in masses! Two beds of it here in the north front of the conservatory are now, as they have been during the last two months, perfectly lovely—in fact, it would be difficult to find two beds more effective, and at the same time displaying so many pleasing colours, varying in shades from bright crimson down to the softest white. Beds of standard Roses carpeted with the easily raised and freely growing Phlox Drummondii are also rendered highly effective; more especially is this noticeable in the autumn, when the Rose trees, through the diminution of blooms, are rendered less attractive, and the fact that the plant does not in any way interfere with the growth and well-being of the standard Roses, the naked stems of which they both hide and ornament—a circumstance which in itself should be a sufficient inducement to gardeners to plant the Phlox Drummondii specially for that purpose. It is also a very suitable plant for the embellishment of rustic vases and boxes; but it is when grown in masses that its beauty and diversity of colour are seen to the best advantage. And, bearing in mind the easy culture of this half-hardy annual, and the fact that from a shilling packet of seed so many pleasing colours may be obtained, together with its usefulness in a cut state, the wonder is that the Phlox Drummondii is not more generally and extensively grown in gardens. *H. W. Ward.*

Polygonum cuspidatum.—This charming flowering plant comes in most useful where cut flowers are in demand. It is invaluable for wreaths with just a few trusses of scarlet Pelargonium dotted on its long branches, clothed with white Spiræa-like flowers. We have several plants 6 or 7 feet high, and as much in diameter, in the background of the herbaceous border, and just now they are a perfect mass of whiteness. It is also a good plant for the shrubberies. *D. Elkins, Trewsbury House, Sept.* 20.

Eucharis amazonica. — I think "W. H.'s" remarks at p. 378 on the mistaken notions of those who rest the above Lily in a cool temperature are misleading. I think most cultivators will agree that rest has a good deal to do with their flowering, whether they have it in a cool or warm temperature. Let "W. H." start and flower the two pots in the plant stove if he will, and after flowering take one pot into a cooler house (keeping it, of course, rather drier), and when it has rested there, say two months, return it to the stove, and see which will flower sooner and show the greater number of flower-spikes with good flowers. Besides the Eucharis is a beautiful object in the conservatory when in flower, and does very well there during the summer months. We have had some in the conservatory here in flower for several weeks in June and July, which were greatly admired by all who saw them. After they had done flowering we stood them out-of-doors (we live in Surrey) on the north side of a wall till a fortnight ago, when they were shaken out, repotted, and placed in a Cucumber-house kept at about 70°. at night, where they are now throwing up flower-spikes strong and numerous, besides making fine foliage, which will be well developed by the time they are in flower. I have no hesitation fn saying that they would not flower so well again in such a short time if kept continuously in the plant stove. *H. H.*

Grapes and Peaches Grown in the Same House.—This subject, though very old (much older than I am), may not be too insignificant to undergo a little ventilating at the present time. Some Peaches and Grapes grown here have been made the subject of remark, and your correspondent, "W. B. G.," observes that it might mislead the inexperienced. Well, one need not do that inadvertently, and I will give my experience in this matter. I agree in the main with the observations of "W. B. G.," and would only grow Vines over the Peaches where special circumstances rendered it necessary—but, in these days of heavy demands in proportion to the means at command, one often has to adopt plans and systems which are generally considered foreign to sound practice. Proprietors, too, are in so many cases rigid economists that private gardeners are sometimes driven to their wits' end to meet difficulties, and when they are successfully met, it is very often taken as a matter of course, and fresh pressure is brought to bear on some other point of the establishment, till all is under "high pressure," altogether unlike what a nobleman's or gentleman's establishment should be. When I was a youth I had some training in a London market establishment, and though rigid economy was brought to bear on every department no such practice as Vines grown over Peaches or Pines was thought of; each pit, house, or frame was crammed, but with plants requiring similar treatment. In the present instance, the exacting demands were to supply ripe Grapes from all the vineries the first year, with only the planting canes, and others were not allowed to be purchased; this was accomplished, and if a paper on difficulties of this kind is worth room I will send one. [Please do so.] Some members of the family here were not in favour of Muscat Grapes, others would have none but Hamburghs and similar flavoured kinds till later in the season; no extra glass was allowed, and heavy crops must be forthcoming. I raised some Hamburghs and a few others, and planted one against every alternate rafter inside an early and a late Peach-house. They grew capitally, notwithstanding that they had full air almost continuously after they were planted, as the Peaches were turning in and every prudent means to keep them back to lengthen the supply was adopted. The following season each Vine showed two or three bunches of good size on each shoot, which were reduced to about seven to each Vine—they were short Vines. They finished in the highest order in regard to bloom which I have seen, though not of such good flavour as others in the vineries. Those in the late house, from being kept extra cool, were inferior to the first, but by no means bad; colour capital. This year the Vines again showed plentifully, and were reduced to about six or seven bunches; but they have been large, and have finished capitally in the early house; the later ones are only colouring, and the bunches are not large, but of more useful size than the earlies. I send you a shoulder from a bunch cut from the early house (with a number of the others), which has been hung up in the store-room, and consequently deteriorated in quality. [Well coloured, and of good flavour.] I have this season taken a rod from each Vine, so that each rafter will be covered. The framework of the structures is of iron and copper, and with extra large squares of glass little shade is experienced beyond the width of each row of leaves, the bearing wood being tied closely to the rods, and the one shoot stopped where the other begins. The Peaches, which are trained three-parts of the width of the houses in a curved form, and all over the back walls to within 1½ foot of the base, have each season produced abundantly, producing fruit of fine colour. Old houses with immense rafters and small glass are often seen filled with the best of Peaches. Some beautiful fruit of Noblesse at the late Manchester great show, from Blenheim, were from a house of this description, so growers need not be afraid of a little shade for Peaches. I do not remember where I first saw the system of growing Peaches and Grapes in the same house, but I can affirm that when I had the privilege of serving under that veteran cultivator, Mr. W. Thomson, at Wrotham Park, this system was carried out to perfection in the large range of glass there. I do not know how long his success had continued, as my stay there was during the last two years that Mr. T. had charge of that fine fruit-producing garden. Messrs. Roger, of Battersea; Speed, Chatsworth; Dell, Stoke Rochford; and other contemporaries were there longer than I was, and are better qualified to give correct information on the subject: but if Mr. Thomson could find time to give his experience of the system I feel sure his remarks would be relished by many of the craft, as the Wrotham fruit would have been no discredit to Dalkeith or the far-famed Clovenfords. I practised growing Peaches and Grapes together for ten years in one place, both doing capitally. The Vines were planted by an experienced and very advanced predecessor; the Peaches were all from one large old tree, perhaps twenty or thirty years old, planted on the back wall. Though the Grapes were always very large in berry, hammered and well coloured, they were not so sugary in flavour as those from the other vineries. I saw at Chiswick some years ago a Madresfield Court Vine carrying a grand crop of large black berries in a small house arranged on the Fountaine system; but Mr. Barron, whose experience in all matters horticultural is well known, had formed a very poor opinion of the trucks and itinerant trees in pots. I might refer to other places where the system of growing Peaches and Vines contemporaneously in one house is adopted, but have occupied enough space. *M. Temple, Impney.*

Potatos.—I am surprised to see in the *Gardeners' Chronicle* for September 20 that "A. D." says that the Wormleighton Seedling Potato and Magnum Bonum are the same. I have grown them both, and find them distinct, both in the haulm and tuber. The same can be said of Pride of America and Snowflake; the haulms of the former are more robust than those of the Snowflake, and the tubers are not quite so good in shape, being rather longer and thicker towards the eye end. They have also a brown and rough skin around the eyes, different from Snowflake. Holborn Favourite is American Matchless, but Dux I have never grown. It is quite time that gardeners should try to put a stop to the system of deception, so prevalent amongst some of the seedsmen. Things are sent out as improvements on the old, the only difference being in the price. *W.*

Single Dahlias.—At p. 412, last week, Mr. Ware states that White Queen shown by him has "no relation whatever" to alba exhibited by Mr. Cannell. I question if any one holds that opinion except Mr. Ware. As they were exhibited at South Kensington they were so nearly alike that no one could tell the difference. Mr. Cannell himself stated most distinctly that they were the same. As Mr. Ware states so confidently that they are different I think he owes it to the public to state how he obtained White Queen. Is it not the same variety that Mr. Pearson, of Chilwell, distributed in the spring under the name of Stella Bianca, a variety which Mr. Pearson received from a Mr. Sidebotham, of Cheshire, but which is also the Alba of the Botanic Gardens, Oxford? It is certain that those who have the original Stella Bianca need not trouble about Alba or White Queen. For all practical purposes they are the same. The best way to obtain single Dahlias is to get a packet of seeds, sow them in March on a hotbed—in that way you can have a quarter of an acre, all colours, and there is no bother

of keeping the roots over the winter. They will flower as early and as strongly as those obtained from cuttings. *J. Douglas.* [But not prove all alike good and attractive, the habit of many being coarse, and these need weeding out and destroying. Eds.]

Choretis glauca.—In reference to this fine plant (which, according to Col. Trevor Clarke, is now lost to commerce), allow me to say that the stock here was purchased at Messrs Rollisson's, of Tooting, about sixteen years since. The late Mr. Buckley, who was no mean judge of bulbous plants, but one who had a great liking for them, assured me that it was the true plant; anyhow, he parted with the only one in stock—and a poor little mite it was, with a small truss of two flowers. Col. Clarke informs us that several of the larger flowered species of Hymenocallis do duty for it in the trade; would he kindly name them?—there being several of the Pancratiums very like it cultivated here, although not common in gardens generally. *W. Sims, The Gardens, The Firs, Mitcham.*

Trusses and Bunches of Cut Flowers.—My good friend, Mr. D. T. Fish, in his remarks about the stand of cut flowers of Pelargoniums, to which attention has been drawn, says, "Twelve trusses means so obviously single trusses that the word single was left out to avoid tautology." But suppose any one shows branching trusses, such as we sometimes see after the fashion of Hen-and-Chicken Daisies, what then? And would they be disqualified? Or take the case of Verbenas, which more frequently come in that way, especially the well-known old favourite, V. venosa, which branches out so thickly as to form a series of trusses, would they be eligible? Like Mr. D. T. Fish, I am no advocate for made-up things, as the aim and object of flower-shows should be to encourage good cultivation; but instead of doing this, if made-up collections were allowed, the skillful manipulator would stand the best chance. *J. Shepherd.*

Robinia hispida.—Since Mr. T. Meehan has been lucky enough to alight at last upon Robinia hispida in its native haunts he would confer a great boon upon the horticultural world by inducing some neighbour to watch the spot, and see if in another year it would not give seeds, which would give us a chance of growing this most lovely shrub on its own roots. It might bring it again into fashion, as I attribute its present discredit (at least in Belgium) to the fact that, grafted on the common Robinia—our only way of propagating it now—its branches become too heavy to resist the least gust of wind, and break off at the always imperfect connection with the stock, leaving a mutilated and unsightly standard. What does Robinia hispida look like in its natural state?—a small tree or a bushy shrub that could be propagated by division if we got it on its own roots? It would be an almost unique instance of a plant never bearing seed in its native country and spontaneous state. I say "almost" because some botanists will have it that this is the case with our common Lysimachia nummularia [and Armoracia rusticana, Horse Radish]. I have had for many years in my nursery, under the name of Robinia hispida macrophylla, a variety very distinct from the type by its larger leaves, not half so hairy, with a rather glaucescent hue. The flowers are similar, and it remains always true. Where does it come from? Do you know anything about its origin? Is it found wild? The *Bon Jardinier* of the last thirty years mentions it as Robinia hispida arborea, Hort. In 1871 I bought from Messrs. Haage & Schmidt, of Erfurt, a Robinia hispida flore albo which I have lost without ever having seen it flower. It has since disappeared from their catalogue. Do those varieties (one certain, one dubious) not point to seeds having been obtained somewhere? The one I have does not look at all like a fixed sport. For my part I never saw the least attempt at setting its pods. At all events, Mr. Meehan could perhaps, in the absence of seeds, get some living plants from the Look-out Mountain. Did he not look there for young plants? If he found any it would settle the question in favour of its ability to bear seeds, however rarely it might happen. *Jean van Volxem, Sept. 25.*

Foreign Correspondence.

Lindenthal, near Cologne, Rhenish Prussia: *Sept. 26.—The Phylloxera.*—Commissioners Weinkauff, Ritten, and Dr. Moritz, have published the following communication on the Vine-pest in the valley of the Ahr:—The researches for finding the limits of the infection are now finished. A second larger spot has fortunately not been found. We shall examine at present the whole Vine region of the Ahr. It was impossible to begin the general work of destroying the insect, because there are small vineyards in great number in which the Vines must be valued before this can be done. The Government pays three-quarters of the value of the Vines and the ground; the latter is to be returned to the owner after two years. The general spot of infection is already disinfected. The canes are cut down, and the ground is soaked with petroleum and sulpho-carbonate of potash. The committee has bought 1000 barrels of petroleum for the latter purpose.

The Flora near Cologne held an exposition of plants, fruits, vegetables, &c., on the 11th inst. The fruit department was very poor: I could not find one good collection. The plants were common, and insignificant, except those of J. Makoy, Liège, the only foreign exhibitor. He had very fine groups of new and rare plants, partially not yet in trade:—Lamprococcus Glazioviana, Vriesia psittacina Morreniana, Cyperus laxus fol. var., Heliconia aureo-striata, Dieffenbachia Parlatorei, D. Baraquiniana, D. Bausei, D. Weirii, D. maculata, Croton triumphans, C. Queen Victoria, Ficus dealbata, Pavonia Wioti, Ananas penangensis fol. var., Cyanophyllum magnificum, Maranta Oppenheimii, Jacaranda filicifolia, Ceroxylon andicola, Dracæna lentiginosa superba, D. Goldieana, D. Kegeljani, D. Massangeana, &c. He obtained the prize given by our Empress. I had a teacher who was very fond of the expression—"Somewhat deficient in matter," and so was the exhibition in the Flora. *Dr. Kalender.*

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, September 28, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In.
22	29.48	−0.32	58.5	49.2	9.3	53.8	− 1.5	48.5	82	W. : N.W.	0.25
23	29.84	+0.06	59.5	53.0	6.5	55.4	+ 0.2	53.6	93	N.E.	0.01
24	29.98	+0.21	63.5	54.5	9.0	57.6	+ 2.6	56.1	95	S.:S.W.	0.22
25	29.87	+0.12	69.5	52.5	17.0	59.6	+ 4.8	54.9	85	S.S.W. : W.S.W.	0.49
26	29.95	+0.20	64.0	48.0	15.1	55.6	+ 0.9	51.2	86	S.S.W. : S.W.	0.00
27	30.02	+0.29	63.0	49.0	14.0	54.2	− 0.4	47.3	77	N.W. : S.W.	0.00
28	30.18	+0.46	64.0	44.5	19.5	52.1	− 2.4	48.9	89	N.W. : N.N.E	0.00
Mean	29.90	+0.15	63.1	50.2	12.9	55.5	+ 0.6	51.5	87	S.W. : N.W.	0.97

Sept. 22.—A fine, but a dull, overcast day. Rain falling from 4 P.M.
— 23.—Cloudy, dull day; slight rain at night.
— 24.—Fine, but very dull day. Rain from 5 P.M.
— 25.—Heavy rain early in the morning. Moderately fine afternoon.
— 26.—Fine, but dull day; fine night.
— 27.—Fog in the morning. Fine, but dull day. Stars seen occasionally at night.
— 28.—Fine day; sun shining brightly. Fog in the early morning, and again in the evening.

London: *Atmospheric Pressure.*—During the week ending September 24, the reading of the barometer at the level of the sea decreased from 29.88 inches at the beginning of the week to 29.63 inches by 3 P.M. on the 18th, increased to 29.90 inches by 9 A.M. on the 19th, decreased to 29.87 inches by 3 P.M. on the 19th, and increased to 29.94 inches by midnight of the same day, decreased to 29.47 inches by 3 P.M. on the 21st, increased to 30.21 inches by 9 A.M. on the 24th, and was 30.13 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.80 inches, being 0.28 inch lower than last week, and 0.18 inch below the average for the week.

Temperature.—The highest temperature in the shade during the week was 71°, on the 20th; the next in order was 67°.6, on the 18th. On September 22 the temperature did not rise above 58°.5. The mean of the seven high day temperatures was 64°.2.

The lowest temperature in the week was 49°.2, on the 22d; on the 19th and 24th the lowest temperature was 54°.5. The mean of the seven lowest temperatures was 52°.3.

The greatest range of temperature in one day was 20°, on the 20th; the smallest was 6°.5, on the 23d. The mean of the seven daily ranges was 11°.9.

The mean daily temperatures were, on the 18th 58°.3; on the 19th, 59°.5; on the 20th, 60°.1; on the 21st, 57°.8; on the 22d, 53°.8; on the 23d, 55°.4 and on the 24th, 57°.6. On the 22d the mean temperature was 1°.5 below its average; all the rest were above their averages by 1°.9, 3°.4, 4°.3, 2°.3, 0°.2, and 2°.6 respectively. The mean temperature for the week was 57°.2, being 2°.3 higher than last week and 1°.9 above the average for sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun was 128° on the 20th; the highest on the 23d was 66°. The mean of the seven readings was 91°.1.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 46°.4 on the 20th; and the mean of the seven readings was 49°.2.

Rain.—Rain fell on every day of the week to the amount of 1.10 inch, of which 0.44 inch fell on the 21st, and 0.25 inch on the 22d.

England: *Temperature.*—During the week ending September 24 the highest temperatures were 76°, at Cambridge, 73°.2 at Nottingham, and 72° at Sunderland. The highest temperature at Plymouth was 66°.6, at Bradford 67°.1, and at Wolverhampton 67°.8. The mean from all stations was 70°.

The lowest temperatures in the week were 38°: Truro, 41°.6 at Nottingham, and 42°.4 at Bristol. The lowest temperature was or exceeded 48°: Leeds, Blackheath, and Brighton. The mean from all stations was 44°.3.

The greatest ranges of temperature in the week were 31°.6 at Nottingham, 30°.6 at Cambridge, and 30° at Truro. The least ranges were 19°.7 at Brighton, 20° at Leeds, and 21°.8 at Blackheath. The general mean was 25°.7.

The mean of the seven high day temperatures exceeded 65° at Brighton, Truro, and Cambridge, and was less than 62°.5 at Leeds, Sheffield, and Sunderland. The general mean was 63°.9.

The mean of the seven low temperatures was not exceeded 51°.9 at Brighton, Blackheath, and Cambridge, and was 48°.9 at Sunderland, 49°.2 at Nottingham, and 49°.9 at Truro. The general mean was 50°.9.

The mean daily range was 16°.7 at Truro, 16° at Cambridge, and 15°.7 at Nottingham; and was only 10°.7 at Leeds, 10°.8 at Sheffield, and 11°.9 at Blackheath and Brighton. The general mean was 1[illegible]

The mean temperature for the week was 58°.9 at Cambridge, 58° at Brighton, and 57°.2 at Blackheath, and was less than 55°.2 at Bradford, Wolverhampton, Sheffield, and Sunderland. The general mean was 56°.2.

Rain.—The greatest amounts registered were 2.[illegible] inches at Sunderland, 2.26 inches at Hull, and 2.[illegible] inches at Bradford. The least falls were 0.16 inch at Plymouth, 0.33 inch at Bristol, and 0.52 inch at Truro. The general mean was 1.22. It fell on a average of five days, but at Blackheath and at Bradford it fell on every day of the week.

Scotland: *Temperature.*—During the week ending September 24, the highest temperature was 6[illegible] at Glasgow. At Aberdeen the highest temperature was 59°.5. The general mean was 62°.1.

The lowest temperature was 44°, at Dundee, at Greenock the lowest temperature was 49°. The general mean was 46°.2.

The mean temperature for the week was highest at Glasgow, 53°.9; and lowest at Edinburgh and Dundee, 52°.5. The general mean was 53°.1.

Rain.—The largest falls were 3.75 inch at Dundee, 2.08 inch at Edinburgh, and 2.05 inch at Greenock. The smallest falls were 0.86 inch at Aberdeen, and 1.22 inch at Paisley. The general mean was 1 inch.

JAMES GLAISHER, F.R.S.

Reports of Societies.

Harborne Potato Exhibition: *Sept. 16 and 1*—This was the third annual exhibition of the Potato Society, and 1300 dishes were staged in competition. In class A (open), for twelve distinct varieties, the 1 prize—a handsome silver cup—was won by Mr. C. Co[illegible] Bodicote, near Banbury, with Red Emperor, Woodstock Kidney, International, Purple Kidney, Radstock Beauty, King Noble, Trophy, Edgecote Seedling, Blanchard, Vicar of Laleham, Wonderful Red Kidney, and Bresee's Prolific—all very fine indeed, and equal in size and quality. The 2d prize fell to Mr. C. W. Howard, Canterbury, with leading varieties—International, Superior, and Edgecote Seedling were all very fine; so also were Vicar of Laleham, Grampian, a very fine dish, Scotch Blues and Matchless. This lot were very even, not too large, and of good quality throughout; 3d, Mr. G. Branston, Harborne, in whose lot were fine examples of Pride of America, Vicar of Laleham, International, Woodstock Kidney—very fine indeed; Bear of Kent, a very fine dish of St. Patrick, and Schoolmaster. Extra prize to Mr. Claridge. There were twenty-two competitors in this class. In class B (open), six distinct varieties, there were twenty-seven competitors, and good average quality generally. Mr. G. Branston

obtained the 1st prize with a fine lot, consisting of Sutton's Fillbasket, Trophy, International, Triumph, Schoolmaster—very fine; Woodstock Kidney; 2d, Mr. C. Cox, in whose collection were fine dishes of Covent Garden Perfection, extra good Schoolmaster, Superior, Radstock Beauty, Blanchard, and Pink Emperor; 3d, Mr. C. W. Howard, with a grand dish of International, Superior, Trophy, Woodstock Kidney, again very fine; and Vicar of Laleham. There was a strong competition in this class.

In class C (open), for two dishes of kidneys and two dishes of rounds, there were twenty-nine competitors, and here Mr. C. W. Howard won the 1st prize with a very fine, even, clean, good-sized lot. The kinds were International, Trophy, Scotch Blue, and Schoolmaster. 2d, Mr. G. Branston, with Wormleighton Seedling (which appears to be a form of Magnum Bonum), Woodstock Kidney, and two others. 3d, Mr. Claridge, with Schoolmaster, Trophy, Triumph, and International, named in error Woodstock Kidney. In class D (open), for best dish of any new variety sent out in 1880, there were seventeen competitors, and here again Mr. Cox came to the front with Holborn Favourite, which is evidently American Matchless; Mr. J. Salt, 2d, with a very fine lot of St. Patrick. The other best examples in this class were Sutton's Reading Abbey, Reading Hero, Pride of America, and Wiltshire Snowflake. In class E (open), for best two dishes of cooked Potatos, one round, and one kidney, there were sixteen competitors, and the 1st prize was awarded to Magnum Bonum and Schoolmaster. These two kinds were largely represented, but other varieties were also exhibited in this class. In class F (open to gentlemen's gardeners only, residing within 3 miles of Harborne), for six distinct varieties, there were ten entries. Mr. Denning, gr. to Mr. J. Jaffray, was 1st, with a first-class lot, consisting of International, Garibaldi, Covent Garden Perfection, Triumph, Grampian, and Schoolmaster. 2d, Mr. R. Lamb, gr. to Hy. Heaton, Esq., in which lot Manhattan, International, King Noble, and Vicar of Laleham, were fine. 3d, Mr. W. Shingler, gr. to T. Tonks, Esq., and here Porter's Excelsior, Pride of America, and Vicar of Laleham, were especially good.

Classes G. to S. were devoted to the amateurs, with three prizes in each class, and a keen competition throughout was maintained. In class G, for six varieties, there were fifteen competitors. Mr. J. Salt, Harborne, was placed 1st with Sutton's Reading Abbey, Manhattan, Schoolmaster, Woodstock Kidney, International Kidney, both extra fine, and Magnum Bonum. 2d, Mr. Wathes, Birmingham, in whose lot were fine Vicar of Laleham, International, Beauty of Hebron, and Manhattan. 3d, Mr. T. Horton, Harborne, in whose collection Advance, a very nice pebble-shaped kidney, was noticed, and Trophy, Vicar of Laleham, Early Ohio, Grampian, and Wormleighton Seedling, were all good.

In class H, four varieties, there were nineteen competitors, Mr. J. H. Harrison taking the 1st prize with Schoolmaster, Mr. Bresee, very fine indeed; International, and another kind, the name of which we omitted to take. 2d, Mr. Wathes, with International, Grampian, Clarke's No. 1 (a form of Early Vermont), and another. 3d, Mr. J. Salt, with a beautiful sample of Ashleaf, Woodstock Kidney, Sutton's Reading Abbey, and Lord Lyons, a variety closely resembling Reading Abbey. In class I, for two dishes, one round and one kidney, there were sixteen competitors; 1st, Mr. Wathes, with Radstock Beauty and Snowflake; 2d, Mr. G. Gibbs, with Vicar of Laleham and Taylor's Seedling, a variety of the Snowflake type; 3d, Mr. Salt. In class K, for a dish of Magnum Bonum; class L, for Covent Garden Perfection: class M, for Ashleaf, there was a good competition. In class N, for best dish of any white kidney, Mr. W. James was 1st, Mr. Wathes 2d, and Mr. J. Mathews 3d, all with International. In class O, for Schoolmaster Potato, there were numerous entries, as also in class P, for the best dish of any white round not specified in any other class. There were sixteen entries, Mr. Salt being placed 1st with a beautiful dish of Model; 2d, Mr. Wathes; 3d, Mr. J. Deaman, each with Rector of Woodstock. In classes Q and R, for Early Rose and best dish of round red, there was a good competition. In the latter class Red Emperor was placed 1st, Vicar of Laleham 2d, and Grampian 3d. In class S, for red kidney, Bountiful Kidney was placed 1st, Brownell's Superior 2d, and Late Rose 3d. Classes T to Y were devoted to special prizes given by various firms. Class T was for prizes given by Mr. R. W. Vertegans, nurseryman, for eight dishes, to be competed for by amateurs and gentlemen's gardeners. This brought out fourteen competitors, and Mr. Denning won the 1st prize with Schoolmaster, Woodstock Kidney, Beauty of Hebron, International, Covent Garden Perfection, Triumph, Porter's Excelsior, and Rector of Woodstock; 2d, Mr. P. McGregor, gr. to Mrs. Grice, with Grampian, Triumph, and Beauty of Hebron, especially good; 3d, Mr. T. Pintold, gr. to Mr. J. B. Manly.

In class U, given by Messrs. Webb & Son, Wordsley, for twelve tubers of Webb's Improved Schoolmaster, there were thirty-two entries, Mr. Claridge, Banbury, taking the 1st prize. A close examination of this class failed to show any improved form of this Potato—nothing more than the ordinary type of Schoolmaster. In class V, also given by Messrs. Webb & Son for six varieties, to include Webb's Improved Magnum Bonum and Webb's Surprise, there were twenty entries, Mr. C. W. Howard taking the 1st prize with Superior, Magnum Bonum, Webb's Surprise, Bresee's Prolific, Grampian, and International; 2d, Mr. G. Branston, with very fine St. Patrick, Beauty of Hebron, Magnum Bonum, Porter's Excelsior, Grampian, and Webb's Surprise; 3d, Mr. W. Smith, with Webb's Surprise, Prolific, Climax, Schoolmaster, Peach Blow, and Magnum Bonum. Here again a difference betwixt the true stock of Magnum Bonum sent out by Messrs. Sutton & Sons originally, and now generally grown, and what was exhibited as an "improved" form could not be detected. In class W, for twelve tubers of Sutton's Magnum Bonum, there were thirty-one entries, and here the 1st prize lot, shown by Mr. C. W. Howard, of Canterbury, might really be called "improved;" but this break was only to be found in this grower's lot, and it originated with him. It is of a more rounded form than Magnum Bonum, and was perfection. In class X, for six dishes of Potatos, given by Mr. Morris, a local seedsman, on condition the seed had been purchased from him (!), there were but very few entries. In class Y, given by Mr. Richard Dean, for four newer kinds of Potatos, there were six entries, and Mr. C. W. Howard took the 1st prize with Advancer, Vicar of Laleham, Radstock Beauty, and American Purple Kidney; 2d, Mr. L. Watson, gr. to Mr. W. Udall, with Vicar of Laleham, American Purple, Bedfont Prolific, and Heather Bell; 3d, Mr. T. Horton, with Advancer, Bedfont Prolific, Vicar of Laleham, and American Prolific; 4th, Mr. F. M. Vokes, Southampton, with Heather Bell, Vicar of Laleham, Radstock Beauty, and American Bell. It may be observed, in reference to Vicar of Laleham, that this variety is now extensively grown in gardens around Birmingham, proving to be a heavy cropper and a great favourite. Mr. George Phipps, Harborne, showed a collection of seedling Potatos, two or three of which are very promising, one, a purple-eyed kidney, especially so. Mr. R. H. Vertegans, Messrs. Webb & Son, and Mr. Morris sent small collections of Potatos, not for competition. Some capital examples of Veitch's Autumn Giant Cauliflower were shown by Mr. John Smith, of Yardley Wood.

Begonia: *J. Kingsbury.* A very pretty salmony rose-pink, of good shape and size, but we think there are others superior to it in cultivation. Begonias must be good now to pass with approval. The habit may recommend yours.

Books: *P. R. Botany for Beginners*, published by Bradbury, Agnew, & Co.—*M. Haig.* Cooke's *Handbook of British Fungi*, published by Macmillan & Co. —*A. M.* We are not aware of any book of Mr. Macnab's on the Heaths. If there be one it must have been long out of print.

Cucumbers: *T. B.* We suppose most of the separate treatises on the Cucumber are now out of print, but you cannot do better than consult Mr D. Thomson's recent edition of *Fruit Culture Under Glass*, which will help you with these and other subjects besides.

Fuchsia: *J. Kingsbury.* We like the appearance of your seedling double white, which is a bold flower with stout short coral-red sepals, and a full compact white corolla showing very little red pencilling.

Jasmine Pruning: *H. R. T.* If the plant has been allowed to grow thick, thin out the principal stems, reserving young wood enough to cover the wall. You may do this in spring. Perhaps the want of flower is owing to too much shade, or it may be want of ripeness from overcrowding. The plant generally blossoms freely enough.

Lawns: *W. C.* You will find the making of lawns treated on in *Thompson's Gardeners' Assistant*, or more briefly in *An Epitome of Gardening.*

Mildew on Wall Roses: *Brazil.* The cause is probably attributable to the situation, which may be too damp, or the soil may be too dry. Without knowing the circumstances we cannot advise. Ewing's Composition, or Speed's Annihilator, applied by means of Wells' Spray Distributor (figured at p. 347), would help to rid you of the pest.

Names of Fruit: *W. D. & Son.* 1, Susette de Bavay; 3, Beurré Diel; 4, Williams' Bon Chrétien; 6 and 9, Swan's Egg; 7, Louise Bonne; 8, Hessel; 11, Marie Louise; others not recognised.—*T. M., Morpeth* 1, Summer Whorle; 3, Devonshire Quarrenden; 4, Northern Greening; 11, Autumn Pearmain; 9, Pear Beurré Lombard; others too small to be recognised.—*Sussex.* 1, Dumelow's Seedling; 2, King of the Pippins; 3, French Crab; 4 and 5, not known; 6, Mank's Codlin; all of the examples sent are very small.—*J. W. H. Apples:* 1, Ribston Pippin; 3, Yorkshire Greening; 5, Mank's Codlin; 6, Scarlet Nonpareil; 8, Kerry Pippin; 11, Court-pendu plat; 13, Old Golden Pippin; 16, Old Nonpareil; 17, Emperor Alexander. *Pears:* 9, Jersey Gratioli; 20, Marie Louise.—*H. C.* 2, Beurré de Capiaumont; 4, Knight's Monarch; 5, Beurré d'Amanlis; 6, Beurré Hardy; 1 and 3, not recognised; send again.

Names of Plants: *R. G.* Chrysanthemum segetum.—*J. Slater & Son.* Staphylea pinnata.—*F.* 1, Harpalium rigidum; 2, a Saxifrage, which we cannot name without flowers; 3, Euonymus latifolius.—*T. W. R.* Acer tataricum; it is not often seen in fruit.—*Howden & Co.* Your plant seems to be Ribes alpinum, but we cannot ascertain without flowers.—*H. K.* Lonicera alpigena.—*C. W. D.* 1, Aster puniceus; 2, A. puniceus var., probably var. blandus; 3, A. lævis; 4 and 5, two forms of Malva Alcea.—*J. A. C., Northfield.* Impatiens Roylei var.—*Connon & Reid.* Lilium chalcedonicum.—*A. B. C.* Polystichum angulare proliferum.—*A. F. H.* 1, Nephrolepis tuberosa; 2, Polystichum angulare proliferum; 3, Asplenium flaccidum.—*W. S. C.* 1, Rudbeckia laciniata, apparently, but wanting root-leaves; 2, The double-flowered Helianthus multiflorus; 3, Salvia pratensis; 4, Monarda didyma.—*G. Dence.* Very like Helianthus decapitatus, but a bad sample, incomplete as to foliage.—*Brazil.* Taxodium distichum, the deciduous Cypress.—*M. S.* The Prunus virgata of Continental nurseries: could you send it when in flower?—*E. C. C. D.* Harpalium rigidum.

Pipes: *H. R. M.* According to the sketch we should suppose C would have the advantage, as taking the stronger flow of water. Perhaps if B were carried higher up before it branched into D, C remaining as it is, the difficulty might be obviated; but the action of currents is often very difficult to comprehend, and different from what might be expected.

Smilax: *Cor.* The plant used under this name in the funeral wreaths used on the occasion of President Garfield's funeral is Myrsiphyllum asparagoides, largely used by American bouquetists.

Stephanotis Fruiting: *Brazil.* The fruiting of your plant is not a very uncommon instance.

Vine Borders: *Kingscastle.* Under ordinary circumstances it would not be advisable to "lay down the border in grass, and cut out a few flower-beds therein," though it is close to the pleasure-grounds, and would in this way look neater. The border requires stirring and renovating from time to time to supply food and air to the roots, which the turfing would render impossible.

☞ Foreign Subscribers sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

Haupt-Catalog der Königlich Prinzlich Niederländischen Baumschulen zu Muskau, 1880-1881—a Priced List of the well-known Collections of Fruit and Ornamental Trees of the Arboretum at Muskau.

R. & G. Cuthbert, Southgate, N.—Roses, Fruit Trees, Shrubs, &c.

Thomas Meehan, Germantown Nurseries, Philadelphia, U.S.A.—General Price List.

Samuel May, Upperhead Row, Leeds—Flowering Bulbs.

John T. Lyles, Market Street, Cambridge—Dutch Flower Roots.

Ottolander & Hooftman, Boskoop, Holland—Hardy Trees and Shrubs, Roses, &c.

Communications Received.—J. D.—J. H.—R. P.—J. F.—G. Smith.—W. H.—W. J. D.—A. O.—W. Fox.—H. R. B.—H. E. W.—O. O.—H. W. W.—J. K.—G. M.—J. T. B.—C. W. D.—R. J. L.—A. F.—D. C.—J. T.—A. W.—C. B. D.—C. E. B.—E. C.—A Young Gardener (next week).—G. N.—A. F.—H. C.—W. G. T.—A Subscriber.—T. Smith.—M. S.

Markets.

COVENT GARDEN, September 29.

The demand for Peaches and Pines has been better this last week, and prices have improved; otherwise there is no alteration. Large quantities of all kinds of fruit in season to hand. *James Webber, Wholesale Apple Market.*

Cut Flowers.—Average Wholesale Prices

	s. d.	s. d.
Abutilon, 12 blooms	0 2-	0 4
Asters, 12 bunches	3 0-	6 0
Bouvardias, per bun.	0 9-	1 0
Camellias, 12 blooms	6 0-	9 0
Carnations, 12 blms.	1 0-	2 0
Chrysanth., 12 bun.	4 0-	9 0
Cornflower, 12 bun.	1 0-	3 0
Dahlias, 12 bunches	4 0-	6 0
Eucharis, per doz.	4 0-	6 0
Feverfew, 12 bun.	3 0-	6 0
Gardenias, 12 blms.	3 0-	8 0
Gladioli, 12 sprays	1 0-	2 0
Heliotropes, 12 sp.	0 6-	1 0
Lapageria, white, 12 blooms	2 0-	4 0
— red, 12 blooms	1 0-	3 0
Marguerites, 12 bun.	4 0-	6 0
Mignonette, 12 bun.	1 6-	3 0
Pelargoniums, 12 sprays	1 0-	1 6
— zonal, 12 sprays	3 0-	6 0
Primula, double, per bunch	0 6-	1 0
Rhodanthe, 12 bun.	8 0-	12 0
Roses (indoor), doz.	1 0-	3 0
— (outdoor), 12 bun.	4 0-	9 0
Stephanotis, 12 spr.	5 0-	8 0
Sunflowers, 12 blms.	0 9-	2 0
Sweet Pea, 12 bun.	3 0-	6 0
Sweet Sultan, 12 bun.	4 0-	8 0
Tropæolum, 12 bun.	1 0-	3 0
Tuberoses, per dozen	1 0-	2 0
Violets, 12 bunches	0 9-	1 0

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldii, per dozen	18 0-	42 0
Asters, per dozen	4 0-	6 0
Arbor-vitæ (golden), per dozen	6 0-	18 0
— (common), dozen	6 0-	12 0
Begonias, per doz.	4 0-	12 0
Chrysanthemums, per dozen	6 0-	12 0
Cissus discolor, doz.	18 0-	24 0
Cyperus, per dozen	6 0-	12 0
Dracæna terminalis	30 0-	60 0
— viridis, per doz.	12 0-	24 0
Euonymus, various, per dozen	6 0-	18 0
Evergreens, in var., per dozen	6 0-	24 0
Ferns, in variety, per dozen	4 0-	18 0
Ficus elastica, each	1 6-	7 6
Foliage Plants, various, each	2 0-	10 6
Fuchsias, per dozen	6 0-	12 0
Lilium auratum, per dozen	24 0-	60 0
Myrtles, per doz.	6 0-	12 0
Palms in variety, each	2 6-	21 0
Pelargoniums, scarlet, per dozen	3 0-	6 0
Solanums, per dozen	9 0-	12 0

Fruit.—Average Wholesale Prices.

	s. d.	s. d.
Apples, per ½-sieve	1 0-	3 6
Damsons, ½-sieve	3 6-	4 0
Figs, per dozen	0 6-	1 0
Grapes, per lb.	0 6-	2 6
Kent Filberts, per lb.	0 8-	0 9
Lemons, per 100	4 0-	6 0
Melons, each	1 0-	2 6
Peaches, per dozen	2 0-	8 0
Pears, Eng., ½-siev.	2 6-	5 6
— French, per doz.	1 6-	..
Pine-apples Eng., lb.	3 0-	5 0
Plums, per ½-sieve	3 6-	5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Lettuces, Cabbage, per doz	0 6– 1 6
Aubergines, each	0 4– ..	— Engl. Cos, score	1 6– ..
Beans, French, p. lb.	0 4– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 6– 2 6	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen	4 0– 6 0	Parsley, per bunch	0 4– ..
Celery, per bundle	1 6– 2 0	Peas, per bushel	5 0– 8 0
Cucumbers, each	0 6– 1 0	Radishes, per bun.	0 2– 0 6
Endive, per doz.	1 0– 1 6	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	3 0– ..
Herbs, per bunch	0 2– 0 4	Tomatos, per lb.	0 9– 1 0
Horse Radish, p. bun.	4 0– ..	Vegt. Marrows, doz.	2 0– ..

Kent Regents, 100*s.* to 110*s.*; Roses, 80*s.* to 90*s.*; Myatt's, 100*s.* to 120*s.*; Magnum Bonums, 90*s.* to 110*s.* Trade is very heavy for all kinds but best, which have improved in price from 20*s.* to 30*s.* per ton.

SEEDS.

LONDON: *Sept.* 28.—Messrs. John Shaw and Sons, of 37, Mark Lane, report that there was a poor attendance of buyers on to-day's market, and not much business was transacted. Clover seed is without alteration. Winter Vetches, more especially those which come out of condition, are obtainable on easier terms. Seed Rye continues exceedingly scarce. The new white Mustard, being mostly damp, fails to find buyers. Rape-seed meets a slow trade. In canary seed the recent advance is well maintained. American Linseed, being good and cheap, excites increased attention.

CORN.

At Mark Lane on Monday, though the tone was firm, business was not active. English Wheat, from want of condition, showed no improvement in quotations. Foreign Wheat, in some instances, realised a slight advance, but it was not general, and sales were slow. Australian, New Zealand, and some American classes were rather dearer, so also was a Calcutta number. Flour was firm, with a moderate inquiry. Maize was very strong in all positions. Rather more inquiry was shown for Barley; Beans and Peas were unchanged, and Oats firm at last Friday's rates.—Wednesday's Wheat trade was very firm, but only a moderate business was concluded. Flour was firm, and the tendency was against buyers. Barley was dull in all positions. Peas were steady, and Beans hardening in value. Russian Oats were 3*d.*, and Maize 6*d.* dearer.—Average prices of corn for the week ending Sept. 24:—Wheat, 48*s.* 5*d.*; Barley, 35*s.*; Oats, 21*s.* 5*d.* For the corresponding period last year:—Wheat, 39*s.* 6*d.*; Barley, 34*s.*; Oats, 20*s.* 2*d.*

CATTLE.

At Copenhagen Fields on Monday rates did not quotably change in the beast market, though advanced prices in the dead meat trade cause a little better tone. Prime qualities, from scarcity, sold pretty readily, but the current demand was very limited. Sheep did not sell so readily as last week, and prices, whilst not quotably lower, were barely so firm. Calves met a moderate demand. Quotations:—Beasts, 4*s.* to 4*s.* 8*d.*, and 5*s.* to 5*s.* 8*d.*; sheep, 5*s.* to 5*s.* 8*d.*, and 6*s.* 4*d.* to 7*s.*; calves, 4*s.* 8*d.* to 6*s.*; pigs, 4*s.* 4*d.* to 5*s.*—Thursday's trade was very quiet, and entirely without feature. Supplies were short, but both beasts and sheep moved off slowly at Monday's rates. Calves were quiet on former terms.

HAY.

Tuesday's Whitechapel Market report states that, with very large supplies, prices ruled generally 2*s.* per load lower. Quotations:—Prime old Clover, 102*s.* to 138*s.*; new, 100*s.* to 128*s.*; inferior, 78*s.* to 90*s.*; prime old meadow hay, 100*s.* to 134*s.*; new, 100*s.* to 126*s.*; inferior, 60*s.* to 80*s.*; and straw, 50*s.* to 54*s.* per load.—On Thursday a large supply of fodder was on sale. The trade was very dull, and prices were without alteration.—Cumberland Market quotations:—Superior meadow hay, 126*s.* to 132*s.*; inferior, 90*s.* to 105*s.*; superior Clover, 130*s.* to 140*s.*; inferior, 100*s.* to 112*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that there have been moderate supplies and a quiet trade at the following quotations:—Kent Regents, 80*s.* to 90*s.*; Essex Champions, 55*s.* to 60*s.*; Magnum Bonums, 80*s.* to 90*s.* per ton; German blues, 4*s.* the bag.—The imports into London last week were 1011 tons from Roscoff, 9731 bags from Hamburg, 1090 from Stettin, and 225 from Ostend.

COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 15*s.* 3*d.*; East Wylam, 16*s.* 6*d.*; Walls End—Easington, 16*s.*; Haswell, 18*s.* 6*d.*; Hetton, 18*s.* 6*d.*; Hetton Lyons, 16*s.*; Hawthorns, 16*s.* 3*d.*; Lambton, 18*s.*; Ryhope, 17*s.*; Wear 16*s.*; South Hetton, 18*s.* 6*d.*; Tees, 18*s.* 3*d.*; Tunstall, 16*s.*; Chilton Tees, 17*s.*; Harris Deep Navigation, 18*s.*; Radford Navigation, 17*s.* 6*d.*; Cambrian, 17*s.* 6*d.*

Government Stock.—On Monday Consols for delivery closed at 99¼ to 99⅜, and 99 5/16 to 99 7/16 for the account. Tuesday's quotations were, for delivery, 99⅜ to 99½, and 99½ to 99¾ for the account. Wednesday's closing record was 99⅜ to 99½ for delivery, and 99 3/16 to 99 5/16 for the account; and the same figures were quoted on Thursday.

THE

GENERAL HORTICULTURAL CO.

(JOHN WILLS), Limited.

CENTRAL OFFICES:

WARWICK HOUSE, 142 & 144, REGENT STREET, W.

The Company having made large purchases from the leading Bulb Gardens of HOLLAND and FRANCE, are now prepared to supply

HYACINTHS, TULIPS, NARCISSI, CROCUSES,

and all other BULBS for AUTUMN PLANTING, at low prices, and with a large discount to Shareholders. Non-shareholders will be treated with on the most liberal terms.

The Company also supplies all kinds of

NEW AND RARE PLANTS,

Ferns, Fine-foliaged and New Holland Plants, Standard and Dwarf Roses, and all kinds of Fruit and Forest Trees, Evergreens, &c.; Garden Seeds for Autumn Sowing, Farm Seeds, Hardy Plants for Winter and Spring Gardening, Plants for Forcing, &c.; Mushroom Spawn, and all kinds of Garden Implements and Requisites at the lowest prices.

FRUIT, BOUQUETS,

Festive and Memorial Wreaths,

FLORAL CROSSES, DRIED FLOWERS, &c.,

sent to all parts of the Country on receipt of Letter or Telegram.

The General Manager may be consulted as to the Re-arrangement of Gardens, Laying-out of Grounds, and General Landscape Work; also for the Erection of Conservatories, Greenhouses, Forcing-houses, &c., and will attend at any part of the Country for the purpose.

Catalogues on application.

EARLY ORDERS ARE RESPECTFULLY SOLICITED.

JOHN WILLS, General Manager.

AJUGA REPTANS ATRO-PURPUREA, a valuable hardy dark-foliage Bedding Plant for Winter and Summer use (see *Gardeners' Chronicle*, Sept. 17, p. 371): 1*s.* 6*d.* per dozen, 8*s.* per 100

VIOLET BELLE DE CHATENAY, extra strong clumps, from open ground, 4*s.* per dozen.

Choice SHOW and FANCY PANSIES, BEDDING PANSIES, and VIOLAS, strong plants for Autum Planting, at low prices.

J. J. MARRIOTT, Walsall, Staffordshire.

The Golden Fritillary.

FRITILLARIA MOGGRIDGII.—Large, deep golden-yellow flowers, netted with crimson; perfectly Hardy. Easy of Culture in common borders. 1*s.* 6*d.* each, 15*s.* per dozen.

FRITILLARIA BURNATI.—Similar in size and form, equally Hardy and easy to cultivate. Flowers deep brownish-purple, netted with darker veins. 1*s.* each, 10*s.* 6*d.* per dozen.

Strong roots of both the above scarce and handsome Perennials can now be supplied by

JAS. BACKHOUSE AND SON, York Nurseries.

DUTCH BULBS.

J. CHEAL & SONS,

CRAWLEY, SUSSEX,

Have now received their consignments of first-class Bulbs direct from the best Dutch growers.

Priced and Descriptive Catalogues free.

PRIMULA. CINERARIA. CALCEOLARIA.

Wm. Cutbush & Son's

Strain of these cannot be surpassed. They are sold in Packets, 2*s.* 6*d.*, 3*s.* 6*d.* and 5*s.* each; but quality is the same.

HIGHGATE, LONDON, N., and BARNET, HERTS.

TO THE TRADE.

CYCLAMEN PERSICUM, all colours

CYCLAMEN GRANDIFLORUM, newest sorts

CYCLAMEN GIGANTEUM, in variety

Unflower Seedling Splendid Quality large 60*s.* 50*s.* *p.* 100 *in* 48*s* 70*s.* *per* 100.

Sample Roots, post-free for 6 stamps.

JAMES CARTER & CO.,

237 and 238, HIGH HOLBORN, LONDON, W.C

ADOLPHE D'HAENE

NURSERYMAN, GHENT, BELGIUM,

Offers the following Plants:—

AZALEA MOLLIS, well butted plants, £5 and £6 per 100.
" " named sorts, well butted plants, £6 per 100.
" " extra strong, £8 per 100.
" PONTICA, plants covered with flower-buds, named sorts £5 per 100.
" INDICA, all the best varieties, well butted plants, per 100.
" " stronger plants and half specimens, £6 to £10 per 10
CAMELLIAS, in varieties, well butted, £5 and £6 per 100.
GLOXINIA CRASSIFOLIA ERECTA, large flowers, fi colours, 20*s.* per 100.
LILIUM LANCIFOLIUM ALBUM, 40*s.* per 100.
" " RUBRUM and ROSEUM, 20*s.* per 100.
DRACÆNA TERMINALIS ROSEA, well coloured plan 1½ to 2 feet high, 36*s.* per dozen.
" INDIVISA, 12*s.* to 36*s.* per dozen.
" LINEATA, 18*s.* to 48*s.* per dozen.
CASUARINA ERICOIDES, 12*s.* to 15*s.* per dozen.
ARALIA SIEBOLDII, 9*s.* to 12*s.* per dozen.
" " arg. var., 30*s.* to 40*s.* per dozen.
LATANIA BORBONICA, 1*s.* 6*d.* to 3*s.* each.
SEAFORTHIA ELEGANS, 1 to 1½ foot, 12*s.* per dozen.

FERNS.—Adiantum cuneatum, gracillimum, pubescens, a rubellum; Asplenium bulbiferum, Dicksonia antarctica, Do opteris palmata, Pteris argyrea, Lomaria gibba, Todea africa &c. Strong plants at 4*s.* per dozen, 30*s.* per 100.

CATALOGUES free on application.

TWELVE AZALEA INDICA, Newe Sorts, for 21*s.* All most beautiful plants, in 5-inch po large heads crowded with buds. These do best in a cold hou with no artificial heat, and make a grand show in early spr months. Packages gratis for Cash with order only.

A. MOLLIS and A. PONTICA at same price and sa size, full of Buds.

J. H. LEY, Royal Nursery, Croydon.

ON SALE, a splendid Specimen the LIVINGSTONIA BOURBONICA, 9 feet h and 9 feet in width. Capital opportunity for any one stock a large Stove-house. Apply to

BENJN. RADLEY, J.P., Congleton, Cheshire.

SPECIAL OFFE TO THE TRADE.

5000	ERICA HYEMALIS, 60-pots, per 100,	2 *s.*
8000	" WILMOREANA "	15*s.*
2000	" PERSPICUA ERECTA "	20*s.*
2000	" HYBRIDA "	18*s.*
2000	" GLOBOSA ALBA "	16*s.*

The above are all all fine healthy plants.

GREGORY AND EVANS, Effingham Nursery, Lee, S.E

CHOICE GREENHOUSE PLANTS.

These Plants are all beautiful specimens, established 5-inch pots, large, full, and bushy. Second to none in co merce in same size pots, crowded with buds for winter flower

		s.
12	CAMELLIAS, all best sorts, distinct	21
12	AZALEA INDICA " "	21
12	" PONTICA "	21
12	" MOLLIS	21
12	HEATHS, DIOSMAS, &c., mixed	21
12	GARDENIA INTERMEDIA	21
12	GESNERAS, two best sorts	21
12	DEUTZIAS, SPIRÆAS, DIELYTRAS, &c., for Forcing	10

One dozen Mixed, from all above, at same rate. Packa gratis for cash with order only. New autumn Catalogue free

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ORCHARD-HOUSE TREE IN POTS.

CATALOGUE of above post-free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts

VIOLETS, SWEET VIOLET

DOUBLE:—

*Blandyana, Belle de Chatenay, King of Violets, *Marie Louise, Neapolitan, Reine des Violets, *Patrie, *Princess Marie de Sav

SINGLE:—

*Neapolitan, Odoratissima, *The Czar, White Czar

*Victoria Regina.

Those marked * are now in full flower, and will continue s sheltered situations all the winter. They have been specia grown in strong clumps for Potting, Forcing, or forming Be Clumps, &c. Strong Clumps, 6*s.* per dozen, 40*s.* per 100; sm Plants of the fourteen varieties, free by post, 4*s.* 6*d.* in stam Trade price on application.

Fresh gathered flowers sent by post to any address, from upwards.

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NOTICE.

THE

GARDENERS' CHRONICLE

The Number for August 27, containing the Coloured Plate,

"GROUP OF ORCHIDS,"

IS NOW

OUT OF PRINT.

Only a few Plates are left, which will be forwarded, enclosed in Case, post-free for Sevenpence each.

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S. OWENS & CO.,

HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.

THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance without cost for labour or motive-power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

37 DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
63. PORTABLE IRRIGATORS, with Double or Treble Barrels for Horse or Steam Power.
46a. IMPROVED DOUBLE-ACTION PUMPS on BARROW for Watering [Gardens, &c.
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CAPE FLOWERS.—Finest White Flowers, per 1000 flowers, 12s. Stock, 5,000,000.
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FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.
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Admirers of the above should order at once
R. H. VERTEGANS' Set of 12 Distinct Varieties. The finest in cultivation. Names and Description on application. Price, the Set, £3 3s; Single Plant, 7s. 6d.; Seedlings 6s. per dozen. Seed, per packet, 3s. 6d. and 5s. Usual Discount to the Trade.
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GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d stamp.
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AZALEA INDICA, in good trade sorts, of all sizes; CAMELLIAS, PALMS, for table decoration; DRACÆNA GRACILIS, FICUS ELASTICA, all sizes; CITRUS SINENSIS, with fruits; ARAUCARIA EXCELSA and GLAUCA, CARNATION Souvenir de la Malmaison, SPIRÆA JAPONICA, Clumps of LILY of the VALLEY, a large stock of Pyramid and Standard BAYS, &c.

To the Trade.

FERNS—FERNS—FERNS.

	Per dozen. s.	d.	Per 100. s.	d.
PTERIS CRETICA..	2	6	.. 18	0
NEPHRODIUM MOLLE	3	0	.. 20	0
PTERIS HASTATA	3	0	.. 20	0
„ TREMULA	3	0	.. 20	0
„ CRETICA ALBA LINEATA ..	3	0	.. 20	0
LOMARIA GIBBA	3	0	.. 20	0
PTERIS SERRULATA CRISTATA ..	3	6	.. 25	0
„ LONGIFOLIA	3	6	.. 25	0
NEPHRODIUM MOLLE CORYMBIFERUM	3	6	.. 25	0
LYGODIUM SCANDENS	3	6	.. 25	0
DOODIA MEDIA	3	6	.. 25	0
GYMNOGRAMMA ARGYROPHYLLA PERUVIANA	3	6	.. 25	0
GYMNOGRAMMA MARTENSI ..	4	0	.. 28	0
ADIANTUM SETULOSUM	4	0	.. 28	0
PTERIS ARGYREA	4	6	.. 30	0

Many thousands of the above splendid stuff in 60's, fit to pot on. Special terms by the thousand. Orders over 20s. carriage paid to London.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

Ampelopsis striata (sempervirens).

EVERGREEN VIRGINIAN CREEPER. (See *Gardeners' Chronicle*, September 17, p. 370.)
Good plants, 1s. 6d. to 2s. 6d. each; extra strong, 3s. 6d. each. Cheaper by the dozen or 100.
A fine addition to the number of evergreen climbers, being of neat habit, free growth, adhering well to walls, and surviving our severest winters. Suitable in exposed situations for cool greenhouse or corridor.
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CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
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CYCLAMEN, 1s. 6d. per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

CABBAGE PLANTS, LETTUCE PLANTS, from selected seed stocks.—Fine autumn-sown Early Enfield Market, Early Rainham, Shilling's Queen, Sugarloaf, Nonpareil, Drumhead, Thousand-headed, Drumhead SAVOY, Green Curled SCOTCH KALE and ASPARAGUS KALE, 4d. per 100, 2s. 6d. per 1000. Bath Cos, White Cos and Immense Hardy Green LETTUCE, 6d. per 100, 4s. per 1000. BRUSSELS SPROUTS, CAULIFLOWER, Early and Late BROCCOLI, Red Pickling, &c. Send for LIST.
N.B. Plants guaranteed free from club. Well packed. Delivered on to rail.
EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

Dutch Bulbs direct from the Growers.

ANT. ROOZEN AND SON. HYACINTHS, TULIPS, CROCUS, GLADIOLI, &c., at Growers' Prices, delivered entirely free to the Railway Stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent, carriage paid, to destination. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents. Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.
Collections B, C, E, and F, can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10s. 6d. each, against cash payment.
ANT. ROOZEN AND SON, Nurserymen, Overveen, near Haarlem, Holland.

Gardenia Intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

F. W. AND H. STANSFIELD (Successors to Tom Stansfield, formerly of Todmorden) beg to announce that their new CATALOGUE of British and Hardy Exotic FERNS, for 1881—1882, is now ready, and will be sent post-free on receipt of 1d. stamp. This List contains more novelties and genuine rarities than any other trade list of British Ferns.
Nurseries, Sale, near Manchester; and Pontefract, Yorkshire.

An Over Stock

INDUCES the GIVING AWAY as under, for Cash:—
LIGUSTRUM OVALIFOLIUM, 3 to 4 feet, 30s. 1000.
MAHONIA AQUIFOLIA, 1 to 2 feet, 30s. per 1000.
STANDARD APPLES and PEARS, 60s. per 100.
WEBB'S COB NUTS, 21s. per 100.
CHARLES NOBLE, Bagshot.

To the Trade.

GREEN HOLLIES.—200,000 Transplanted Hollies, fine stuff, and splendid fibrous roots, stuff stuff, transplanted, 6 to 9, 9 to 12, 12 to 18, 18 to 24 inches, and upwards. Also strong 2-yr. SEEDLING HOLLIES. Prices very moderate for cash.
C. WHITEHOUSE, Brereton Nursery, Rugeley.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

3d. per bushel; 100 for 20s; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half too, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
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17A, Coal Yard, Drury Lane (late of Castle St., Long Acre) W.C.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c, £6 6s. per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4s; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
Fresh SPHAGNUM, 10s 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

LOAM and PEAT.—A few Trucks of fine Yellow, Fibrous Loam, carriage paid to Bricklayers' Arms Station, 15s 6d per ton. Also useful Brown Fibrous Peat, 22s 6d. paid to same station. Not less than 3 tons. Cash with order—E. WALLACE, Contractor, 1, Salisbury Street, Strand, W.C.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,
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COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3s. (truckload free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

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SOLUBLE FIR TREE OIL INSECTICID

Royal Botanical Gardens, Stretford, Manchester, October 22, 1879

DEAR SIR.—We have used your Fir-tree Oil, and find i most effectual destroyer of all kinds of pests to which plants subject. I have a very strong impression that it will be v extensively used, at any rate it ought to be.—I am, yours v truly, BRUCE FINDLAY
To Mr. E. G. HUGHES.

Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6 7s. 6d.; *Gallons*, 12s. 6d *each*.
Manufacturer, E. GRIFFITHS HUGHES, Operat Chemist, Victoria Street, Manchester.

GISHURST COMPOUND.—Used by ma of the leading Gardeners, since 1859, against Red-spi Mildew, Thrips, Greenfly, and other Blight, in solutions of f 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz a winter dressing for Vines and Fruit Trees. Has outli many preparations intended to supersede it. In Boxes, 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TRE CURED by rubbing a wet hard Painter's brush on hurst Compound, and working the lather into the infected pa

GISHURSTINE keeps feet dry, softens h boots, preserves leather, takes a polish. In boxes, and 1s. each.
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TRANSPLANTING TREES—A Patent, Expeditious, Economical, Labour-sa Powerful Implement, £2 2s., removes large trees in a minutes, with large section of earth and roots uninjured. Ex sent from *Gardeners' Chronicle*, March 5; *Chambers' Jou* May 2; *Field*, June 2; *Design and Work*, Aug. 20, 1881.—A Mr. J. CHARLTON, Landscape Gardener, Tunbridge W

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TILE PAVEMENTS, for Conservato Verandahs, Entrance Halls, &c. Enamelled and I rated Glazed Tiles, for Wall Linings, Fireplaces, &c.; Patent Indestructible Terra-cotta Plant Markers. Patterns Prices sent post-free on application.
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Their New Illustrated Catalogue, 12th Edition, now ready (price One Shilling).

Hot-water and Hot-air Apparatus erected complete, or the Materials supplied

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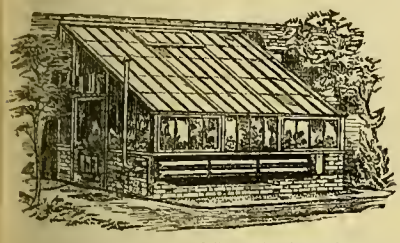

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Applied to Conservatories and Greenhouses.
With Illustrations, Prices, &c.
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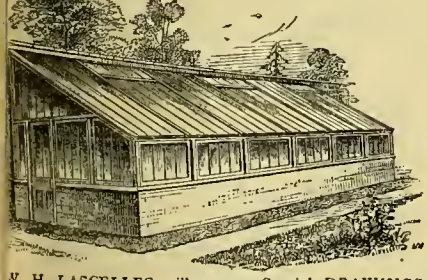

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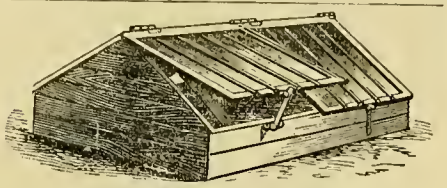

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R. HALLIDAY AND CO. desire to draw special attention to their Plant Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.
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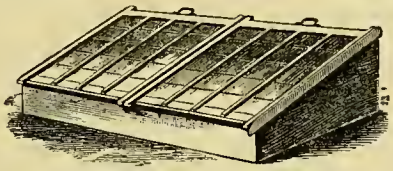

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CASH PRICES—Carriage Paid.

No. 2 size ..	8 ft. long	..	6 ft. wide	..	£3	7	6
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These Frames are 13 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. These Frames are made of the best hard red deal, shipped from the best districts for durable wood, all painted four coats of best oil colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales; also to Edinburgh and Dublin.
Estimates for Garden Frames, Pit Lights, Sashes, &c.
"The Frames you sent me give the greatest satisfaction."—W. SMITH, *Bentley Terrace, Melton Mowbray.*
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GLASSHOUSES & HEATING.
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PRICES FREE.
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The Best System of Heating is by Hot Water.
The Best Hot-Water Joint is Jones' Expansion Joint.

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THE BEST HOT-WATER JOINT.

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SIMPLE, DURABLE, NEAT, CHEAP. Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c.

Illustrated CATALOGUE; also Estimates for Heating with the most improved BOILERS, EXPANSION JOINT PIPES, or COILS, on application.

STOVES—STOVES.
Terra-Cotta! Portable! For Coal!
ROBERTS'S PATENT.
Healthy Heat twenty-four hours or longer for about 1d., without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,
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PIPES and FITTINGS,
FOR HEATING APPARATUSES.
The largest stock in the Kingdom. 4-inch pipes, 1s. 7d. per yard.
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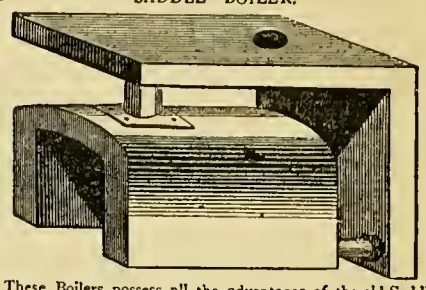
JONES'S PATENT "DOUBLE L"
SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

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High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1000	16	0	0
24 ,,	24 ,,	48 ,,	1400	20	0	0
28 ,,	28 ,,	60 ,,	1800	25	0	0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May 29, 1873.*
"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

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THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and" he further adds, "the use of it will, we have no doubt, become general." Prices 27s. and 30s.
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HORTICULTURAL WINDOW GLASS,
15-oz. and 21-oz., in Boxes containing 200 feet.
Carriage Paid to any Railway Station in England.
Price Lists on application.
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BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities of
BETHAM & SON,
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B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting up purposes, in 200-ft. and 300-ft. cases.

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PLATE, SHEET, CROWN GLASS.
SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz., 300 feet,	30s. 0d.,	if 21-oz., 200 feet,	30s. 0d.
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Seconds ..	,, 200 feet,	42s. 0d.	,, ,,	48s. 6d.
Best ..	,, ,,	51s. 0d.	,, ,,	61s. 0d.

Also 26-oz., 28-oz., and 32-oz. Glass.
SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½ × 5½	.. 8s. 6d.,	9s. 6d.,	10s. 6d.,	11s. 6d.
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11 × 9 to 14 × 10	.. 10s. 0d.,	11s. 6d.,	12s. 6d.,	13s. 6d.
15 × 10 to 18 × 12	.. 11s. 0d.,	12s. 0d.,	13s. 0d.,	14s. 0d.
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10 ,,	0 6 0			21 ,,	0 11 6		
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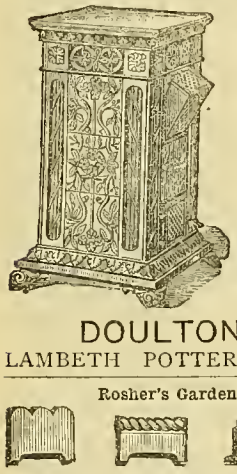

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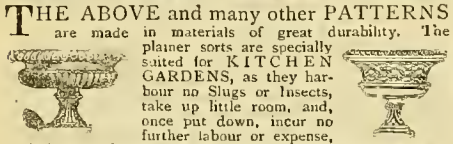

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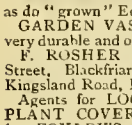

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KENT PEATS or LOAM supplied at lowest rates in any quantities.

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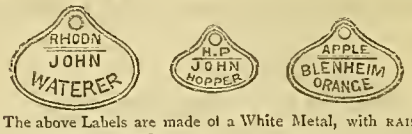

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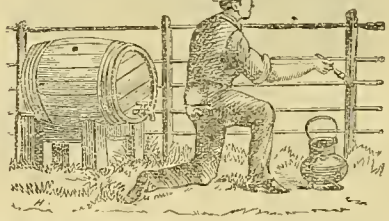

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That this variety must, when thoroughly known, become one of the most popular of Mark Fruits is a fact beyond conjecture, extensive orders having been already received from frui growing districts.

It was awarded a First-class Certificate at the Committee Meeting of the Royal Horticultur Society on the 16th of November last, and was again exhibited at the January Meeting, when t award of the previous meeting was confirmed.

The following is a description of the "Queen:"

Fruit large, measuring 11 to 12 inches in circumference; oblate, even, and regular in its outline, and sligh ribbed round the eye. Skin clear lemom-yellow, almost entirely covered with bright crimson, which is again mark with broken streaks and patches of dark crimson, with a lining of russet in the stalk cavity, and is highly perfum Flesh white, tender (almost melting), with a brisk vinous, but mild acidity.

As a dessert fruit it is most agreeable and refreshing, and when used for culinary purposes is soon reduced t tender, juicy, and aromatic pulp, requiring but little sugar. The core is small and very tender, and as the surface the fruit is even there is but little waste in paring.

It is in season from November to March, is an abundant bearer, and in habit of growth spreading and moderat vigorous. As a market fruit, both as regards its productiveness and appearance, it has no equal.

The following are a few Extracts from the Reports of the Committee Meetings publish in the Gardening Periodicals:—

From the "Garden," November 20, 1880.

"A First-class Certificate was awarded to Messrs. Saltmarsh & Son for a new Seedling Apple, named 'The Queen,' a large handsome fruit, of round and somewhat flattened shape, and highly coloured and striped. It was considered by the Committee to be a first-rate sort, with tender and juicy flesh, and a capital cooking Apple."

From the "Gardeners' Chronicle" of the same date.

"Messrs. Saltmarsh & Son, Chelmsford, exhibited a Seedling Apple named "The Queen," a large handsomely-coloured fruit, tender to the flesh, and considered a good cooking variety. It was awarded a First-class Certificate."

From the "Gardeners' Magazine," November 27, 188

"A First-class Certificate was awarded to Mes Saltmarsh & Son for Apple, 'The Queen,' a culin fruit of large size, roundish in form, and well mar with crimson on a greenish yellow ground. It i splendid quality, and likely to become popular amo both private and market growers."

And from the same Journal of January 11, 1881.

"This Apple, of which the stock is in the posses of Messrs. Saltmarsh & Son, of Chelmsford, is of la size, exceedingly handsome in appearance, and of sp did quality, both as a dessert and culinary fruit. It also the important quality of productiveness, and fair to acquire importance as a market fruit."

The following are Extracts from the Opinions of a few leading Pomologists, soms them being unsolicited:—

From R. Warner, Esq., *Broomfield,*

"I saw your new Apple, 'The Queen;' I thought it very fine and a desirable fruit to grow."

From Messrs. Bunyard & Co., *Maidstone.*

"You put a high price on it; but we have an equally high opinion of it from our knowledge of it before the Committee of the R.H.S."

From Dr. Hogg.

"A very handsome and excellent Apple."

From T. F. Rivers, Esq., *The Nurseries, Sawbr worth.*

"Your Apple is nice looking, and of good flav I should think it is a sort that will sell well in e market."

From Messrs. Francis & Arthur Dickson & S *Chester.*

"It is really a good looking fruit, and having h qualities as you describe, will be an acquisition."

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Messrs. Cutbush and Sons	Barnet, Herts.
Messrs. Carter and Co.	High Holborn, London, W.C.
Messrs. Jas. Dickson and Sons	Chester.
Mr. Jno. Fraser	Lea Bridge Road, Leyton.
Messrs. Ker and Sons	Grassendale, Liverpool.
Messrs. Laing and Co.	Forest Hill, S.E.
Messrs. Low and Co.	Clapham, S.W.
Messrs. Osborn and Sons	Fulham, S.W.
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Messrs. R. Smith and Co.	Worcester.
Messrs. Transon Freres	Orleans, France.
Messrs. Jas. Vietch and Sons	Chelsea, S.W.
Messrs. H. Lane and Sons	Berkhampstead, Herts.

The price for Maiden Trees, which will be ready for distribution in November, is 10s. d. each, with the usual discount to the Trade.

A beautifully coloured chromo-lithographic portrait of the fruit, and which has been ack wledged as a fair and unexaggerated representation, will be sent, free by post, on receipt of s en stamps.

Editorial Communications should be addressed to "The Editors;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, Printed by William Richards, at the Office of Messrs. Bradbury, Agnew & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, October 1, 1881.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

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IPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

RCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Now Ready, in cloth, 16s.,
HE GARDENERS' CHRONICLE,
Volume XV., JANUARY to JUNE, 1881.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

HE GARDENERS' CHRONICLE IN AMERICA.
he Subscription to America, including Postage, is $6.35 for elve Months.
gent for America:—C. H. MAROT, 814, Chestnut Street, iladelphia, U.S.A., to whom American Orders may be sent.

OYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE!—COMMITTEES' MEETINGS, Fruit and al, at 11, A.M., on TUESDAY next, October 11. Prizes red by Messes. Hooper & Co., Covent Garden, to be comed for only by Amateurs or Gentlemen's Gardeners:—he Pearl Tuberose, three plants in bloom, 21s., 10s. 6d. otatos—Hooper's Round White, Covent Garden Perfection, de of America, Beauty of Kent, nine tubers of each, 42s., 21s. Admission 1s.

URHAM, NORTHUMBERLAND and NEWCASTLE-UPON-TYNE INCORPORATED OTANICAL and HORTICULTURAL SOCIETY.
The SPRING SHOW will be held in the Town Hall and rn Exchange, Newcastle-upon-Tyne, on WEDNESDAY l THURSDAY, April 5 and 6, 1882.
JAS. J. GILLESPIE, Secretary.
Cross House Chambers, Newcastle-upon-Tyne.

OVELL.—If WILLIAM LOVELL, who was Gardener at Oak Hall, Wanstead, will communicate h Messrs. BLAKE AND SNOW, Solicitors, of 22, College ll, Cannon Street, London, E.C., they will be glad, as they h to see him.

DINKS.—The finest Exhibition Sorts; 15,000 Plants. The Trade supplied.
WM. PAUL AND SON, Florists, Paisley, N.B.

Special Offer, to Clear the Ground.
AUSTRIAN PINE, 6 to 7 feet, transplanted last year; CUPRESSUS LAWSONIANA, 10 feet; and a few other Choice EVERGREENS, 5 to 8 t. Cheap offer on application.
W. B. ROWE AND CO. (Limited), Barbourne Nurseries, orcester.

To the Seed Trade.
MORRY, SOPER, FOWLER AND CO. (Limited) beg to call special attention to their Season's sortment of DRIED FLOWERS and GRASSES, of excellent quality, made up in Bouquets, Wreaths, Crosses, &c., and table for the autumn and winter trade. Price Lists on plication to 18, Finsbury Street, E.C.

EARLY WHITE ROMAN HYACINTHS, the best and earliest white flower for forcing. A very fine sample. Price to the Trade on application.
CARTERS', 237 and 238, High Holborn, London, W.C.

English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

Tea Roses.
TEA ROSES, on the Seedling Brier. Splendid plants of all the leading sorts, 15s., 18s. and 24s. per dozen, 18 H.P. and 6 Tea Roses package free for £1 1s. Trade supplied.
JOHN MATTOCK, New Headington Nursery, Oxford.

To the Trade.—Dwarf Roses.
GEO. COOLING AND SON have a large stock to offer, extra fine Plants, and all leading varieties; also TEA-SCENTED, in pots. Prices on application.
The Nurseries, Bath.

ROSES.—The best that can be procured, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

TEA ROSES, on own Roots.—Extra fine and strong for forcing, now in 7-inch pots.
W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester.

Cineraria and Calceolaria Plants.
THOMAS BUNYARD begs to offer his unsurpassed strain, post-free, 8s. per 100, 1s. 4d. per dozen.
THOMAS BUNYARD, Florist, &c., Ashford, Kent.

STRAWBERRIES.—Strong roots for fruiting next year. 4s. per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

To the Trade.—Strawberries.
H. CANNELL AND SONS offer all the best Market kinds in any quantity, during October, at a low price. Good plants, and all warranted true to name. Special prices for large quantities.
Swanley, Kent.

Special Notice to the Trade.—New Raspberry,
BAUMFORTH'S SEEDLING.—All Firms ordering a supply of this New Raspberry before October 11 will be included in the List of Names to be published in the *Gardeners' Chronicle* of October 15.
EDMUND PHILIP DIXON, Hull.

Raspberry Canes.
MR. BATH is now booking orders for his noted FASTOLF, for delivery during October and November. 4s. per 100, packing included.
Crayford, Kent.

TREE FERNS.—Two Noble Specimens for SALE or EXCHANGE. Apply to
CHARLES C. PAINE, Cedar House, Stamford Hill, N.

FLORAL COMMISSON AGENCY.—Nurserymen and Gentlemen having a surplus quantity of choice FLOWERS and FRUIT, are requested to communicate with W. CALE, Commission Agent, 4, Tavistock Row, W.C.

WANTED, IMMEDIATELY, CUTTINGS of CALCEOLARIA AUREA FLORIBUNDA, in large or small quantities. Send sample and price to
J. MALLER, Brunswick Nursery, Tottenham, N.

WANTED, 5000 MANETTI STOCKS. Lowest cash price and sample to
CLARK BROS. AND CO., Nurserymen, Carlisle.

WANTED, MANETTI STOCKS. State price per 1000, to
RAWLINGS BROS., Romford, Essex.

WANTED, extra stout, clean-grown, SPANISH CHESTNUT, about 6 feet high. Suitable for planting in tree guards. Send samples and price to
WM. ELPHINSTONE, The Gardens, Shipley Hall, near Derby.

WANTED, Consignments of STEPHANOTIS, EUCHARIS, and other CHOICE FLOWERS; also MELONS, PEACHES, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, PANCRATIUMS of sorts, strong.
GOOSEBERRY BUSHES, large Lancashire.
Extra large plants. Varieties, size, and lowest price, to
AUSTIN AND McASLAN, 16, Buchanan Street, Glasgow.

WANTED, Standard PLUM TREES.
500 BUSH PLUMS.
500 CZAR.
500 POND'S SEEDLING.
Quote Prices to
H. GIBBON, Fruit Salesman, Borough Market, London, S.E.

Queen Pines.
WANTED TO PURCHASE, good FRUIT of above, at best Prices.
WISE AND RIDES, Fruit and Flower Salesmen Covent Garden, W.C.

New Crimson-flowered Eucalyptus, EUCALYPTUS FICIFOLIA.
MR. WILLIAM BULL can now supply Seed for the first time of this beautiful Eucalyptus. It is not a large growing species like most others of the family, but is of quick growth, and plants of it are soon covered with its magnificent trusses of crimson-coloured flowers; its leaves give an essential oil, which has proved a valuable febrifuge. Price 5s. per packet.
Establishment for New and Rare Plants,
536, King's Road, Chelsea, London, S.W.

NARCISS.—30,000 Double White (odoratus albo-plena); 20,000 Pheasant-eyed (Poeticus). Special low prices on application to
WATKINS AND SIMPSON, Seed and Bulb Merchants, 1, Savoy Hill, Strand, W.C.

CENTAUREA CANDIDISSIMA, in 2½-inch pots, 16s. per 100: shaken out, 12s. per 100. EUONYMUS ELEGANTISSIMUS, 1-yr., 8s. per 100.
W. F. BOFF, 203, Upper Street, Islington, N.

Dutch Bulbs.
To SUPPLY the TRADE.
SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
☞ Please observe Name and Address.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application.
Lion Walk, Colchester.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

LAPAGERIA ALBA, the finest and largest stock in Europe, strong hardy plants, which have been wintered in cold frames, from 15s. to £15 15s.
LAPAGERIA ROSEA, good specimen plants, from 21s. to £10 10s. each. The Trade liberally treated, for cash.
W. HOWARD, Southgate, N.

RICHARD ILLMAN can supply Gold, Silver and Green EUONYMUS, 2 to 3-yr. old, 8 to 14 inches high, very bushy, 70s. per 1000, for cash.
The Nurseries, Strood, Rochester.

GOLDEN EUONYMUS.—Good plants, from 9 to 15 inches high. For lowest Casb price per dozen, 100, or 1000, please apply to
DAVID SCOTT, Chichester.

CHESTNUTS.—New sweet Spanish Suitable for sowing. For sale cheap.
Apply to R., 11, St. Helen's Place, London, E.C.

Fine Shrubs for Potting, &c.
THUYA AUREA, THUYA ELEGANTISSIMA, THUVA SEMPERAURESCENS, RETINOSPORAS, &c., fine bushy stuff, 15 to 20 inches high, 40s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

AMPELOPSIS SEMPERVIRENS, or new Evergreen Creeper, young Plants, 1s. each, 10s. per dozen, post-free.
W. AND J. BROWN, Stamford.

GREEN HOLLY, 2-yr. Seedlings, 5s. 6d. per 1000, or £5 per 20,000, nett cash.
RICHARD MASON, Nurseryman, Windlesham, near Bagshot, Surrey.

ISAAC DAVIES' SELECT LIST of Sweet-scented and other RHODODENDRONS and AZALEAS (including R. Daviesii and R. floribundum, which have received several Certificates, and are now being sent out for the first time) is now ready, and will be forwarded to any address on application.—Brook Lane Nursery, Ormskirk.

Large Stock of Christmas Roses.
JULES DE COCK, NURSERYMAN, Ghent, Belgium. Prices on application.

To the Trade.
HAW and SLOE BERRIES, also ACORNS, by the cwt. Apply to
THOS. BEAUCHAMP, Woodfalls Cross, Downton, Salisbury.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

SALES BY AUCTION.

Monday Next.
UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, and every following Monday, extensive consignments of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, lotted to suit the Trade and private buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

The Nursery, Acton Vale, Acton, W.
By order of the Executors of the late Mrs. J. Hopgood.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, without reserve, on the Premises, as above, on TUESDAY and WEDNESDAY NEXT, October 11 and 12, at 12 o'Clock precisely each day, the whole of the valuable NURSERY STOCK, including a choice assortment of Evergreen and Coniferæ Shrubs, 7000 Poplars, Limes, Chestnuts, and other Ornamental Trees, 2000 Fruit Trees, 1000 Gooseberries and Currants, 5000 green and variegated Euonymus, 2000 Privet, 2000 Aucubas, 1000 Ivies in pots; also the erections of Three GREENHOUSES, PITS, and FRAMES, HOT-WATER PIPING, BRICKWORK, BOILERS, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Lea Bridge Road, Leyton.
THIRTEENTH ANNUAL TRADE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Leyton, near Hoe Street Station, on THURSDAY, October 13, at 10 for 11 o'Clock precisely, on account of the large number of lots, 20,000 Winter Blooming HEATHS, remarkably well grown, and including about 8000 Erica hyemalis, 2500 gracilis, 700 Wilmoreana, large quantities of Regerminans, grandiosa, persoluta alba, caffra, and others; 1000 EPACRIS, of the choicest kinds; 1000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS; SOLANUMS in berry; an assortment of STOVE and GREENHOUSE PLANTS, fine plants of LAPAGERIA ALBA and ROSEA, 1000 AZALEAS full of bloom-buds, 400 early flowering and other CHRYSANTHEMUMS, 300 AMPELOPSIS VEITCHII, 200 Maréchal Niel and other ROSES, 7 to 10 feet; VINES, 100 young plants of the new and beautiful double white BOUVARDIA, 800 pots of the pretty white-tipped LYCOPODIUM, and a quantity of small HEATHS for growing on.

May be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

N.B. The plants offered on this occasion are, without doubt, the best lot of this description ever submitted to public competition.

Friday Next.
PLANTS from BELGIUM, DUTCH BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, at half-past 11 o'Clock precisely, a consignment of CAMELLIAS, AZALEAS, FICUS, DRACÆNAS, AZALEA MOLLIS, and other PLANTS from Ghent; Choice Greenhouse FERNS, TROPÆOLUM POLYPHYLLUM, CROTONS, and a few ORCHIDS, together with about 400 lots of First-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other Roots from Holland.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Lee, Kent, S.E.
CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Tuffin to SELL by AUCTION, on the Premises, The Lee Park Nursery, Turner Road, Lee, S.E., on TUESDAY, October 18, at 12 o'Clock precisely, the whole of the NURSERY STOCK, including a large quantity of Evergreen and Deciduous Shrubs, Fruit Trees, &c., the whole of the Stove and Greenhouse Plants, Ferns, 1500 Camellias and Azaleas (mostly white), and other Miscellaneous Stock.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Canterbury.
UNRESERVED CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Kinmont & Kidd to SELL by AUCTION, on the Premises, The Vauxhall Nursery, Sturry Road, Canterbury, on TUESDAY and WEDNESDAY, October 25 and 26, several acres of well-grown NURSERY STOCK.

Further particulars will appear. Catalogues of the Auctioneers, 8, New Broad Street, London, E.C., and Leytonstone, E.

Wandsworth Common, S.W.
IMPORTANT THREE DAYS' CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nurseries, Wandsworth Common, on TUESDAY, November 1, and two following days, several acres of valuable NURSERY STOCK, by order of Messrs. R. & G. Neale, the land being immediately required for Building Operations.

Catalogues, when ready, at 8, New Broad Street, E.C.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.

On view the mornings of Sale, and Catalogues had.

Thursday Next.
IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 13, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co., 191, Park Road, Clapham, S.W., CATTLEYA AUREA, C. GIGAS variety, C. TRIANÆ species, Ibague variety, ODONTOGLOSSUM PESCATOREI, O. PHALÆNOPSIS, O. CORONARIUM, O. CRISPUM, CATTLEYA MOSSIÆ, ONCIDIUM WELTONI (true), O. KRAMERIANUM, and others, all in the best possible condition.

May be viewed the morning of Sale, and Catalogues had.

Mid-Surrey Nurseries.
Adjoining the Railway Station, Sutton, Surrey.
CLEARANCE SALE of VALUABLE NURSERY STOCK.
Expiration of Lease, the Land being Let for Building Purposes.

MR. MORGAN is favoured with instructions by Mr. H. Potter to SELL by AUCTION, on October 13, at 12 for 1 o'Clock, a valuable collection of NURSERY STOCK, comprising Fruit and Forest Trees, Coniferæ, Laurels, Evergreens, Flowering Shrubs, &c., Vines in Pots, Roses, (Tea and Hybrid Perpetual), Stove and Greenhouse Plants, specimen Azaleas and Camellias, and a general assortment of Plants, &c.

Catalogues may be had of the Auctioneer, at his Offices, and at the Nursery, close to the Railway Station, Sutton.

At the Botanic Gardens, Hillhead, Glasgow, on WEDNESDAY, October 19, at 12 o'Clock, a PUBLIC SALE of 4 GREENHOUSES, 64 feet by 17 feet, 66 feet by 16 feet, 55 feet by 17 feet, and 51 feet by 15 feet; 4 Large CONSERVATORIES, PLANT PITS, FRAMES, BOILER, HOT-WATER PIPES, 3 WOODEN ERECTIONS, 73 feet by 36 feet, and 30 feet by 24 feet; 64 PITCH PINE SEATS, 119 Painted SEATS, 16 dozen Cane-seated CHAIRS, BROKEN CHAIRS and SEATS, OLD WOOD, &c.: sold by instructions of the Trustees.

MESSRS. MORRISON, DICK, AND McCULLOCH will SELL by AUCTION as above, at the Botanic Gardens, Hillhead, Glasgow, on WEDNESDAY, October 19, at 12 o'Clock exact.

On view any time prior to Sale. Details in Catalogues to be had on application at our Office, 98, Sauchiehall Street, Glasgow, or forwarded post-free on request.

FOR SALE, by Private Bargain, an extensive NURSERY and FLORIST BUSINESS, at Sunnypark and Morningfield, near Aberdeen. In consequence of the death of Mr. James Cocker, senior partner of the firm of Messrs. James Cocker & Sons, Nurserymen, Seedsmen and Florists, it has been resolved to Dispose of the Nursery Business carried on by the late firm at Sunnypark and Morningfield. The Stock is healthy, and consists of a large and fine collection of Forest Trees, Ornamental Shrubs (Coniferæ), Roses, Greenhouse and Bedding Plants, &c. Morningfield Nursery is 40 acres in extent, and Sunnypark and Froghall cover 15 acres or thereby. Tramway Cars pass within five minutes' walk of each of the Nurseries.

Inventories and Valuations of the Stock may be seen in the hands of Messrs. HENDERSON AND CATTANACH, Advocates, 130, Union Street, Aberdeen, who will give further particulars to intending purchasers, and receive written offers for the Stock until October 15, 1881.—Aberdeen, Sept. 14, 1881.

To Florists and Seedsmen.

TO BE SOLD, the Goodwill and Interest in a BUSINESS, established upwards of twenty-five years, with Lease of Premises (district S.W.), consisting of newly erected Dwelling-house, standing in ground; Glass Erections, with Pits and well selected Stock. Situated with near and easy access to the West-end, and within 2½ miles of Covent Garden. Well suited for Furnishers.

For further particulars apply to J. MITCHELL, 63, Asylum Road, Old Kent Road, S.E.

Torrington St. Clements, near Lynn, Norfolk.
TO MARKET GARDENERS.

TO BE LET or SOLD, with Immediate Possession, a Small FARM of ARABLE and PASTURE LAND, containing about 70 acres, in very fair cultivation; well suited for a Market Gardener, as it is close to the Torrington Station. Good House and Premises. For particulars apply to D. WARD, Esq., Solicitor, King's Lynn, Norfolk.

TO BE LET, with entry at Martinmas, the SEED SHOP so long occupied by Mr. Alexander, Banff, who is retiring from business. No charge will be made for Goodwill, but the Stock and Fittings must be taken at Valuation. This is perhaps the oldest established Seed Business in Scotland, and offers an opening that but seldom occurs.

Full particulars may be obtained from Mr. ALEXANDER, or Messrs. COUTTS AND MORRISON, Solicitors, Banff.

The Gardeners' Royal Benevolent Institution.

NOTICE IS HEREBY GIVEN, that an Addition to the LIST of PENSIONERS of this Institution will be made in January next. All persons desirous of SECURING the PENSION are required to send in their Applications to the Secretary on or before SATURDAY, November 5 next, after which date none can be received.

Upon this occasion the Candidates will be selected from those who have been Subscribers to the Institution for fifteen years and upwards, and are duly qualified under Rule No. 6. No other applications will be entertained. By Order,

E. R. CUTLER, Secretary.

14, Tavistock Row, London, W.C., October 8, 1881.

NATIONAL SCHOOL of SCIENCE and ROYAL SCHOOL of MINES.

The following LECTURES will be given in the SCIENCE SCHOOL, at South Kensington:—

Biology.—Professor HUXLEY, F.R.S., will commence his Course of Lectures on MONDAY, October 10, at 10 A.M.

Chemistry.—Dr. FRANKLAND, F.R.S., will commence his Course of Lectures on MONDAY, October 10, at 12 noon.

Metallurgy.—Professor W. CHANDLER ROBERTS, F.R.S., will commence his Course of Lectures on MONDAY, October 10, at 10 A.M.

Physics.—Professor GUTHRIE, F.R.S., will commence his Course of Lectures on MONDAY, October 10, at 10 A.M.

The respective Laboratories were opened on the 3d inst., at 10 A.M.

The Prospectus and full particulars may be obtained on application to THE REGISTRAR of the Normal School of Science, South Kensington, S.W.

MR. SHAW, LANDSCAPE and GARDEN Architect, Shifnal, Salop, prepares DESIGNS for all classes of Horticultural Work.

To Gentlemen, Nurserymen, and Builders.

R. AND G. NEAL, having to give up a portion of their Nursery for building purposes, beg to inform the Trade, and others engaged in planting, that they have a large and varied Stock that they can offer at a great reduction in prices to effect a clearance. An early inspection invited.

The Nurseries, Wandsworth Common, S.W., one mile from Clapham Junction, on the high road from Wandsworth to Tooting, and a quarter of a mile from Wandsworth Common Station, London, Brighton, and South Coast Railway.

New Catalogue of

BEAUTIFUL FLORISTS' FLOWERS, f
Garden Decoration or Exhibition, should be planted
bought now for next year's bloom, all named, fine varieties (
common Seedlings).
DELPHINIUMS, PYRETHRUMS, and PÆONIES,
per dozen; 12 of each for 21s.
POTENTILLAS, 6s. per dozen.
Show or Fancy PANSIES, the finest sorts, PHLOX
PENTSTEMONS, ANTIRRHINUMS, 3s. 6d. per dozen;
of each (5 dozen) for 15s.
CATALOGUES, post-free; terms cash.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincha

New Catalogue of

HERBACEOUS PLANTS.—Selections
the finest sorts for Garden Decoration, cheap, all nam
poor weedy varieties not included. The present is the b
time to plant.

	Per dozen.	Per 50.	Per 100.
	s. d.	s. d.	s. d.
The Finest Sorts ..	6 0 ..	21 0 ..	35 0
Good Sorts	3 6 ..	13 0 ..	25 0
Rock Plants	3 6 ..	13 0 ..	25 0

Spring Flowering PERENNIALS (not Violas or Pansi
the brightest, the finest, the hardiest—colours White, Yell
Red, or Purple—including DAISIES, 5s. per 100, exclud
Daisies and the red colour, 8s. per 100.
BEDDING VIOLAS or PANSIES, fine named sorts (
Seedlings), in colour as desired, per dozen, 2s.; per 100,
10s., or 12s., according to variety. One of the finest collectio
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CATALOGUES free; terms cash.
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STOVE and GREENHOUSE PLANTS.
The cheapest in the Trade. All buyers invited to insp
the large fine stock of clean, healthy, low priced plants of th
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Finest Strains:—		From stores.	In 5-inch p
CINERARIAS ..	.. per doz.,	1s. 3d. good plants:	5s.
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CINTHS, CROCUS, TULIPS, and other BULBS
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selection, 3s. 6d. per 100; ours, 2s. 6d. per 100; 500, in sorts,
FRUIT and FOREST TREES, ROSES, RHODOD
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Native. Price and samples on application.
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Hyacinths, Tulips, &c.

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Seedsmen, and Florists, Haarlem, Holland.
Wholesale CATALOGUE (No. 353A) of Dutch Flower R
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FOR SALE, Maiden PEACHES, NECT
INES, PLUMS, and PEARS. For LIST of
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CRANSTON'S NURSERY AND SEED CO. (Lim
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TO BE SOLD, a Small and Choice Co
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TEA ROSES, on own roots, extra strong,
of 4½ in. pots, £2 per 100, for cash. Now ready,
thousands of Isabella Sprunt, Gloire de Dijon, &c.
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THREE THOUSAND TREE or P
PETUAL FLOWERING CARNATIONS.—
Joliffe, blush pink; La Belle, white; A. Alega
scarlet; Le Favori, carmine-pink; l'Hermine, white,
1s. 6d. and 2s. each, 15s. and 20s. per dozen; Souvenir
Malmaison, 2s. each, 21s. per dozen; fine healthy stuff,
pots, for early flowering. Full LIST on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

SPIRÆA PALMATA, the largest stoc
Forcing Plants in Europe.
SPIRÆA JAPONICA, fine forcing plants.
ANDROMEDA FLORIBUNDA, the finest blooming
I have ever seen.
RHODODENDRONS, covered with buds, for forcing
STANDARD RHODODENDRONS, of finest kinds
be selected from hundreds.
CHARLES NOBLE, Bagshot.

THE GENERAL HORTICULTURAL COMPANY

(JOHN WILLS), LIMITED,

NURSERIES at SOUTH KENSINGTON, FULHAM, and ANERLEY, S.E.;

CENTRAL OFFICES, WARWICK HOUSE, 142 and 144, REGENT STREET, LONDON, W.,

Have a large Stock of splendid Plants, in various sizes, to offer, as follows:—

CROTONS—All the Newest and Best, finely coloured, from 3*s.* 6*d.* upwards, according to size and variety.

DRACÆNAS—All the Newest and Best, including the celebrated and beautiful Anerley varieties, well furnished Plants, suitable for Table and other Decorative Purposes, from 5*s.* upwards, according to size and variety.

NEPENTHES—In variety, fine healthy plants, with one or more Pitchers, from 10*s.* 6*d.* upwards.

ADIANTUM LATHOMI—Strong plants of this splendid New Fern, 10*s.* 6*d.* each.

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ARDISIA CRENULATA—Fine plants, in fruit, 3*s.* 6*d.* and 5*s.*

TABLE PLANTS—In variety, handsome and choice assortment, from 42*s.* to 60*s.* per dozen, according to variety.

Also a fine Stock of all the leading **PALMS**, in all sizes, from 1*s.* 6*d.* each upwards.

Early Orders solicited, while the weather is favourable for transit.

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Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited. The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

CHOICE NAMED CARNATIONS and PICOTEES, strong plants, including all the finest varieties, 40*s.* per 100; TREE CARNATIONS, for winter flowering, good stuff, in 60-pots, 45*s.* per 100; BOUVARDIAS, FREELANDII and HOGARTH, good plants, 40*s.* per 100; CAMELLIAS, good bushes, well set, 2 to 2½ feet high, 24*s.* per dozen.

W. JACKSON, Blakedown, near Kidderminster.

New Seedling Apple "The Queen."

Awarded a First-class Certificate by the Committee of the Royal Horticultural Society.

SALTMARSH AND SON, The Nurseries, Chelmsford, are now Booking Orders for this splendid variety, which they feel confident must become the most popular apple for either Market or Exhibition purposes.

For description and Testimonials, see advertisement in this Journal on October 1, p. 452.

Maiden Plants ready in November, 10*s.* 6*d.* each, with the usual discount to the Trade.

A Supplementary List of Nurserymen ordering "The Queen," shortly be advertised.

A correctly and beautifully coloured Plate, by Severeyns, of Brussels, will be sent to any address on receipt of seven stamps.

N.B.—The Stock being limited, early orders are requested.

An Over Stock

INDUCES the GIVING AWAY as under, for Cash:—

LIGUSTRUM OVALIFOLIUM, 3 to 4 feet, 30*s.* 1000.
THUYA LOBBII, 2 to 3 feet, 25*s.* per 100.
STANDARD APPLES and PEARS, 60*s.* per 100.
COBBE'S COB NUTS, 21*s.* per 100.

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RHODODENDRONS—HYBRID SEEDLINGS, from the best crosses, to produce brilliant colours, fine bushes with flower-buds, 2 to 2½ feet high, 18*s.* per dozen; ditto, selected and numbered according to colour, well budded, 3 to 3½ feet high, at 30*s.* per dozen. SEEDLINGS, from scarlet, rose, and white varieties, each colour separate, good bushy plants, 12 to 15 inches high, at 30*s.* per 100.
RHODODENDRON CAUCASICUM ALBUM, fine healthy bushes, a portion with buds, 9*s.* per dozen.
AZALEA PONTICA, mostly with buds, 12 to 18 inches high, 5*s.* per dozen, 40*s.* per 100.
ANDROMEDA FLORIBUNDA, fine bushes, 12 to 18 inches high, 9*s.*, 12*s.* to 15*s.* per dozen.
DAPHNE MEZEREUM, red, flowering plants, 15 to 20 inches, 4*s.* per dozen, 25*s.* per 100.
LILIUM AURATUM, home-grown, flowering bulbs, 9*s.* per dozen, 70*s.* per 100.
DAPHNE INDICA RUBRA, fine green bushes, from 9 inches to 2 feet high, 12*s.*, 18*s.*, 24*s.* to 36*s.* per dozen.
Terms cash, or reference from unknown correspondents.
ISAAC DAVIES, Nurseryman, Ormskirk, Lancashire.

ROSES.—ROSES.—ROSES.

WM. PAUL & SON

Have to offer 500,000 ROSES, of all sorts and sizes, from 30*s.* per 100 to 42*s.* each. The largest and best stock in England.

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FRUIT TREES.

Several Acres of Standards, Pyramids, Dwarfs, Fan-trained and Horizontal-trained Trees; FILBERTS, GOOSEBERRIES and CURRANT BUSHES, by the thousand; GRAPE VINES, Fruiting and Planting Canes, RASPBERRIES, STRAWBERRIES, &c.

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Several Acres in the finest possible condition for removal, having been frequently transplanted, and having passed through the recent severe winter uninjured by frost.

Priced Descriptive CALALOGUE, free by post.

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The largest and finest stock in Europe; plants with flower-buds, from 2*s.* 6*d.* to 30 guineas each.

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HYACINTHS, TULIPS, AND OTHER BULBS,

Of the best quality, both for Greenhouse and Outdoor Culture.

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*** *Large Buyers of the above will be charged at special and reduced rates.*

IMPORTANT.—Please observe the Christian Name and Address—

WM. PAUL & SON,
WALTHAM CROSS, HERTS.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

CRANSTON'S NURSERY and SEED CO. (Limited),
KING'S ACRE, near HEREFORD.

J. CROUCHER, F.R.H.S. (from Royal Botanic Gardens, Kew), GENERAL HORTICULTURAL AGENT and ADVISER, The Excelsior Nurseries, 64 and 65, Brook Green, London, W., has just imported the finest lot of New CACTI yet introduced to this country. Inspection invited.

PHEASANT-EYED NARCISS.—Bulbs of this sweet-scented Narciss, 10*s.* per bushel, 6*s.* per half bushel, 3*s* 6*d.* per peck; also Double White Narciss, 5*s* per peck. Terms cash with order. Package free. Post-office Orders payable Walton-on-Thames.—J. E. ALDERSON, Bell Farm, Hersham, near Walton-on-Thames, Surrey.

Standard and Dwarf Roses.

THOMAS S. WARE'S Autumn CATALOGUE of the above, also Climbing, Noisette, Tea, Moss, and all the finest Single Roses, Standard Ornamental Trees, Miscellaneous Hardy Shrubs, a most complete List of Hardy Climbing Plants, including grand specimen Magnolias, 4 to 6 feet, is now ready. Post-free on application.

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FERNS from Devonshire, Cornwall, and Somerset, by an experienced collector of 25 years; correctly named and packed; with Instruction Book for making Rockery, planting Ferns, &c., with each 5*s.* order. 14 to 20 named varieties, 7*s.* per 100. Small (post), 30 for 2*s.* ASPLENIUM SEPTENTRIONALE and POLYSTICHUM LONCHITIS (Holly), 1*s.* each. 1000 varieties BRITISH and EXOTIC. CATALOGUE, 2*d.* Established 25 years.

E. GILL, Lodging-house Keeper, Lynton, North Devon.

STRAWBERRIES.

V. H. DE THURY, SIR JOSEPH PAXTON, PRESIDENT, } Strong plants, all well rooted, from small pots, specially prepared, 4*s.* per 100, 35*s.* per 1000—sure of a crop next year.

Also strong plants of the above, from open ground, 2*s.* 6*d.* per 100, 20*s.* per 1000. Package free. Extra plants for carriage. Cash from unknown correspondents.

H. J. HARDY, F.R.H.S., Stour Valley Seed Grounds, Bures, Suffolk.

To the Trade.

MILES' HYBRID SPIRAL MIGNONETTE.—New Seed of this splendid variety, saved from selected pot plants, now ready, and will be sent out this season in sealed 1*s.* retail packets only. Early orders solicited. Trade price on application.

MILES' NEW ZONAL PELARGONIUM, "West Brighton Gem," the best scarlet in cultivation, awarded First-class Certificate by the Royal Horticultural Society. 1000 good plants for Sale, cheap, before potting for winter. Address

W. MILES, West Brighton Nurseries, Cliftonville, or 30, Western Road, Brighton.

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To SUPPLY the TRADE.

SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, are now booking Orders for LILY of the VALLEY, very strong clumps; also SPIRÆA JAPONICA, DIELYTRA SPECTABILIS, &c.

Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.

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VIOLETS, SWEET VIOLETS.

DOUBLE:—

*Blandyana
Belle de Chatenay
King of Violets
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Neapolitan
Reine des Violets
*Patrie
*Princess Marie de Savoy

SINGLE:—

*Neapolitan
Odoratissima
*The Czar
White Czar
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Those marked * are now in full flower, and will continue so in sheltered situations all the winter. They have been specially grown in strong clumps for Potting, Forcing, or forming Beds, Clumps, &c. Strong Clumps, 6s. per dozen, 40s. per 100; small Plants of the fourteen varieties, free by post, 4s. 6d. in stamps. Trade price on application.

Fresh gathered flowers sent by post to any address, from 1s. upwards.

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CHOICE GREENHOUSE PLANTS.—These Plants are all beautiful specimens, established in 5-inch pots, large, full, and bushy. Second to none in commerce in same size pots, crowded with buds for winter flower.

	s.	d.
12 CAMELLIAS, all best sorts, distinct	21	0
12 AZALEA INDICA ,, ,, ...	21	0
12 ,, PONTICA ,, ...	21	0
12 ,, MOLLIS	21	0
12 HEATHS, DIOSMAS, &c., mixed	21	0
12 GARDENIA INTERMEDIA	21	0
12 GESNERAS, two best sorts	21	0
12 DEUTZIAS, SPIRÆAS, DIELYTRAS, &c., for Forcing	10	6

One dozen Mixed, from all above, at same rate. Packages gratis for cash with order only. New autumn Catalogue free.

J. H. LEY, Royal Nursery, Croydon.

SPECIAL OFFER TO THE TRADE.

5000 ERICA HYEMALIS, 60-pots, per 100, 2 s.
8000 ,, WILMOREANA ,, 15s.
2000 ,, PERSPICUA ERECTA ,, 20s.
2000 ,, HYBRIDA ,, 18s.
2000 ,, GLOBOSA ALBA ,, 16s.

The above are all all fine healthy plants.

GREGORY AND EVANS, Effingham Nursery, Lee, S.E.

Dutch Bulbs direct from the Growers.

ANT. ROOZEN AND SON. HYACINTHS, TULIPS, CROCUS, GLADIOLI, &c., at Growers' Prices, delivered entirely free to the Railway Stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent, carriage paid, to destination. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents. Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.

Collections B, C, E, and F. can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10s. 6d. each, against cash payment.

ANT. ROOZEN AND SON, Nurserymen, Overveen, near Haarlem, Holland.

CABBAGE PLANTS, LETTUCE PLANTS, from selected seed stocks.—Fine autumn-sown Early Enfield Market, Early Rainham, Shilling's Queen, Sugarloaf, Nonpareil, Drumhead, Thousand-headed, Drumhead SAVOY, Green Curled SCOTCH KALE and ASPARAGUS KALE, 4d. per 100, 2s. 6d. per 1000. Bath Cos, White Cos and Immense Hardy Green LETTUCE, 6d. per 100, 4s. per 1000. BRUSSELS SPROUTS, CAULIFLOWER, Early and Late BROCCOLI, Red Pickling, &c. Send for LIST.

N.B. Plants guaranteed free from club. Well packed. Delivered on to rail.

EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

CALCEOLARIAS, CYCLAMEN and CINERARIAS, from choicest strains.

CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS, 1s. 4d. per dozen, 8s. per 100.
CYCLAMEN, 1s. 6d. per dozen. All post-free.

JAMES KIRK, Wollaston Nurseries, Stourbridge.

Ampelopsis striata (sempervirens).

EVERGREEN VIRGINIAN CREEPER. (See *Gardeners' Chronicle*, September 17, p. 370.)

Good plants, 1s. 6d. to 2s. 6d. each; extra strong, 3s. 6d. each. Cheaper by the dozen or 100.

A fine addition to the number of evergreen climbers, being of neat habit, free growth, adhering well to walls, and surviving our severest winters. Suitable in exposed situations for cool greenhouse or corridor.

JAMES BACKHOUSE AND SON, Nurseries, York.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d. stamp.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Autumn Planting.

FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.

THE LAWSON SEED and NURSERY CO. (Limited). 1, George IV. Bridge, Edinburgh; 106, Southwark Street, London.

STIPA PENNATA (Feather-grass), finest quality, per cwt., 110s. Stock, 20 tons.

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CAPE FLOWERS.—Finest White Flowers, per 1000 flowers, 12s. Stock, 5,000,000.

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LILIES OF THE VALLEY.—First-rate Single Crowns, for forcing, per 1000 crowns, 36s. Stock 2,000,000.

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CAPE FLOWER WREATHS and CROSSES, in Boxes. GRASS BOUQUETS. Trade Price List on application.

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TO THE TRADE.

CYCLAMEN PERSICUM, all colours .. ..
CYCLAMEN GRANDIFLORUM, newest sorts .. ..
CYCLAMEN GIGANTEUM, in variety .. ..

Unflowered Seedlings, Splendid Quality, large 60's 50s. *p.* 100, *in* 48's 70s. *per* 100.

Sample Roots, post-free for 6 stamps.

JAMES CARTER & CO.,
237 and 238, HIGH HOLBORN, LONDON, W.C.

NOTICE TO INTENDING PLANTERS.

On account of the expiration, next March, of the Lease of a portion of

"THE FULHAM NURSERIES,"

OSBORN & SONS

are prepared to offer, at exceptionally Low Prices (as the ground must be cleared), a quantity of

Ornamental Evergreen and Deciduous Trees and Shrubs;

Also some large Specimen Plants of

RHODODENDRONS and HARDY AMERICAN AZALEAS.

THE FULHAM NURSERIES, LONDON, S.W.

STRONG HEALTHY PLANTS.

	Per doz. s.	d.	Per 100. s.	d.
PRIMULAS, finest strain, fringed	1	0	7	6
AQUILEGIA albo-cœrulea	0	9	5	0
POTENTILLA atrosanguinea	0	9	5	0
CANTERBURY BELLS, fine mixed ..	0	9	5	0
MIMULUS, large flowered, splendidly marked	0	9	5	0
CAMPANULA pyramidalis	0	9	5	0
SWEET WILLIAMS, finest strain	0	9	5	0

Post-free, or extra plants for carriage.

H. J. HARDY, F.R.H.S.,
Stour Valley Seed Grounds, Bures, Suffolk.

ADOLPHE D'HAENE,

NURSERYMAN, GHENT, BELGIUM,

Offers the following Plants:—

AZALEA MOLLIS, well butted plants, £5 and £6 per 100.
,, ,, named sorts, well butted plants, £6 per 100.
,, ,, extra strong, £8 per 100.
,, PONTICA, plants covered with flower-buds, named sorts, £5 per 100.
,, INDICA, all the best varieties, well butted plants, £5 per 100.
,, ,, stronger plants and half specimens, £6 to £10 per 100.
CAMELLIAS, in varieties, well butted, £5 and £6 per 100.
GLOXINIA CRASSIFOLIA ERECTA, large flowers, fine colours, 20s. per 100.
LILIUM LANCIFOLIUM ALBUM, 40s. per 100.
,, ,, RUBRUM and ROSEUM, 20s. per 100.
DRACÆNA TERMINALIS ROSEA, well coloured plants, 1½ to 2 feet high, 36s. per dozen.
,, INDIVISA, 12s. to 36s. per dozen.
,, LINEATA, 18s. to 48s. per dozen.
CASUARINA ERICOIDES, 12s. to 15s. per dozen.
ARALIA SIEBOLDII, 9s. to 12s. per dozen.
,, ,, arg. var., 30s. to 40s. per dozen.
LATANIA BORBONICA, 1s. 6d. to 3s. each.
SEAFORTHIA ELEGANS, 1 to 1½ foot, 12s. per dozen.

FERNS.—Adiantum cuneatum, gracillimum, pubescens, and rubellum; Asplenium bulbiferum, Dicksonia antarctica, Doryopteris palmata, Pteris argyrea, Lomaria gibba, Todea africana, &c. Strong plants at 4s. per dozen, 30s. per 100.

CATALOGUES free on application.

PRIMULA. CINERARIA. CALCEOLARIA.

Wm. Cutbush & Son's

Strain of these cannot be surpassed. They are sold in Packets, 2s. 6d., 3s. 6d. and 5s. each; but quality is the same.

HIGHGATE, LONDON, N., and BARNET, HERTS.

DUTCH BULBS.

J. CHEAL & SONS,

CRAWLEY, SUSSEX,

Have now received their consignments of first-class Bulbs direct from the best Dutch growers.

Priced and Descriptive Catalogues free.

For Autumn Planting.—Now Ready.

GEE'S superior Bedfordshire-grown CABBAGE and OTHER PLANTS; ASPARAGUS, SEAKALE and RHUBARB ROOTS; 1, 2 and 3-yr. old QUICKS; WALLFLOWERS, DAISIES, and many other Spring-flowering Plants, &c. Cheap and good.

FREDK. GEE begs to inform his many Friends and Patrons that he is again prepared to supply the above in any quantity, and which for quality and price cannot be surpassed. Large Buyers liberally treated with. LIST for present season, also General CATALOGUE, &c., on application to

FREDK. GEE, Seed and Plant Grower, &c., Biggleswade, Bedfordshire.

ORCHARD-HOUSE TREES IN POTS.

CATALOGUE of above post-free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

TWELVE AZALEA INDICA, Newest Sorts, for 21s. All most beautiful plants, in 5-inch pots large heads crowded with buds. These do best in a cold frame with no artificial heat, and make a grand show in early spring months. Packages gratis for Cash with order only.

A. MOLLIS and A. PONTICA at same price and same size, full of Buds.

J. H. LEY, Royal Nursery, Croydon.

To the Trade.

GREEN HOLLIES.—200,000 Transplanted Hollies, fine stuff, and splendid fibrous roots, stiff stuff transplanted, 6 to 9, 9 to 12, 12 to 18, 18 to 24 inches, and upwards. Also strong 2-yr. SEEDLING HOLLIES. Prices very moderate for cash.

C. WHITEHOUSE, Brereton Nursery, Rugeley.

FIVE THOUSAND CYCLAMEN PERSICUM—all from the very best Covent Garden strains, dwarf, free bloomers, fine flowers, varied colour. Fine plants, to flower this autumn, in 54's and 48's, 7s. 6d. a 100, per dozen; 55s. and 75s. per 100. Exceptionally fine plants in 48's, now showing bloom, which will average over fifty flowers each, 25s. per dozen.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine busby plants, with plenty of bloom-buds on them, 1, 1½, 2 and 3 guineas each.

Royal Nurseries, Ascot, Berks.

To the Trade.

FERNS—FERNS—FERNS

	Per dozen. s.	d.	Per 1 s.
PTERIS CRETICA..	2	6	18
NEPHRODIUM MOLLE	3	0	20
PTERIS HASTATA	3	0	20
,, TREMULA	3	0	20
,, CRETICA ALBA LINEATA ..	3	0	20
LOMARIA GIBBA	3	0	20
PTERIS SERRULATA CRISTATA ..	3	6	25
,, LONGIFOLIA	3	6	25
NEPHRODIUM MOLLE CORYMBIFERUM	3	6	25
LYGODIUM SCANDENS	3	6	25
DOODIA MEDIA	3	6	25
GYMNOGRAMMA ARGYROPHYLLA PERUVIANA	3	6	25
GYMNOGRAMMA MARTENSI ..	4	0	28
ADIANTUM SETULOSUM	4	0	28
PTERIS ARGYREA	4	6	30

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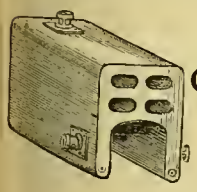

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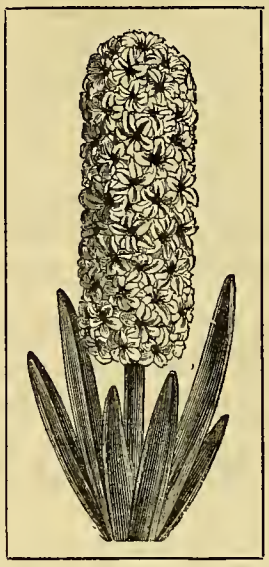

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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 8, 1881.

HORÆ HORTULANÆ.

On Soils.

(*Continued from p. 396.*)

Reverting to the chemical changes in the soil, adverted to at the close of my last article, I may say that in the first place, if I have at all carried my readers with me thus far, they will be prepared to admit that when we venture on questions connected with the chemistry of the soil, we have to deal not only—indeed, not so much—with the mere presence of this or that chemical substance, as with the existence and prevalence of chemical activities. As I said before, the elements which the plant builds up into its tissues are not quietly stored up in the earth like drugs in a chemist's shop, and the plant does not simply pick out the particles it needs from their quiet resting-places just as the druggist takes from bottle and drawer the materials which he compounds into a healing draught. On the contrary, if there be any truth in what I have urged, the soil is crammed with hidden laboratories, and all the earth around and even far away from the recipient rootlets of the plants is, through the ceaseless action and reaction of the compounds which make it up, engaged in continual slow but potent molecular tumult. But if this be admitted, there follows as a deduction an important truth, not always, I imagine, borne in mind, that when we add any substance to the soil, what we have to consider is, not the mere addition to the composition of the ground, but the influence which the new substance will exert on the activities which were previously at work. The substances, it is true, which I mentioned a little while back as being the constituent elements of all living things must be present in the soil at the disposal of the plant; hence, when they are absent or scanty, they must be supplied. So far the rule of mere addition holds good; but when we attempt to pass beyond this simple instruction we are at once plunged into uncertainties. When chemistry was first applied to vegetable life the path seemed easy enough. Since plants differ in composition, the right way appeared to be to analyse each plant, and to add to the soil the elements which predominate in the plant, giving here potash, there phosphates, according as one or the other abounded in the ashes. But a little experience showed that this leading was fallacious. Just as the potash-gathering kelp thrives in salt-laden sea, so many a plant does best amid an abundance of substances of which it takes but a scant quantity into itself.

Nor is that guide much more trustworthy which bids us add to the ground the constituents predominant in the native soil in which the plant delights to grow—which tells us, for instance, to add lime or chalk to the bed or nook in which we wish to grow plants gathered from limestone rocks or calcareous hills, for in such native soils the nature and proportion of the elements present determine many other conditions besides mere chemical composition. Chalk, for instance, and limestone are, broadly speaking, both calcic carbonate; they are identical in the chemist's eye, and yet to the

tender touch of the living rootlet they are all the world unlike. The detritus which fills the crannies and corners of a limestone rock—and it is in such places that the so-called limestone flowers love to dwell—differs from the detritus which fills similar crannies in granitic rocks, not in chemical composition only, but in physical features as well; the bare surface of the one rock has a wholly different touch from that of the other, the difference being perceptible even to our gross sense, much more so to the exquisitely tender filaments of the young spreading roots; and these things influence the vegetation as much, or probably even more than the mere abundance or scantiness of this or that special chemical element. And every grower of alpines has been in turn disappointed and surprised at finding that often his favourites refused to grow in soil prepared in careful imitation of their native beds, but flourished grandly in quite other stuff.

There is apparently sufficient evidence that some plants, as, for instance, Rhododendrons, will not grow in soil containing an excess of lime; but we are in the present quite in the dark as to the exact nature of this antipathy. It has been suggested that the cause lies in the fact that a calcareous soil always is or always tends to be alkaline to an extent no other soil can be, since no other alkali exists in cultivated soils in such abundance as does lime. And I have heard of an ingenious gardener, who affirmed that he had made Rhododendrons flourish in a chalky soil, by continually administering adequate doses of acids; I mention this, not because I think the case fairly made out, but because it illustrates what I said just now about the complexity of questions relating to the chemistry of the soil. And in the same connection, I may call attention to the statements which have been made more than once, to the effect that sulphate of ammonia is by far the best nitrogen manure for these same calcareous soils. The explanation given is that the ammonia becomes dissociated from the sulphuric acid (the two being previously combined in the sulphate of ammonia) and oxidised into nitric acid; thus the manure added to the soil provides at once two acids to work upon and neutralise the alkaline constituents already present, whereas if instead of sulphate of ammonia the other common nitrogenous manure, nitrate of soda, be given, more alkali in the form of the soda is thrust upon the already alkaline ground. I might quote many other illustrations, showing that in all these matters we have to consider first of all the effects of the substances which we add as manure on the manifold changes which are continually going on in cultivated soil; but I think I have said enough.

So far I may seem to have been arguing against the use of adding special elements or particular substances to the soil; but in reality I have simply been striving to guard against too rash expectations and the inconsiderate use of chemical means. For that special chemical bodies added to the soil, whether by acting on the soil wholly outside the plant, or being absorbed into the plant, and working changes in its tissues, do affect the growth and vigour of particular plants, is a fact which cannot be denied. In proof of this we have over and above the rough experience of the farmer, which has taught him to use one manure for one crop and another for another, the valuable elaborate experiments of Lawes and Gilbert at Rothamsted. In their experimental farm is to be seen a portion of old pasture land divided into a number of plots. For some twenty years or more each plot has been, with some change, manured with a particular manure—this with ammonia, that with phosphates, and so on—and each year in each plot the proportion of plants forming the crop of hay is accurately determined. The result shows beyond question that particular substances favour, on the same basis of soil, under the same general conditions, particular plants. In this plot the leguminous plants, common in ordinary pasture, have been driven out of existence; in that they have flourished and almost driven away the proper grass, and so on. Every gardener who studies the record of these experimental plots can see in it the beginning of the gardening of the future. He can see that hereafter, by diligent study, he will acquire the power of giving to the soil of his favourites just the things they need in their struggle for existence. But it is only the beginning he sees, and long years of diligent study must intervene between present ignorance and future fruition.

The plots of Messrs. Lawes and Gilbert are all either of pasture land or bearing ordinary agricultural crops. What from a gardening point of view is wanted, is a similar series of experiments with our garden plants; but the experiments, to be of real use, must be carefully and systematically carried out, and, that lurking fallacies may be escaped, must be continued through a long series of years. Hasty and slovenly hap-hazard trials lead chiefly to mistakes. Until some such systematic researches are undertaken, I fear that a knowledge of chemistry cannot be of very great use to the gardener. He must continue to do what he does now—to dig into or pour into the soil a mixed manure containing in abundance all that his favourites need, but containing also in abundance things which they do not need, or which even do them actually harm. The wastefulness of such a plan is clear to every one who thinks for a minute over the matter; and the drains and subsoil of our gardens could tell many a tale of the manurial waste going on wherever flowers are grown. I have been into gardens where for many years past heavy dressings of farmyard manure have been dug into the ground year after year, and that for the growth, not of coarse vegetables, but of delicate flowering plants. The result has, I am free to confess, often been good; but I have almost held my breath when I have thought of the awful waste which in such cases must be always going on. And sometimes the result has not been good: rampant disease has made its appearance, and played havoc with the beauty before it bloomed. Nor is this to be wondered at. Every one knows that in the early stages of the comparatively simple fermentation of an ordinary compost heap the material is a deadly poison to the plants for which, when thoroughly ripened and rotten, its violent effervescences all over, it will serve as most nutritious invigorating food. So it is also with the slower quieter fermentations going on beneath the surface of the soil; of the multitudinous changes going on there, while many, especially the final ones, are beneficial, some, especially the initial and grosser ones, are directly harmful to the plant; and if these latter, as in heavy frequent manuring is likely to occur, be in excess, they may poison the organism which it was intended simply to feed. Happily, as in the human race—though many if not most people eat more than they need—starvation works more harm, on the whole, than does over-eating, so among plants, far more blooms fail through want of adequate food than are cut off by a too liberal diet; but the waste, both in the one case and the other, is an evil which the stern demands of economy must sooner or later make us take firmly in hand. There can, I think, be no doubt that, did we possess the requisite knowledge, both the waste and the attendant disease might be avoided. *Dietes.*

(*To be continued.*)

FRUIT JOTTINGS FROM SINGAPORE.

We have just got through our fruit season in Singapore, only a few scattered fruits of Rambutan (Nephelium lappaceum), Pulasan (Nephelium mutabile), Mata kuching (Nephelium eriopetalum), Rambeh (Pierardia dulcis), and Mangosteens, now remaining on the trees. The crop in Singapore of nearly all kinds has been a very heavy one; in fact, "everybody" says the heaviest ever known here. The regal Durian, as Mr. Burbidge justly styles it (*Gardeners' Chronicle*, May 31, 1879), has been particularly plentiful; and as Mr. Burbidge has sounded its praises so loudly and ably, he may be pleased to know that they have been selling here at the rate of twenty for a dollar, and fine fruit too.

The quantity of imported fruit has also been very great, especially of such kinds as do not succeed well in Singapore; notable among these being the Langsat (Lansium domesticum), and the Mango. The Langsat does well in Malacca, whence the fruits are exported to Singapore and other places; but, strangely enough, it has not, so far as I am aware, ever done well in Singapore. Mangos come to us from Siam, and delicious fruits they are; but those grown in Singapore have mostly an intensely ter binthine flavour, and the trees are very subject to th attacks of boring larvæ which tunnel their way fo long distances through the central pith of the medium sized branches before emerging, and it is not uncom mon to see almost the whole heads of large tre killed by this pest. A close ally, the Beenjai (Mar gifera cæsia), does well in Singapore, but its fruits a only used for making a sort of "sumball," a nam applied to numerous kinds of preparations eaten wit curry and rice. To appreciate it, however, even i this style, one has to be educated to it, as with th Durian, but when once a taste for it is acquired th pleasant subacid and peculiar flavour is missed wit regret when it goes out of season.

The Rumaniyahs (Bonea microphylla and B. m crophylla) are professedly relished by some Eur peans, but I must confess that my taste has not y been educated enough to appreciate them, which also the case with Jack-fruit (Artocarpus integrifolia although it is much relished by many people. B the-bye, while staying with some friends in Singapo last week I was treated to some very delicious hom made Sour Sop (Anona muricata) jam and jelly, whic obliges me to acknowledge that they were simp perfection. What a pity it is we cannot grow enou Sour Sops to render us independent of Crosse Blackwell's and Morton's preparations in this lin *H. J. Murton, August* 30.

RARE ODONTOGLOSSUMS.

Odontoglossum nevadense (fig. 84 *a*).—This one of the larger flowered species of the genus, wi ovate pointed compressed pseudobulbs, with a pair linear-lanceolate leaves. The flowers are borne loose pendulous racemes from the base of the pseud bulbs. The size and form of the flower is suf ciently indicated in the figure. The sepals a petals are narrow, lanceolate, acuminate, yello heavily spotted with rich brown. The lip is wh striped with brown, with two erect crescent-shap lateral lobes near the base, and with two promine crests in the middle near the base, and finely toothed the margin. The plant was discovered by M. Wal in the mountains of New Granada, and was introduc into commerce by Linden, who figured it in t *Illustration Horticole*, 1870, t. 45. Our specim was figured from a plant in the collection of M. Li den. It flowers in summer. In January of the prese year, p. 137, Professor Reichenbach refers to t plant as an exceedingly rare species, quite unique the singular crescent-shape of the base of the lip front of the stalk; and alludes to a variety fr Messrs. Veitch with more yellow on the sepals a petals.

Odontoglossum polyxanthum (fig. 84 *b*) is a a rare species, shown by W. Cobb, Esq., at one the meetings of the Royal Horticultural Society (s *Gardeners' Chronicle*, April 17, 1880, p. 502). T sepals and petals are lanceolate, acuminate, lemo yellow blotched with chocolate. The lip is brow oblong-acuminate, serrated on the white banded m gin. Mr. Fitch's drawing was taken from a plant the possession of Mr. B. S. Williams. It is a nati of Ecuador, where it was found by M. Klaboch.

POTATO NOTES.

The Potato season may be said to be in, but it w not last long, and whilst discussions incidental to t season will crop up, at least they die out with t inevitable lack of matter that will come with t winter. Still, some writers never tire, and, inde never cease writing of Roses and other specialiti so may some reasonable excuse be found if just n I indulge in a column of Potato Gossip.

A correspondent, "W.," seems almost angry w me for doubting the distinctiveness of Wormleighto Seedling. It may have been a seedling, but m unhappily it has come Magnum Bonum so exac that not even the most sharp-sighted of mortals c distinguish the difference. It is not only so here, I also at Chiswick, and I will go so far as to eat i hat—a severe penalty, indeed—if I am proved to wrong. I would have defied any one to have told, the two assumed kinds growing here, which which; indeed, but for knowing I could not ha done so myself, and that is saying, I think, all t is needful to say about it. As to Snowflake a Pride of America I am quite content to leave them next season's verdict.

I am pleased to note that that excellent kidn Covent Garden Perfection, has done well this seas

and is with me very lightly diseased. This is own brother to Magnum Bonum, and much earlier. Mr. Hibberd was so pleased with it that under the exciting influence of his delight he proposed to call it King of the Kidneys. I am glad he did not, or rather that the Messrs. Hooper, who sent it out, gave it a less ambitious name, because it would have led others on in that race for exaggerated nomenclature to have given us an Emperor, then an Empress, then a Great Czar of all the Kidneys, until soon we should have been landed in a monarchical Slough of Despond. The King of the Kidneys and its more august successors are yet to come, but there is no immediate hurry for such a galaxy of Potato potentates.

Mr. Clarke of Christchurch, who raised both Magnum Bonum and Covent Garden Perfection, has what looks like a very worthy relative to these kinds in his new flat, white round, Pride of the Market; and he told me at the Crystal Palace that this child of his careful raising would go out into trade through his own hands. He has seen Magnum Bonum become one of the widest grown and most famous Potatos in the kingdom, but not one in ten thousand growing it knows that a poor man at Christchurch was its raiser. He very naturally hopes that if he sends out his new Pride of the Market—in the disease-resisting properties of which he has great faith—through his own hands, that his good name may be associated with it for some few years at least. Let us pray that it may be saved from the horrors of "improvement." As far as I have seen in the past, that sort of thing usually means a very rough sample.

The relative position of Schoolmaster and the Vicar of Laleham at the Crystal Palace, as shown in the published statistics, recals a remark made by a local elementary teacher not so long since, that "he hoped the day would soon come when the schoolmaster should top the parson in social life and position, because he was in his vocation performing the most valuable work amongst humanity." Here, in a curiously allegorical fashion, is the work of the teacher realised, and in the Potato world the Schoolmaster tops the Vicar, though, as is becoming, the relative positions are not widely separated. I am pleased, for the sake of my reverend friend, Mr. Peake, the real Vicar of Laleham, to be enabled to say that his namesake Potato has turned out a splendid crop, and shown very little disease. The seed parent was the excellent Victoria, old Paterson's best kind, and the Red Emperor was its pollen parent. It has beaten both of its parents most unmercifully in cropping and handsomeness, and is being more widely grown than any other coloured kind.

Another kind, though older, which has done so well this season, is the King of Potatos. Mr. Emerton's seedling from the Victoria proved to be so much like this that, failing the Emperor step, it was named Advance, and a very good name, too. Both have, in giving large crops, also given but a minimum of disease—a fact that cannot be too widely known when some kinds turn out four bad tubers to one good one. However, I fear it will be thought invidious whether I praise or condemn. Those who grow a few bushels only think their losses heavy if they find one half diseased, but theirs is a veritable flea-bite to those growers who, finding Regents to have turned out so well last year, planted them largely, and have perhaps several acres of them absolutely worthless or so bad as not paying to lift. That Potato growers have their troubles as well as farmers is pretty evident, and that in planting certain kinds of market Potatos they run more risk than in sowing a breadth of Wheat, is evident also. A grower here (in West Middlesex) put the cost of cropping, cultivating, lifting, and marketing for an acre of Potatos with other expenses thus:—Rent, per acre, £4 10s.; rates and taxes at 12s.; labour, including horse-power for ploughing, drawing manure, hoeing, earthing, and carting and manual labour in planting, flat-hoeing, lifting, &c., at £5; manure at £4 10s., as representing the cost of half a dressing; seed, £5; baskets or sacks at 20s., and marketing at 25s.; or say, £22 per acre. In allowing for rent it is not possible to calculate upon much less than the whole year, as the crop must be planted in March, and is, perhaps, lifted in September or October. A good crop should be 7 tons altogether, of which 5 tons should be market ware, selling at £4 per ton; and the other two tons of middlings and chats, at 50s. each. This will give a total of £25, and that is reckoning the crop to be good and sound throughout, and the profit is small enough; but when, even though the produce be large, it is half diseased, then the nature of the balance is too evident—it represents a very heavy loss.

But £4 per ton represents this year for Regents a figure that is too high. I asked one of the market growers the other day what Regents were making, and he replied "Only £3, and they can hardly be sold at that price." The reason is very obvious: dealers are afraid to purchase lest they should find in a few days after storing that one-half the stock was diseased. Magnums sell fairly well at £4 10s., and said the grower, "When a customer told me to put him in half a ton of these, I had to say that I could not serve Magnums unless some Regents were also ordered; and then he said he would take 6 bushels of them"—doubtless with a wry face. On the drier soils in this district Magnum Bonums are, if very much below quantity and shapeliness of the crop of last year, at least healthy and profitable. Champions are turning out better than was at first anticipated. The more recent warm, dry weather has helped to swell up the tubers, and though very ungainly they are generally sound; that is at least of some importance.

In the course of a long association with the Potato, I have often had sent me by friends in various parts of the country kinds that in their estimation are both new and excellent. Such kindness, well intended, has often proved a nuisance, at other times very fortunate; but, as a rule, the kinds have but proved to be some old variety well known here or elsewhere. Thus it happened but recently that I got from near Southampton a few tubers of a pretty-looking round kind, piebald in colour, that came with a strong recommendation under the name of the Purple Victoria. This case admirably illustrates the way in which synonyms in Potato nomenclature have become so abundant, for this particular sort was grown here for several years as Glo'ster Red, and has been known in Gloucestershire for some forty years or more. Though pretty, I could never get size into the tubers, and discarded it.

A very interesting subject of study for the vegetable physiologist might be found in this particular subject of skin colour, but even more curious than that is the inevitable tendency on the part of a few kinds—the Lapstone and International Kidney are instances—to turn purple all over the surface when exposed for a short time to the air, although when lifted having skins of the purest white. That tubers should on exposure turn green seems in the ordinary course of things, but the other case evidences some hereditary feature that crops out in successive generations. Thus from a cross between Woodstock Kidney and Success one kind shows this feature, and from a cross between King of Potatos and Magnum Bonum the same result is seen, although in both cases neither of the parents exhibit such tendency. What we should like to know, however, is, why do the skins of some few when exposed turn purple whilst the majority turn green.

Out of the some 200 or more kinds of Potatos grown at Chiswick during the summer the pride of place as the heaviest cropping kind was taken by Queen of the Valley, a new American sort, something like Matchless, but larger and quite ungainly. The heap of this kind shown by the Messrs. Hooper at the Crystal Palace would seem to bear out the character for cropping thus earned. One tuber shown was said to have weighed 2½ lb., and many others were monsters. One utterly fails to understand what end is to be gained in introducing such coarse kinds, as none of them ever find popularity. Who cares to grow the big Success, Eureka, White Elephant, and similar monsters, each one as introduced earning in

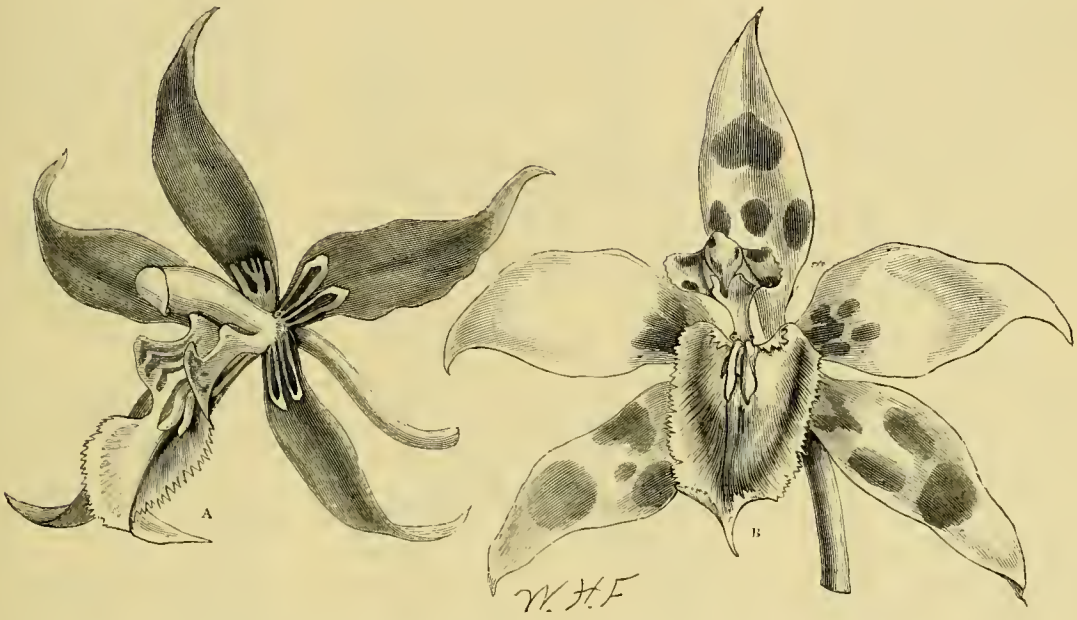

Fig. 84.—A, Odontoglossum nevadense; B, O. polyxanthum. (see p. 460.)

succession the reputation of being the finest cattle Potato in cultivation? But our friends across the Atlantic are worshippers of big things. "Sir," said a proud native, "our forests are broader, our trees loftier, our rivers longer, our valleys deeper, our mountains higher, our thunder louder, our lightning forkeder, and our 'tarnal country bigger than any other in the world:" he might have added, "and so are our 'taturs.'" *A. D.*

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

(*Continued from p. 430.*)

Division II.—Nudiflori.—Without a basal spathe.

Section 1.—*Reticulati.*—Autumnal.

31. ‡*Crocus cancellatus*, Herbert; C. Schimperi, Gay; C. Spruneri, Boiss. and Held.

Var. 1. *cilicicus*, Kotschy; C. damascenus, Herbert; C. Kotschyanus, Herbert, not of K. Koch; C. pylarum, J. Gay; C. edulis, Boiss. and Blanche.

Var. 2. *Mazziaricus*, Herbert.—Santa Maura.

Corm about 1 inch broad, a little broader than high; corm tunic of strong reticulated fibre, the reticulations oblong rectangular, produced into a bunch of strong fibres, reaching 1 inch or more above the summit of the corm; the basal tunic a strong cartilaginous disc or ring, surrounded by strong, pointed, fibrous rays. Sheathing leaves about as long as or exceeding the proper spathe. Proper leaves just appearing at the flowering time, about $\frac{1}{12}$ inch broad, nearly glabrous, produced at maturity to a length of 10 or 12 inches, the lateral channels bearing three prominent ribs. Proper spathe membranous, diphyllous, hidden or nearly hidden by the sheathing leaves. Perianth: throat yellow, glabrous; segments from $1\frac{1}{2}$ to $1\frac{3}{4}$ inch long, and $\frac{1}{2}$ inch broad, varying from white to light purple, and self-coloured, or feathered with purple markings, generally yellow towards the throat. Anthers pale orange, tapering upwards, about twice the length of the white filament; the orange style dividing at or a little below the summit of the anthers, and produced into a bunch of finely divided orange stigmata, which much exceed the anthers. Seed large, red, nearly spherical.

Crocus cancellatus is distributed through about 15° of longitude, from the Ionian Islands, on the west, to Syria and Northern Palestine, and is said also to extend to Armenia. It varies greatly in flower colouring, the Western forms being generally white, and the Eastern forms blue with various markings; the variety from the Bithynian Olympus is coloured exactly like C. aërius, with which it grows. I do not think Herbert's damascenus, Gay's pylarum, and Kotschy's cilicicus can be properly separated from the other blue forms, and I therefore place them all under the name of cilicicus as a variety only of Herbert's cancellatus. The proper spathes are shorter in cilicicus than in the Greek plant, and are completely hidden by the sheathing leaves. C. cancellatus flowers from the end of October to December, the proper leaves only just appearing from the sheathing leaves at the flowering time.

Reticulati.—Vernal.

32. ‡*C. veluchensis*, Herbert; C. balkanensis, Janka (not C. thessalus of Boissier and Spruner, which is C. Sieberi).—Corm (wild specimen) from $\frac{1}{4}$ inch to $\frac{1}{2}$ inch broad, and $\frac{1}{2}$ inch deep; corm tunic of delicate, open, reticulated fibre, produced at the summit of the corm into a bunch of fibrous points, $\frac{1}{3}$ inch long. Sheathing leaves falling short of the proper spathe. Proper leaves about three, $\frac{1}{2}$ inch broad, reaching above the level of the throat at the flowering time in May; keel narrow, glabrous, the lateral channels wide and open. Proper spathe diphyllous, reaching to within half an inch of the throat. Perianth: throat purple, white internally, bearded; segments of a uniform rich purple, $1\frac{1}{2}$—$1\frac{3}{4}$ inch long and $\frac{1}{2}$ inch broad. Anthers bright orange, equalling in length the white filaments; the style dividing at the level of the summit of the anthers, and produced into a compact mass of fringed orange stigmata exceeding the anthers.

Crocus veluchensis appears to take the place of C. vernus in the mountains of Greece and the Balkans, flowering towards the end of May. It was collected in the Balkans by Janka in 1871, and distributed by him under the name of C. thessalus. Much doubt has heretofore existed as to the plant described by Herbert as C. veluchensis; the species figured in the *Botanical Magazine*, t. 6197, under this name, is without doubt C. banaticus, which is cultivated in many Continental gardens under the name of veluchensis. Baker places veluchensis as a variety of Sieberi; and the distribution of Janka's Balkan specimens under the name of "thessalus" of Boiss. and Spruner (which is C. Sieberi) has added much to the confusion. To M. Boissier we are indebted for clearing up the difficulty, and he has pointed out to me the unquestionable identity of Janka's Balkan plant with Herbert's veluchensis.

C. veluchensis is at once distinguishable from C. vernus by its double proper spathe and the absence of a basal spathe, and from C. Sieberi by its white-bearded throat, white filaments, its corm tunic, and its uniform purple flowers.

33. ‡*Crocus Sieberi*, Gay; C. nivalis, Bory and Chaub; C. thessalus, Boiss. and Spruner; C. sublimis, Herbert; C. Sieberianus, Gay.

Var. *versicolor*.—Crete and the Cyclades.

Corm $\frac{2}{3}$ inch to 1 inch broad, $\frac{1}{2}$ inch to $\frac{2}{3}$ inch high; corm tunic of fine rhombic reticulations; the basal tunic of a large radiating mass of unbranched fibres, quite different to the basal tunic or any other species. Sheathing leaves falling short of the proper spathe. Proper leaves appearing with flowers and reaching to their level, glabrous, $\frac{1}{4}$ inch broad, with open, unribbed, lateral channels. Proper spathe diphyllous. Perianth: throat orange, unbearded; segments $1\frac{1}{2}$ to $1\frac{3}{4}$ inch long, and about $\frac{1}{2}$ inch broad, very variable in form and colouring; in the type of a uniform bright lilac; in the insular variety versicolor, from Crete and the Cyclades, varying from white to purple, and with white and purple stripings and featherings, and always with a rich golden base. Anthers orange, tapering upwards, about twice the length of the orange filament; the style dividing below the level of the summit of the anthers, and produced into a mass of broad, sub-entire, orange-scarlet stigmata at about the level of the summit of the anthers. Seed red, glabrous, with a polished surface, nearly spherical.

C. Sieberi is abundant at high elevations on the mountains of Greece, the Morea, Eubœa, Crete, and the Cyclades; and is said by Herbert to have been gathered by Forbes and Sprat in Lycia, though I know of no other record of its occurrence in Asia Minor. It flowers in cultivation about the end of February and early in March, and up to May in its mountain habitats.

34. ‡*C. dalmaticus*, Visiani, not of Herbert; C. reticulatus var. dalmaticus, Baker.—Corm from $\frac{1}{2}$ inch to $\frac{5}{8}$ inch broad and high, pyriform. Corm-tunic of strong reticulated fibre on a membranous base, but finer in texture than that of the following species, C. reticulatus. The separate basal tunic which is found in C. reticulatus, C. susianus, and C. ancyrensis is, I think, absent in this species; the terminal fibres of the main tunic being attached to the centre of the base of the corm. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, shortly produced to the level of the throat at the flowering time, about $\frac{1}{8}$ inch wide, and maturing to a length of 8 or 9 inches. Proper spathe diphyllous. Perianth: throat yellow, glabrous; segments about $1\frac{1}{2}$ inch long, and $\frac{3}{8}$ to $\frac{1}{2}$ inch broad, pointed, generally self-coloured lilac, or delicately feathered externally with purple markings. Anthers yellow, twice the length of the white or yellowish filament; the style dividing above the summit of the anthers, and shortly produced into entire, orange, spreading stigmata. Seed buff.

C. dalmaticus is a common plant in the mountains of Dalmatia, and the Kew herbarium contains specimens from the Herzegovina. It flowers in February and March. Though allied to the following species it appears to me to be quite distinct, and is a much more robust plant in cultivation. It must not be confounded with Herbert's C. dalmaticus, which is an autumnal species, or with the Dalmatian forms of biflorus and vernus, both of which have had this name applied to them.

35. ‡*Crocus reticulatus*, M. Bieb.; C. variegatus, Hoppe and Hornsch.

Var. *C. micranthus*, Boiss.—Cilicia.

Corm about $\frac{1}{2}$ inch broad and high; tunic of strong, wiry, reticulated fibre, produced into a bunch of sharp fibrous points at the summit; the basal tunic consisting of a strong cartilaginous disc, surrounded by radiating points. Sheathing leaves falling short of the proper spathe. Proper leaves reaching to the throat at the flowering time, $\frac{1}{16}$ inch broad, the lateral channels containing one or two ribs, produced at maturity to a length of 8 or 10 inches. Proper spathe diphyllous. Perianth: throat glabrous, segments $1\frac{1}{2}$ inch long and $\frac{1}{8}$ inch broad, acute, varying from white to deep lilac, the outer face of the outer segments feathered with purple. Anthers orange, twice the length of the orange filament; the style dividing at about the middle of the anthers, and produced into sub-entire scarlet stigmata, which exceed the anthers. Seed pale buff.

Crocus reticulatus flowers early in March. Its most Western habitat is the neighbourhood of Trieste, and it ranges through Hungary, the Banat, the Danubian Principalities, Podolia, Ucrania, the Crimea, and Southern Russia to the Caucasus. It is doubtful whether it extends into Italy, though its supposed occurrence near Parma is referred to by Parlatore. I do not know of any record of its having been found in Asia Minor beyond the occurrence of Boissier's C. micranthus in Cilicia, which I place as a variety of reticulatus. It is a much smaller plant in all its parts, but I cannot find a single character by which it can be separated as a species from C. reticulatus.

(*To be continued.*)

FRUIT NOTES.

An Exhibition of Hardy Fruits.—I am of the same opinion as "A. D.," that we do not want prize competition so much as the exhibition of collections shown purely for the purpose of correcting the nomenclature of all kinds of fruit, and especially of the innumerable varieties of Apples and Pears. We have our herbaria and gardens for the correct naming and classification of plants, why not have a purely pomological centre too? I think if we had a good energetic Pomological Society, one which would enter into the business with a determination to succeed, we should not have that great confusion which now exists in the nomenclature of fruits. I think also that fruit shows should be held at the beginning of this month, as then a much larger quantity of fruit could be staged than could be the case at the middle and end of November. *W. Roberts, Merriott Nurseries.* [Why should there not be a display of named collections of hardy fruits from the provinces, at South Kensington, kept up as long as the fruit will last, or for a month or two at least? Eds.]

The Heaviest Gooseberries.—Mr. E. Salsbury, Melbourne, Derby, informs us, on the authority of the *Gooseberry Growers' Annual Register*, that the weights of the four heaviest fruits of the year are:—Red: London, 29 dwt. 12 gr.; Yellow: Ringer, 28 dwt. 7 gr.; Green: Shiner, 25 dwt. 6 qr.; White: King of Trumps, 25 dwt. 16 gr.

Apple, King Harry.—This variety, which has fruited in the collection at Chiswick this year, represents a very pretty dessert fruit, greatly resembling the Cockle Pippin in appearance, but with much more colour. It is reasonably early, a heavy cropper, and of good quality—a dessert Apple for September and October. Its origin appears to be involved in some obscurity.

High-coloured Apples.—A look through the fine collections of Apples now to be seen in the fruit-room at Chiswick is a means of noticing many points of interest in connection with this popular fruit. A small group of a few varieties embraces those most remarkable for their brilliancy of colour, and their ornamental qualities on the dessert table, apart from the possession of other good characteristics. There are the Worcester Pearmain, Duchess's Favourite, Malakovna, a Russian variety; Sops-in-Wine, a variety with red flesh and a beautiful white bloom; Rouge Précoce, Gestriefter, the German Harvest Apple, Kroon or Crown Apple, and La Fameuse or Snow Apple. The foregoing are all varieties of general good quality, and a dish of a few of them, when their skins are clothed in their most effective tints, would greatly assist the ornamentation of the dessert-table. They are also well deserving of cultivation as decorative objects in the fruit garden and shrubbery, and these sorts worked on the French Paradise stock and fruiting freely, would be worthy a place in the conservatory. All are small and medium sized fruits, and as a rule crop well.

Codlin Apples.—These form an interesting group of early Apples that do not keep long, but are very useful for eating and culinary purposes. There are the Dutch Codlin, the French Royal Codlin, the last-named having a peculiar tapering shape; Lord Suffield, Keswick Codlin, Manx Codlin, and the German Codlin; the last-named greatly resembling the Manx. Another is the Frau Weisser, or Summer Calville. Pott's Seedling, also a Codlin, appears to be intermediate between the Keswick and the Manx. The old English and Keswick Codlins are much alike, if not identical. All are of fairly good quality, and always bear well, and form a group of very useful varieties.

Winter Peach Apple.—I have a variety here under this name, which answers to "A. D.'s" description. It ripens about the same time, and is a very heavy cropper. To increase this variety we simply saw off branches, and put them in nursery ground, where they strike readily and carry fruit the second year. *Edward Ward, Hewell Grange, Bromsgrove.*

Large Peaches.—Evidently your correspondent who writes of having grown Peaches 18½ oz. and 23½ oz. in weight is rather "put out" to think there should be any one bold enough to look at his figures from a *cum grano salis* point of view, and thinks that no one has any right to doubt such extraordinary results. Strange doctrine this. It appears he is unwilling to substantiate his statements, and declines to do so even next year. Under these circumstances it only remains for me to draw rather an unfavourable inference, and to say that in a matter of this kind I have strong feelings, and think that if such statements are not substantiated on request they ought never to be made; they are grossly misleading, and, to a certain extent, have a damaging effect. Lastly, permit me to assure your correspondent that I have not written in any acrimonious spirit whatever, but only with a wish to elicit that which would be most advantageous to most of your fruit growing readers. *J. Horsefield, Heytesbury, Wilts.*

How to Keep Large Apples.—During a short visit to Tunbridge Wells I lately saw a handsome dish of large Apples in a fruiterer's window, which seemed to attract no end of admirers, but no one appeared to have the courage to purchase. My curiosity being also excited by the numbers of people who flocked round the window I enquired if there was anything particular about the Apples besides their fine size and handsome appearance. "Yes, sir," said a bystander, "the price of the Apples causes more wonder than the Apples themselves, the half-dozen fruits being marked at a sovereign, or 3*s.* 4*d.* each!" I afterwards discovered, upon further enquiry, that the fruits had been grown in the neighbourhood, in an orchard-house, and that the variety was Washington, and very fine well coloured fruits they were of that variety, the average weight being 1 lb. each. Still, it appears 3*s.* 4*d.* each is rather much for a big Apple, and those who wish to "keep" fine fruits cannot do better than mark them at a handsome price, and they are sure to retain them as an ornament to their window. *W. H.*

The Sea Eagle Peach.—I am now gathering from a tree of this variety, on the open wall, which are very nice-looking, and, considering the dull weather of late, very good in flavour. The tree has been planted five years, grows vigorously, and is very prolific, bearing this year about seven dozen fruit, similar in size, but more conical in shape, and not so deeply coloured as Barrington, and ripening a little earlier than that variety. Barrington and Walburton Admirable, growing on the same aspect, were, during the flowering period, protected by Parham's glass coping, but are not carrying so good a crop as Sea Eagle. All were planted at the same time. *W. J. Dale, The Gardens, Chalfont Lodge, Sept. 28.*

—— There can be no doubt as to the merits of this variety; in all points it is a high-class Peach, and quite an acquisition. In this locality it has proved itself to be a strong grower and free bearer, with a hardy constitution, and produces fine and handsome fruit of an exquisite flavour, which ripens towards the end of September. I would strongly recommend Mr. Sheppard, and others who have not yet given it a trial, to plant a tree or two of it this autumn. In the June number of the *Florist and Pomologist* Mr. Stevens, of Trentham, states that when in flower it will endure more frost than any other Peach with which he is acquainted. I may further add that the tree we have growing here was brought in from the nursery three years ago, and at the present time it covers a space of 120 square feet, and has given us this year a crop of eight dozen handsome fruit. In those places where Peach growing without the aid of glass has been abandoned I would recommend Sea Eagle as the one variety with which to make a fresh start, and success in all probability will be the result. It was raised and sent out by the late Mr. Rivers some ten or a dozen years ago, but it is only within the last two or three years that it appears to have attracted the notice it so richly deserves. *J. Horsefield.*

LIST OF GARDEN ORCHIDS.

(*Continued from p. 428.*)

Subtribe ii. — 2. *Microstylea.*

Stems often with pseudobulbs at the base, and bearing 1—3 narrow leaves in a closed sheath. Flowers small, often minute, borne in a simple terminal or lateral raceme. Anther erect, or with the rostellum turned backwards, often persisting after shedding the pollinia, cells dehiscing upwards. Pollinia 4, inappendiculate, free or cohering by a little viscid substance in pairs at the apex. Labellum usually erect.

11. Malaxis, Swartz, in *K. Vetenk. Acad. Nya Handl.*, xxi., p. 233, *ex parte.*—Stems 1 or 2-leaved, with a terminal raceme. Shoots proceeding from the top of the previous year's pseudobulbs. Petals small, rather broad. Labellum cordate at the base, embracing the column. Restricted to the following species :—

1. M. paludosa, Swartz; Rchb. f., *Ic. Fl. Germ.*, t. 494; Syme, *Eng. Bot.*, t. 1489.—North Europe.

I include this interesting little native Orchid, though, so far as I know, it is one of the few that have not been cultivated. [It is growing in the College Botanic Garden, Dublin. Eds.] It is epiphytical on sphagnum.

Fig. 85.—Microstylis histionantha.

A, Front view of a flower; B, Side view of ditto; C, Side view with the lip removed; D, Anther-case with pollen masses; E, A pollen-mass. All enlarged.

12. Microstylis, Nutt., *Gen. N. Am.*, ii., p. 196.—Stems 1—3 leaved, with a terminal raceme. Shoots proceeding from the base of the previous year's pseudobulbs. Petals narrow, nearly equalling the sepals. Labellum cordate or auriculate at the base, embracing the column. Terrestrial herbs; usually with broad membranous leaves and inconspicuous flowers. Some of the species have very handsome foliage. About forty species are known, and they inhabit Europe, Asia, North America, and South America. The names Crepidium, Pterochilus, Dienia, Pedilea, and Achroanthus, have been proposed for some of the species as distinct genera.

1. M. atro-purpurea, Miq., *Fl. Ind. Bot.*, iii., p. 625; *Platystylis atro-purpurea*, Lindl., *Gen. and Sp. Orch.*, p. 18.—Java. Buitenzorg Botanic Garden, 1866.
2. M. biaurita, Lindl., *Gen. and Sp. Orch.*, p. 20.—India. Cultivated in the Buitenzorg Garden in 1866.
3. M. biloba, Lindl., *Gen. and Sp. Orch.*, p. 20.—India. Cultivated at Kew in 1877.
4. M. calophylla, Rchb. f., *Gard. Chron.*, n.s., xii., p. 718.—Malaya or Java. Exhibited by Messrs. Groenewegen at Amsterdam in 1877, and soon after cultivated by many other nurserymen. Flowers yellowish, inconspicuous. Leaves ovate, yellowish-green, prettily bordered, striped with brown.
5. M. chlorophrys, Rchb. f., *Gard. Chron.*, n.s., xv. p. 266.—Borneo. Imported by Mr. Bull. An ornamental species, brownish-purple, and green foliage.
6. M. commelynæfolia, Zoll., *Nat. Geneesk. Arch.*, p. 184; *Ponplaudia*, 1857, p. 58; *Walp. Ann.*, i., p. 774.—Java. Cultivated at Buitenzorg in 1866.
7. M. cordata, Rchb. f., *Walp. Ann.*, vi., p. 207; *Dienia cordata*, Lindl., *Bot. Reg.* 1838, Misc., n. 134; *Gen. and Sp. Orch.*, p. 22.—Mexico. Imported by Mr. Barker. Stem 1-leaved, with a slender spike of small green flowers.
8. M. decurrens, Miq., *Fl. Ind. Bot.*, iii., p. 625; *Malaxis decurrens*, Blume, *Bijdr.*, p. 389, tabellen 54; *Platystylis decurrens*, Lindl., *Gen. and Sp. Orch.*, p. 18.—Java. Cultivated at Buitenzorg in 1866.
9. M. excavata, Lindl., *Bot. Reg.* 1838, Misc. n. 93.—Mexico. Imported by Mr. Barker. Insignificant.
10. M. fastigiata, Rchb. f., *Linnæa*, xxii., p. 834; *M. ophioglossoides* β *mexicana*, *Bot. Reg.*, t. 1290; Lindl., *Gen. and Sp. Orch.*, p. 19.—Mexico. Sent to the Horticultural Society's Garden by Mr. John Brown before 1830. Flowers green.
11. M. flavescens, Lindl., *Gen. and Sp. Orch.*, p. 20.—Java. Kew, 1878. Hort. Kew.
12. M. histionantha, Link, Klotzsch and Otto, *Ic. Pl. Rar. Hort. Berol.*, t. 5; *Bot. Mag.*, t. 4103; *Malaxis Parthoni*, Morren, *Bull. Acad. Brux.*, v., p. 486.—Colombia. Moritz discovered it and sent it to the Berlin Garden in 1836. Flowers brownish-green, in a dense head on a long naked peduncle (See fig. 85.)
13. M. Josephiana, Rchb. f., *Bot. Mag.*, t. 6325.—Sikkim. First discovered by Sir Joseph Hooker, and subsequently sent alive by Mr. Gammie to Kew, where it flowered in 1877. A remarkable species, having comparatively large, yellow flowers, with broad sepals and petals.
14. M. metallica, Rchb. f., *Gard. Chron.*, n.s., xii., p. 750.—Borneo. Bull, 1879. Handsome foliage, rosy beneath and dark glossy purple above; flowers rose-purple. Hort. Kew.
15. M. monophyllos, Lindl., *Gen. and Sp. Orch.*, p. 19; Regel, *Ind. Sem. Hort. Petrop.* 1878, pp. 18, 79.—Europe and North America. St. Petersburg Botanic Garden.
16. M. ophioglossoides, Nutt., *Gen. N. Am. Pl.*, ii., p. 196; Lindl., *Gen. and Sp. Orch.*, p. 19; Lodd., *Bot. Cab.*, t. 1146.—North America. Cultivated by Loddiges in 1826. In a young state this bears a striking resemblance to Ophioglossum.
17. M. purpurea, Lindl., *Gen. and Sp. Orch.*, p. 20.—Ceylon. Cultivated at Kew in 1867.
18. M. Rheedii, Lindl., *Gen. and Sp. Orch.*, p. 21.—India, Java, Pacific Islands. Hort. Kew.
19. M. versicolor, Lind., *Gen. and Sp. Orch.*, p. 21; *Liparis priochiles*, Lodd., *Bot. Cab.*, t. 1751.—Ceylon, Khasia. Buff-coloured flowers with a fringed labellum. Cultivated by Loddiges in 1831.
20. M. Wallichii, Lindl., *Gen. and Sp. Orch.*, p. 20.—India. Cultivated at Kew in 1863 and 1875. Hort. Kew.

13. Sunipia, Lindl., *Gen. and Sp. Orch.*, p. 179.—Pseudobulbs 1-leaved, with naked racemes from below (like Bulbophyllum). Petals small, broad. Labellum erect, narrowed at the base and furnished with two auricles. Flowers small, almost concealed by the bracts. One species, inhabiting the Himalaya and Birma, figured in the frontispiece of Lindley's *Sertum Orchidaceum*. *W. B. Hemsley.*

(*To be continued.*)

MESSRS. W. AND J. BROWN'S NURSERIES AT STAMFORD.

At a high elevation above the quaint old town of Stamford, near to the Tinwell Road, Messrs. W. & J. Brown have pitched a fresh camp and established a branch nursery for growing all kinds of trees, Conifers, ornamental shrubs, and fruit trees, in addition to their well known nursery at Wothorpe, but one mile from Stamford, which has been in existence for over fifty years. Perhaps it would have been better to have paid the highest tribute of respect to the oldest nursery, by paying it the first visit, but itinerant horticulturists do not always land at the right place first, and so I will first of all relate some of the most interesting sights that I saw at the new nursery before proceeding to the older and better known one.

The situation of the nursery commands a wide view of scenery in the adjoining counties of Rutlandshire and Lincolnshire, and may be said to be divided from the Wothorpe nursery by the Great Northern Railway and the valley of the Welland. The altitude of

the situation, its full exposure to the air, and the favourable nature of the soil no doubt had something to do in the selection of so good a position for starting a branch nursery. Shelter is necessary, even in a nursery, but the less of it the better for all concerned. Tender plants crowded or over-sheltered seldom do well, and unless exposed to the natural influences of sun and air in a young state they seldom thrive as satisfactorily as could be wished, for a time after removal. At these nurseries soil, climate, and situation appear to be adapted to the raising and cultivating of all kinds of Conifers, Roses, and fruit trees, and their vigorous, sturdy nature enables them to bear removal almost at any time with impunity. A regular system of transplanting is also carried out, by which the plants are kept stocky, and well furnished with fibrous roots, which after all is the great point in purchasing nursery-grown stock.

The front drive through the nursery is of the orthodox stamp—the long straight walk, flanked by two borders with duplicates of all the finest Conifers and ornamental shrubs. There are Wellingtonias, Abies Pinsapo, A. nobilis glauca, Retinospora pisifera, Swedish Junipers, red Cedars, Picea pyramidalis, Cupressus Lawsoniana glauca pendula, fine plants of Thuya elegantissima, Leycesteria formosa, Thuya Vervaeneana, Osmanthus ilicifolius, Juniperus tripartita, J. drupacea (the Plum-fruited Juniper), golden Yews, and rows of splendidly grown Asters at the front. Proceeding through the brakes set apart for growing the different kinds of forest and other trees, I noticed thousands of young healthy Larch, Purple Beech, Scotch Firs, Spruce Firs, Birch, Elms, and large squares of ornamental Conifers and shrubs, of which samples have been referred to. The plots of Cedrus atlantica I thought unusually vigorous, also two-year old Ash, Thorns, &c. Fruit trees are extensively grown—Pears upon the Quince, Apples on the Paradise and free stocks, standard Cherries for large orchards, as also Apples and Pears. The better class of Conifers I found represented in another part of the nursery, in the following specimens of a suitable size for giving immediate effect after planting :—Thuya giganteu, or Libocedrus decurrens, Juniperus hibernica, Retinospora plumosa aurea, Thuya semperaurescens, Cupressus Lawsoniana erecta viridis, Abies Menziesii, Thuya Lobbii, Pinus excelsa, Thuya chinensis, Abies Douglasii, and many other handsome specimens.

Poplars only are used as "breaks" in this nursery, and where they are found to give sufficient shelter they are much better than the denser shelter afforded by Beech hedges, which have a tendency to coddle plants in warm close weather. Rose growing is also extensively and successfully carried on at these nurseries, the percentage of losses being something like twenty-five to a thousand.

A short drive by way of Stamford brings the visitor to the Wothorpe Nursery, also advantageously situated, and which is approached from the eastern road. This, as I have said, is the old established nursery, and of course the stocks of plants are different; in other and simpler words, the new nursery is but an offshoot of the old one, which contains many fine samples of coniferous plants, florists' flowers, and decorative stove and greenhouse plants in the glass structures. The finest of the Conifers are Retinosporas, variegated Hollies, Taxus elegantissima, Abies nobilis glauca, with cones; Acacia inermis, Thuya semperaurescens, Abies Nordmanniana, A. Pinsapo, A. lasiocarpa, Picea pygmæa, Thuya Vervaeneana, T. elegantissima, Elwangeriana, and dolabrata variegata; Chamæcyparis variegata, Cupressus Lawsoniana gracilis, Retinospora squarrosa, Cephalotaxus drupacea, Juniperus excelsa stricta and chinensis, Cryptomeria elegans, and perhaps the finest plant in the kingdom of Wellingtonia gigantea pendula. There are nice plants of Catalpa syringæfolia aurea, mixed with the green coniferous plants, in order to show what a useful subject it is in autumn; the golden Poplar is also pretty among the taller shrubs. In addition to these there are large squares of Yews, Oaks, Privets (variety ovalifolia), Junipers, Balm of Gilead Firs, variegated Sycamores, and quantities of standard Roses and fruit trees.

The summer-flowering Chrysanthemums are very showy, and none but the best sorts are grown. The following are good kinds :—Sportsman, Mr. Parker, Captain Nemo, Jardin des Plantes, and Madame de Sange. Among the florists' flowers Gladiolus and Violas appeared to be specially grown, and there is a fine stock of double Fuchsias, Bouvardias, Primulas, Pelargoniums, and Clematis by the hundred. Of double Pelargoniums Lucy Lemoine, Madame Thiers, and Jules Simon appeared the most distinct and striking. Solanums are more than well grown, and smothered with berries, in 5 and 6-inch pots; and tuberous Begonias and Auriculas are also largely grown of the very finest strains. Winter-flowering plants of all kinds receive much attention, and herbaceous plants are kept in abundant stock of the best varieties that are most ornamental and useful for cutting. Over forty dozen Henri Jacoby Pelargoniums are rooting in small pots, which shows how soon anything really good takes with the public. Azaleas and Camellias are largely grown for show purposes, and in this long-established well-managed nursery the old proverb still holds good that whatever is worth doing at all is worth doing well. *W. H.*

THE EDIBLE FUNGUS OF NEW ZEALAND.

A fungus, the export value of which has reached to over £6000 in one year and over £11,000 in another, must be deemed a matter of sufficient importance to be worthy a note. A New Zealand correspondent kindly furnishes us with samples of the fungus, Hirneola polytricha, a near relative of the common Jew's-ear fungus of this country, together with some notes of Mr. Griffin, the American Consul at Auckland, from which we extract the following :—

"The New Zealand fungus known to commerce is found upon various kinds of decayed timber in the North Island, in what are called new bush settlements. It favours damp localities, and is very plentiful on the East Coast, south of the East Cape. It exists, however, in the greatest abundance in the province of Taranaki. This province is about 80 miles long and 70 broad. It is bounded on the north by the river Mokau, on the west and south by the sea, and on the east by a straight line from the mouth of the Patea river to a bend in the Wanganui river, and by another straight line connecting the latter river with the source of the Mokau river. Within this region are the vast forests: indeed, not more than one-tenth of the entire province is composed of open land. The process of clearing the ground is very slow. The settlers often find their task so difficult that they abandon their work in one place and begin again in another. They lop off the branches of the trees and burn them, leaving the logs upon the ground, and as they are not removed soon begin to decay. The trees are well supplied with spurs, and fall in such a way as to partially rest upon them within a few feet of the ground. Sometimes the workmen erect scaffolds for the trees to fall upon. It is supposed that the growth of fungus is favoured by the trees being left in this way; it is more probable, however, that some peculiarity of the climate has more to do with its growth than anything else. It requires very little trouble and no expense to prepare this valuable article of commerce for the market; indeed, the only thing necessary to do is to gather it, and spread it out on the ground in the open air, or under sheds to dry. I know a number of children who keep themselves in pocket-money by collecting it, and they have no difficulty in telling it from obnoxious and poisonous plants of similar growth. Very few men except those of idle and dissipated habits engage in the employment of collecting fungus, unless I except the Maoris (or native inhabitants), who do not consider that occupation beneath their dignity. The fungus collected by the natives is generally dried in smoky huts, and is, on that account, nothing like as valuable as that prepared by the children of Europeans. As soon as it is dried it is put in Flax baskets or Jute bags, and sold to the dealer for what it will bring. It is then packed in bales and shipped to China by way of Sydney or San Francisco. Some of it goes direct to San Francisco, where it is either transhipped to Hong Kong, or consumed by the Chinese population of our Pacific coast. At one time the profit upon fungus was something enormous, and it could be bought from the collectors at little more than 1 cent per pound, and sold in San Francisco at 15 cents per pound, and 23 cents in Hong Kong; the prices, however, are fluctuating. Now that its market value has become better known it is difficult to purchase it here, even in small lots, from the collectors for less than 8 to 10 cents per pound. It loses rapidly in weight by shrinkage.

"The Uses in China.

"In 1873 the Government of New Zealand caused an inquiry to be made as to the purpose for which fungus is used in China, and some correspondence was had between the Colonial Secretary of New Zealand, and the Colonial Secretary at Hong Kong. The latter stated in one of his communications that the article was much prized by the Chinese community as a medicine, administered in the shape of a decoction to purify the blood, and was also used on fast days with a mixture of vermicelli and bean curd, instead of animal food. It is also said to be used in China and Japan for making a valuable dye for silks. Since this correspondence it has been discovered that it is used by the Chinese principally as an article of food. It forms the chief ingredient of their favourite soup, for which dish it is much prized on account of its gelatinous properties and its rich and delicious flavour. I send by this mail to the Department of State a small package of samples of fungus marked H, kindly furnished me by H. B. Morton, Esq., of this city, for examination and experiment. Mr. T. F. Cheeseman, the curator of the Auckland Museum, is of the opinion that the fragments of wood attached to one of the specimens is from a tree known to the Maories as Whau-whau-paku, or to botanists as Panax arboreum. The other specimens were doubtless found on the Karaka tree (Corynocarpus lævigatus), or the Mahoe (Melicytus ramiflorus), Kaiwhiria (Hedycarya dentata), Pubapuka (Brachyglottis repanda), and the Panax arboreum already mentioned, as well as on several other soft-wooded trees. Fungus appears to me to have a slightly pungent taste, although it is generally said to be tasteless. A few days ago I made soup out of some of the samples furnished me, but did not partake of it in sufficient quantities to be able to judge of its excellence as an article of food for civilised people; but one of my Chinese neighbours, who happened to be passing my door while the soup was boiling, caught the aroma of it, and very kindly relieved me of any further trouble in trying to cultivate a taste for one of his favourite national dishes.

"The following table shows the quantity and value of fungus exported from New Zealand for each year since 1872 :—

Year.	Tons.	Value.	Year.	Tons.	Value.
1872 ..	58	£1,927	1877 ..	220	£11,318
1873 ..	95	1,195	1878 ..	173	8,652
1874 ..	118	6,226	1879 ..	59	2,142
1875 ..	112	5,740	1880 ..	165	6,227
1876 ..	132	6,224			

NEW CONIFERS.

Pinus arizonica.—Of this Mr. Lemmon, who has recently been exploring in Arizona, says :—

"Among the remarkable varieties there is time to mention only one Pine. In 1875 Dr. Rothrock, of the Wheeler Survey, discovered on the Santa Rita mountains a Pine tree having a strong resemblance to the common yellow Pine of California (Pinus ponderosa) but having its leaves in fascicles of five each, instead of three each, the number in the typical species. Coupling this character with others, derived from the smallness of the cone, &c., Rothrock judged the two to be distinct and gave it the name of Pinus arizonica, though admitting that his 'data were very meagre.' Last autumn Dr Engelmann himself, with Professor Sargent, visited the Santa Ritas, and both became satisfied that the Pine was indeed distinct, and entitled to be ranked as a new species. Now, in the large enclosed forest of the Santa Catalina mountains, we find Pine trees of the appearance and description given for the Pinus arizonica, including the long, slender leaves in bundles of five; but, unfortunately for the fate of the new species, some of the leaves are in fascicles of all numbers from two to seven. On examination of this forest for several days, every variety of character distinguishing this polymorphous species was noted, the same as in the Sierra of California, with the added features of many-leaved fascicles and very small cones; so we are compelled to believe that the so-called Pinus arizonica is only a form, or rather a sport, of the Pinus ponderosa, so variable in its forms in California as to have received there four or five names from the lumbermen, but all specifically connected by intermediate forms. Of course, we must not deny that the Pinus arizonica may exist in the Santa Rita mountains, a range some 50 miles southward of the Santa Catalina; but certainly the presumption is against it, and the facts presented, we think, show the wonderful transformation powers of isolation and climatic conditions to which this species has been subjected for ages, almost rendering it a distinct species. Fascicles of these Pine leaves of different numbers and various lengths have been sent, accompanied by the gist of the above notes, to Dr. Engelmann, Professor Sargent, Dr Parry, and to the Californian Academy of Sciences, from whom we may expect decisive reports."

Pinus reflexa.

Mr. Lemmon, in a note to the *Arizona Journal* says :—"This large and valuable Pine tree, until lately was considered a variety of a certain white Pine found on the Sierra Madre mountains, Mexico, but is late declared by the highest authority (Dr. Engelmann) to be a distinct species. This Pine resembles

the common Sugar Pine of California, but the cones are not half so long; and, even when young, the scales are strongly reflected, suggesting the Doctor's new name for the species—"Pinus reflexa." It is frequently met with in the deer park referred to, also on a similar plateau on Mount Graham, and is reported also from several other ranges." *American Gardeners' Monthly.*

NOTES ON VEGETABLES.

Peas.—The season has been very favourable for these—that is, so far as regards their productiveness and the gathering of them green for cooking; but I fear seed will be scarce and dear, as the weather at the time of ripening set in wet, and prevented crops being harvested in anything like the condition they ought to be. Among the tall kinds the best with us has been Telephone, which is a grand Pea, bearing pods from 5 to 6 inches in length, and these not wind-bags, like those of Superlative, which created such a stir some years back, but every one as full as they can be packed; and the Peas being large, when shelling takes place they soon fill up a dish. It was stated that Telegraph and Telephone are identical; but that is not the case, as they are not only distinct in colour, but the last named is much the best Pea of the two, as, eaten either raw or in the cooked state, it is more sweet and tender. Being a strong grower, Telephone should be sown thin, and it is a good plan to have the rows at wide distances, as then they get plenty of air and light on both sides, and crop nearly down to the ground. We grow ours 10 feet apart, and plant a row of Celery between, which enjoys the shade till late in the summer, when it gets full exposure by the Peas being cleared, and there is then plenty of soil for earthing it up, and to get a row of Lettuce or Cabbage between. As yet I have not tried Telephone late, my favourite sorts for this work being British Queen and Ne Plus Ultra, both of which we are now picking, and as they are still full of bloom and vigour they will yield a supply for some time to come. In growing Peas, we always mulch heavily, as it saves labour in watering and keeps the earth cool. *J. S.*

French Beans.—For yielding a supply during the summer and autumn there are none equal to Canadian Wonder, which is a strong grower and a very heavy cropper, bearing pods 8 to 10 inches long, of great width, and these when cooked are remarkably delicate and tender. Unlike most French Beans, that bear only for a short time, Canadian Wonder may be said to be perpetual, as so long as the pods are kept picked off when ready the plants continue to blossom and yield in succession. To afford proper room the rows should be a yard apart, and the Beans 10 inches, and when growing it is a good plan to stick a few brushy twigs by the sides to assist in holding them up, as without support wind and wet often knocks them about. Not only is Canadian Wonder the best late outdoor Bean, but it is a valuable one to grow in pits or frames, planted on a little bottom-heat in March, as towards the end of May the lights may be removed, and the crop the plants yield under such treatment is immense. For pots they are rather too tall and strong, but growth may be restricted by stopping the tops and pinching off some of the leaves—a practice I generally adopt with all winter Beans. *J. S.*

Market Potatos.—We think that three varieties of Potatos well deserve, after the experience of them this season, where grown in large quantities, to be termed "market Potatos." One of these is Covent Garden Perfection, a second early, of remarkably good quality, and a heavy cropper. In the Northampton district we saw this Potato being dug, and clean, medium-sized tubers in good quantity following a quick growth, dwarf top, and early ripening, was the prevailing characteristic. It is a sort that finds a ready sale in market when dug. It is understood to have come out of the same batch of seedlings as Magnum Bonum. Burbank's Seedling, a white kidney variety, is a sort that finds great favour with the Northamptonshire people. It is an American variety, now rarely found in catalogues. It has a short top, makes a good second early, the produce is good, and the flesh eats dry and well. Our third variety is Vicar of Laleham, a comparatively new sort, that has come out grandly during the summer. It is a variety with a purple skin, and the snow-white flesh peculiar to this class of Potatos—a heavy cropper, and but little diseased generally. It is in the fullest sense of the word a main crop variety, and, being a good keeper, should be kept till March and April. It is a remarkably fine Potato for mashing. *Looker Round.*

Orchid Notes.

Spiranthes Romanzoviana.—This is not an Orchid which is likely to find favour with lovers of Orchids for their decorative value only; nevertheless, its white and deliciously fragrant flowers render it attractive even from this point of view. The main interest attaching to it consists of its singular geographical distribution. So far as is yet known it is found wild in Europe only in a wet meadow, near Bantry Bay, Co. Cork. But in North America it extends from the Atlantic to the Pacific coast. Did it migrate from America, or was the current in the opposite direction? Did it ever occupy other European territory? These and many such questions this plant suggests for the philosophers to solve if they can. It is a near ally of the Lady's Tresses (Spiranthes autumnalis), now to be found in bloom on our Kentish downs, and elsewhere. Our figure (fig. 86)

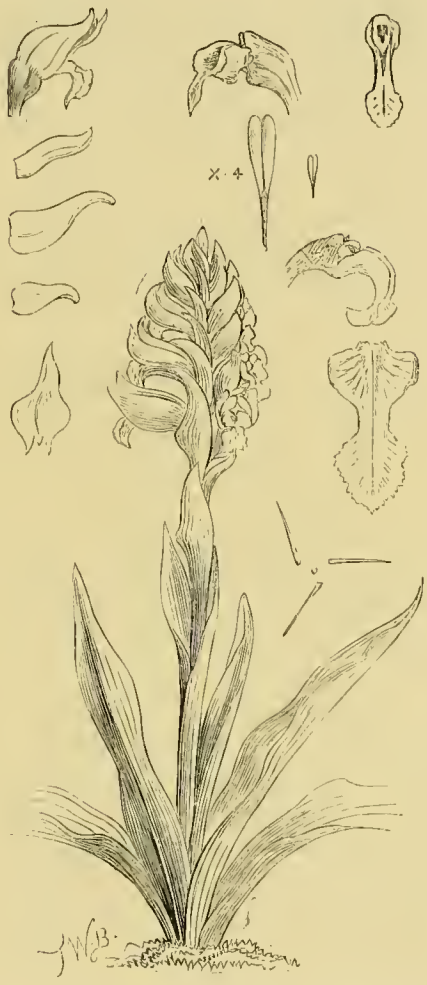

Fig. 86.—Spiranthes Romanzoviana and floral details: nat. size. Pollen masses magn. four times.

was kindly furnished by Mr. Burbidge, under whose care the plant has been successfully cultivated for the last two years in the Botanic Garden of Trinity College, Dublin, the plant having originally been collected by the Professor of Botany, Dr. Percival Wright.

Dendrobium chrysanthum.

I can fully agree with all that Mr. Swan says, respecting the glorious spectacle of such a plant as he brought under notice in your last issue, p. 434. We have here—in the gardens of John Riley, Esq.—at the present time in flower, a specimen of the above with twenty-four flowering growths, several of which are 6 feet long. On one bulb I counted upwards of eighty blooms. The plant is suspended from the roof with Ferns underneath, and I need scarcely add that it is a goodly sight to look on. Another Orchid, which is seen to advantage suspended from the roof in close proximity to Ferns, is the chaste Maxillaria venusta, which, in addition to blooming at this time of the year, lasts for several weeks in beauty. *Jas. Almond, Hapton House Gardens, Burnley.*

PLANT PORTRAITS.

Abutilon Reine d'Or, *Floral Mag.*, t. 458.—Flowers of a rich golden-yellow; valuable as a winter-flowering plant in a warm greenhouse.

Ardisia metallica, N. E. Brown, *Illust. Horticole*, t. 421.—A stove shrub of dwarf habit, with oblanceolate bullate purplish or metallic-green shortly stalked leaves. Native of Sumatra. Hort. Linden.

Astilbe Thunbergii, *Floral Mag.*, t. 457.—A very elegant Japanese Spiræa, with the habit of A. japonica, but with the flowers in long slender compound spikes.

Auricula Double Purple, *Floral Mag.*, t. 460.—A beautiful novelty, grown by Mr. R. Dean.

Bertolonia Legrelleana, Hort., *Flore des Serres*, t. 2407.—Leaves cordate, broadly ovate-acute, velvety green, hispid, marked with white veins.

Bolbophyllum Beccarii, Rchb. f., *Bot. Mag.* t. 6567.—This is the gigantic Bornean Orchid described in our columns, 1879, i., p. 41; 1880, ii., p. 326, 525. The flowers are in dense pendulous ovoid racemes, the individual flowers being ⅓ inch in diameter, ochreous-yellow, with red reticulations, and a most abominable fetor. Messrs. E. G. Henderson were the first to flower it in Europe.

Choisya ternata, *Monatsschrift des Vereines zur Beförderung des Gartenbaues*, t. 4.

Crinum Balfourii, Baker, in *Bot. Mag.*, t. 6570.—A well marked new species, discovered in Socotra by Dr. Bayley Balfour. The bulbs and leaves are much smaller than in most of the cultivated kinds. The umbels bear ten to twelve very fragrant flowers, with a long slender tube (2 inches long) and linear-oblong white segments.

Dendrobium Brymerianum, *Floral Mag.*, t. 459.—Flowers racemose, each 3 inches across, orange-yellow; the heart-shaped lip with an orange spot on each side at the base, and with the edge deeply fringed.

Dendrobium Dalhousianum, Paxton, *Illust. Horticole*, t. 423.—Flowers almost 4 inches across, fawn coloured, flushed with red; the roundish lip is of the same colour, with two large purple spots on each side at the base. Birmah.

Epidendrum vitellinum majus, Williams' *Orchid Album*, t. 4.—A fine variety, with orange-scarlet flowers 2 inches across.

Geum elatum, Wallich, *Bot. Mag.*, t. 6568.—A Himalayan species with oblong unequally and interruptedly pinnatisect leaves and yellow flowers. Kew.

Homalomena Wallisii, Regel, *Bot. Mag.*, t. 6571.—The plant figured and described in *Gard. Chron.* 1877, p. 108, fig. 16, as Curmeria Wallisii. It may be remarked that the name is "Homalomena," not "Homalonema," as commonly written.

Kniphofia comosa, Hochstetter, *Bot. Mag.* t. 6569.—A dwarf species, with a dense oblong obtuse head of flowers of a yellow colour, with very long protruding stamens. Mr. Elwes.

Mutisia decurrens, Cav., *Flore des Serres*, t. 2408.—A climbing Composite with sessile decurrent lanceolate leaves, ending in a long tendril; flower-heads 4 inches across, bright orange.

Pinanga Veitchii, Wendl., *Flore des Serres*, t. 2405-6.—A highly ornamental Palm, with oblong leaves tapering at the base, truncate, and deeply two-lobed at the apex, mottled green above, with reddish nerves, rich claret coloured beneath. Borneo. Messrs. Veitch.

Plum, Reine Claude de Razimbaud, *Revue Horticole*, July.—Fruit medium sized, globose, with a well marked suture, golden-yellow blotched and spotted red on the sunny side; flesh yellowish, melting, separating readily from the stone, of good flavour. Stone small, oval, rugose.

Rhododendron Madame L. van Houtte, *Flore des Serres*, t. 2409-10.—Flowers pale shaded rose, spotted with brown, and with a white centre. The habit is said to be good.

Rose Gloire de Ducher, *Journal des Roses*, July, 1881.—Shoots reddish, robust; prickles red. Leaves deep green; flowers large, solitary, crimson, slaty at the edges.

Salvia M. Issanchon, *Revue de l'Horticulture Belge*, July, 1881.—Supposed to be a form of S. splendens. The calyx is white or yellow, striped with red; the corollas red at the base, whitish above.

Solanum pyracanthum, Dun, *Flore des Serres*, t. 2411.—Stove shrub, with oblong pinnately-lobed leaves, studded with stout orange-coloured prickles; flowers violet. Madagascar.

Forestry.

Growing our Own Timber.—It is at all times desirable, but specially so at present, to grow sufficient wood upon every extensive estate for all its requirements. If the cost of importing beef from America is such as to render the undertaking almost profitless, how much greater must be the loss in importing wood. The carriage of wood upon land is such that it can only be conveyed a very short distance without consuming the profit, hence the desirability of finding for it a local market. Carriage by sea is undoubtedly much cheaper than by road or rail, and so long as the freightage is low prices will not materially advance on account of carriage. The tide may, however, and probably will soon turn, not only from low to high freightage, but on account of diminished supplies from abroad, where the forests are melting like summer snows.

It is therefore strongly recommended that all landed proprietors grow as much wood and timber upon their respective properties as is required for thorough maintenance of the estates, including fencing, waterworks, fuel, buildings, &c. The question may very properly be asked, why we pay foreign nations large sums of money for wood, a great part of which might be kept, or rather circulated, at home. From a report by the Board of Trade for the year ending December 31, 1873, I find the following statement, amongst others, of great significance and interest to proprietors of woodlands, namely, £18,654,982, the money paid by this country to foreign countries for the article wood alone. That was probably an exceptional return; but even with ample allowance there is still a broad margin worthy of the attention of those interested in the growing and disposal of wood. We cannot grow all kinds of wood and timber in this country more than we can all kinds of grain, but there are some kinds which can be grown at home vastly superior in many respects to what are gown abroad, such, for example, as the Scots Pine, Larch, and some kinds of hard woods. If any one is at all sceptical in regard of this I would advise them to visit the Pine forests of Deeside, Strathspey, and some of the woody districts in Ross-shire and Inverness-shire, such as Novar, Balnagowan, Beaufort, and many others, where both natural and planted timber trees can be seen in all their splendour and magnificence. Or where the Larch is wished to be seen in perfection, a visit to the woods and forests of Blair, in Athole, on the Tay; on the banks of the Don, at Monymusk; at Ballingdalloch, on the Spey; and Novar, Balnagowan, &c., in Ross-shire. If at these favoured places the trees, as such, are pleasant to the eye and gladdening to the heart of any admirer of sylvan grandeur and magnificence, it is equally certain that in point of quality and utility they will be found unsurpassable, if not unequalled in the known world. The justly celebrated Scots Pine of the Dee and Spey side districts have proved their durability again and again by endurance as fence and gate-posts, in which positions—the most trying possible—they have been and are still known as standing from forty to fifty years. Of Larch, again, I have in my possession some samples in excellent condition after having stood as fence-posts over thirty-five years.

There are, no doubt, well-defined and limited conditions under which any species of tree grows to perfection, and the Larch and Scots Pine are no exceptions. The first condition is to plant the trees only upon such ground as is suitable to them. The second condition is to thin them, so that at any stage of growth the trees may grow with a freedom and vigour adapted to their nature, constitution, and habit; and the third condition is to cut them at the proper stage of ripeness, and at the proper season of the year. Beyond proper planting, which includes selection of the soil, situation, &c., the next most important thing to attend to is the thinning of the trees. It is much to be deplored that vast areas of plantations are rendered less than half as valuable as they would otherwise be for want of timely thinning. In a large plantation of Scots Pine (over 1500 acres, and fifty years old) I had once an excellent opportunity of observing the effects of thinning in all its forms, and may state the value of the trees thus:—Part not thinned at all, trees valued at 3*d.* each. Part thinned when something over twenty years old, worth 6*d.* each. Part thinned once and soaringly when young, say twelve to fifteen years old, worth 1*s.* each. And part thinned once at proper age, say twelve years planted and at proper distances, 4*s.* each. Now if we look at the value of the acre at fifty years old, at the above rates, we find it stands thus:—

1500 small trees, drawn up like poles, at 3*d.* each	£18	15	0
1000 small and branchless trees, at 6*d.* each ..	25	0	0
800 fine clean pole-like trees, at 1*s.* each ..	40	0	0
300 fine clean and fair-sized trees, at 4*s.* each .	60	0	0

It is not to be inferred that all the plantation would have been worth £60 at fifty years old, even if properly thinned, but it may be concluded that it would have been worth £80 per acre at 100 years growth, or even more, including the whole area, which implies that some of it would have been probably over one-third more money value than above represented. The soil was thin and poor, but such as produces fine quality of wood when at maturity at, say, 100 to 120 years. *C. Y. Michie, Cullen House, Cullen, Banffshire, Oct.* 3.

Auriculas.—The plants require to be frequently looked over to remove decayed leaves—the fanciers would say every second day, we are glad if we can look over ours every ten days. Some of the varieties have a tendency to throw out too many offsets from the base of the plant, which very much weakens it. If the principal object is to obtain stock these must be allowed to grow large enough before they are taken off; but if the object be to have fine trusses next spring, remove all but two with the finger and thumb. We have usually removed the plants at this time from their summer quarters behind a north wall to a more open position in the garden; but they look all right where they are, and the more cool position may possibly prevent many of them from throwing up autumn bloom. Do not give much water; just sufficient to keep the plants from flagging.

Carnations and Picotees.

No time should be lost now in seeing that all the plants are potted for the winter. We have finished ours, and they already show that they are established. We merely place the plants in cold frames, and keep the lights rather close for a week, but not quite closed either night or day. The plants that have but few roots are better to have the aid of a gentle hotbed just to start them into growth.

Carnations Perpetual Flowering.

These will now be useful, as the earliest plants will, with the aid of a warm greenhouse, be in flower. Some years ago I saw a grand lot of plants in flower during the month of October. They had been potted into 12 or 15 inch pots, and were two years old. I do not recommend this system; better results can be obtained by putting in the cuttings in January, carefully attending to the plants afterwards, and they flower well in 8 and 9 inch pots. Keep them near the glass, and free from insect pests. Greenfly is sure to get on them at this season, but it can easily be destroyed by fumigating.

Dahlias.

The flowers of these will be very useful for cutting now and up to the time of frost. The smaller flowered Pompons, and the single varieties with small flowers, are the most useful for indoor decoration. A pure white single variety with small flowers is yet a desideratum. The large-flowered sort with several reputed *aliases* is certainly very handsome, but the flowers would be more graceful if they were half the size they are. When frost does cut the plants down it is best to throw a spadeful of earth to the stems until it is convenient to dig them up.

Hollyhocks.

Seedlings and spring propagated plants may yet be producing blooms. Mark the best seedlings to grow again another season. Attend to saving seeds as soon as they are sufficiently ripe, else they speedily rot if the weather is unfavourable. Attend to potting the plants propagated from eyes, &c., during the summer months. About the end of the month the choice named varieties should be taken up, and if there is convenience to store them in a cool-house during the winter they may be potted. They also do well if planted closely together in some light soil in a cold frame. The plants require plenty of air during the winter, but to be protected from wet.

Gladioli.

Except a few late spikes from small seedling corms, or from offsets of named varieties, the bloom is over for the season. It will be necessary to look over the plants every day where seeds are ripening, and as soon as the pods open at the top they must be picked off and laid out in a dry room until they are quite dry, when they may be put into paper bags, and be stored away in a dry place in the pods until it is time to sow them in the spring. The young seedling corms that have been produced from spring-sown seeds must now be carefully separated from the soil, and be stored in paper also; a little dry sandy soil should be mixed with them.

Pinks.

These should be planted out in the beds, which ought to have been previously prepared for them; see to it without any delay if it has not already been done. The beds ought to be levelled carefully, and the plants to be put out 9 inches apart. Preparations ought to have been made to pot up all the plants that are intended for forcing of the white and purple ground varieties. If any spare soil has been left over from potting the Carnations this answers admirably for them.

Roses.

Those who intend to purchase any plants should see to it at once. The best plants are sold out early, and it is not possible to have a good bloom next season if second-rate plants are obtained late, and planted so late that they do not become established before severe frosts set in. If it is intended to form new beds or quarters for Roses, the ground should be prepared at once. The Rose, above all things, likes a rich deep soil; and I find that the plants will succeed perfectly, even in light soil and indifferent situations, if the ground is trenched 2 feet deep, and plenty of good manure mixed with it. When the Roses are planted it is very desirable to put a spadeful of good loam around the roots of each; a barrow-load will do nine or ten plants. Some good plants ought also to be selected for potting; and this should be done as soon as the Roses will bear lifting from the open ground. A word of caution may be dropped here—Do not allow them to remain out of the ground a moment longer than may be necessary. If they have to be dug up in the garden at home they will suffer but little from exposure to the roots. It is when they have to be sent a considerable distance that they receive injury. Of course they should be unpacked as soon as they come home, and if they cannot be potted at once let the roots be immediately covered with soil.

Tulips.

Let the ground be trenched up as soon as it can be cleared of the autumn flowers. We have had a grand display of Asters on the bed where our Tulips bloomed; they are nearly over, and as soon as they can be cleared off the bed must be trenched about 2 feet deep, and again be well enriched with manure. Some good turfy loam ought to be prepared to place on the surface; and in this the roots should be planted about the first or second week in November. *J. Douglas.*

Garden Operations.

HARDY FRUIT GARDEN.

Any wall trees that require to have their roots lifted this autumn will be the better for being attended to at once. All established trees that do not form fruitful growths, and those that, although previously fruitful, are becoming gross in habit, should be operated upon; also all young trees that have been planted two or three years, and have grown freely and almost filled their allotted spaces, will be greatly assisted by careful lifting. If the situation is cold and the subsoil of a heavy description it may be necessary to elevate the trees somewhat above the level of the general surface of the borders; and where this is the case, the trees to be acted upon must first be unnailed, and then have the branches slung in bundles loosely to the wall. Where it is not necessary to lift the boles of the trees, but where the roots only are to be brought nearer to the surface, a commencement may be made by marking out a semicircle from the stem, taking for the radius the half of that of the branches of a fan-trained tree, and, of course, for other forms of training in proportion. A trench must then be taken out to such a depth as to insure that all

roots which are to be lifted have been cut through. Remove as much as possible of the surface soil from the ball with a digging-fork, and with the same instrument let all the soil be regularly and carefully worked outward from amongst the roots and shovelled out of the trench. All small roots must be preserved with the utmost care, and if the tree under operation has not been loosened from the wall so as to be lifted, great care must be taken to see that no tap-roots escape cutting that run down close to the wall into an unsuitable subsoil. Let the roots be held apart right and left, to allow any remaining soil to be removed from under the ball by the spade, which must cut quite through to the wall from the front. With a clean cut of the knife remove the bruised ends of the roots, and carefully clear off any suckers that may be forming. Strong roots that are devoid of feeding laterals may be shortened back, and those taking a downward direction, if too strong to be turned, must be entirely removed; while, should there be a scarcity of feeding roots, it may be necessary, in order to induce them to start freely, to cut nicks at intervals on the long bare roots in preference to cutting them back. Whether the soil be exhausted, or the station too rich—which is often the cause of grossness and consequent failure in young trees, especially of Peaches—it is advisable to replant in loam of a medium description that has been stored for some time, but which has had no manure added to it. Let this be rammed as tightly as possible beneath the tree, filling the hole up to within 6 inches of the surface, treading firmly down, and then spreading out the roots in a regular manner. A little water given through the rose of a watering-pot after just a little fine loam is thrown over the roots will be of great benefit if the soil be rather dry; then fill up to the surface, or above, as the case may be—but in the latter instance the roots will have been proportionately raised—and finish off by leaving the ground as firm as possible and well mulched. Syringe occasionally, if the weather be fine, to preserve the foliage from flagging, for this, if kept fresh, will ensure immediate root-action, and cause trees that are lifted early in this month to have a great advantage over those done later.

Attention requires to be given at this time to the selection of varieties of fruits that are likely to be the most useful for filling any vacancies that occur. For some establishments a preponderance of early or of late varieties may be the most serviceable; but in general a selection of the best for the several seasons—early, medium, and late—will be required, and the earliest will frequently be highly esteemed, even when not superlatively good in other respects. Plums, which succeed in the coldest situations where the more tender stone fruits are difficult of cultivation on the open wall, ought to be represented by a good assortment in every garden. Early Prolific, Kirk's Green Gage, the larger and later Reine Claude de Bavay, Jefferson, Reine Claude Violette, Ickworth Imperatrice, Bryanston Gage, and Golden Drop, should, at least, be found in all collections, and should be supplemented by such useful and free-bearing kitchen sorts as Victoria, Prince of Wales, Magnum Bonum, and Cox's Emperor.

General Work, in this department, will now principally consist in gathering the late stone fruits and Pears and Apples as they become ready; in keeping fruit quarters clear of weeds, and in procuring and preparing the soils required for the season's planting, if not already done. Any early Strawberries that were planted out after forcing, and are now bearing a second crop, should be netted to preserve the fruits; and any Tomatos remaining unripe on fruit walls should be cut and hung up under glass before they are caught by frost. *Ralph Crossling, St. Fagan's.*

FRUIT HOUSES.

Vines.—The earliest vineries can now be pruned at once, cutting them back to a good eye. The loose pieces of bark can also be carefully pulled off with the thumb and finger before washing the Vines—but do not scrape them with a knife; then wash them with Gishurst Compound at the rate of 6 oz. to every gallon of water. Thoroughly dissolve the Compound, and wash the Vines with a brush, taking care to get it well into the crevices. Vines affected with mealy-bug, where plants are grown under them, can be painted with a mixture of Gishurst Compound, clay, sulphur, and soot, mixed to the consistency of paint, and applied with a painter's brush, getting it into all the crevices, which will help to keep them in check; but where the Vines are clean this painting is not necessary. When the Vines are cleaned tie them down in a horizontal position, and keep the house as cool as possible until it is closed for forcing. Keep houses of Black Hamburgh as recommended in previous Calendars, taking care to go over the houses weekly with a soft hair-brush to disturb the spiders, thoroughly brushing out all the crevices to prevent them getting their webs on the bunches, which spoils their appearance when sent to table. Muscats should now be thoroughly ripe; but if any are not quite finished keep on the fire-heat a little longer; the bright sunshine we are now having is very favourable for finishing any that are extra late. Where the fire is continued damp the houses down on bright days when there is plenty of air on, so that it will dry up before evening; and if the rainfall on the outside borders is excessive cover with shutters or tarpaulin, to shoot off the wet; but if they are not wanted to be kept later than Christmas no covering will be necessary. If the inside borders are dry, water them on a bright day, and afterwards cover the border with Fern or litter, to prevent evaporation, and very little more water will be required. Keep the temperature as advised in my last Calendar. Late varieties of Grapes will now be thoroughly ripe and the temperature can be reduced, but if the foliage is still green keep on a little fire-heat until it begins to change colour. Damping down must now be dispensed with altogether, and only water the house when necessary. If the borders are dry now water on a bright day, and if they are covered no more watering will be necessary; but, of course, the borders must be examined and only kept sufficiently moist to keep the berries plump. Protect all outside borders of late keeping Grapes with shutters, to shoot off the wet, otherwise they will not keep sound, however well they may be managed inside the houses. Lady Downe's in particular suffers through cold autumn rains on outside borders, and houses of that variety must be covered at once, or the berries will crack and lose colour. Keep the inside border also drier than for other varieties, and twice weekly look over the bunches and take out any bad berries. Admit air sparingly on foggy days, keeping the front ventilators closed, and only admit a little at the back. Keep newly planted vineries as advised in my last Calendar. The earliest pot Vines can now be pruned and kept cool until forcing commences; if too long for the houses they are to occupy do not shorten them back much, as the best bunches usually show towards the top, but train them in a horizontal position, according to the room at disposal. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

No more shading will be required this season; therefore take off the scrim canvas, and let it be thoroughly dried before being put away. As this material is very expensive, it is worth a little time bestowed on its preservation. The rollers should be taken off and painted, then put in a dry place or shed; if such accommodation is not available for very long rollers, sling them to a dry wall with a south aspect. Continue the early closing all through this month; close the houses or pits at 80°, and let them rise to 90°. The sun's rays are not strong at this season, therefore the same vigilance will not be necessary as was the case at an earlier date. The maxim, to make the most of every ray of sunshine, is at all times applicable in Pine-growing. The spring and summer potted plants intended to fruit next year should now be making vigorous growth; these plants may be ventilated more freely; on mild sunny days air may be given from 10.30 A.M. to 2.30 P.M.; maintain a little heat in the pipes all day, as this keeps up a current of warm air, and ensures thorough maturation of the growth. A spongy, sappy growth can be corrected by free ventilation and less atmospheric moisture. Keep the night temperatures for fruiting plants in all stages about 70°, but a variation of a few degrees either way should be allowed according to the state of the weather. The young stock may be kept a few degrees lower, so as to keep them growing more steadily, for it is well to avoid pushing them in very early stages. The delusive notion that Pine plants should sustain a check to throw them into fruit may be abandoned. Although these plants may be subjected to hard treatment and yet show few traces of it externally, yet on a close scrutiny their stunted and injured appearance presents a vast contrast with that of plants in the highest state of luxuriance, when they are as sensitive as a Mexican Lælia to any kind of check or fluctuation. Temperatures at all times form a very important item; it is essential that they should rise and fall gradually, which can only be done by a studied regulation of the hot-water pipes, and balancing with the solar heat. The bulk of the moisture should be caused by the steam from the evaporating troughs, and by damping the paths, walls, beds, &c. Those careful injunctions previously given respecting watering must strictly be carried out, for if the plants lose any portion of their roots by indiscriminate waterings at the present time, they will be worth little in the spring. *D. Wilson, Castle Hill, Devon.*

PLANT HOUSES.

Stoves.—Where large specimens of ornamental foliaged plants are grown it will be advisable to go over such as Alocasias, Anthuriums, and Marantas now, and reduce them into somewhat closer compass by removing the oldest leaves that may have become somewhat faded. This process, besides letting more light into the plants, will also economise space for the better display of winter-flowering plants. It is also a good time at which to tie and regulate specimen Crotons, getting them into goodly shape before the spring growth commences. Keep a close watch for thrips on all Dracænas grown in stoves. It is now a capital time to endeavour to root off the tops of strong-growing kinds, that are safer done in this way than by cutting them off and striking them in a propagating-pit. By getting them fairly rooted before removing them entirely from the parent plant, they will grow away quickly in the spring. Large overgrown plants of Pandanus should not be tolerated unless an abundance of space is at disposal; young ones grown on quickly make far better plants, potting the variegated kinds in rather poor soil. Any Palms that are grown for special purposes in very small pots must have an abundance of water, and occasional doses of Standen's manure helps them greatly. This hint is necessary now that more fire-heat has to be given to maintain the requisite temperatures. If any are excessively pot-bound they should be stood in shallow pans, this will keep them better supplied. All Palms seem to thrive best when grown in somewhat small pots; when in larger pots, if the roots become unhealthy, the plants will soon deteriorate. Give such kinds as Stevensonia (Phœnicophorium) and Verschaffeltia the warmest end of the house, and do not place them too close to the glass during the next few months. Now that the blinds are dispensed with, the stove may with advantage be re-arranged, adding much to the effect, where plants during the summer months have been so arranged to suit their several requirements of light and shade.

Ferns.—Any stove kinds that may have been growing in a temperate-house during the summer should be removed to the stove, in time to keep them in good health now that the nights are getting colder. Among these may be named Goniophlebiums, Adiantum assimile and A. amabile, Asplenium longissimum, and such kinds as are generally grown in baskets and utilised for conservatory decoration during the summer. Keep all Tree Ferns well supplied with water; do not relax the vigilance hitherto kept up in this respect during the warmer weather. Remove any fronds that may have become shabby, but only a few at a time, this will admit more light to those plants grown under them during the winter. Do not let either scale or thrips gain a foothold on Gleichenias. These fine Ferns will soon suffer if not kept free from insects. Withhold water gradually from all deciduous Ferns, among which may be named Leucostegia immersa, Adiantum amabile and A. assimile, and Lygodium scandens, but when they are become somewhat unsightly do not let them be put in any out-of-the-way corner during the resting season.

Greenhouse, Pits, &c.—Now that we may soon anticipate slight frosts in the early morning, it will be well to bring under protection any of the hardier kinds of greenhouse plants that may be still left unprotected, such as Cytisus, Eupatoriums, Fuchsias, and other plants that for want of accommodation have been left out thus long. Where a temperate-house or part can be devoted to the culture of greenhouse Rhododendrons of the more tender kinds, a few trusses will be often coming in that will be of good service. The same structure would well suit Tree Carnations, Bouvardias, Abutilons, and many other plants grown for supplying cut bloom during the winter; the earliest bulbs could also be brought on gradually in such a house. The earliest of the winter blooming Epacrises will now begin to turn in useful for cut bloom; watch them closely for water, and do not let them suffer on any account. This latter remark should also apply to the soft-wooded Heaths, especially those that may have been recently purchased and are growing in small pots with an abundance of roots. Many of these will be set for flower, the most advanced of which would suffer greatly if allowed to become dry at the root. In some cases the growth of the flower-bud will be quite arrested, in others the flower will open but very imperfectly. Young growers should pay especial attention to the watering of these plants, all the more so when they are first received from the nursery. A few of the plants with most prominent flower-buds of the earliest flowering Indian Azaleas may now be introduced into heat; if they have been forced for a few seasons previously they will come on much more easily. The best kinds for this early work are A. indica alba, narcissæflora, vittata in its varieties, and Roi Leopold. Where the stock of hardy plants intended for forcing in pots has to be secured from the nursery, the sooner they are got and potted up the better will it be for the plants, and much preferable to leaving them till hard frosts set in. After they are potted let them be plunged either in a shallow bed of leaves or ashes. Spiræas that have been turned into the open border during the summer should be potted up without delay, giving them the protection of a cold frame, if to spare. Violets intended for winter and early spring picking should now be in the pits or frames devoted to them. If a few can be placed in a pit with a pipe running round it the regular supply might be ensured during severe frost. *James Hudson, Gunnersbury House, Acton, W., Oct. 4.*

APPOINTMENTS FOR THE ENSUING WEEK

Monday,	Oct. 10	Sale of Dutch Bulbs, at the Mart, by Protheroe & Morris.
Tuesday	Oct. 11	Royal Horticultural Society: Fruit and Floral Committees, at 11 A.M.; General Meeting, at 3 P.M. Clearance Sale of Nursery Stock, Greenhouses, &c., at the Vale Nursery, Acton, W., by Protheroe & Morris (two days).
Thursday,	Oct. 13	Sale of Winter-blooming Heaths and other Plants, at Fraser's Nursery, Leyton, by Protheroe & Morris.
Friday,	Oct. 14	Sale of Plants and Bulbs, at the Mart, by Protheroe & Morris.

ONE of the most encouraging signs of the times is the increased favour with which Herbaceous and Alpine Plants are regarded. Their beauty and interest are such as to merit any attention that may be given them. Many are of the easiest culture, while others tax the ingenuity of the most expert cultivator, and there can be no doubt that their extended cultivation would greatly develope that intelligent interest in plants, their habits and mode of cultivation, which a too exclusive and ill-judged addiction to bedding plants tends to obliterate. "Bedding-out" of various kinds has its value when judiciously carried out in suitable localities. It is its too exclusive adoption, and the ill-judged manner in which it has been often managed, that have raised a prejudice against it. In advocating, therefore, increased attention to the culture of well-selected herbaceous and rock plants, it is not desirable, even if it were necessary, to decry the bedding-out system. Bedding-out has its advantages, moreover; it gives great pleasure to a large number of people, and in matters of this kind the greatest allowance should be made for individual tastes. The authorities at Battersea and Victoria Parks, for instance, do wisely to put before the public illustrations of all kinds of garden decoration practicable under the circumstances; and a visit to those establishments at this time will show that even the much decried carpet-beds have their advantage in prolonging the season in which such modes of decoration are possible. The beauty of the ordinary flower-bed is over, but the carpet-beds still retain a large measure of their effectiveness, and are a source of genuine pleasure to thousands who can at present hardly appreciate a higher and more interesting style of gardening The chief faults that can be alleged against it are the tasteless way in which it is sometimes carried out, and its introduction in the wrong places. In association with architectural features and on formal terraces such a system is valuable, as being in harmony with the formal lines of the building—at least in the case of some styles of building, though it is detestable in other cases. How obtrusive and inharmonious, for instance, it would appear close under the walls of the cathedrals of Peterborough or York! So again, to our thinking, it would be out of place in a public garden like Kew, where the main object is educational and the disposition of the grounds pictural rather than formal. Our own sympathies are by no means in the direction of this style of gardening, but it would be mere affectation to denounce it altogether.

The proper management and disposition of herbaceous and alpine plants requires considerable knowledge and skill; and a mere wilderness, such as some gardens, wherein this style of gardening is practised become, is every whit as objectionable as the glare of ribbon borders and the preposterous artificialities of carpet-bedding when badly managed. Some gardens we have visited in the latter part of July even, in widely diverse localities, presented a tangled waste of withered weeds, with scarcely a flower to be seen, and wherein it would have been impossible for a lady to cut and arrange flowers for the decoration of her rooms. If this were to be the upshot of the present revival in the taste for hardy plants, it would be to the full as deplorable as ill-managed bedding. Happily, such a condition of things is by no means inevitable, and those who have seen the rock gardens at Redleaf—to mention one out of many illustrations—will recognise that this style of gardening may be made attractive and interesting; and, if we might be allowed to express our individual tastes, the most attractive and interesting of all styles of outdoor gardening.

We are glad to know that an effort is now being made to induce the Government to introduce this style of gardening at Kew more distinctively than has yet been done, and more completely and picturally than in the Edinburgh Botanic Garden. It is hoped that a very rich collection of rock plants and alpine plants—it is impossible to be very precise as to definition—may be got together and so disposed as to present a pleasing feature from a landscape gardening point of view, and to be available for those scientific purposes attention to which should constitute the distinguishing feature of Kew as compared with other parks and pleasure-grounds.

The scheme sketched out for the consideration of the authorities suggests the formation of a rock garden on a sufficiently large scale, with provision for pictorial effect and of course with special attention to the peculiar requirements of certain plants. It would thus include not only banks and niches, and pockets and borders, such as are usually met with in such cases, but an unheated house or houses, which might be removed in summer, to shield from damp and vermin those plants whose culture in this climate without some such protection would be impossible; and it would be all the better if provision for excluding frost were also provided in case of need. A house for the cultivation of Todeas and such-like Ferns, naturally arranged on masses of rock, would be appropriate, and form a great addition to the delights of such a garden. Pot culture would in many cases be essential, and would have to be provided for. All this, or any part of this, however, would demand the constant supervision and the attendance of specially trained men, who are not to be had at short notice. It is evident, therefore, that the authorities at Kew must necessarily be guided by what they know to be practicable with the means at their disposal; but we are sure that their scientific instincts would make them look with favour on the scheme, and induce them, if permitted, to carry it out with the same zeal and efficiency manifest in other departments of this vast establishment. Granted the principle, the details could and would be carried out, according to circumstances, in the most complete manner possible. The following is the text of an address to the First Commissioner of Works which is in course of signature by those of our plant lovers specially interested in the class of plants to which it refers, and which is, of course, intended to be suggestive merely. It is for the authorities to modify or extend the scheme, and to work it out in detail:

"To the Right Honourable Her Majesty's First Commissioner of Works.

"Sir,—We, the undersigned horticulturists, botanists, students of, and writers on, botany and horticulture, who are intimately acquainted with the value and importance of the Royal Gardens at Kew, and the great influence which the Kew establishment has had on the progress of botany and horticulture in this and other countries, venture to point out to you the want which appears to your petitioners to exist at Kew, of the means for the proper and successful cultivation of that large section of plants known as 'alpine' or 'rock plants.'

"These are now year by year increasingly attracting the attention of cultivators for permanent decorative purposes, and in many horticultural establishments are to a great extent replacing the more costly, though less enduring and less instructive, system of garden decoration known as 'bedding-out.'

"Rock gardens now form a necessary adjunct to all the leading private horticultural establishments of the kingdom; and whilst they are an invariably attractive feature in the higher development of landscape gardening, they are indispensable to the successful cultivation of hardy plants. They afford peculiarly valuable means of study to the botanist by enabling a much greater variety of plants to be grown within a relatively limited space, and this, too, throughout the year, there being few days even in the depth of winter when some interesting plant may not be seen in such a rock garden as we are advocating—a point also of considerable importance to the general public.

"Rock gardens, in their wide adaptation to the culture of every section of hardy plants, really afford the only means of grouping them under a geographical arrangement, a method of so much importance in an educational establishment, resorted to for reference by nearly all the workers of this country and the Continent in the various departments of botanical science.

"A properly arranged rock garden, with its rockwork, bogs, lakes, pools, running water, woods, and thickets, is the only horticultural scheme which can supply in close juxtaposition the various conditions under which each section of hardy plants can be successfully cultivated and grouped together in illustration of the floras of the different districts of the world.

"The Royal establishment at Kew, which, during the last thirty years, with its natural and decorative features, its glass-houses, arboretums, museums, and herbaria, has advanced to a position unapproached by any other similar establishment, seems to your petitioners to be pre-eminently the centre in which a model rock garden should be established on a scale worthy of its surroundings.

"The existing rockwork at Kew, though much too limited in extent to include more than a small proportion of the hardy plants which are found even in private establishments, has manifested how successfully ornamental rock plants and herbaceous perennials can be cultivated at Kew, and has been a centre of attraction both to the general public as well as to botanical students and amateur cultivators.

"Your petitioners believe that the formation of a rock garden on a sufficiently important scale would largely increase the existing popularity of the Royal gardens to the public, and by botanists it would be appreciated as a valuable addition to the Kew establishment.

"Your petitioners, therefore, humbly ask that you will be graciously pleased to approve of the proposal herein set forth, and that the Lords of the Treasury will sanction such an expenditure as will enable it to be successfully carried out.—We have the honour to remain, sir, your obedient humble servants."

—— Sycamore at Grimston Park.—The tree here represented (fig. 87) is an unusually handsome Sycamore, of large size and most singular growth of trunk, which is divided into three distinct stems at some distance above the ground, the upper portion looking as if three trees had been planted so closely as to become united at their base but of which there is not the least trace in the appearance of the bark or wood. We regret not to be able to give the exact dimensions. It occupies a commanding position at the end of the terrace, to which it forms an appropriate termination.

—— Alpine Plants.—M. Correvon, of the Botanic Garden, Geneva, whose articles on alpine plants have attracted much attention, and who, in consequence, has received numerous applications for purchase or exchange of these plants, begs to state that in the present state of the garden at Geneva, which is undergoing reorganisation, he is not in a condition to effect exchanges with private individuals, but must for the present confine himself to exchanges with botanic gardens only. At some future time M. Correvon hopes to be able to indicate establishments from which amateurs may obtain plants by purchase or exchange.

—— The Crystal Palace School of Horticulture.—On Wednesday last the Rev. G. Henslow delivered the first and introductory lecture on "The Practical Application of Vegetable Physiology to the Propagation of Plants," at Rockhills, Sydenham. The lecturer commenced by defining vegetable physiology as the study of the functions of plant organs; and after enumerating the vegetative and reproductive organs, proceeded to point out the importance of some acquaintance with the principles of physiology to cultivators of plants:—(1). By being able to aid Nature, *e.g.*, by enabling a plant to avoid "a struggle for existence;" by the addition of suitable ingredients to the soil; by recognising the importance of light, and a due amount of heat, moisture, &c., mistakes would be avoided, and thus (2) the cultivator would not thwart Nature—as, *e.g.*, when by sowing too deeply a free supply of oxygen is

cut off; by planting in uncongenial soil; by giving too much water and manure, &c., at the wrong times; by planting under the shade of trees, &c.; or, again (3), by misdirecting Nature, as by giving too rich a soil, causing a plant to run to leaf; and especially careful must he be in treating plants unnaturally, as by forcing, when Nature's laws must be rigidly attended to or failure is pretty sure to follow. Lastly (4), the cultivator must guard against injuring Nature, as by too severe pruning, stripping off leaves from herbaceous perennials too soon, &c. The interdependence of plant organs must be well understood: thus the development of subterranean structures or of fruit depends on the healthy action of the leaves; and if they be inconsiderately removed, neither can be produced. A knowledge of this leads to that of compensation amongst plants: which means, that one organ may be made to develope at the expense of another. Thus the vegetative system generally may be in undue vigour, while flowers and fruit may fail in proportion. Hence arises the practical importance of checking judiciously any undue development that may occur in any direction. Thus it will be seen how important is a knowledge of physiology. Every stage of plant growth, whether it be germination, involving a knowledge of the structure of seeds and the physical conditions required for germination, or the subsequent growth to maturity, when soil, air, light, heat, and moisture, all require special attention; not to add judicious pruning, training and protection from injuries, as "blight," damping off, &c.; and above all is care demanded in the many unnatural processes to which cultivated plants are subjected, in order to procure the best culinary vegetables or various products so often required at wrong seasons of the year.

Fig. 87.—The great sycamore at Grimston Park. (see p. 468.)

—— Impney Hall.—We have received from M. André, the eminent landscape architect of Paris, a communication in which he recals the fact that he was the original designer of the park at Impney, described at p. 427, that the site of the mansion was marked out

by himself, and that the house was erected by a French architect, M. Tronquois, on the recommendation of M. André. Ultimately, some difference of opinion having arisen between Mr. Corbett and M. André as to the manner in which the work should be carried out, M. André retired, and Mr. Marnock's advice was sought.

—— The Red Pinang Palm.—We extract the following from the *Straits Times* of August 25th :—"We learn that upon Mr. Murton's recently paying a visit to the habitat, in the Sirangoon district, of the Red Pinang Palm, described by him in the *Gardeners' Chronicle* for December 18 last, he found that nearly all the finest specimens had been cut down by, as he was informed, the Parsee Theatrical Company. Mr. Murton has very properly called the attention of Government to this piece of Vandalism, and we are informed that steps will be at once taken for the preservation of this rare and beautiful Palm. During his recent exploration of the Sirangoon district Mr. Murton, we further learn, discovered another undescribed species of Willughbeia, which affords a first-rate quality of indiarubber, and specimens are being prepared for transmission to Kew and the museum of the Pharmaceutical Society of Great Britain."

—— The Old Bishop Auckland Flower Show Funds.—At a recent meeting four Vice-Presidents of the old Bishop Auckland Floral Society met to dispose of £323 17*s.* 11*d.*, the remnant of a balance invested in the bank in the name of the Vice-Presidents of the Floral Society, which collapsed some ten or fourteen years ago. It was resolved to give £50 to the Mechanics' Institute, a like amount to the science and art class, and the remainder, £223 odd, to St. Andrew Auckland parish church.

—— Phyllocactus speciosissimo-crenatus var. Franzi.—This is a very handsome Cactus, regarded as a hybrid between P. speciosissimus and P. crenatus. A coloured figure of it has lately appeared in the *Gartenflora*, but why it should be burdened with this enormously long name we are at a loss to understand. The old hybrid, raised by Gordon at Chiswick, and figured in Lindley and Paxton's *Flower Garden*, ii., t. 62, had a sufficiently cumbersome name in all conscience; but to add "var. Franzi" to that makes it nearly as long as a pre-Linnean specific designation. Why not call it P. Franzi straight away and set a × before or after the name to denote hybrid origin?

—— The Conservatory at Lambton.—In the conservatory here, which from its position and construction gives much more light to the plants than the generality of structures used for a like purpose, the centre bed, as well as the side stages, are carpeted over with some or other of the low-growing or creeping plants that are adapted for use in this way; in this the pots in which grow the plants that fill the body of the house are plunged. The material for these carpets is changed from year to year, by which means different effects are produced, a condition at once desirable. This season the centre bed is covered with Begonia Rex, or some silvery-leaved variety all but identical with it, the foliage of which almost hides the pots of the general occupants. The whole has a beautiful effect, and is in every way much preferable to the system of permanent planting out in the beds of such-like structures that is now-a-days sometimes advised, but which carries with it so much that is objectionable as not to bear any lengthened consideration from the monotony of always seeing the same plants in the same positions, which under the plan is unavoidable except in the case of the weaker ones, which inevitably get smothered by the stronger growers; and from the further inconvenience of not permitting any plant being removed that requires cleaning for insects, an operation that can usually be effected in half the time and very much better with movable plants than those that are fixtures. This Begonia is the most effective plant that we have seen used for the purpose.

—— Lilium auratum.—A correspondent of the *Eastern Daily Press* states that in the gardens of Barningham Hall, Norfolk, the residence of J. T. Mott, Esq., is a plant of Lilium auratum worthy of note. One bulb only was planted in the spring of 1878, and produced in the following autumn two blooms. Last year the plant had six flower-stems, with a total of ninety-four blooms; this year it has fourteen stems, with blooms varying from thirty-one to two upon each, making a grand total of 185 blooms. On the 24th inst. the plant had ninety-seven expanded blooms. The tallest stem is 7 feet in height.

—— The First Frost.—What might be called the first frost of the season was experienced at Chiswick on the morning of the 5th inst., two days later than last year.

—— The late Mr. Currey's Collection of Fungi, has, we understand, been bequeathed to the National Herbarium at Kew.

—— Canna iridiflora var. Ehemanni.—This fine variety of perhaps the handsomest of all the species of Canna is now in flower, treated as a sub-aquatic in the Victoria-house at Kew. The tall stems (about 6 feet high) are clothed with stately foliage, and surmounted by the large tubular deep carmine flowers. Altogether there are few more desirable plants for warm-house culture than the subject of the present note, or even than the type itself. Those who have been fortunate enough to see the grand clump of it on the side of the large tank in that wonderful establishment for botanical and horticultural rarities, Pendell Court, are not likely to forget the event. More than half a century has elapsed since Canna iridiflora was figured in the *Botanical Magazine*, and yet at the present time but comparatively few gardens possess so charming a plant. From the letterpress accompanying the figure just mentioned we learn that the species was raised from seed under rather peculiar circumstances. In the year 1816 Mr. Lambert received from the celebrated botanist and traveller, Don Jos. Pavon, several hundred sorts of seeds and fruits collected during his travels in Peru and Chili. Notwithstanding the great length of time that had elapsed since they had been collected, Mr. Lambert determined to try and raise such as he thought most likely to retain their vegetative property, and C. iridiflora was amongst the eighteen species which germinated. That a stove temperature is not absolutely necessary for the successful cultivation of this plant seems clear enough, for in a "Report on New and Rare Plants," published in the *Transactions of the Horticultural Society*, by the late Dr. Lindley, it is stated that "a plant turned out into the open border, without protection, although damaged a little by the spring frosts, is actually at this time shooting more luxuriantly than those in the stoves."

—— Botanical Exchange Club. — We have received a copy of the report of this Club for 1880, containing a mass of notes and observations on the so-called "critical" plants of the British flora. A glance at the guarded opinions of some of our keenest observers, and at the occasional discrepancies between different botanists, is rather calculated to damp the ardour of weak-kneed botanists; but although there is evidently good reason to doubt the precise rank to which these forms should be attributed, yet their value as illustrations of variation, and as possible links in the genealogical tree of the group to which they belong, is so great that we should gladly see our sharp-sighted botanists turning their attention to these matters, and not confining themselves to mere discrimination of forms more or less Protean and inconstant. The significance, and the "reason why," are surely as interesting to unravel as the mere identification of these forms.

—— "Illustrations of British Fungi."—The fourth number of this useful publication has recently been issued. It contains fifteen coloured figures of Agarics. The plates, it will be remembered, are intended to furnish an atlas to Dr. Cooke's most serviceable *Handbook of British Fungi*.

—— Roots of Cycads, &c. — The general tendency of roots to go downwards is subject to a few exceptions, among which may be mentioned the roots of Cycads. In cultivation it is common to see a mass of small fleshy roots appearing above the surface of the soil in the pot or tub in which the Cycad is grown. According to M. Cornu these roots disappear at certain seasons, and their peculiar appearance is due to a parasitic alga which lives in the tissues of the radicle. A similar root-growth occurs in Alders, where a parasite also occurs, and in some Aroids (Anthurium), but we are not aware whether, in this last case, the appearances are due to a similar cause or not.

—— Messrs. Cassell's Publications. Messrs. Cassell have issued the first part of *Illustrated Universal History*. All we can say that it is well got up and agreeably written. *Gl*[illegible] *ings from Popular Authors, Grave and Gay*, is in style of *Half-hours with the Best Authors*, but ill[illegible] trated; and if we may judge from the number bef[illegible] us, dealing rather with modern authors than th[illegible] conventionally called classical. It is essentially li[illegible] reading, and very good of its kind.

—— The Royal Gardens in Siam.—[illegible] learn from Mr. H. J. Murton, late Superintend[illegible] of the Botanic Gardens at Singapore, that by [illegible] time these lines are in print he will have left Sin[illegible] pore, and taken charge of the Royal Gardens in Sia[illegible] Letters and Catalogues should therefore now be [illegible] dressed to him at Bangkok.

—— Euadenia eminens.—This is one of [illegible] most singular and striking of recently introduc[illegible] plants. It is a native of western tropical Afri[illegible] where it appears to have been first collected by M[illegible] Mann, on the banks of the Bagroo River, in 1861, a[illegible] was subsequently imported by Mr. Bull, with wh[illegible] it flowered early in the present year. The *Botani[illegible] Magazine* for September contains a coloured figu[illegible] drawn from Mr. Bull's plant. Euadenia belongs [illegible] the Caper family, and has trifoliolate leaves a[illegible] terminal clusters of pale yellow flowers, remarkable [illegible] the great inequality of the petals. There are f[illegible] free narrow petals, whereof the two upper are ab[illegible] 4 inches long (at least six times as long as the other [illegible] and erect, reminding one of the plumes of some B[illegible] of Paradise, whilst the others are very short and n[illegible] row, scarcely equalling the stamens.

—— The Germination of Astragalus ut[illegible] ensis is thus described by Mr. E. Jones, in [illegible] *American Naturalist*:—"While gathering plants [illegible] the mountains near Salt Lake City I was very m[illegible] puzzled by seedlings of our beautiful Astragalus ut[illegible] ensis. It grows in the sand, first throwing up [illegible] small cotyledons, then producing two large rou[illegible] woolly, simple leaves, 1 inch in diameter, on a peti[illegible] often 3 inches long; after these come another pair [illegible] similar leaves; then another, with two leaflets on [illegible] long petiole; then another with either two leafl[illegible] (one on the end of the petiole, and the other on [illegible] side), or three leaflets in the true odd-pinnate styl[illegible] the next pair with either three or five; the next w[illegible] five or seven, and so on. It is a long while after [illegible] germination of the seeds before one would susp[illegible] that it is an Astragalus, or even a member of [illegible] Leguminosæ."

—— Do Varieties Wear Out?—This is [illegible] question that has often been put, and often answere[illegible] more or less dogmatically, by various writers, both [illegible] the affirmative and in the negative. A writer in t[illegible] *Wiener Illustrirte Garten-Zeitung* fearlessly decla[illegible] that the varieties of fruit trees do wear out, 'so[illegible] quicker than others, and in some districts sooner th[illegible] in other districts. He maintains the old theory, th[illegible] an asexually propagated tree, like an individual tre[illegible] is of limited duration; and though the cultivator m[illegible] succeed in prolonging its existence beyond the ord[illegible] nary period, there comes a time when it is a profitle[illegible] undertaking to cultivate it. A list of popular varieti[illegible] of Apple and Pear is given in support of his arg[illegible] ment, and the writer recommends that these varieti[illegible] should be discarded in favour of some newer ar[illegible] robuster varieties, which he names. But here, in [illegible] foot-note, the Editor energetically interposes tha[illegible] while agreeing in the main with the writer, he w[illegible] never believe that their principal varieties of Pear ar[illegible] Apple are no longer worth growing, and goes on [illegible] state that a visit to the markets at the proper seaso[illegible] will convince anybody that such is not the case. [illegible] seems to us there is something to be said on bot[illegible] sides of the question; and that if species, varieti[illegible] and genera do not wear out they pass away as a resu[illegible] of the inevitable struggle for existence under unpr[illegible] pitious circumstances.

—— Golden Hollies Attacked by Rabbits.—At the Billing Road Nurseries, Northampton, [illegible] has been found necessary to put wire fences round th[illegible] Golden Hollies, so persistently do the rabbits feed o[illegible] the young tops. Singular to state, they do not devo[illegible] to any perceptible degree the leaves of the silver vari[illegible] gated types.

— Earth Worms.—Mr. Darwin's new book on the formation of vegetable mould through the action of worms is now published. It comprises an introduction, chapters on the habits of worms, the amount of fine earth brought to the surface by them, their agency in the burial of ancient buildings, and in the denudation of land. This subject has long engaged Mr. Darwin's attention, and one of his earliest communications on the subject was made to this journal in 1844. We shall take an early opportunity of adverting at length to this remarkable book.

— Flowers in Season.—From Mr. Douglas, of Loxford, come flowers of Rosa bracteata, the lovely Macartney Rose, which, although severely cut by last winter, is now flowering freely from the new wood; Achillea tomentosa, a dwarf species, with hoary, finely-cut leaves and heads of yellow flowers; Dendrobium formosum gigantea, a noble flower, white, with the lip prominently marked with a yellow blotch; Cattleya superba, a noble species, with very fragrant, deep rosy-lilac flowers, the lip deep reddish-violet; Aster lævis, a dwarf bushy species, with broad, sessile, broadly lance-shaped leaves, and very numerous bluish flower-heads; Chrysoma Linosyris, a bushy species, with erect slender branches and dense linear leaves, the flower-heads yellow of tubular flowers only.

— The Gardeners' Royal Benevolent Institution.—It will be seen from our advertising columns that the committee of this Institution have resolved to make an addition to the list of pensioners in January next from amongst those applicants only who have been subscribers for at least fifteen years. The friends of the Institution will also be glad to know that a sum of £300 has just been added to the reserve fund.

— White Queen Dahlia.—As there appeared to be some difference of opinion as to the distinctness of this fine showy single white Dahlia as exhibited in the cut state, we have taken the opportunity to see it as growing in Mr. Ware's nursery at Tottenham, where there are probably not less than a hundred plants of it growing in three separate plots in different soils and situations. It is everywhere the same, dwarf and spreading in habit, not exceeding 3 feet in height, each plant with a score or more of open blossoms, of the most perfect form and pure white colour, making a most effective decorative flower garden plant. The flowers open and die off a pure white, while those of Alba, as we have seen it elsewhere, die off flushed with pink, and on this ground we regard it as being distinct, and as the best of its class. The flowers of the Oxford Botanic Garden plant are with us equally pure, but the plant is not so dwarf and profuse in habit, and all we have seen of Stella Bianca have been weak and spare of bloom, so that we can but offer a less decided opinion as to their identity or otherwise.

— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending October 3, issued by the Meteorological Office, London:—The weather has been much finer than of late, though some fog or haze has been prevalent at many stations. Some slight showers occurred during the first two days, but the greater part of the week was quite dry. The temperature has been a little above the mean in Ireland and Scotland, but slightly below in most of the English districts. The highest reading (72°) was registered at Loughborough on September 23, and the lowest (35°) over our eastern, southern, and central districts either on September 30 or October 1. The rainfall has been decidedly less than the mean in all districts. The bright sunshine has been much more general than for some time past; the percentages were rather high, ranging from 31 in "Scotland, E.," to 63 in "England, S.," and 64 in "England, S.W." Depressions observed:—At the commencement of the period pressure was highest in the southern and south-eastern parts of our area, and lowest to the northward, but during the latter part it was highest in the north-east, and lowest in the west and south-west. Very few depressions have appeared, the chief one travelling northwards outside our western coasts on the 29th, causing strong south to south-westerly winds or gales at all our western stations. On most other days the wind has been light or moderate, chiefly southerly to south-south-easterly in the west and north, and generally easterly in the south and east.

— Gardening Appointments.—Mr. George Morris, for three years Foreman to Mr. Tate, at Balcarres, Fife, has been appointed Gardener to John Peel, Esq., Church House, Llangadock, South Wales.

IWERNE MINSTER.

But the brief space of two years has elapsed since the gardens of Iwerne Minster in Dorsetshire were but as a wild waste, uninteresting to all except those who understand something of the laborious work entailed in making a new garden. To see the foundation of hothouses being taken out, stokeholes sunk, walk and road making, levelling and filling up, all going on at the same time, and new pleasure-grounds being laid out and planted, is to many an eye a meaningless piece of business, worse to understand, because more intricate, than railway making or any other public work. A practical man who ploughs his way through mud and stumbles over broken metal, or looks down into deep holes which have to be filled up, has some idea of the labour involved in putting such a place in order, and the judgment that is required, as well as forethought, to strike out well-defined lines, and regulate and arrange every department in a way that shall be most pleasing to the eye and most convenient for practical purposes.

I have had some experience of weeding out, renovating old gardens, and making new ones, and saw Iwerne at its roughest when a pedestrian had much need to be careful who was not accustomed to tread upon rough paths. But what a transformation has been accompliseed since then! Kitchen gardens made and planted, forcing and plant houses erected and stocked with plants and fruit trees, and new grounds and walks made as smooth as carpets and pleasant to the tread. Entering the gardens by the gardener's new house and offices, a first glance reveals what Lord Wolverton's wealth and liberality has accomplished with good management in short a time. The first enclosed garden is cut in two by a spacious walk, and divided into quarters for different purposes of vegetable and fruit growing. The walks are edged with tiles, and are firm and well made.

Melon-pits in front of a range of glass upon the south wall are stocked with good crops of Melons of rich colour and good size. The range of glass consists of a commodious propagating house, which is used in winter as a Cucumber-house, and is, in fact, so fitted up that it will grow anything; there is a compartment adjoining for toning off cuttings and plants after they have taken root, and which can be kept at any temperature—high or low, as required. Upon the back wall a plant of Hæmanthus coccineus from the Cape luxuriates with other plants which cover the back wall. Upon the opposite side the doorway which divides the range a Peach-house and vinery is stocked with vigorous young Vines, Peach trees, and Tomatos against the back wall. A fine Black Hamburgh Vine is trained under the ridge of the roof in the vinery, and bearing fair bunches of fruit, and the Peach trees are clean and healthy. The large kitchen garden is divided only by a wall from the garden above described, and is in fine order and containing good crops of fruits and vegetables, and many promising young fruit trees not yet in bearing.

The principal forcing houses are in this garden upon the south wall and span-roofed plant-houses running east and west, containing fine examples of flowering stove plants, such as Allamandas, a grand batch of Eucharis, fine Adiantum farleyense, a small collection of Orchids, Palms, Dracænas, Crotons, Cycas revoluta, Rogiera gratissima, Crinum pratense, and other useful plants. The cool-houses are gay with Fuchsias, Pelargoniums, Balsams, Tigridia Pavonia, &c. The Cucumber-houses, running north and south, were in process of being prepared for winter work, compact, well-appointed little houses, cosy for winter forcing. Between the ranges of houses I noticed large quantities of winter flowering plants, a collection of Chrysanthemums, all the finest kinds—Eupatoriums, Solanums, and a host of others that thrive in a Dorset climate planted out-of-doors. Azaleas and Camellias in pots, healthy and swarming with flower-buds, occupied a corner with Cytisus, early flowering Rhododendrons, and a variety of useful decorative plants of the usual description.

The forcing houses are five in number, in one range, and are roomy houses, efficiently ventilated and heated, and having good paths and a substantial appearance of finish and utility about them that one would expect at so fine a place; indeed, rubbishy looking houses would be ridiculous at such a noble place, where everything has been done upon a grand scale. The first house is filled with fine young Muscat Vines, and the second division with Peaches bearing a grand crop, fair in size and of good quality. The trees are in luxuriant condition, and promise well for the future. The third division is filled with young Vines bearing a handsome crop, some of the free-fruiting kinds bearing fine bunches, large in berry, and colouring well. The fourth division is a mixed vinery of Black Hamburghs, Mrs. Pince's Black Muscat, Alicante, &c., and the fifth a mixed late house of Trebbiano and other late kinds, bearing twelve bunches upon a single rod from 3 to 5 lb. in weight. A consignment of Stanhopea I noticed suspended under a stage in this house, thriving remarkably well after their long journey.

Entering the pleasure grounds from the Shaftesbury and Blandford Road we find some wavy sloping banks, adorned with the choicest flowering trees and shrubs. A weeping Ash, dots of Yuccas, and Walnut trees of various sizes, Cratæguses, handsome in form, and many fine-leaved plants, are here in abundance. A plot or group of beds planted with Roses makes a very pleasant change, and the walks—such walks too!—by Pulham of Broxbourne—made of gravel and Portland cement, with a colouring of brickdust to give them tone. Neither frost, snow, hail or rain makes the slightest impression upon these walks as they are always dry, comfortable, and pleasant to walk upon, and requiring no labour to keep them when once they are made. Other walks, Mr. Davidson told me, were like mud after the severe frost of last winter, while not a stone was deranged upon those made by Messrs. Pulham, so well is their work done, and so good is the material used.

But the grand conservatory is the greatest horticultural success of the whole place: planted and furnished in less than eighteen months with creepers of the most chaste and ornamental description such as from their appearance might have been established for seven years. Cobœa scandens variegata suspended from the roof in wreath-like streams, Passiflora Imperatrice Eugénie, Swainsonias, Begonias, Veitch's new Honeysuckle, Neriums, Abutilon Lemoinei, and others, planted out, with leaves 16 inches from lobe to lobe. The pillars are also draped with creepers, and the stock of pot plants is both rich and valuable. The architectural features of the structure are bold, and the fittings of the most elaborate type—the tiled paths alone being quite an ornament and a splendid piece of workmanship.

Outside the conservatory there are some pretty groups of flower-beds on the terrace, simple in design but very neat and chaste in effect. Looking eastward from here, at the base of the steps two neat flower-beds are dropped in to ornament the angles; and at the east and west sides, the half-moon groups of flower-beds, which make such a happy balance in the garden, are very bright with bedding plants on the slopes, which they occupy to such good advantage and to the general effect of the whole grounds. The fountain is on the south front, beyond which, in the same direction, are fine trees of great age and splendid proportions, and a lake glistening out from amongst their leaves in the park. Upon the west side, adjacent to each other, are placed the subtropical and rock gardens, where there are great quantities and variety of ornamental shrubs, including the newest and choicest kinds—Waterer's golden Holly, golden Yews, Retinosporas: everything that is new or rare amongst them is here represented either in large or small plants.

The progress that plants have made upon the terrace wall is marvellous, no doubt owing to the favourable situation and climate and the rich preparation that was made for them before planting. By the side of the boundary walk next the park are some beds which are planted for summer or winter effect, and which are most telling and handsome. As an example, a bed of golden Yews, edged with a band of Cotoneaster microphylla, and a bed of Juniperus Sabina, edged with a band of variegated Euonymus. The walks, as before remarked, are alone an ornament to Lord Wolverton's pleasure-grounds. The variety that meets you at every turn, the great beauty of the surrounding country, the most picturesque in Dorsetshire, with its Roman camps and entrenchments, its chalk hills and peaks of deep verdure, its lovely woods and genial climate, all tend to make a fine garden, situated among so many natural charms, a home of repose and beauty. *Visitor.*

Nematanthus longipes.—The order Gesneraceæ contains a considerable number of plants of the highest horticultural merit, many of which are rarely to be seen, except in botanic gardens. The present plant is one of these, and that it can be grown and flowered well in a small state is evident from the specimens at Kew. It is a soft-wooded, half shrubby climber from Corcovado, in Brazil, and bears long-stalked pendulous rich scarlet blossoms.

RUSSIAN APPLES.

(*Continued from p.* 174.)

Early Varieties.

4. *Grouchovka*, or, according to English pronunciation, Grooshovia: groosha signifies Pear, and has been applied to this Apple on account of its slightly acid flavour, similar to that of some Pears. The form of the Apple is slightly compressed, elongated towards the summit, about 2½ inches across; the colour of the skin is yellowish, red on the side next the sun. It belongs to the early series, because it ripens in the middle of August at latest. It keeps badly, and is only used in a fresh state, shortly after having been gathered. The tree has a pyramidal form, the leaves are narrow. It endures our winters without injury, and commences to bear five years after having been grafted, and after that it yields every other year.

5. *Korobovka.*—the etymology of the name is obscure, "korob" signifying a bag. This Apple is one of the smallest, resembling in form and colour the Bergamotte. It is a turnip-shaped Apple, about an inch in diameter. The skin is coarse, vinous-red; the flesh firm, crisp, juicy, sugary. The peduncle is long. The old trees have long, spreading branches; the fruits ripen towards the middle of August, and do not keep long. It commences to bear five years after grafting, and then bears regularly.

6. *Miron*, pronounced Meeron—a Christian name; possibly some one of this name introduced the variety. The fruit is of moderate size, elongated, with prominent ribs, and about 2 inches in diameter. The skin is smooth, yellow, reddish. The flesh is sugary sweet, with a slight acidity. It ripens in the beginning of September; it is generally gathered previously. This Apple, like the other early varieties, has a special significance with reference to the rites of our Church; it is on the 13th of August that the orthodox Church (Greek) blesses the fruits of the season, and authorises, so to speak, their use. As in our climate there are at this period very few ripe fruits it is the early Apples, together with Peas and honeycomb, which do duty on this occasion. The variety Miron, which is much used for this purpose, is perfectly hardy. It begins to bear five years after the grafting, and yields abundantly every other year.

Autumn Apples.

7. *Arcad*—probably from the name of a man. This is a roundish Apple, 2 inches across, with fine smooth skin, yellowish, vinous-red next the sun. Flesh juicy, sugary; ripens at the end of August. The tree is very hardy, with thinly scattered branches. It begins to bear four years after grafting.

8. *Plodovitka.*—This name signifies yielding abundantly, expressive of its characteristics. The fruit ripens towards the middle of September. The form of the Apple is broad, 2½ inches in diameter; the skin is yellow, tinted with orange-red; the flesh is compact, juicy, slightly acid. The tree begins to bear five years after the graft, and gives a crop every other year. It is a variety much used for salads or sauce.

9. *Titoffka.*—Between the town of Toola and that of Kalooga is the village of Titovo, from which has sprung the Apple of this name. Under the name of Titoffka, fruits of the most variable size and colour are included; but generally speaking, it is a large Apple, 3 inches across, skin greenish-yellow—red next the sun. It is one of the most highly-esteemed and widely-spread of our Russian Apples. The flesh is compact, of slightly acid taste. The tree is of very vigorous growth. To make it more bushy, the gardeners shorten the branches every year for six years: it bears fruit the fourth or fifth year after the graft, and regularly every year afterwards.

Winter Apples.

10. *Anisovoe*, that is to say, having the smell of aniseed. Although it has a peculiar odour, it is, in truth, far from resembling that of aniseed. It is a turnip-shaped Apple, more than 2½ inches across; the skin is rose-red, the flesh rather soft, with a slight acidulous taste: it ripens towards the middle of September. Formerly this Apple was more esteemed than it is now, nevertheless, considering its great productiveness, it is of great value as a market variety. It begins to bear five or six years after grafting,

11. *Aport.*—This Apple is said to come from Turkey (Sublime Porte); it is without doubt the best of our Apples. It is known in France and Germany under the name of Alexander II., and Emperor Alexander (see fig. 88). I remember to have seen this Apple at the Luxembourg garden in Paris cultivated as a cordon, when it attained a size unknown amongst us. Our Aport Apples are also large, generally 4 inches in diameter, roundish, conical towards the summit, which is marked by a few ridges. The skin is firm, smooth, orange-red, pink on the side next the sun. The flesh is pale green, at first firm, then crisp, juicy, and sugary. It becomes ripe towards the end of September, and may be kept until spring. The tree has a spherical head; its leaves are small and of a yellowish colour. It is very sensitive to frost, not only at St. Petersburg, but also in Moscow. For more than twenty years I have tried to grow it on my property in the Government of Novgorod; the plant was either killed by frost or became weaker and weaker every year; up to this time I have never seen any fruit.

12. *Scrijapel.*—The form of this Apple is flattened, with prominent ridges, 2½ inches in diameter. The ripe fruit has a whitish skin, reddish next the sun; its flavour is sweet, with a slight bitterness; the flesh is crisp. Generally speaking it is a good Apple, yielding regularly from the fifth year after the graft.

I have limited my choice to the above-named twelve, and have arranged them alphabetically. Any other classification would have been unsatisfactory, for each of the varieties presents characteristics which place it in the first rank. The twelve kinds described are the most widely known and the most highly esteemed of our very numerous varieties. *P. Wolkenstein, St. Petersburg.* [Of those mentioned by our obliging correspondent, Emperor Alexander is the only one that has found much favour in this country. We suppose our summers are not hot enough to develope the good qualities of Russian Apples. Eds.]

Fig. 88.—Emperor Alexander Apple.

COLONIAL NOTES.

The Insect Pest in Fiji.—I regret to state that the insect pest has made the greatest havoc among my Cocoa-nut trees: I am led to infer that they must have suffered peculiarly from the fact that the many Europeans, old residents in the colony and Cocoa-nut planters, and also natives, who have seen my trees have one and all expressed the greatest astonishment and declared they never saw anything like it before. I have seen no Cocoa-nut trees on neighbouring estates attacked in the same way as unfortunately mine are.

The insect is a Phasma, the Lopaphus cocophagus, or Cocoa-nut eating Lopaphus, called by the natives Mi mi mata; when touched it ejects a foul smelling white fluid, which the natives have assured me will, when ejected into the eyes, produce blindness: it is essentially a surface (foliage) feeder; it feeds onl upon the leaves of the Cocoa-nut tree; it does no attack the roots in any stage; is not a borer, and doe not penetrate the wood or the soft head-pith.

During the day the insects lie dormant, generall in couples, shaded from the sun, stretched out at ful length under the rib of the Cocoa-nut leaf, the mal on the back of the female. The female is much large than the male, she varies in colour, being sometime a bright green, sometimes a reddish-brown; the mal invariably I have found to be of a reddish-brow colour.

They do not feed at all during the day, they seen to dislike the glare of the sun, for upon being shifte to the upper side of the leaf they get back as quickl as they can to the under side. Soon after sunset when it becomes cool, the couples separate and com mence to crawl about and feed, eating the leaf in th same way as a caterpillar does, in the form of a semi circle. Both male and female are furnished wit small semicircular pink wings about the size of sixpence, which are of little use except to steady thei flight downwards. The eggs are to be found in tw rows, one on each side the intestines of the female. have counted as many as twenty in one female i various stages of development. On examining th tail part of the female, I have noticed extendir between the two tail points a piece of skin; on lifti this, and underneath at the upper and broader e of this flap you will see the ovary passage, and imm diately below it a small flexible bag-like receptac protected by two pieces of skin or scales which me but do not overlap: these the insect can open or sh at will. In this flexible bag you will invariably fi an egg encased in a hard rough brown skin wit cap-like point at one end, which comes off at a tou and discloses the egg; you can, if you wish, withc difficulty remove the whole of this skin.

The idea I formed is that the female retains t egg in this bag until it hatches the young insect; up this being done another egg drops down into t receptacle to be hatched, and so on; the young ins is almost as fine as a hair.

The destruction of a Cocoa-nut tree by these inse is wonderfully rapid. Towards the end of last Janu six of my trees first showed signs of being attacke towards the end of May two were killed outrig The trees that have been attacked by the insects: all young trees in their very prime, and before t insect plague appeared were all of them magnificen healthy trees in full bearing.

The lower leaves are attacked first; these are quic eaten bare, nothing but the stalks and ribs being l which soon drop off whilst still green; the other lea rapidly follow, the nuts, failing to receive pro nourishment, drop off unripe, and the tree which th or four weeks before was a fine healthy tree, loa

with nuts in different stages, is now left with nothing but a central spike with three or four bare leaves hanging on to it. After a while the centre spike splits into a leaf, but the insects eat it bare at once; the tree makes several struggles to put out fresh leaves, but these are all eaten directly they appear, and very shortly the tree dies.

I have naturally viewed the ravages of this insect with considerable anxiety; I fully realise the grave necessity of arresting, if possible, the progress of such a pest at the outset; I will, therefore, mention the various remedies I have tried.

On a still day I selected a small tree (trunk from 12 feet to 15 feet in height) which I noticed was covered with the insects; immediately beneath the tree I caused several large smoky fires to be made, and for an hour kept the tree enveloped in dense smoke, so dense that standing close to it I could not see it. I then allowed the smoke to clear away. On the ground I searched diligently for the insects; I could not find one. I looked up to the tree: there they were as numerous as ever, and apparently none the worse, the only difference being that they were crawling about instead of remaining in their usual dormant condition.

Not satisfied with this attempt I determined to make another. This time I selected a very young tree, only eighteen months old, standing with its leaves about 12 feet high. Before doing anything I carefully counted the insects upon the tree—seven couples in all. I then for fully half an hour kept the tree enveloped in dense smoke; at the end of that time I counted fourteen insects upon the tree; the couples had separated and were crawling about, not one had been destroyed.

I then tried the effect of burning sulphur. I put half a pound of sulphur into a tin, and, setting it on fire, held it immediately beneath a couple of insects, only 2 inches below them. After a while they crawled away together. I followed them with the burning sulphur, keeping it well under them, so that they should get the full benefit of the fumes. I kept this up for some time, but with no success, for it did not destroy the insects.

I then adopted the plan of one man climbing the trees and knocking the insects off; there is no use in merely shaking the leaf, the insects cling too tenaciously; but by striking the leaf suddenly half-a-dozen sharp blows with a short heavy stick the insects are taken by surprise and drop off. I commenced with first striking the heart leaves, then the leaves below them, and so on until the insects had fallen on to the lowest leaves, when a few blows brought them to the ground literally in showers, where ten other men chopped them to pieces with their knives; they do not drop, but extending their pink wings float to the ground. Some, however, I noticed were able to swerve suddenly to one side, and alight upon the trucks of the nearest Cocoa-nut trees, up which they crawled, or rather ran with great rapidity. I thought I had at last discovered an effectual remedy, and for a while the trees showed signs of improvement, but it was only for a short while, for the insects soon returned, worse than ever, and although I have repeated the operation of knocking them off the trees I cannot conquer the pest.

I have thought of cutting down all the trees that have been severely attacked, but feel conviced this would do no good, for the insects, when they have eaten a tree perfectly bare, leave it until it puts out fresh leaves, when they return to it.

I have tried the experiment of passing a lighted torch along under the midribs of the infested leaves, with the result that both insects and leaves are destroyed. The Cocoa-nut leaf is very sensitive—a strong heat will wither it; but nearly the same damage is done by my method of striking the leaves, for it bruises the midrib, which soon breaks, one portion dropping to the ground, the other withering on the tree. A tree that has been operated upon in this manner presents a most forlorn appearance, and its growth, of course, is materially checked.

Towards the end of January two of my trees showed signs that they were attacked; before the end of the same month four adjacent trees were in the same state; within four weeks not a vestige of a green leaf was to be seen upon these six trees, and the trees immediately adjoining showed that they also were attacked. Those who saw them assured me that a good "blow" would free me of the pest; when the hurricane months had passed I was told that the steady trade winds would have the desired effect, and so on.

I regret to state I have now 113 trees attacked, many of which I am much afraid will not recover. I do not think any of them are more than fifteen or sixteen years old; they are all exceptionally fine trees, and until attacked were in full bearing, loaded with fruit—one tree dropped more than 100 nuts in six months.

The insects exhibit no preference for any particular variety of Cocoa-nut tree, they attack them indiscriminately—the ones nearest those eaten bare becoming victims without distinction, for the trees attacked by them here are of many very different varieties. *D. R. Smith.*

Home Correspondence.

Plants Poisoned by Lead-mine Refuse.—In a large garden on the side of the mountain limestone hill at Matlock Bath, the flowers in the beds have for years done miserably, and many kinds die outright. The cause has been a puzzle to me, as the substance of the soil seems good. Lime loving plants fare no better than others. The present gardener tells me that the plants become "bellonded," that is, poisoned by lead. The sweepings of the walks have been used to dress the flower beds, and the material of the walks is the broken matrix of the lead veins. This is mostly soft white spar, consisting of carbonate of lime, in which occasionally spots of lead ore are visible; but I cannot believe that this causes the mischief. The substance called barytes, being, I believe, carbonate or oxide of barium, is also found in considerable quantity, and I suspect this of being poisonous to plants. Perhaps you can kindly give an opinion. I enclose samples of soil from a flower bed, and gravel from a walk. *C. Wolley Dod, Matlock Bath, Sept.* 22. [Both lead and baryta are poisonous to plants in sufficient doses; the poisonous agency may be heightened by the water used. Eds.]

Peach Culture on Open Walls.—At p. 343, September 10, a most interesting account is given of the Peach-wall at Ditton Park, thereby proving that it is still possible, as in days of yore, to obtain a crop of Peaches without the aid of glass. All gardeners will readily admit that it is far easier to do so with glass than without it in this changeable climate, but where south walls exist and glass does not, and there is the possibility of ripening the wood, then I think we should try our best to get fruit without. I am the more gratified with Mr. Lindsay's success over such a lengthened period. Great praise is due for his perseverance through the many bad seasons he must have encountered. I am myself endeavouring to follow in the track of the "old school" of Peach-men, so pleasantly alluded to by your correspondent, and beg leave to supplement his remarks by adding that I am now gathering heavy crops of high-coloured Peaches from the open wall, the only protection the trees received in spring being a few matted hurdles placed at right angles to the face of the wall, here and there, to break the current of the cold winds, and a wood coping projecting a foot over the top of the wall. The trees have been seven years planted; one, a Bellegarde, extends a length of 26 feet, and a Violette Hâtive 23 feet, covering the wall 10 feet 6 inches high from top to bottom. The summer here has been a wet and cold one up to the present month; fortunately now very fine sunny weather prevails. *W. Fox, Holker Gardens, North Lancashire, September* 28.

English Names for Plants.—The value (?) of English names for plants was well illustrated the other day at Glasnevin. While I was there a gentleman came in all the way from London to see the Flame-flower. A paragraph extolling the praises of this glorious plant, &c., had been going the round of the papers, and stating that a mass of it at Glasnevin was worth going a journey to see. Well, of course, as soon as he arrived he asked to see it. "The Flame-flower?" they said. "You must mean the Flame Nasturtium—Tropæolum speciosum." "Oh, no," he said, "nothing of the kind—I mean the Flame-flower; that's what the paper said." Then they said, "Oh, of course you mean the Torch-plant—torch and flame are the same thing;" and he was duly led towards a group of torches in full flame. But it would not do; it was not Tritoma at all. "Was it a scarlet Rhododendron or a Bottle-brush? or was it inside or out-of-doors?" Could not tell. At any rate, it was a large mass, and worth going a journey to see. And here he was at the end of the journey, and no one could show him the fire at all. From the glowing description he was half inclined to fancy that his hair would be singed almost as soon as he entered the gate; but, however, after all it turned out that it was nothing else but the rather numerous flowers of Tritoma, which does very well in front of the houses there. English names may be very well outside, but inside a botanic garden does not seem at present to be the place to look for them; the danger is that a plant may get more than one, the difficulty of discovering it by either of them is thereby increased. To give an instance: Recently the genus Funkia was duly rechristened Plaintain Lily—[Because it is not a Lily, and neither a Plantago, nor a Musa, both of which are called Plantains. Eds.]; previous to that our American cousins had dubbed it Japan Day Lily; and still further back it had been published in English catalogues as the Japan Hyacinth, and also as Japanese Hyacinth Lily. From this it seems that the English synonymy promises to be as voluminous as the botanical at times now is, and if it is necessary when publishing (cataloguing) a name to add all its *aliases*, the latter will not be the least mportant part. *T. Smith, Newry.*

Amaryllis blanda and Amaryllis Belladonna.—There are two forms of Cape Amaryllis which are, I think, sufficiently distinct to make it convenient to call them distinct species. Of course, all distinctions of genera and species are a mere matter of convenience, and it depends only on the fancy of the writer on them whether they be called species or varieties, but these two are quite as distinct as many so-called species. The chief points of distinction are these:—In A. blanda the leaves are sheathing, and form a kind of stem 4 or 5 inches long, like those of Ismene; in A. Belladonna they spread from the top of the bulb. In A. blanda the pedicels nearly equal the corolla in length; in A. Belladonna they are very short. In A. blanda the germen is distinctly larger than the pedicel; in A. Belladonna scarcely at all so. The length of the pedicel is very variable in many Amaryllids, and not to be depended on as a distinction, but taken with the other two it is quite enough to distinguish these. The flowers of A. blanda are also larger, lighter coloured, and more open than those of A. Belladonna. A. blanda is correctly described in *Bot. Mag.*, v. 35, t. 1450. It has flowered with me this autumn. There is now in bloom at Messrs. Henderson's Pine-apple Nursery an exceedingly handsome variety of A. blanda of a rich purplish-rose colour. Singularly enough, this approaches to A. Belladonna in two particulars—the germen is not quite so distinct from the pedicel, and the flowers are not quite so open as is usual in A. blanda. *C. W. Strickland.*

The Artful Coster.—Hampstead Road is a busy and noisy neighbourhood on a Saturday evening. It may surprise some of your country readers, however, to be told that there are weekly shows of vegetables, fruit, and flowers held there, all the specimens being for sale. Then it is that the careful housewife strolls along, with an eye to business and the Sunday dinner. In most cases the good man must follow his work, and Sunday is, as a rule, the only day for a comfortable dinner at home; and what would the Sunday dinner be without a mealy Potato, or crisp Cabbage, or tender Cauliflower or Marrow? And, if he hails from the country, how dull his little sitting-room would be without a bunch of Wallflower, or white Pinks, or Stocks, or Dahlias? And who is to supply these but the much abused coster? The more attractive a coster can make his stall the less need he shout. I noticed one evening lately a capital entry—a work of art, indeed—in the way of a coster's barrow, though the materials were only ordinary garden stuff. His stall was the ordinary long barrow, considerably enlarged by the addition of orange-boxes and skeps. It was, as near as I could judge, 12 feet long and 4 feet wide, sloping from back and end to the front. On the right and back was a screen of Celery, washed and denuded of the outer leaves, white and red, crisp and toothsome, no doubt. Then came a small Mon Blanc of Veitch's Autumn Cauliflower, the great creamy bosses frilled with neatly cut leaves. Surrounding these was a border of crimson Beet; then there were little mounds of green and white Marrows, bunches of Turnips, a choice little basket of Tomatos, little cairns of Onions, Carrots, and Lettuce. The more substantial Potatos were stowed in skeps beneath. Coster had wisely appropriated a side street corner opposite a grocer's brilliantly lighted window. He was of the ordinary type, lusty shouldered, thick necked, clean shaven, but tidy, and evidently proud of his barrow. It was plain, too, that this humble act was appreciated by the little crowd who gathered to patronise and admire. There was no occasion for noisy vociferation like sundry neighbours, whose fishy merchandise was shouting on its own account. *T. W., Harrow.*

Horticultural Boilers.—Referring to Mr. Charlton's letter in last week's *Gardeners' Chronicle* we, as the inventors, do not hesitate to endorse his statements regarding the general excellence of the saddle tubular boiler, although when compared with the upright tubular the results are in favour of the latter. But as several of our customers still prefer the saddle we have continued to make them. And perhaps

here a little incident of the remarkable durability of one of these boilers may be interesting. A year or two back we were requested by Sir T. Freemantle, Swanbourne, Bucks, to remove one of these worn-out saddles and to replace it by one of a precisely similar type. In course of conversation it was remarked that that boiler had been in use for upwards of thirty-five years, and on reference we found it had been in as nearly as possible forty years; a circumstance highly attributable, we think, to its having been placed in a dry stokehole and set quite detached from outer walls, thereby escaping the injury often caused by damp. *J. Weeks & Co.*

Abies (Picea) concolor.—As seen here, with the exception of the P. nobilis, this is the most striking and beautiful of all the Piceas. The leaves are of a dark green colour, and quite as glaucous as the best varieties of the P. nobilis, and on that account it is often confounded with it when seen from a distance by the uninitiated. Although classed by some botanists as a variety of the P. lasiocarpa, here it is a much more robust and imposing tree, and in general appearance is quite distinct, the branches growing more upright and much opener—in outline resembling the Abies Douglasii when 10 or 12 feet in height. The leaves of the P. concolor are set on the stem or branch irregularly all round, more sparse on the back than the sides and the front, and sharp-pointed; whereas the P. lasiocarpa has them set on two irregular rows on each side of the stem, with blunt, almost bifid, points. It is quite hardy, and is not fastidious about soil, provided that the subsoil is not charged with too much moisture. At present there is much doubt as to the propriety of classing it with P. lasiocarpa (Parsonsiana), and till it fruits in this country, which it may be expected to do in a few years, it will in all probability continue to be known by its present name. By whatever name it may ultimately be designated it is certainly one of the most distinct and promising coniferous trees which has been introduced in recent times, and deserves to be planted wherever fine trees find a place. I enclose specimens grown near each other. *Archibald Fowler, Castle Kennedy, Stranraer, N.B.* [Whatever may be the ultimate verdict of botanists, there is no doubt that the true Abies concolor is for cultural purposes quite distinct from A. Parsonsiana (syn. Lowiana, lasiocarpa). Eds.].

Double-flowered Variegated Pelargoniums.—I have three fine double scarlet varieties with silver variegated foliage raised from seed of Miss Kingsbury and May Queen, two silver-edged varieties sent out by me some years ago, so that all in existence at the present time are not the result of sports (see *Gardeners' Chronicle*, p. 376). *J. Kingsbury, Bevois Valley Nursery, Southampton.*

The Buckland Yew.—I have lately had brought to my notice a paragraph in your columns on the "Buckland Yew." Will you allow me to point out to you the fact that we had no alternative whatever but either to cut it down, or to attempt to transplant it? This may sound to your ears, horrible, but I will ask you to remember that, besides the tree, we had a beautiful Norman church with "decorated" chancel to preserve, and there was absolutely no other way of enlarging the church except by an elongation westwards. We were compelled to dismiss the question of a new church on another site, not only, though partly, because it is not easy to raise some £10,000 even to save a noble Yew, but chiefly because, being single-handed in this parish, I could not have served two churches, nor could I raise the funds to endow a curate. Forgive my saying that opinions differ as to the "lack of proportion" of which you speak, and many, I may say the great majority, consider that the lack of proportion was the one fault in the small church, the nave being 36 feet long by 46 broad. Every one must admit the "lack of proportion" there. You truly say that the tree "on the northern and eastern side looks in woeful condition." Is it quite certain that this is the effect of the removal? Evergreens of all sorts in Buckland suffered frightfully from the winds and frosts of last winter, and from the biting cold winds of the spring. Hollies and young Yews were completely stripped of their foliage in the churchyard, and a splendid Poplar in the immediate neighbourhood, which has weathered many a storm, looks in equally "woeful condition," though no Vandal Vicar has attempted to transplant it. The transplanting and fencing in of our splendid veteran has cost some £150, although Mr. Barron, who supervised the work, most generously remitted more than half his fee. Will any of your readers who are interested in the preservation of such relics of bygone ages send me a donation towards the expense? *Turberville Evans, Vicar of Buckland, Buckland Vicarage, Dover, Sept. 29.* [We think donations for such a purpose would be offering a premium to Vandalism. Eds.]

Single Dahlias from Seeds.—I note your remarks on p. 444 last week to the effect that the single Dahlias raised from seeds would not prove "all alike good and attractive." I am sure no one said they would. They will be like many other flowers from seeds—they will produce some better, some as good, and some worse than the parents; at the same time they are so easily raised from seeds, and flower freely the same season, so that one need be without single Dahlias who can afford a few pence for a packet of seed. I think four named varieties are enough for any garden; that is, the best form of D. coccinea and D. lutea, and the forms of D. variabilis, Paragon and Stella Bianca. *J. Douglas.* [We think the forms of D. gracilis, dwarf and bushy in habit, with elegantly cut foliage and abundant brilliant flowers on slender wiry stalks, the most deserving of cultivation as border flowers; the varieties of the true D. coccinea, dwarf and floriferous in habit, the next best. Eds.]

Borers in Pinus insignis.—A very flourishing young specimen of Pinus insignis in the grounds here suddenly turned brown, and on examination the bark of the trunk was found to be full of small holes, and quite separated by the workings of small grubs from the wood in several places, the latter being in such places completely covered by shallow channels of scarcely one line in width—the destruction going on not having been discovered until the sudden collapse of the tree made it evident. The agents of the mischief were all in the pupa state, and appeared likely to develope into some weevil. They were cream-coloured, two lines long, and a little over one line across. Unfortunately, in my haste to destroy the tree by fire to prevent further propagation, I neglected to save specimens, which neglect I now regret the more, as I am informed that a very fine tree of the same species succumbed in precisely the same way in another part of the grounds many years

Fig. 89.—The Pine Beetle (Hylurgus piniperda).

ago. I would be glad if any of your entomological readers could inform me what insect has probably wrought the mischief? and if able to identify it from the meagre description I have given, I would be glad to know if this species of Coniferæ is more liable than others to its attack or not? I may mention that although there is a fair collection of Coniferæ here no other trees appear to have been assailed; but I must also state that there is a good specimen of P. insignis that has enjoyed equal immunity. The tree (the loss of which has called forth this inquiry) was a most free-growing one, having made for the last two or three years an annual growth of between 3 and 4 feet. Can it be that the exceedingly quick growth has laid it more open to attack? The specimen formerly lost in the same way, I am informed, also exhibited unusual freedom of growth. *Ralph Crossling, St. Fagan's.* [No doubt the pupa is that of the Pine Beetle (Hylurgus piniperda). Burn the infested shoots, and also any old or decaying bark or timber. See Miss Ormerod's *Manual of Injurious Insects.* Eds.]

Vitis sempervirens; also called striata.—I regret to be unable to testify to the hardiness of the above-named desirable trailer, received last autumn from Messrs. Backhouse under the second of the two names above quoted, to which I cannot see that it has any claim whatever, as the foliage is by no means striped in any way. [The name probably has reference to the markings on the bark, Eds.] On arrival it was planted against the wall of my dwelling-house in a sheltered situation facing north, but the first severe frost burned it down to the ground, and at the end of winter it appeared quite dead, but it has during the summer sent up several shoots to between 2 and 3 feet. It unfortunately will not cling, but requires wire-netting behind it for its tendrils to twine round. *W. E. Gumbleton.*

—— Referring to the remarks about this fine Chilian climber in last week's *Gardeners' Chronicle*, at p. 427, we may state that it appears to be quite hardy in an ordinary winter, and capable of enduring exceptionally severe frost. Though the thermometer registered 5½° below zero at York last winter, and scores of pots of this plant were fully exposed, they grew freely during last summer, some making shoots more than 3 feet in length. This can scarcely be called "very slow growth," especially for plants that had been "cut back" by frost. If, as Mr. Tweedie states, it is "one of the most beautiful climbers in the woods" of Uruguay, "covering the bushes with red berries in winter," it will assuredly prove a most welcome and valuable addition to our hardy evergreen climbers, and "fast enough" for most cultivators. *Jas. Backhouse, York, Oct. 5.*

Autumn Crocuses—The different species and varieties of Colchicum (popularly called autumn Crocus) now flowering in the nurseries of Messrs. Backhouse & Son, York, form quite attractive objects. The Caucasian one, C. speciosum, is decidedly the largest and most beautiful of the genus. The blossoms are deep rose or rosy-pink. C. floribundum, probably a variety of C. autumnale, the colour is so pink, the flowers are very numerous, and last a considerable time in great beauty. C. atropurpureum is a dwarf kind, with smaller Crocus-like flowers which are very deep in colour, striped with delicate pink. C. autumnale var. album is an interesting kind but the flowers are too small to constitute it a plant of much value; the double of this, however, is a scarce and valuable plant, the blossoms being quite double, large in size, and of snowy whiteness. The double of the ordinary form is a useful decorative plant. There appear to be two forms of this, one with clear soft rosy-purple flowers; the other striped or variegated with white. C. alpinum and C. montanum are smaller than the above in all their parts, and they produce their lovely little Crocus-like flowers during the summer months. With regard to culture it may suffice to say that they are as equally free to grow in almost any soil or situation. *R. Potter.*

Lily Disease.—If there is any consolation to be derived on looking over a bed of diseased Lilies it can only be found in the knowledge that one does not stand alone in misfortune, and that others have theirs afflicted by the same malady, at least I infer so from the description that has been given, as our have been spotted in a similar manner, which I attributed first of all to the great heat, which appeared to distress them much, and then to the wet, which I thought must have injured the roots and caused the spot, bringing on a premature shedding of the leaves. Instead of this, however, I fear we have something worse to contend with, as fungus is such an insidious enemy that one is at a loss how to fight it, and the devastating influence is so great that it appears to destroy or weaken plant life wherever it touches. Being anxious to grow Lilies well, and to have a good collection, we took great pains to make a bed some 70 feet long and 5 or more wide, which bed is in front of some shrubs, chiefly Rhododendrons, but I fear now that the position is too hot and sunny, as the solar rays pour down on it for the greater part of the day without any shade, and I think of shifting the Lilies to the other side of the ride, where a similar border can be made, and where the shrubs shade the ground. I am strengthened in the opinion that shade of this kind is necessary from having some L. auratum growing in a made-up border of fresh turfy loam under a high north-west wall that has simply been grand, and from seeing others of the same kind planted among Rhododendrons at the east wing of the house, where they have dwindled and died, while others at the north wing, where they get shade, are doing very well. Before making the change referred to, I should be glad to have the opinion of others better acquainted with the cultivation of this noble class of plants, and as many are starting to grow them, or have them already, any hints they may give will be most valuable. Our bed was made up with various gatherings, consisting principally of peat and leaf-mould from leaves that had dropped into a low part of the park, where they had got mixed with sharp sand and *débris* from the high bank above them. These several mixtures were spread thickly over the natural soil, and trenched in by breaking up the ground to a depth of 2 feet, and I thought at the time we had made the bed perfect. The bulbous I revel in it, as do also Tritonia aurea, Scillas, Gladiolus, and such-like. As a protection during winter we scatter a few leaves over the surface to keep off the frost, but it is just likely that the Lilies would keep sound and better without, as the ground would be drier. Lilium candidum grows freely in our herbaceous borders, where the bulbs increase so rapidly as to push each other out. *J. Sheppard.*

Autumn Flowers.—If there were not left behind the depressing remembrances of spoiled corn crops and diseased Potatos, we might well exclaim, "What a grand season we are enjoying!" The autumn tide now is truly delightful; the sun shines warmly, the weather is dry, Nature is full of vigour, the trees,

et in magnificent leafage, the herbage green and lmost luxuriant, and—not least—the flowers are full f colour and beauty. Spring flowers specially seem o entertain the notion that the spring has come, and he season for their annual blooming is at hand. If he long spell of summer heat and drought lulled hem to a premature rest, the cool rains of the past w weeks have given them a rude awakening, and here is about all an unwonted vigour that if produc- ve of bloom now is full of promise for the coming ear. It is indeed remarkable to see Primroses, olyanthuses, Daisies, Violets, and many of the rliest of spring's floral harbingers pushing up owers quite freely, and if out of season looking one the less beautiful. All the fine old Michael- as Daisy family have a grand time of it, and, ost beautiful of all our of autumn flowers, the pan Anemones, are indeed gay. Dahlias promise orious bloom for yet another fortnight, and Snap- agons, having made strong growth, are blooming in eat abundance. Spring-sown Pentstemons are just w at their very best and are very attractive, but rhaps the richest hues are got from the orange, lden, and yellow African Marigolds, for these are ly gorgeous. Scores of minor things carry bloom tle or much, pushed into flower by such genial eather. The country is seldom more delightful than st now, and with the autumn hues on the foliage, ndscape and woodland will furnish beauties not too ten seen. *X.*

Exterminating Cockroaches.—I put 2 quarts of er into a large vessel, and in one night I caught o full grown cockroaches, and how many young es I cannot tell. If I could have gone on for a few eks in that fashion I should soon have lessened eir number, but after a few nights I could only tch about half a dozen, although the stokehole and nt-stove is swarming with them. I have often led numbers of these pests when the floor has been arly black with them in the evening, but in the rning there has been very little sign of those I killed t, so I conclude they eat each other. I shall be d if some one can tell how to get rid of them whole- e. *O. Orpet, Cirencester.*

Apiary.

Judging from what Mr. Goodall says (p. 384) pecting his now tenantless and honeyless hive, re can be no question as to its being a case of obbers." Bees do so many strange things that at es it is most difficult to understand them; but one their chief characteristics at this time of the year is t of stealing their neighbours' property. When it seen that a hive is attacked by the robbers the best ing to do is to narrow the entrance; this gives the htful owners a better chance to do battle with their ponents. It is always advisable to narrow the trance towards the end of August; at that time sps usually become troublesome, and very amusing is to see one attempt to gain access into a hive with her a small hole; no sooner is he on the lighting ard than the sentries seem to say "Out you go!" d should he hesitate they very soon bundle him er. *J. Horsefield.*

FUNGUS FORAYS.

Epping Forest Field Club.—To a corre- ondent of the *Gardeners' Chronicle* belongs the rpassing honour of sending the champion fun- s of the year for exhibition at the Loughton ngus meeting. The gentleman who found and warded the fungus to my house is Mr. Mal- lm McLean, gr. to J. Whatman, Esq., Vinters rk, Maidstone. This name and address will preserved in the archives of fungology forever. letter to the Editors preceded the fungus, stating at it was very big; it grew at the base of a otch Fir, and had only once before been seen at nters Park. The request to send the fungus up s at once complied with, and it came in an enor- us deal box (now a spacious and luxurious rabbit- tch) painfully carried by two men. On opening e box a delectable fragrance poured out, and on noving the shavings a stupendous specimen of the re and edible Sparassis crispa was seen—such a ecimen as had probably never before gladdened the es of any fungologist. A common size for Sparassis that of an orange, or possibly a small round Melon, t here was an example of massy and cyclopean pro- rtions—3 feet 6 inches round, 10 inches high, and th a solid rooting base 6 inches deep. As far as writer knows, such another specimen has never been n or even dreamed of "in tale or history." It was no easy matter to get this fungus to Loughton, but after all the rooting portion had been cut away it was divided in two, and dropped into two large open fish baskets, These baskets the writer took by hand to Liverpool Street, very much in the style of an itinerant street vendor of sponges with a very large stock-in-trade. The first person met at the Liverpool Station bound for Loughton was Mr. Flaxman Spurrell, surgeon, of Lesnes Heath, Dartford, the gentleman who has aided so much in disinterring the works of Palæolithic man and other extinct animals, from the Dartford Sands, and who, with his son, Mr. Flaxman Spurrell, and Professor Boyd Dawkins, conducted a number of Manchester, Middlesex, and Kentish geologists, including the writer, over the Dartford pits last spring. Mr. Spurrell, with a quick geologic eye, took the cream-coloured, sponge-like masses for a series of magnificent examples of teeth of Elephas primigenius. which, indeed, they very much resembled; but the ambrosial fragrance, so different from that pertaining to elephant's teeth, soon advised him of the true nature of the treasure. Two fungologists carried the fish baskets to the "Crown" Hotel, and lovingly placed the Sparassis in position in the room set apart for the fungoid exhibition of the day.

Dr. M. C. Cooke was one of the first fungographers to arrive at Loughton, accompanied by Dr. H. T.

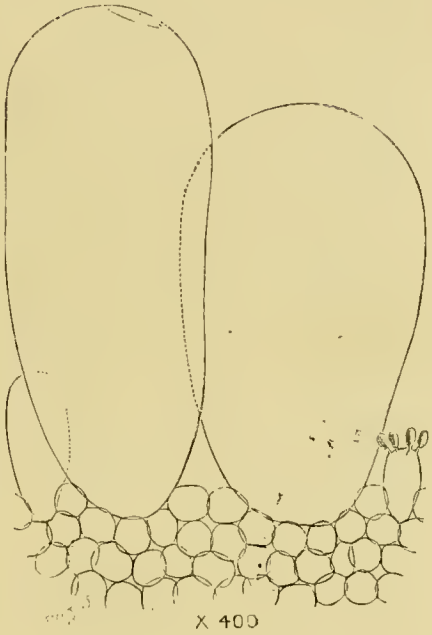

Fig. 90.—Cystidia of Coprinus aratus.

Wharton; soon after Dr. Braithwaite was on the spot with Mr. Spurrell, and many other professionals and amateurs. Doctors and surgeons are very useful at fungus meetings, in the event of a sudden inconvenience. Seventy persons were expected, but nearly a hundred excursionists really joined the Club "foray." Mr. James English, of Epping, was very useful, and Mr. E. M. Holmes being also with the party, Cryptogamic botany in all its branches was fairly well represented by experts.

The section of the Forest searched included the district of High Beech and Monk's and Theydon Woods. Fungi were fairly abundant, and as Dr. Cooke, Dr. Wharton, Mr. Spurrell, and the writer were in the Forest with the party all the day very few species went unnamed. Hygrophorus eburneus was very abundant, a white and sticky species, said to be edible; a close ally and "consort" of this plant was also frequent in H. cossus: the latter is much more glutinous, its top is slimy, and the whole plant is rich in the potent odour of the he-goat, or—to those who are not fortunate enough to know this odour—the scent of the larva of the goat moth. The viscid tops of the specimens of H. cossus were covered with dead flies, first probably attracted by the odour, and then caught and suffocated by the gluten. Some of the younger members said these fungi were undoubted "carnivorous plants"—they carefully placed them in their baskets, determined (they said) to look for and find pepsine, distended fungus-cells and stomachs. Another handsome ally is H. chrysodon: this was once or twice met with; the plant is named chrysodon from its fancied resemblance in colour to the beautiful golden-greenish stone named chrysolite. One gentleman found a vegetable beef-steak, Fistulina hepatica; and another botanist, who found one the day before, brought it to the Forest cut up in slices between bread in the form of sandwiches. This was an inveterate fungus-eater, for he even dispensed with mustard, so valuable with beef, and secured the necessary pungency by the insertion of thin slices of the fiery Lactarius piperatus. We cannot all go to such lengths, or even so far as the aged mycologist with the party who, as a substitute for snuff, was constantly sniffing at an old "Devil's Snuff-box," a "Bull's-fist," or large ripe last summer's "Puff-ball," Lycoperdon giganteum. One or two specimens of the gorgeous vermilion Cortinarius cinnabarinus were found with many specimens of its handsome but more sober tinted ally, C. cinnamomeus. Agaricus rubescens was very frequent; this plant is commonly said to be edible, although Mr. Berkeley cautiously omits any reference to its esculent qualities. Dr. Wharton stated that this plant is not only good for food but is excellent for its production of a refined and appetising ketchup, not so rich as that peculiar to the Mushroom, but a delicate nepenthe, fit for the gods. The beautiful "consort" of A. rubescens was present in A. pantherinus, perhaps as edible as the last, but seldom or never changing to sienna-red when broken or bruised. The golden-yellow edible Chantarelle, Cantharellus cibarius, was frequent; so was its sober coloured and more elegant ally, C. tubæformis. Russulas, so called because so many of the species are red in colour, were extremely abundant and very puzzling; some are very tender, some very tough; some fleshy, others almost woody; some with an inseparable cuticle, others with a separable one; some white under the cuticle, others red under the cuticle; some mild and innocent, some so intolerably pungent that if placed on the tongue the cuticle (of the tongue) will speedily peel off with a blister, and (like Russula emetica) show red underneath. The lovely, but untouchable glutinous Agaricus mucidus, generally frequent on the High Beech Beeches, was this year nowhere to be seen. The Falstaffean Boletus edulis was common, as well as B. chrysenteron and B. subtomentosus. The Milk Mushrooms, Lactarii, were abundant; the poisonous, livid Lactarius lividus, was everywhere; L. quietus, so mild that no one need fear his quietus from consuming it, was very common, "odour oily—like bugs," writes Mr. Berkeley; other authorities say the odour is "mealy, like recent farina." Perhaps the "mealy-bug" was in view, but this is not stated! Boletus scaber, grey, ugly, sticky and vile to the sight, was abundant, an edible species; and B. luridus was frequent, rapidly changing to blue when cut or broken—a pretty toy for ladies, quickly poisonous to some people, but delicious to the indurated hippogastrous fungophagist. The writer of these notes will not pain the readers of the *Gardeners' Chronicle* with a dry list of fungus species found; they are all in Cooke's *Handbook*, and most of them are common in Epping Forest every autumn.

One fungus met with deserves a word—viz., Coprinus aratus; this is probably a rarity, and not seen by the writer for the last twenty years. Mr. Berkeley first found it "in a hollow tree." It was one of the first fungi noted by the writer of these lines, and it grew twenty years ago at the bottom of a dung-heap in Nottinghamshire. It is one of the larger, deliquescent, fugitive species; it grows to be 6 inches high, stem tapering upwards, very hollow and fragile, a top from 3 to 5 inches across, tender, and breaking to pieces with a touch. It lives less than a day, and in decay it curls up into beautiful volutes, and distils itself away into drops of black and tumid ink. The specimen found was a ruin—suffering from a mycoclysm; but the remnants were brought carefully home for the microscopic examination of the cystidia. As these organs are more developed in C. aratus than in any other species yet examined, a small illustration is here appended (fig. 90) as a supplement to the figures published to the same scale in the *Gardeners' Chronicle* for September 17 last, p. 369. The ordinary cells of the plant are seen at the base of the illustration—a basidium with its four spores on the right, and two of the gigantic cells, termed cystidia, occupy the body of the illustration. It is a curious fact that all the cystidia in the specimen examined grew on the gills close to the insertion of the stem, no cystidia were to be found towards the edge of the cap; they may have

dropped to the ground from this portion with the spores.

As dusk began to fall the large party of excursionists made towards the "Crown" Inn; every one being furnished with one or more baskets, bags or boxes. Arrived at the "Crown" the bags and boxes were carefully emptied, and then came tea. After tea Mr. Raphael Meldola opened the business part of the meeting with a few apt and well chosen words, followed in the same style by Mr. William Cole, the hon. secretary. Dr. Cooke then read a paper on the fungi of Epping Forest, enumerating the species found by Sowerby and other botanists. In mentioning the species peculiar to the Forest he inadvertently omitted the lovely little sticky Agaricus Worthingtonii, so named by Elias Fries in honour of the writer of this record and of Epping Forest. A. Worthingtonii is peculiar at present to the Forest, long may it remain so: the original Friesian MS. is in possession of the Club. Dr. Cooke's remarks were followed by some observations from the fungologist in whose honour A. Worthingtonii was named, and then Dr. Braithwaite spoke of the mosses of Epping Forest and of mosses in general and how to find and study them. Mr. E. Holmes, F.L.S., did the same for lichens, and he found the botanists wholly with him when he expressed his total disbelief in the soundness of the Schwendenerian hypothesis: he would not recapitulate what the best lichenologists had said against the theory, but he would call attention to one point well marked near London. Unicellular algæ are extremely common near London; they abound excessively in all damp woody places. Small Peziza-like fungi are also extremely common all over the London district; but there are virtually no lichens within 15 miles of London. [! Did not Sowerby find them on the dome of St. Paul's? and is not the Editor's house, which is within 8 or 9 miles of the same, moderately encrusted over the stucco with Parmelia?]. The algæ and the fungi do not mind the smoke, but the lichens cannot grow where there is a trace of it. Now, said Mr. Holmes, if lichens are only fungi parasitic on algæ, here are the algæ in millions and an unlimited number of fungi, why do not the fungi prey on the algæ? Every cryptogamic botanist knows that unicellular algæ, such as are supposed to be the hosts in the Schwendenerian hypothesis, love to grow in shady and very humid places: the Peziza-like fungi grow in the same positions, but the lichens grow in dry sunny places, where the light is strong and the air free—in places where algæ and fungi, as a rule, cannot and do not grow. "Have you read Mr. Nemo's confirmation of the theory?" said some one. Yes, of course he had; when a big Professor is engaged in letting off a lot of sensational fungological fireworks, some Mr. Nemo is sure to rush in with his own little squib in the hope of receiving some of the applause directed towards the great Professor.

The tea being over, it was on the cards to retire downstairs and study the fresh fungi in the exhibition-room. Many of the visitors had not yet seen the cyclopean Sparassis, so some of the chiefs hastily led the way. In a moment or two the leaders rapidly returned, with faces ashy pale and almost speechless with indignation and horror. Whilst the tea had been going on upstairs some misguided miscreant had entered the exhibition-room and bodily carried off one half of the gigantic Sparassis. The speaker who told us looked and spoke like Macduff on his horrified return from the chamber of the murdered Duncan. "Most sacrilegious murder hath broke ope the choice Sparassis." The innkeeper was arraigned like Macbeth himself. "Who," said mine host, "can serve beer, spirits, zoedone, porter, and biscuits, and look after funguses, all in a moment?" Before re-entering the chamber the chief fungologists entered into a solemn compact to trace, if possible, the daring delinquent. If this portentous piece of a Sparassis enters any lists in competition for any gold medal at any forthcoming fungus exhibition it is to be hoped the judges will sharply scan both the fungus and its exhibitor, and report to the *Gardeners' Chronicle*. A good deal of fungus naming and tobacco-smoking now went on, and with the exception of regrets for the very serious loss all proceeded pleasantly. Many visitors before going away wished for a slice from the remnant of the ambrosial Sparassis, now in the safe possession of Mr. English. This gentleman was furnished with a large glittering and dangerous looking knife, with which he ever and anon sliced off a portion of the fungus for some grateful recipient; he could hardly be seen in the dense impenetrable volumes of tobacco-smoke. He looked like a chief in the apotheosis of a Viking, or Vulcan, or Pluto busy in the infernal regions; so mentally recalling the strains of Offenbach's *Orphée aux Enfers* the writer hastened to the railway station, hoping all the while to meet the Epping Forest Club again in 1882. *Worthington G. Smith.*

Yorkshire Naturalists' Union. — The first fungus foray of the Yorkshire Naturalists' Union was held at Leeds on September 30 and October 1, under those two most favourable conditions of fine weather and an abundance of fungi. Mr. W. Phillips, F.L.S., Rev. John E. Vize, and the writer, were met upon their arrival in Leeds on September 29 by Mr. W. Dennison Roebuck and the Rev. W. Fowler. The party proceeded to Mean Wood on a special private excursion, with a view of obtaining an introduction to the fungus flora of Yorkshire. In about an hour some thirty species of fungi were met with, and the walk to and fro afforded an excellent opportunity for the old and new friends to compare notes upon the mycological outlook of the day and of the district.

Friday (30th) saw the foragers—*i.e.*, the persons who took part in the fungus foray—up by times, and assembled at the North-Eastern Station. The whole party proceeded by train to Harrogate, where about half their number remained, while the remainder proceeded to Ripon. The Harrowgate party, numbering about ten, included Mr. Phillips, Mr. Roebuck, Mr. Massey, of Scarborough, Mr. Abbot, of Leeds, and six others, and were met at the station by Mr. Thomas Hick, B.Sc., who guided them to the woods in which the day was to be spent. The first four miles of the road were occupied in discussing the Schwendenerian Algo-lichen theory, with the usual result—namely, that in the end each person "remained of his own opinion still." During the day Lactarius uvidus was found in fair quantity, as well as the more common L. glyciosmus. Upon the odour of the latter a consensus of opinion was taken as to what it could be compared. Mr. Hick suggested Cocoa-nut. Nothing is more difficult than accurately, and at the same time tersely, to describe the odour of many of the larger fungi. For instance, Messrs. Berkeley and Broome say their A. ameides has "a peculiar smell, resembling a mixture of Orange-flower water and starch." Perhaps, then, it will not be considered far-fetched if the odour of L. glyciosmus be likened to a mixture of Cocoa-nut and treacle with a suggestion of Cinnamon. The beautiful A. rosellus was also found, as well as Hypomyces rosellus, and about sixty other species of more or less interest.

The Ripon party were guided by the Rev. H. H. Slater, F.Z.S., and Mr. W. Eagle Clarke, and were accompanied by two small boys carrying very big baskets. The fine woods and district of Studley Royal were scoured for fungi, and many highly interesting species found. These included Agaricus (Tricholoma) panœolus, which has only recently been added to our flora, it having been found a few weeks previously in Norfolk. The Rev. Mr. Sonnerfield soon lighted upon a magnificent specimen of A. Bucknalii, and shortly afterwards A. pisciodorus and Geaster fimbriatus. Mr. Alfred Denny found Agaricus dryinus upon an Oak tree. Hygrophorus puniceus, fornicatus, cossus, unguinosus, Agaricus seminudus, Marasmius erythropus, Polyporus giganteus, cæsius, as well as about 120 other species, were collected.

In the evening the work of looking over the vast mass of fungi, which had been sent in hampers, boxes, and baskets, from all parts of Yorkshire, was commenced. This proved to be a serious undertaking. It was determined to select a few typical specimens of each species, and arrange them in their proper botanical sequence under their respective genera and subgenera, with a label bearing their names affixed to each. Help was ungrudgingly given by the members of the Union, and eventually this was accomplished, although it entailed getting up at 6 A.M. next morning. Mr. Edward Atkinson, of Leeds, and Mr. Salter, of Malton, rendered great service in writing labels, while Mr. Dobson was invaluable, early and late, in placing the specimens upon the tables. Besides these specimens there were at the show a large number of fungological drawings by Mr. Tuffen West, Mr. Phillips, and Mr. Massey. Mr. R. Reynolds, of Leeds, exhibited a number of models of fungi and dried specimens. A number of slides of microfungi, mounted by Mr. West, were exhibited under an excellent microscope by a gentleman from Bradford. After the show came in the inevitable dinner at Powolny's Rooms, at which Mr. Hobkirk, of Huddersfield, presided. Now this dinner was remarkable, not so much as a further proof of the hospitality of the Union to their visitors—because they had already received demonstration of this to the most minute detail, in a manner never to be forgotten—as for the wonderfully successful manner in which the fungi were prepared. They were cooked from recipes used in the German monasteries 300 years ago. Agaricus campestris and Helvella crispa are always palatable, but to make Hydnum repandum really nice, and Fistulina hepatica truly delicious, is a feat which, speaking from a pretty extensive experience of fungus dinners in England, Scotland, and Wales, I can safely say I never saw achieved. Should the reader ask, How was it done? all I can say is—attend the next fungus dinner at Leeds, and see for yourself. *Charles B. Plowright, October* 3.

Notices of Books.

Country Pleasures; *the Chronicle of a Year Chiefly in a Garden*. By George Milner. (Longmans.)

One of the many curious phenomena prominently brought into notice by Mr. Darwin is that of mimicry. Insects and other creatures, it is found, often assume disguises by adopting the outward conformation and colour of other members of the same family, and often of individuals of quite different lineage. Sometimes this is done for protection sake—a common danger has to be met with common weapons. Sometimes it is done for concealment sake, as when an insect mimics a dead leaf or twig. Sometimes, it is conceivable, it may be adopted for aggressive purposes. For whatever purpose and from whatever cause it is certain the phenomenon is very common. In the field of literature a similar thing is not rare, and the motive is in general easily ascertained. In some cases it is an unconscious act on the part of the perpetrator. In other instances the imitation is the result of close study or the outcome of genuine admiration. It is not difficult for a practised writer to mimic the style of a Macaulay, and the pages of *Punch* bear witness to the fidelity with which a man accustomed to wield the pen can parody the productions of well-known authors. If we wanted to select a well marked illustration of this literary mimicry we could hardly pick out a better one than the book before us. Consciously or unconsciously it is a parody of Mr. Bright's *Notes from a Lancashire Garden* which after being published in these columns have been gathered together into the convenient form of a separate volume. Seeing that the subject matter of the book is pretty much the same and the scene is in the same county as that which formed the theme for Mr. Bright, a certain amount of similarity is of course a matter of necessity; but that the very turn of expression, the very knack of quotation should be the same is only to be accounted for on the hypothesis of that imitation which is said to be the sincerest form of flattery. In fairness to Mr. Milner, however, it should be stated that *Country Pleasures* range over a wider field than the *Notes from a Lancashire Garden*.

It is questionable how far there is room for a second book on the same subject, at least one treated in a very similar a manner. Its only justification would be some difference of treatment or some novel fact made known, some new idea broached. We do not find evidence of either, still, in justice to Mr. Milner we must point out that his pleasant gossip is not confined within the limits of his garden walls, but that he takes his reader with him, so to speak, when he takes his autumn rambles in Arran or the Welsh hills. Although he shifts his quarters there is no violent breach in the continuity of his ideas. He knows how to compare his surroundings when abroad with those which encircle him at home, and he is happy enough to discover and appreciate the links that bind the home-garden and the Scottish hill-side. *Cœlum non animam mutat* may be said of him in a good sense.

Notes and Thoughts on Gardens and Woodlands. Written chiefly for Amateurs, by the late Frances Jane Hope; edited by Anne J. Hope Johnstone. (Macmillan.)

These papers, as the editor tells us, "appeared originally in the *Gardeners' Chronicle* and the *Garden*. It is probable, therefore, that they are more or

known to a large number of our readers. Yet, if we may judge of the opinions of others by that which is personal to ourselves we should decidedly say that these papers have gained by republication, and this is the more noteworthy as there is no definite sequence in them, nor can they lay claim to be anything more than what they are designated—notes. Reading them now in a collected form we are inclined to value them more highly than when we read them piecemeal as they appeared. The originality, the humour, and strong common sense of the writer were always apparent, but the value of her teaching seems enhanced now that her pen is still, and we can look for no more. It is pleasant now to see how single-minded the writer was: a certain thing had to be done, and she did it. She tried, she failed, she succeeded, but in her trials, her failures, her successes, her motto seems to have been the same—"Straight on." This directness of purpose and method is not always within the power of a professed horticulturist, and in this respect the amateur, with only himself and his own wishes to consider, has the advantage. Still it is not all amateurs who are so richly endowed with clearness of perception, and accuracy of inference and judgment as Miss Hope. A few extracts will suffice to show our meaning:—

"These two winters and one summer have spoilt our spring beds and borders, and a thorough upturn and change of plan will be requisite. It was impossible to use a fork or hoe in 1879 in our soil; the result of the leave-alone system is a carpet of Marchantia and Hypnum sericeum; to scrape these pests off does no real good, for the earth is caked below and impervious to air, sun, or rain. So we are longing for our bulb treasures to be up and to get on to our alterations; do away with 'rings' and surfacings, and whatever prevents us loosening the earth between each plant. Looking at our border, the only real advantage of what is called 'bedding-out' struck me forcibly, being a thorough working and justice done to the soil."

Alluding in another place to a Clematis which had become too rampant, the question arose whether the smothered China Roses should be sacrificed and the whole wall be given up to the Clematis, or whether the latter should be uprooted? Every gardener will know how often he is placed in a similar dilemma, but it is not every gardener who knows how to get out of the difficulty in this fashion:—"It is sometimes well to be set betwixt two distasteful alternatives; obstinacy strikes out a way of escape; and in this case the idea took hold of me, that we could nearly double the height of the wall with one of wire. The Clematis should have their free will, and we would carry out our plan," and then follows an account of how the wire wall was erected by a blacksmith, and not a wireworker, as it was necessary "once for all to lay one's account to having a good equinoctial once a month." The observant power of the author, with all its natural keenness, is brought out very prominently throughout, but especially in such articles as that on the "Flowers of Trees," articles which make us feel what a botanist Miss Hope would have made had she started in her gardening career with the necessary training and grounding in the "principles." Miss Hope was a genuine plant-lover, loving them and studying them for their own sake, and not as mere patches of colour in her garden. Naturally she was not content with bedding-out pure and simple, but she had judgment enough to know where bedding-out was appropriate, and to what extent, and did not disparage it simply because it was bedding-out. Her practical turn of mind led her to try endless combinations, some of which are enumerated in the chapter on effective flower beds—a chapter most useful not only to amateurs but to gardeners also. Her introduction of the coloured Kales will be remembered by garden lovers, and although they never attained wide popularity, yet even now we know of nothing that in the dull months can approach these plants in variety and delicacy of tint. Miss Hope's hints here collected as to bedding out and as to the arrangement of cut flowers will prove valuable to gardeners and others, not only directly but also indirectly, by their rich suggestiveness. We have only to add that the book is edited by Miss Anne J. Hope Johnstone in a thoroughly sympathetic, loving spirit.

Obituary.

Mr. Philip William Skynner Miles, son of Mr. Philip John Miles, of Leigh Court, Somersetshire, half-brother of the late Sir William Miles, died, after a short illness, on Saturday morning, at his seat at King's Weston, aged sixty-five. The deceased was M.P. for Bristol from 1837 to 1852. His health began to fail last winter, when he was travelling in Algeria. He was taken more seriously ill on Friday last, when out driving, and the cause of death is believed to have been failure of the heart's action. Mr. Miles took an active part in the establishment of the Channel Docks at Avonmouth, and the Bristol Port and Pier Railway, of which companies he was Chairman. He was also a zealous and liberal supporter of the Bristol Sailors' Home, and other charities connected with Bristol, and was a Deputy-Lieutenant and magistrate for Gloucestershire. In 1876 he was elected a member of the Council of the Royal Horticultural Society, and retired in 1878.

Reports of Societies.

Essex County Potato Exhibition: *Sept. 28.*—This exhibition originated in 1880 as the Kelvedon Potato Show, but at the distribution of prizes that year it was suggested that it be made a county exhibition, and this idea was taken up and carried out with great spirit. The first exhibition on the enlarged basis took place in a capacious tent in the village of Kelvedon, and a large and excellent display of Potatos was brought together, which were neatly arranged after the method adopted at the Crystal Palace. In the leading class, which was for eighteen varieties, distinct, some of the best exhibits had to be disqualified mainly through having Bresee's Prolific and others under different names. Great complaints were made by the exhibitors that the practice of renaming known varieties prevailed to such an extent, as it was calculated to mislead the exhibitors, which appeared to be very reasonable. At the same time, a cultivator who grows a collection with the same sort under different names must have ample opportunity to notice the similarity of habit, growth, &c., in the haulm as well as as in the tuber, and should refrain from staging those that resemble each other. Decidedly the best eighteen varieties came from the Secretary, Mr. T. H. Hill, The Gardens, Durwards, Witham, who unfortunately staged King of Potatos under the name of International Kidney, he having a dish of the first-named also in his collection. The leading varieties, represented by clean well grown examples of good average size, were American Purple, Trophy, Schoolmaster, Vicar of Laleham, Pride of Ontario, Red Emperor, Prince Arthur, Manhattan, Salmon Kidney, Matchless, Woodstock Kidney, Beauty of Hebron, Oneida, and Pride of America. This, but for the disqualification, would have taken the 1st prize of £5. This was withheld, and the 2d prize awarded to Mr. W. H. Scott, Kelvedon, who had a fairly good but unequal lot, the best dishes being Grampian, American Purple, St. Patrick, Vicar of Laleham, Beauty of Hebron, Matchless under the name of Holborn Favourite, Woodstock Kidney, Rector of Woodstock, Peerless Rose, identical with Mr. Bresee, and International Kidney. A 4th prize was awarded to Mr. J. K. King, Coggeshall. Extra prizes were awarded to Messrs. Hill and J. Tunbridge, gr. to W. Bolt, Esq., Broomfield. There were nine collections in this class. In the class for twelve dishes, in which there was the same number of competing collections, the 1st prize was awarded to Mr. R. W. Bishop, gr. to O. S. Onley, Esq., Stisted, who had good examples of St. Patrick, Early Rose, Schoolmaster, Vicar of Laleham, International, Snowflake, Pride of America, Covent Garden Perfection, Blanchard, Magnum Bonum, Radstock Beauty, and Bresee's Prolific, under the name of Breadfruit. In this case the question arose as to the distinctness of Snowflake and Pride of America, but as they were sent out by Americans as distinct varieties the benefit of the doubt was given to the exhibitor, but the latter in appearance closely resembles the former, and will no doubt resolve itself into Snowflake. 2d, Mr. T. H. Hill, who had good dishes of King of Potatos, Trophy, American Purple, Mammoth, Pearl, Manhattan, Schoolmaster, Vicar of Laleham, Matchless, &c. 3d, Mr. F. Kettle, gr., Stannay. In the class for six dishes there were eleven competing collections, Mr. F. Kettle taking 1st prize, with Magnum Bonum, Redskin Flourball, Triumph, Schoolmaster, Myatt's Ashleaf, and Early Rose; 2d, Mr. Bishop, with Early Rose, Pride of America, Schoolmaster, Snowflake, St. Patrick, and Vicar of Laleham; 3d, Mr. T. H. Hill. In the class for four dishes there were fourteen lots, Mr. W. H. Scott being 1st, with Schoolmaster, Salmon Kidney, Manhattan and Snowflake; 2d, Mr. F. Kettle with Grampian, Magnum Bonum, Schoolmaster, and Snowflake; 3d, Mr. T. H. Hill.

The next class was for two dishes of Potatos, in which there were twelve competitors. Mr. E. Butler, Kelvedon, was 1st with Bresee's Prolific and Schoolmaster; 2d, Mr. T. H. Hill, with Matchless and St. Patrick. In the class for the best dish of any white round Potato, Mr. Hill was 1st with Schoolmaster, Mr. J. Tunbridge being 2d with Giant King, and Mr. F. Kettle 3d with Schoolmaster. In the class for the best dish of coloured round, Mr. Hill was 1st with Vicar of Laleham, and Mr. W. H. Scott 2d with the same variety, Mr. Kettle being 3d with a very handsome dish of Redskin Flourball. The best dish of any white kidney came from Mr. Hill, who had St. Patrick, very handsome and clean; Mr. W. H. Scott being 2d with the same, International Kidney, from Mr. W. H. Scott being placed 3d. The best coloured kidney was Trophy, from Mr. T. H. Hill, very handsome indeed; Mr. W. H. Scott being 2d with Garibaldi, and Mr. Kettle 3d with Early Rose.

The special prizes offered by Messrs. Sutton & Sons, Reading, for the best single dishes of Magnum Bonum, Woodstock Kidney and Reading Abbey, brought a good number of dishes, Mr. Kettle being 1st with the former, and Mr. Hill with the two last named. Mr. Hill was 2d with Magnum Bonum, and Mr. Scott 2d with Woodstood Kidney and Reading Abbey. Messrs. Carter & Co. offered special prizes for the best dish of Holborn Favourite (Matchless), which was taken by Mr. W. H. Scott, Mr. Hill being 2d. The best collection of six dishes competing for special prizes offered by Messrs. Daniels Brothers, Norwich, came from Mr. W. H. Scott; 2d, Mr. T. M. Hill. The sorts in each case were Daniels' Advancer (Bresee's Prolific), Beauty of Norfolk, Wiltshire Snowflake, Peerless Rose (Mr. Bresee), Wormleighton Seedling (Magnum Bonum), and Winter Rose (Late Rose). In the class for the special prizes offered by Mr. R. Dean for varieties sent out by him Mr. T. H. Hill was 1st with Vicar of Laleham, Bedfont Prolific, American Purple, and Radstock Beauty; 2d, Mr. W. H. Scott, with Mr. Bresee, Vicar of Laleham, Avalanche, and Heather Bell; 3d, Mr. Potter, Kelvedon. In competition for the special prizes offered by Messrs. Hooper & Co., Covent Garden, Mr. Hill was 1st, with Matchless, Beauty of Kent, Queen of the Valley, and Pride of America; 2d, Mr. W. H. Scott; and 3d, Mr. Warner, with the same varieties. The best dish of Potatos, eighteen tubers, any variety, was Schoolmaster; and of any new variety, Beauty of Hebron. These were in competition for the special prizes offered by Mr. John K. King, Coggeshall. Mr. E. Abbott, Ardleigh, offered special prizes for the best six dishes of new varieties of Potatos, Mr. Hill being placed 1st with Early Ohio, Mammoth, Pearl, Vicar of Laleham, Matchless, Winter Rose, and Amazon Queen; 2d, Mr. W. H. Scott, with Pride of America, American Purple, Vicar of Laleham, Reading Hero, White Elephant, and Daniels' Advancer.

The cottagers' exhibits were worthy of all praise, nine classes being specially reserved for them. In the class for nine dishes (a large one for cottagers) some excellent tubers were shown, Mr. G. Gould, Kelvedon, being 1st, and Mr. A. Youngs 2d. Mr. Geo. Taber, of Rivenhall, offered special prizes for the greatest quantity of Potatos taken from 1 rod of ground: Mr. Deal being 1st, with 2 cwt. 1 qr. 15 lb., but a very rough sample; J. Raven being 2d with 1 qr. less weight.

Messrs. Sutton & Sons, Reading, and Messrs. James Carter & Co., Holborn, set up collections of new and choice varieties; the former had Standard, Surprise, Fillbasket, and some of Mr. Fenn's seedlings, which made a good reputation during the summer trials at Chiswick,

Mr. B. R. Cant, of Colchester, sent four boxes of charming Roses, which were much admired.

It is fully intended to make this county exhibition a permanent one; but whether Kelvedon will be its permanent headquarters also remains to be seen.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, October 5, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In.
29	30.22	+0.50	64.5	43.0	21.5	51.8	— 2.6	49.8	93	N.W.: S.W.	0.00
30	30.18	+0.47	64.5	41.0	23.5	50.8	— 3.5	47.0	93	N.E.	0.00
Oct.											
1	30.10	+0.40	62.5	40.2	22.3	50.1	— 4.3	45.8	86	S.E.: N.E.	0.00
2	29.98	+0.29	61.7	44.0	17.2	51.4	— 2.8	45.4	81	N.E.	0.00
3	30.01	+0.32	61.5	45.0	16.5	51.3	— 2.6	47.4	86	E.: S.E.	0.00
4	30.02	+0.33	55.5	41.0	14.5	47.4	— 6.1	39.3	74	E.: S.E.	0.00
5	30.02	+0.34	48.5	38.0	10.5	42.2	—11.0	37.3	85	E.: N.E.	0.00
Mean	30.08	+0.38	59.7	41.7	18.0	49.3	— 4.7	44.9	85	N.E.	0.00

Sept. 29.—Dense fog early in the morning; fine afterwards, the sun shining brightly. A fine night.
— 30.—Dense fog in early morning. Fine day; deep blue sky. A fine night.
Oct. 1.—Fog in the morning. A very fine day and night.
— 2.—A very fine day and night.
— 3.—A fine day, but frequently dull. Windy. A fine night.
— 4.—A fine day. Frequently dull Fine, cold night.
— 5.—A fine, but cold day. A fine night, with thin fog.

London: *Atmospheric Pressure.*—During the week ending October 1, the reading of the barometer at the level of the sea decreased from 30.13 inches at the beginning of the week to 30.03 inches by 3 P.M. on the 25th, increased to 30.19 inches by 9 A.M. on the 27th, decreased to 30.18 inches by 3 P.M. on the same day, increased to 30.44 inches by 9 A.M. on the 29th, decreased to 30.38 inches by 3 P.M. on the 29th, increased to 30.42 inches by 9 A.M. on the 30th, and was 30.25 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.25 inches, being 0.45 inch higher than last week, and 0.35 inch above the average for the week.

Temperature.—The highest temperature in the week was 69°.5, on the 25th; the next in order was

64°.5, on the 29th and 30th. On October 1 the temperature did not rise above 62°.5. The mean of the seven high day temperatures was 64°.6.

The lowest temperature in the week was 40°.2, on October 1; on the 25th the lowest temperature was 52°.5. The mean of the seven lowest temperatures was 45°.6.

The greatest range of temperature in one day was 23°.5, on the 30th; the smallest was 14°, on the 27th. The mean of the seven daily ranges was 19°.

The mean daily temperatures were, on the 25th, 59°.6; on the 26th, 55°.6; on the 27th, 54°.2; on the 21st, 52°.1; on the 29th, 51°.8; on the 30th, 50°.8; and on October 1, 50°.1. On the 25th and 26th the temperatures were 4°.8 and 0°.9 above their averages; while on the 27th, 28th, 29th, 30th, and October 1 it was respectively 0°.4, 2°.4, 2°.6, 3°.5, and 4°.3 below the average. The mean temperature for the week was 53°.5, being 3°.7 lower than last week, and 1°.1 below the average for sixty years.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 132°.5 on October 1; the highest on September 27 was 115°. The mean of the seven readings was 125°.9.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 39°.9 on October 1. The mean of the seven readings was 43°.9.

Rain.—Some fell on one day (September 29) to the amount of 0.49 inch.

England: *Temperature.*—During the week ending October 1 the highest temperatures were 72° at Sunderland, 71°.2 at Cambridge, and 69°.5 at Blackheath. The highest temperature at Wolverhampton was 62°.9, and at Leeds, Hull, Sheffield, and Plymouth, was 64°. The mean from all stations was 66°.2.

The lowest temperatures in the week were 36° at Cambridge, 37°.2 at Nottingham, and 38° at Hull. The lowest temperature exceeded 43°.5 at Plymouth, Sunderland, and Brighton. The mean from all stations was 40°.9.

The greatest ranges of temperature in the week were 35°.2 at Cambridge, 29°.3 at Blackheath, and 28°.4 at Nottingham. The least ranges were 19°.7 at Brighton, 20°.3 at Plymouth, and 21°.8 at Bradford. The mean from all stations was 25°.3.

The mean of the seven high day temperatures was or exceeded 65°.7 at Cambridge, Sunderland, and Truro, and was less than 62°.5 at Leeds, Hull, Plymouth, Bradford, and Wolverhampton. The mean from all stations was 63°.4.

The mean of the seven low temperatures was 48°.5 at Sunderland, 48°.6 at Brighton, and 48°.7 at Plymouth, and was less than 44° at Hull, Nottingham, and Cambridge. The mean from all stations was 46°.3

The mean daily range was 22°.8 at Cambridge, 20°.3 Nottingham, and 19° at Truro and Blackheath; and was only 13°.3 at Plymouth, 13°.5 at Brighton, and 14°.3 at Bradford. The mean from all stations was 17°.1.

The mean temperature for the week was 54°.7 at Bristol, 56°.1 at Truro, and 56°.5 at Sunderland, and was 52°.2 at Nottingham, 51°.9 at Hull, and 51°.6 at Wolverhampton. The mean from all stations was 53°.7.

Rain.—The greatest amounts registered were 0.82 inch at Bristol, 0.81 inch at Plymouth, and 0.63 inch at Sheffield. The least falls were 0.03 inch at Brighton, 0.08 inch at Cambridge, and 0.09 inch at Truro. The mean from all stations was 0.41 inch.

Scotland: *Temperature.*—During the week ending October 1, the highest temperature was 66°.2, at Aberdeen; the next in order was 66° at Glasgow and Dundee. At Paisley the highest temperature was only 62°. The general mean was 64°.5.

The lowest temperature was 38°.7, at Aberdeen, and 39° at Edinburgh; at Greenock the lowest temperature was 44°.5. The general mean was 40°.8.

The mean temperature for the week was highest at Edinburgh, 55°.5°; and lowest at Paisley, 52°.3. The general mean was 54°.5.

Rain.—The largest falls were 1.25 inch at Greenock, and 1.12 inch at Paisley. The smallest falls were 0.11 inch at Edinburgh, and 0.12 inch at Leith. The general mean was 0.57 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Echeandia ternflora. — I am anxious to recover a plant which I used to grow freely several years ago—Echeandia ternflora. Can any of your readers help me? *H. Harpur Crewe.*

Lawn-tennis Courts.—May I beg the favour of a reply from any of your readers who have had some experience in making asphalte or concrete lawn-tennis courts as to what they have found to be the best material, the preparation of the ground underneath, the mode of mixing, and the proper thickness it should be laid on? *J. W.*

Medium-Styled Lythrum Salicaria.—I should be greatly indebted to any collector for a plant of the above. *R. J. Lynch, Botanic Garden, Cambridge.*

Answers to Correspondents.

Books: *D. C. Microscopic Objects; the Preparation and Mounting of.* By. T. Davies. 2*s.* 6*d.* (Bogue).

Carpet-bedding Designs: *A Young Gardener.* We do not know of any such book.

Fungus: *T. S. P.* The name of the fungus is Peziza vesiculosa—a very common plant in gardens and about dung-heaps.

Mr. Cole's Muscats: *R. D. L.* Mr. Cole's success as a grower for market affords ample proof of the correctness of *his* practice, no matter what may be the experience of others.

Names of Fruits: *W. H. B. Pears:* 1, Marie Louise; 2, Williams' Bon Chrétien.—*James Burgess.* The Plum sent is certainly not Green Gage; it may probably be Denniston's Superb, or Jefferson, but it is impossible to determine which by looking at a single fruit.—*W. G. T. Pears:* 1, Winter Nelis; 2, Easter Beurré; 3, Knight's Monarch; 4, Passe Colmar; 5, Glou Morçeau; 6, Louise Bonne of Jersey; 7, Beurré Bosc; 8, Althorp Crassane; 9, Marie Louise.

Names of Plants: *S. F., Penrith.* 1, Paris quadrifolia; 2, Arum maculatum; 3, Viburnum Opulus.—*P. E. W.* Lilium Maximowiczii.—*R. E. Spencer.* Lagerströmia indica.—*W. Parks.* Southern-wood, or "Old Man" (Artemisia abrotanum).—*A. Smith.* 1, Lemna trisulca; 2, Callitriche verna; 3, C. autumnalis. We should think they would answer your purpose, if you had enough of them, and took care not to put the fish in till the plants had been growing in the water several days. Neither of them is rare.—*C. F., Fairfield.* 3, A Myrtaceous plant, which we cannot name without flowers.—*Cedar.* A Crinum, which we cannot identify from such materials. Requires stove treatment.—*W. J. Clarke.* Your specimens are too scrappy to name. Send better ones, and we will do our best.—*H. S.* Nerine Sarniense, var. venusta.—*J. Brydon.* Triticum repens, var.—*T. Smith, Newry.* Alyssum argenteum, Melospermum cicutarium, Europe; and Lactuca macrorhiza, India.—*H. Ashwell.* Hippophäe rhamnoides.—*C. E. Broome.* Aster versicolor.—*T. J. & S.* 1, Aster punctatus; 2, A. versicolor; 3, A. punctatus, var. angustifolius; 4, A. amellus; 5, Rudbeckia speciosa.

Oak Galls: *H. E. W.* The Artichoke Gall on the Oak is not so common as the Button Galls and Spangles.

Orchids: *E. W. S.* Odontoglossum vexillarium, O. cirrosum, O. crispum, and Mesospinidium vulcanicum.

Planting on Chalk Soils: *J. Andrews.* Read the articles on this subject in our vol. iv., 1875, pp. 391, 582, 743, and 751.

Communications Received:—T. W. O.—J. M.—E. M.—J. F.—C. W. D.—C. B.—D. W.—H. C.—I. O. W.—E. J.—W. M.—S. G.—J. R.—R. G.—J. B.—R. D. L.—H. E.—W. H.—Heath & Son.—H. H.—A. H. W.—A. Chapman.—J. S.—J. B. S.—A. P.

DEATH.—On the 27th ult., at The Nurseries, Rugby (suddenly, from syncope), Susannah, the beloved wife of William Bryant, aged thirty-three years.

Markets.

COVENT GARDEN, October 6.

Our market has been quieter this week, supplies falling off, and prices being generally better. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, per ½-sieve	1	0	3	6	Melons, each	1	0	2	6
Damsons, ½-sieve	3	6	4	0	Peaches, per dozen	2	0	8	0
Figs, per dozen	0	6	1	0	Pears, Eng., ½-sieve	2	6	5	6
Grapes, per lb.	0	6	2	6	— French, per doz.	1	6	..	
Kent Filberts, per lb.	0	8	0	9	Pine-apples, Eng., lb.	3	0	5	0
Lemons, per 100	4	0	6	0	Plums, per ½-sieve	4	0	6	0

Vegetables.—Average Retail Prices.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, Globe, per doz.	3	0	6	0	Lettuces, Cabbage, per doz.	0	6	1	6
Aubergines, each	0	4	..		— Engl. Cos, score	1	6	..	
Beans, French, p. lb.	0	4	..		Mint, green, bunch	0	4	0	6
Beet, per doz.	1	6	2	6	Mushrooms, p. baskt.	1	6	2	0
Cabbages, per doz.	1	0	2	0	Onions, per bushel	5	0	..	
Carrots, per bunch	0	4	0	6	— Spring, per bun.	0	6	..	
Cauliflowers, English, dozen	2	0	4	0	Parsley, per bunch	0	4	..	
Celery, per bundle	1	6	2	0	Peas, per bushel	5	0	8	0
Cucumbers, each	0	6	1	0	Radishes, per bun.	0	2	0	6
Endive, per doz.	1	0	1	6	Small salading, pun.	0	4	..	
Garlic, per lb.	1	0	..		Spinach, per bushel	2	6	..	
Herbs, per bunch	0	2	0	4	Tomatos, per lb.	0	9	1	0
Horse Radish, p. bun.	4	0	..		Vegt. Marrows, doz.	2	0	..	

Kent Regents, 100*s.* to 110*s.*; Roses, 80*s.* to 90*s.*; Myatt's, 100*s.* to 120*s.*; Magnum Bonums, 90*s.* to 110*s.* Trade is very heavy for all kinds but best, which have improved in price from 20*s.* to 30*s.* per ton.

Cut Flowers.—Average Wholesale Prices.

	s.	d.	s.	d.		s.	d.	s.	d.
Abutiloa, 12 blooms	0	2	0	4	Mignonette, 12 bun.	1	6	3	0
Asters, 12 bunches	3	0	6	0	Pelargoniums, 12 sprays	1	0	1	6
Bouvardias, per bun.	0	9	1	0	— zonal, 12 sprays	3	0	6	0
Camellias, 12 blooms	6	0	9	0	Primula, double, per bunch	0	6	1	0
Carnations, 12 blms.	1	0	2	0	Rhodanthe, 12 bun.	8	0	12	0
Chrysanth., 12 bun.	4	0	9	0	Roses (indoor), doz.	1	0	3	0
Cornflower, 12 bun.	1	0	3	0	— (outdoor), 12 bun.	4	0	9	0
Dahlias, 12 bunches	4	0	6	0	Stephanotis, 12 spr.	5	0	8	0
Eucharis, per doz.	6	0	9	0	Sunflowers, 12 blms.	0	9	2	0
Feverfew, 12 bun.	3	0	6	0	Sweet Pea, 12 bun.	3	0	6	0
Gardenias, 12 blms.	3	0	8	0	Sweet Sultan, 12 bun.	4	0	8	0
Gladioli, 12 sprays	1	0	2	0	Tropæolum, 12 bun.	1	0	3	0
Heliotropes, 12 sp.	0	6	1	0	Tuberoses, per dozen	1	0	2	0
Lapageria, white, 12 blooms	2	0	4	0	Violets, 12 bunches	0	9	1	0
— red, 12 blooms	1	0	3	0					
Marguerites, 12 bun.	4	0	6	0					

Plants in Pots.—Average Wholesale Prices.

	s.	d.	s.	d.		s.	d.	s.	d.
Aralia Sieboldii, per dozen	18	0	42	0	Evergreens, in var., per dozen	6	0	24	0
Asters, per dozen	4	0	6	0	Ferns, in variety, per dozen	4	0	18	0
Arbor-vitæ (golden), per dozen	6	0	18	0	Ficus elastica, each	1	6	7	0
— (common), dozen	6	0	12	0	Foliage Plants, various, each	2	0	10	6
Begonias, per doz.	4	0	12	0	Fuchsias, per dozen	6	0	12	0
Chrysanthemums, per dozen	6	0	12	0	Lilium auratum, per dozen	24	0	60	0
Cissus discolor, doz.	18	0	24	0	Myrtles, per doz.	6	0	12	0
Cyperus, per dozen	6	0	12	0	Palms in variety, each	2	6	21	0
Dracæna terminalis	30	0	60	0	Pelargoniums, scarlet, per dozen	3	0	6	0
— viridis, per doz.	12	0	24	0	Solanums, per dozen	9	0	12	0
Euonymus, various, per dozen	6	0	18	0					

SEEDS.

London: *Oct.* 5.—Red Clover seed of all kinds is for the moment, inactive. As regards new American the high prices cabled over for same prohibit any business therein. A few bags of this year's crop, by way of sample, have just arrived in Liverpool. In Trefoil there has been more doing at the late advance in values. Alsike and white are for the time being neglected. The sale for Trifolium gets daily less and less. Winter Vetches are now obtainable on very reasonable terms. Rye continues scarce. Of large blue Peas the supply is scanty. Haricots are dearer. Canary seed is quiet, but steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday Friday's improvement in Wheat was lost, and prices closed the same as on Monday se'nnight, excepting for best English, which sustained the advance of 1*s.* per quarter. Flour met a moderate sale at 6*d.* to 1*s.* advance. Malting Barley of fine quality sold more readily, but secondary and grinding sorts hung on hand. Oats were rather dearer, the rise on the week being 6*d.* to 9*d.* per quarter. Maize was firm at 1*s.* advance on the week, but not much doing.—Wednesday's Wheat trade was firm at Monday's rates. Flour was freely supported. Both malting and grinding descriptions of Barley were firm. Beans, Peas, and Maize supported previous rates fully. Oats brought 3*d.* advance for Russian.—Average prices of corn for the week ending Oct. 1:—Wheat, 47*s.* 9*d.*; Barley, 35*s.* 1*d.* Oats, 19*s.* 11*d.* For the corresponding period last year—Wheat, 40*s.* 1*d.*; Barley, 34*s.*; Oats, 21*s.* 6*d.*

HAY.

Tuesday's Whitechapel Market report states that supplies were moderate and trade quiet, at the following rates:—Prime old Clover, 100*s.* to 138*s.*; new, 100*s.* to 128*s.*; inferior, 75*s.* to 90*s.*; prime old meadow hay, 100*s.* to 134*s.*; new, 100*s.* to 126*s.*; inferior, 60*s.* to 85*s.* and straw, 30*s.* to 54*s.* per load.—On Thursday a good supply of hay and straw was offered. There was steady trade, and prices were without alteration.—Cumberland Market quotations:—Superior meadow hay, 120*s.* to 132*s.*; inferior, 90*s.* to 112*s.*; superior Clover, 126*s.* to 140*s.*; inferior, 100*s.* to 112*s.*; and straw, 48*s.* to 53*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies have been short, and the trade remains quiet: the anexed rates:—Essex Champions, 55*s.* to 60*s.* Essex Regents, 70*s.* to 80*s.*; Magnum Bonums, 80*s.* to 90*s.*; Kent Regents, 80*s.* to 90*s.* per ton; German blues, 4*s.* the bag.—The imports into London last week were 6650 bags German, and 77 tons from Roscoff.

COALS.

The following are the prices current at market during the week:—East Wylam, 16*s.* 6*d.*; Ravensworth West Hartley, 15*s.* 3*d.*; Walls End—Easington, 17*s.*; Hawell, 18*s.* 6*d.* and 19*s.*; Hetton, 18*s.* 6*d.* and 19*s.* Hetton Lyons, 16*s.* 6*d.* and 17*s.*; Hawthorns, 17*s.* and 17*s.* 3*d.*; Lambton, 18*s.* and 18*s.* 6*d.*; Wear, 16*s.* 6*d.* and 17*s.*; South Hetton, 18*s.* 6*d.* and 19*s.*; Tunstall, 17*s.*; Tees, 18*s.* 9*d.*; Original Hartlepool, 18*s.* 6*d.* Caradoc, 18*s.* 6*d.*

Government Stock.—On Monday Consols closed at 98⅞ to 99 for both delivery and account. Tuesday's closing prices were 98½ to 98⅝ for the delivery, and 98⅞ to 99 for the account. The final quotations on Wednesday were, for delivery, 98½ to 98⅝, and 98 13/16 to 98 15/16 for the account; and Thursday's closing figures were 98⅝ to 98½ for delivery, and 98 11/16 to 98 13/16 for the account.

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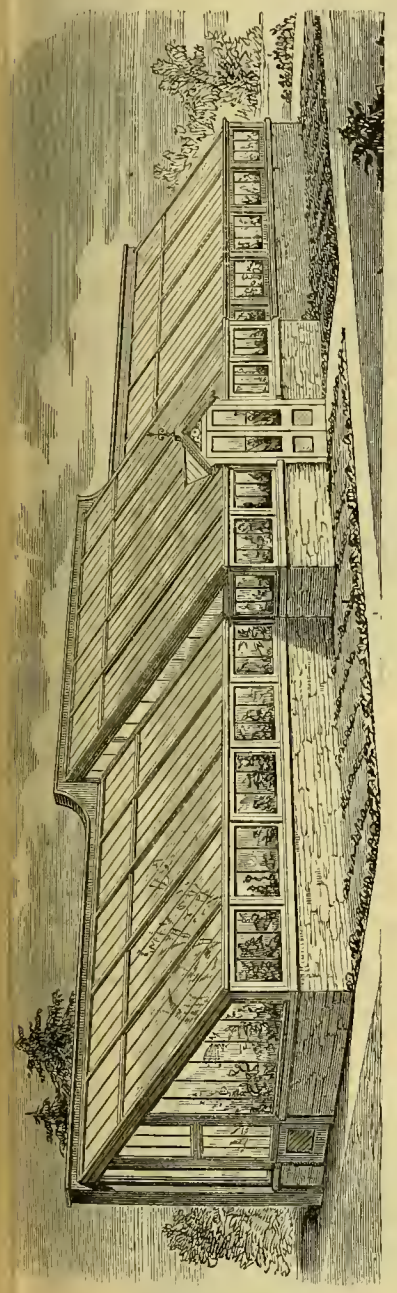

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3*d.* per bushel; 100 for 20*s.*; truck (loose, 250 bushels), 30*s.*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*; 12 for 45*s.*, or 36*s.* per ton.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; 12 for 40*s.*, or 34*s.* per ton; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* half ton, 26*s.* per ton; in 1 cwt. bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.

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CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4*s.*; 5 bags, 20*s.*; 10 bags, 36*s.* Bags, 4*d.* each.
Fresh SPHAGNUM, 10*s.* 6*d.* per bag.
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SILVER SANDS, PEATS and LOAMS, for Sale, cheap. SILVER SAND, 10*s.* per ton, by truck-loads.—W. SHORT, Horticultural Depot, Redhill, Surrey.

SHELLS.—Venus' Ears, for Rockeries and Ornamental Work; 100 Shells for 3*s.*, or by the Barrel at reduction of half. Apply to
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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

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GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6*d.* and 1*s.* each.
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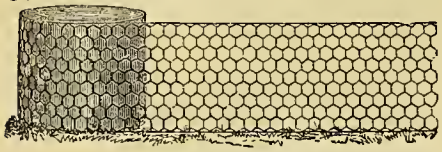

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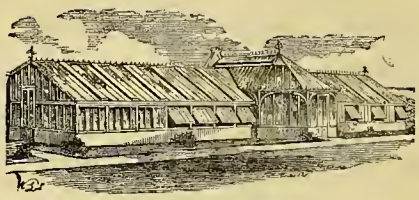

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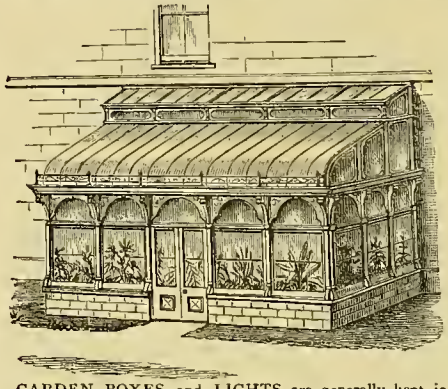

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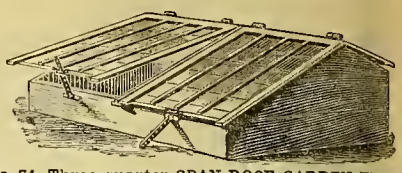

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These Frames give greater height in the centre. They are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Set-opens provided for ventilating. Are made of the best hard red deal, all painted four coats of best oil colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales, also to Edinburgh and Dublin.

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"Mr. HENRY MCCOMAS, having had 64 ft. of the No. 74 Frame, he considers it very satisfactory."—*Homestead, Dundrum.*

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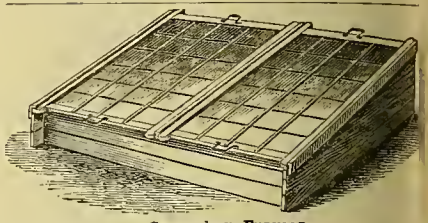

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2-light frame, 8 feet by 6 feet	3	10	0
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The glass is nailed and puttied in. Lights and framing brick pits at proportionately low prices.

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6 feet by 3 feet,
BEST PINE,
Primed and Glazed,
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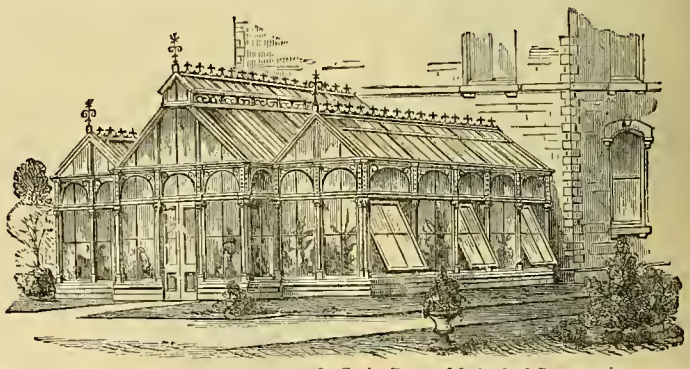

Horticultural Buildings erected on MESSENGER & Co.'s Patent Method of Construction are very strong, *durable, light, elegant, amply ventilated, perfect efficiency* for intended purpose is *guaranteed*, are economical *and maintenance;* combine the peculiar advantages of Wooden and of Iron Houses, without their disadvantages.

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GREEN'S PATENT TUBULAR SADDLE BOILER

Had the First and Highest Prize, a Silver Medal,

Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.

The "Journal of Horticulture" of June 9 says:—

Heating Apparatus.—A great number of boilers, valves, , were exhibited by eight competitors, and considerable in- st was manifested in the verdict of the judges, and much cussion was brought to bear on the merits and shortcomings the different boilers. The apparatus for which the Silver dal was awarded was a wrought-iron saddle boiler, with a es of intersecting tubes, somewhat in the form of the letter X, the tubes in ogee form, in the crown of the boiler. Most deners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

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"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

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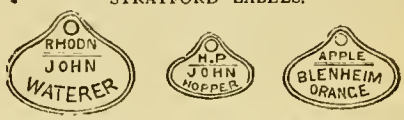

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

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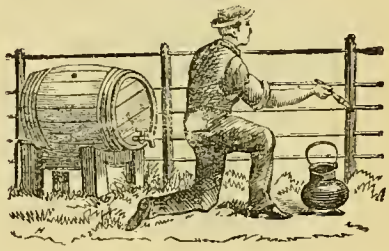
HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone. (*Registered Trade Mark.*)



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Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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"*Piercefield Park, June 21, 1876.*—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, Wm. Cox."

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The Best Hot-Water Joint is Jones' Expansion Joint.

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ENGINEERS & IRONFOUNDERS,
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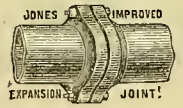

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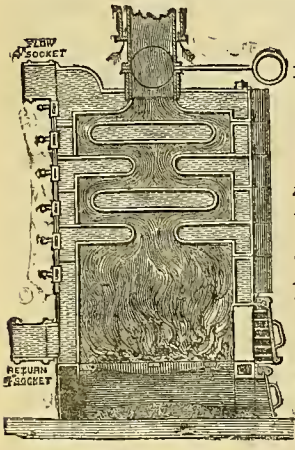

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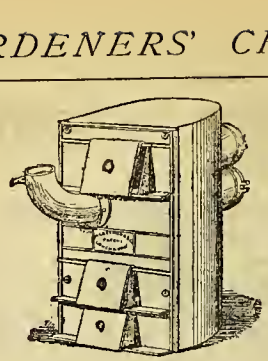

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The apparatus for a Greenhouse, 20 feet by 12 feet, complete for £6 8s. Prices and full particulars on application.

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Terra-Cotta! Portable! For Coal!

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Healthy Heat twenty-four hours or longer for about 1d., without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,

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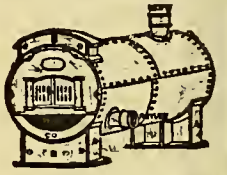

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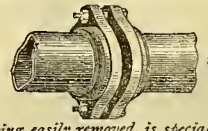

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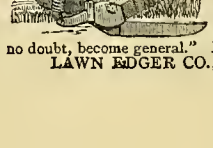

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CLERK and TRAVELLER.—There will shortly be a VACANCY in a Wholesale House for an experienced man as TRAVELLER and CLERK. Must be well up in the Trade, used to Book-keeping and Correspondence, and be of good address.—Apply, in own handwriting, stating age, amount of experience, and salary required, to L. M., *Gardeners' Chronicle* Office, W.C.

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Seed Trade.

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B. S. WILLIAMS begs to intimate that he has at present in the Nursery and upon his Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Holloway, N.

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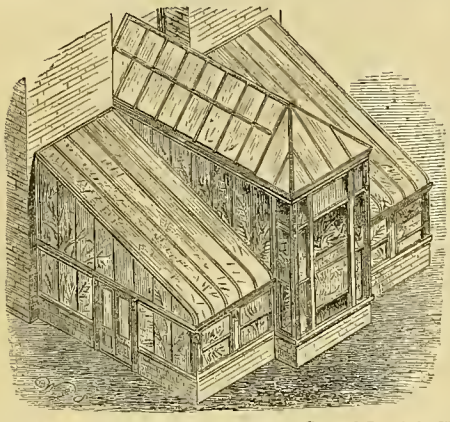

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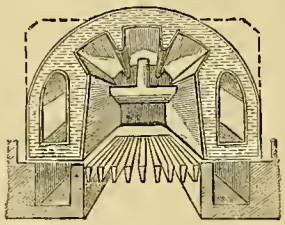

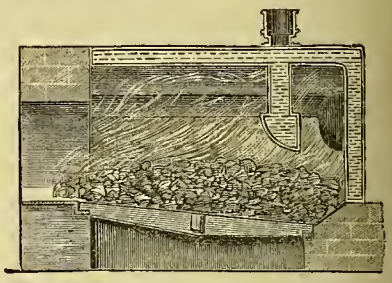

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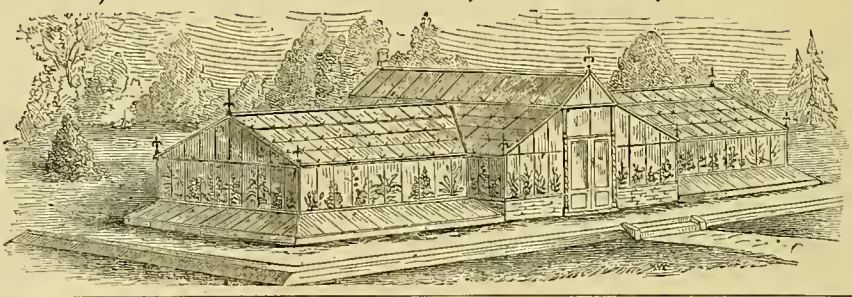

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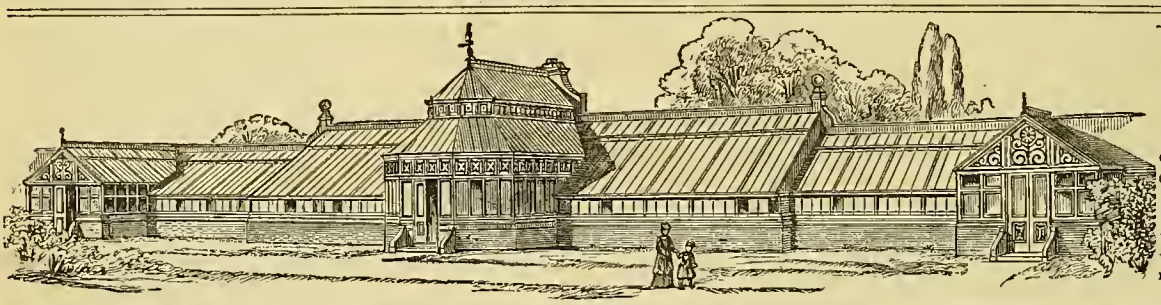

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By REV. O. FISHER.

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THE

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Now Ready, in cloth, 16s.,
THE GARDENERS' CHRONICLE,
Volume XV., JANUARY to JUNE, 1881.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $6.35 for Twelve Months.
Agent for America:—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

ALEXANDRA PALACE, N.
CHRYSANTHEMUM SHOW.
from December 9 to 13.

ALEXANDRA PALACE, N.
CHRISTMAS FRUIT SHOW
AND HARDY EVERGREEN PLANTS,
from December 24, 1881, to January 7, 1882.
J. FORSYTH JOHNSON, Horticultural Director.

WESTMINSTER AQUARIUM.—CHRYSANTHEMUM, FRUIT and VEGETABLE SHOW, NOVEMBER 17 and 18. Liberal scale of Money Prizes, Silver Cups, Medals, &c. Schedules on application to
WILLIAM HOLMES,
Frampton Park Nursery, Hackney, London, E.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
An EXHIBITION of CHYSANTHEMUMS, &c., will be held in the Town Hall, Manchester, on November 22 and 23. For Schedules, &c., apply to the undersigned,
BRUCE FINDLAY, Royal Botanic Gardens, Manchester.

LIVERPOOL HORTICULTURAL ASSOCIATION.
THE SECOND ANNUAL AUTUMN EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, on WEDNESDAY, November 30. Schedules on application to
EDWARD BRIDGE,
Whitebrook Cottage, Huyton.

Disclaimer.
MESSRS. PONSFORD AND SON have heard rumours to the effect that their Loughborough Park Nurseries are to be Disposed Of. They beg to DECIDEDLY CONTRADICT this misimpression.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

New Crimson-flowered Eucalyptus,
EUCALYPTUS FICIFOLIA.
MR. WILLIAM BULL can now supply Seed for the first time of this beautiful Eucalyptus. It is not a large growing species like most others of the family, but is of quick growth, and plants of it are soon covered with its magnificent trusses of crimson-coloured flowers; its leaves give an essential oil, which has proved a valuable febrifuge. Price 5s. per packet.
Establishment for New and Rare Plants,
536, King's Road, Chelsea, London, S.W.

Large Stock of Christmas Roses.
JULES DE COCK, NURSERYMAN, Ghent, Belgium. Prices on application.

SURPLUS STOCK.—Special offer of Half-Specimen ERICAS, CROTONS, 1½ to 2½ feet; COCOS WEDDELLIANA, CORYPHA AUSTRALIS, 3½ feet; DRACÆNAS, 3½ to 4½ feet; SEAFORTHIA ELEGANS, 4 feet; EPIPHYLLUM, of sorts. LIST on application.
WANTED, BRIER STOCKS, Standards; Double White and Pink CAMELLIA PLANTS.
R. W. PROCTOR, Nurseryman, Seedsman and Florist, Ashgate Road, Chesterfield.

Dwarf Hybrid Perpetual Roses.
KINMONT AND KIDD have a large quantity of fine strong bushy plants to offer this season of all the best varieties in cultivation.
WANTED, 10,000 MANETTI STOCKS.
Canterbury Nurseries.

WANTED, Old Stools of GERANIUMS, free from frost—Vesuvius, Madame Vaucher, Crystal Palace Gem, Flower of Spring, Master Christine, Bronze and Tricolor. Also CALCEOLARIA—Gem. State lowest price per 1000.
JAMES WATSON, Nurseryman, Lee, S.E.

Calceolaria Sparkler.
WANTED, 100 Plants of CALCEOLARIA SPARKLER, from Open Ground. Must have their Cuttings on them. Please send price to
WILLIAM BADMAN, Cemetery Nursery, Gravesend.

WANTED, Consignments of MARÉCHAL NIEL ROSES, STEPHANOTIS, EUCHARIS, and other CHOICE FLOWERS; also MELONS, PEACHES, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, MANETTI STOCKS.
State cash price per 1000.
H. BENNETT, Shepperton, Walton-on-Thames.

WANTED, IMMEDIATELY, CUTTINGS of CALCEOLARIA AUREA FLORIBUNDA, in large or small quantities. Send sample and price to
J. MALLER, Brunswick Nursery, Tottenham, N.

WANTED, 1000 Seedling BRIERS (3-yr.).
Send sample and price to
H. MARSHALL, Nursery, Barnham, Arundel, Sussex.

WANTED TO PURCHASE, Old White AZALEAS, and a few Standard White CAMELLIAS. Full particulars to
HENRY AND CO., Court Florists, 8, Victoria Buildings, Belgravia, S.W.

WANTED, 300 or 400 SPRUCE FIRS, and 300 AUSTRIAN FIRS, 3½ to 4 feet in height. Well formed trees with good roots. State when transplanted and price.
ISAAC DAVIES, Nurseryman, Ormskirk.

WANTED, 1000 BLACK ITALIAN POPLARS, two and three years old. Apply, stating price, to
J. F. ARCHER, Dunsdale Farm, Westerham, Kent.

WANTED, about 25,000 BLACKTHORN, 2 to 3 feet.
W. AND J. BROWN, Nurserymen, Stamford.

WANTED, CUPRESSUS LAWSONIANA, PINUS AUSTRIACA, THUYA LOBBII, all 3 to 6 feet; Common and Silver HOLLY, 2 to 5 feet; Common YEW, 3 to 6 feet; Common LAUREL, 1½ to 3 feet; TREE BOX, 3 to 5 feet; PLANES, 10 15 feet. All recently transplanted.
WILLIAM BARRON AND SON, Elvaston Nurseries, Borrowash, Derby.

WANTED, STANDARD DAMSONS, clean, straight, and strong. Price per 100 or 1000 to
OLDROYD AND CO., Nurserymen, Shrewsbury.

WANTED, HELLEBORUS NIGER and 2 lb. of PEAR PIPS.
H. CANNELL AND SONS, Swanley, Kent.

Queen Pines.
WANTED TO PURCHASE, good FRUIT of above, at best Prices.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, PINE SUCKERS.
State quantity, price, and variety, to
E. AND S. OWEN, Tanners, St. Helen's.

FLORAL COMMISSON AGENCY.—Nurserymen and Gentlemen having a surplus quantity of choice FLOWERS and FRUIT, are requested to communicate with W. CALE, Commission Agent, 4, Tavistock Row W.C.

EARLY WHITE ROMAN HYACINTHS, the best and earliest white flower for forcing. A very fine sample. Price to the Trade on application.
CARTERS', 237 and 238, High Holborn, London, W.C.

LILIUM AURATUM.—The First Shipment having arrived, I am prepared to execute orders.
CATALOGUE sent on application to
WM. GORDON, 10, Cullum Street, London, E.C.

ROSES.—The best that can be procured, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.—Dwarf Roses.
GEO. COOLING AND SON have a large stock to offer, extra fine Plants, and all leading varieties also TEA-SCENTED, in pots. Prices on application.
The Nurseries, Bath.

Tea Roses.
TEA ROSES, on the Seedling Brier. Splendid plants of all the leading sorts, 15s., 18s. and 24s. per dozen. 18 H.P. and 6 Tea Roses package free for £1 1s. Trade supplied.
JOHN MATTOCK, New Headington Nursery, Oxford.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4½ in. pots, £2 per 100, for cash. Now ready, many thousands of Isabella Sprunt, Gloire de Dijon, &c.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

JULES DE COCK'S SPECIALITIES.—AZALEA, indica, mollis, and pontica; CAMELLIAS, DEUTZIA GRACILIS, HELLEBORUS NIGER; SPIRÆA, japonica, variegata, and palmata. Many thousands are for disposal at
JULES DE COCK'S Nurseries, Ghent, Belgium.

English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

FIR, Scotch, 2-yr. 2-yr.; LARCH, 2-yr. 2-yr.; THORN QUICK, 2-yr 2-yr. Prices on application to
JOSEPH TREMBLE AND SONS, Penrith.

English Yews.
SANDY AND SON have a very fine stock of all sizes of the above. Price per dozen or 100 on application. The Nurseries, Stafford.

NARCISSUS.—30,000 Double White (odoratus albo-plena); 20,000 Pheasant-eyed (Poeticus). Special low prices on application to
WATKINS AND SIMPSON, Seed and Bulb Merchants, 1, Savoy Hill, Strand, W.C.

PINKS.—The finest Exhibition Sorts; 15,000 Plants. The Trade supplied.
WM. PAUL AND SON, Florists, Paisley, N.B.

CAPE FLOWERS.—Finest White Flowers, per 1000 flowers, 12s. Stock, 5,000,000.
J. C. SCHMIDT, Nurseryman, Erfurt, Germany.

RICHARD ILLMAN can supply Gold, Silver and Green EUONYMUS, 2 to 3-yr. old, 8 to 14 inches high, very bushy, 70s. per 1000, for cash.
The Nurseries, Strood, Rochester.

TO BE SOLD, a Small and Choice Collection of HOTHOUSE PLANTS in excellent order; can be removed at once. Apply to
Mr. GOLDSMITH, Gardener to P. C. Hardwick, Esq., Hollanden, Tonbridge, Kent.

Vines.—Vines—Vines.
B. S. WILLIAMS has much pleasure in intimating that his stock of VINES is unusually fine this year, the Canes being very strong and well ripened. For List of Prices see B. S. W.'s BULB CATALOGUE for 1881.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Fruit Trees.
FOR SALE, Maiden PEACHES, NECTARINES, PLUMS, and PEARS. For LIST of sorts, and prices, apply to
CRANSTON'S NURSERY AND SEED CO. (Limited), King's Acre, Hereford.

Raspberry Canes.
MR. BATH is now booking orders for his noted FASTOLF, for delivery during October and November. 4s. per 100, packing included.
Crayford, Kent.

To the Trade.—Strawberries.
H. CANNELL AND SONS offer all the best Market kinds in any quantity, during October, at a low price. Good plants, and all warranted true to name. Special prices for large quantities.
Swanley, Kent.

To the Seed Trade.
CORRY, SOPER, FOWLER AND CO. (Limited) beg to call special attention to their Season's Assortment of DRIED FLOWERS and GRASSES, of excellent quality, made up in Bouquets, Wreaths, Crosses, &c., and suitable for the autumn and winter trade. Price Lists on application to 18, Finsbury Street, E.C.

SALES BY AUCTION.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.

On view the mornings of Sale, and Catalogues had.

Tuesday Next.

Twenty-three Cases of ODONTOGLOSSUMS and other ORCHIDS, received direct.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, October 18, eleven Cases of ODONTOGLOSSUM CRISPUM, and varieties from Bogota; and twelve Cases of ORCHIDS from Baranquilla.

May be viewed the morning of Sale, and Catalogues had.

Tuesday Next.

ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, October 18, at half-past 12 o'Clock precisely, a choice collection of Established ORCHIDS, the property of a Gentleman, including among other fine things:—

Angræcum sesquipedale	Masdevallia chimæra
Miltonia Regnelli atro-purpurea	Nanodes Medusæ
Epidendrum bicornutum	Aerides Schröderi
Vanda Cathcarti	,, quinquevulnerum
Odontoglossum Andersonianum	Cattleya gigas
Bollea cœlestis	,, exoniensis
	Cypripedium Spicerianum, &c.

On view the morning of Sale, and Catalogues had.

Thursday and Friday Next.

New, Rare, and very Valuable ORCHIDS from Madagascar; among others:—

Angræcum Ellisii	Angræcum sesquipedale
Phaius tuberculosus	Phaius Henryi
Cymbidium rhodocharis	Calanthe sylvatica
Angræcum Humbloti [anum	Phaius Humbloti
Grammatophyllum Rœmpleri-	Angræcum citratum

MR. J. C. STEVENS has been instructed by Mr. F. Sander, St. Alban's, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 20, and FRIDAY, October 21, at half-past 12 o'Clock precisely each day, the finest importation which has ever reached Europe of MADAGASCAR ORCHIDS, collected by the brothers, the late Mr. Henry and Mr. Leon Humblot. They were conveyed by special small coast steamer to Bourbon, and had a sharp and fortunate passage to Aden, through the Red Sea, and to Marseilles, from whence they were conveyed, per passenger trains, to St. Alban's.

On the SAME DAYS will be SOLD several other valuable Consignments. The Orchids are in simply splendid health, and consist of unprecedented quantities, the result of twelve months' collecting.

May be viewed the mornings of Sale, and Catalogues had.

Monday Next.

UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, and every following Monday, extensive consignments of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, lotted to suit the Trade and private buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Kent, S.E.

CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Lee Park Nursery, Turner Road, Lee, S.E., on TUESDAY NEXT, October 18, at 12 o'Clock, the whole of the NURSERY STOCK, including Evergreen and Deciduous Shrubs, Fruit Trees, &c., also the whole of the Greenhouse Plants, 1500 Camellias and Azaleas (mostly white), choice winter flowering Heaths in variety, Bouvardias, Cyclamen, Ferns, &c., and a few sundries.

Catalogues of Mr. TUFFIN, on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Canterbury.

IMPORTANT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Vauxhall Nursery, Sturry Road, Canterbury, opposite the Barracks, on TUESDAY and WEDNESDAY, October 25 and 26, at 12 o'Clock precisely each day, by order of Messrs. Kinmont & Kidd, the ground being required for other purposes, a portion of their well-grown NURSERY STOCK, including 5000 Limes, 8 to 12 feet; 10,000 Poplars, Elms, Beech, Chestnuts, and other Ornamental Trees; 10,000 Trained and other Fruit Trees, 1000 named Standard, Half-standard, and Dwarf Roses; 2000 Coniferæ and Evergreen Shrubs, hardy Flowering Shrubs, and large quantities of other Surplus Stock.

May be viewed. Catalogues had at the Nursery; of Messrs. KINMONT AND KIDD, 26, St. Peter's Street, Canterbury; and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

Wandsworth Common, S.W.

IMPORTANT THREE DAYS' CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nurseries, Wandsworth Common, on TUESDAY, November 1, and two following days, several acres of valuable NURSERY STOCK, by order of Messrs. R. & G. Neale, the land being immediately required for Building Operations.

Catalogues, when ready, at 8, New Broad Street, E.C.

Forest and Ornamental Trees, &c.

EXTENSIVE SALE by AUCTION of the above, on the Nursery Grounds at Tomnahurich, to be Feud for Building Purposes. The Stock is large and in fine condition, of Native Scotch FIR, LARCH, SPRUCE, SILVER FIR, THORN, BEECH, &c.

The Sale will take place on October 19 and 20.

Lists, with particulars, sent on application to MUNRO BROTHERS, Inverness, N.B.

TO BE SOLD, by TENDER, without reserve, a SEED and FLORIST BUSINESS, doing a good Trade; Four new Glasshouses, &c., heated with 1000 feet of 4-inch pipe, well stocked; good Shop, well fitted and stocked. A portion of the purchase money can remain. Tenders to be in on November 1. An inspection and Tenders solicited,

Apply on the Premises, to C. FREELAND, close to Station, Tonbridge.

The Gardeners' Royal Benevolent Institution.

NOTICE IS HEREBY GIVEN, that an Addition to the LIST of PENSIONERS of this Institution will be made in January next. All persons desirous of SECURING the PENSION are required to send in their Applications to the Secretary on or before SATURDAY, November 5 next, after which date none can be received.

Upon this occasion the Candidates will be selected from those who have been Subscribers to the Institution for fifteen years and upwards, and are duly qualified under Rule No. 6. No other applications will be entertained. By Order,

E. R. CUTLER, Secretary.

14, Tavistock Row, London, W.C., October 8, 1881.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

STRAWBERRY PLANTS.—The two best late Strawberries are Unser Fritz and Helena Gloede. Fruit very large and of splendid quality, and most abundant bearers. Good plants 4s. per 100. A quantity of Sir J. Paxton plants at 10s. per 1000.

R. WHATELEY, Market Gardener, Kenilworth.

CENTAUREA CANDIDISSIMA, in 2½-inch pots, 16s. per 100; shaken out, 12s. per 100. EUONYMUS ELEGANTISSIMUS, 1-yr., 8s. per 100.

W. F. BOFF, 203, Upper Street, Islington, N.

CARNATIONS and PICOTEES for Borders, fine large Double Flowers and bright colours, strong, well-rooted layers, twelve distinct sorts, labelled, 3s., post free, from

S. SHEPPERSON, Florist, Prospect House, Belper.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.

Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

To the Trade.

HAW and SLOE BERRIES, also ACORNS, by the cwt. Apply to

THOS. BEAUCHAMP, Woodfalls Cross, Downton, Salisbury.

CABBAGE PLANTS.—300,000 Robinson's Drumhead, 2s. 6d. per 1000; 100,000 Early Rainham, 3s. per 1000, for Cash, put on at Heckington Station.

JOHN TINDALL, Heckington, Lincolnshire.

STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen, Worcester.

STRONG RHUBARB for FORCING, &c.—Early Prince Albert, Linnæus, Scarlet Defiance, Johnston's St. Martin, Stott's Monarch, and Ruby. Large quantity. Land must be cleared.

FREEMAN, Seedsman, Norwich.

Fine Shrubs for Potting, &c.

THUYA AUREA, THUYA ELEGANTISSIMA, THUYA SEMPERAURESCENS, RETINOSPORAS, &c., fine bushy stuff, 15 to 20 inches high, 40s. per 100.

W. JACKSON, Blakedown, near Kidderminster.

GOLDEN EUONYMUS, Silver and Green, fine plants, in pots, 6 to 18 inches high, per dozen or 100, price on application; and also a few thousand EAST LOTHIAN STOCKS, Scarlet and White, fine plants, 2s. per 100, 15s. per 1000. Cash with order. Please apply to

A. A. JAMES, Tivoli Nursery, Chapel Road, Lower Norwood, S.E.

PLUM BUSHES.—GREAT BARGAIN.—Thirty Bushes and Twelve Standards, seven years old, finely rooted, root-pruned, splendid Plants, 6 to 9 inches in circumference at surface—will be sold in one lot, a great bargain. LIST on application to

GARDENER, Harleyburn, Melrose

HARDY and COOL CONSERVATORY CLIMBERS.—A most Complete LIST of above, including grand Specimen Magnolias, &c., will be posted gratis to all applicants.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

6000 Grape Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

TWELVE AZALEA INDICA, Newest Sorts, for 21s. All most beautiful plants, in 5-inch pots, large heads crowded with buds. These do best in a cold frame, with no artificial heat, and make a grand show in early spring months. Packages gratis for Cash with order only.

A. MOLLIS and A. PONTICA at same price and same size, full of Buds.

J. H. LEY, Royal Nursery, Croydon.

CEDRUS DEODARA.

Handsome plants, well-rooted:—

3 to 4 feet .. .. 26s. per dozen, 200s. per 100.
4 to 5 feet .. .. 36s. per dozen, 250s. per 100.

Trade price on application.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

ISAAC DAVIES' SELECT LIST of Sweet-scented and other RHODODENDRONS and AZALEAS (including R. Daviesii and R. floribundum, which have received several Certificates, and are now being sent out for the first time) is now ready, and will be forwarded to any address on application.—Brook Lane Nursery, Ormskirk.

CEDRUS DEODARA var. BREVIFOLIUS.—This is the rare variety from Cyprus. A few only to offer, at 10s. 6d. each.

ARALIA QUINQUEFOLIA var. GRACILIS, a very elegant form of this handsome and nearly hardy species. The leaflets are only about one-third the width of the type; it will bear 10° or 12° of frost without injury; it is a first-class plant for table or ordinary room decoration, not requiring more than a cool greenhouse temperature at any time. Good plants, each, 7s. 6d. and 10s. 6d.

RODGER, McCLELLAND AND CO., Nurserymen, &c., Sturry.

CHOICE NAMED CARNATIONS and PICOTEES, strong plants, including all the fine varieties, 40s. per 100; TREE CARNATIONS, for winter flowering, good stuff, in 60-pots, 45s. per 100; BOUVARDIA VREELANDII and HOGARTH, good plants, 40s. per 100; CAMELLIAS, good bushes, well set, 2 to 2½ feet high, 24 per dozen.

W. JACKSON, Blakedown, near Kidderminster.

Bulbs of all kinds, Orchids, &c.

THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application

Lion Walk, Colchester.

Roses.

W. GROVE, Tupsley Rose Nursery, Hereford, offers choice Dwarfs; the plants are very fine and strong. Order before prices advance.

NATURAL GRASSES.—The Subscriber has just completed his purchases of Natural Grasses in the Irish Markets. The Crested Dogstail, Foxtail, and Cocksfoot, &c., are of fine quality. Samples and prices on application.

P. EGAN, 80, North King Street, Dublin.

ROSES.—Fine Plants, equal to any in the Trade, at 7s. to 9s. per dozen, from 45s. per 100. Strong QUICK, 2½ to 5 feet. LARCH, ASH, OAK, SPRUCE, Scotch and Silver FIR, &c.

W. GROVE, Hereford.

Dahlia Juarezi (Cactus Dahlia).

ROBT. PARKER can supply Strong Ground Roots of this fine variety at 3s. 6d. each. Also Ground Roots of GUIDING STAR, the finest Double White Bouquet Flowered DAHLIA, at 1s. 6d. each.

Exotic Nursery, Tonting, Surrey, S.W.

SURPLUS STOCK.

RHODODENDRONS—HYBRID SEEDLINGS, from the best crosses, to produce brilliant colours, fine bushes with flower-buds, 2 to 2½ feet high, 18s. per dozen; ditto selected and numbered according to colour, well budded, 3 to 3½ feet high, at 30s. per dozen. SEEDLINGS, from scarlet, rose, and white varieties, each colour separate, good bushy plants, 12 to 15 inches high, at 30s. per 100.

RHODODENDRON CAUCASICUM ALBUM, fine healthy bushes, a portion with buds, 9s. per dozen.

AZALEA PONTICA, mostly with buds, 12 to 18 inches high, 5s. per dozen, 40s. per 100.

ANDROMEDA FLORIBUNDA, fine bushes, 12 to 18 inches high, 9s., 12s. to 15s. per dozen.

DAPHNE MEZEREUM, red, flowering plants, 15 to 20 inches, 4s. per dozen, 25s. per 100.

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Terms cash, or reference from unknown correspondents.

ISAAC DAVIES, Nurseryman, Ormskirk, Lancashire.

New Seedling Apple "The Queen."

Awarded a First-class Certificate by the Committee of the Royal Horticultural Society.

SALTMARSH AND SON, The Nurseries, Chelmsford, are now Booking Orders for this splendid variety, which they feel confident must become the most popular Apple for either Market or Exhibition purposes.

For description and Testimonials, see advertisement in this Journal on October 1, p. 452.

Maiden Plants ready in November, 10s. 6d. each, with the usual discount to the Trade.

A Supplementary List of Nurserymen ordering "The Queen," will shortly be advertised.

A correctly and beautifully coloured Plate, by Severeyns, of Brussels, will be sent to any address on receipt of seven stamps.

N.B.—The Stock being limited, early orders are requested.

To the Trade.

MILES' HYBRID SPIRAL MIGNONETTE.—New Seed of this splendid variety, saved from selected pot plants, now ready, and will be sent out this season in sealed 1s. retail packets only. Early orders solicited. Trade price on application.

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W. MILES, West Brighton Nurseries, Cliftonville, or 30, Western Road, Brighton.

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Also strong plants of the above, from open ground, 2s. 6d. per 100, 20s. per 1000. Package free. Extra plants for carriage. Cash from unknown correspondents.

H. J. HARDY, F.R.H.S., Stour Valley Seed Grounds, Bures, Suffolk.

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THOMAS S. WARE'S Autumn CATALOGUE of the above, also Climbing, Noisette, Tea, Moss, and all the finest Single Roses, Standard Ornamental Trees, Miscellaneous Hardy Shrubs, a most complete List of Hardy Climbing Plants, including grand specimen Magnolias, 4 to 6 feet, is now ready. Post-free on application.

Hale Farm Nurseries, Tottenham, London.

PHEASANT-EYED NARCISSUS.—Bulbs of this sweet-scented Narcissus, 10s. per bushel, 6s. per half bushel, 3s. 6d. per peck; also Double White Narcissus 5s. per peck. Terms cash with order. Package free. Post office Orders payable Walton-on-Thames.—J. E. ALDERSON, Bell Farm, Hersham, near Walton-on-Thames, Surrey.

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THE BEST IN THE TRADE.

CARTERS' POPULAR COLLECTIONS of BULBS

Comprise liberal Assortments, and consist of fresh-imported Roots of the most showy and easily cultivated varieties.

The total cost includes free delivery to nearest Railway Station in England or Wales, or nearest Irish or Scotch Port (unless under 21*s.* value); packing also free.

For CONSERVATORY or WINDOW DECORATION.

- No. 1—Carters' Complete Collection of 700 Flowering Bulbs, price 84s.
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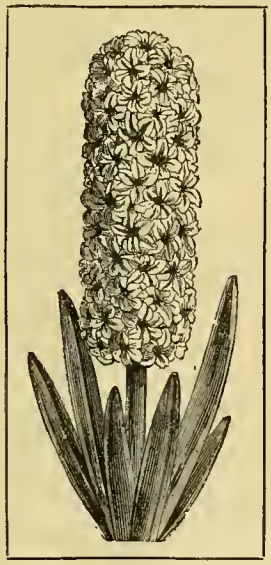

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FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.

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CALCEOLARIAS, CYCLAMEN, and CINERARIAS, from choicest strains.

CALCEOLARIAS, herbaceous, 1*s.* 6*d.* per dozen, 10*s.* per 100.
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SPECIAL OFFER TO THE TRADE.

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2000	,, PERSPICUA ERECTA	,,	20*s.*
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The above are all fine healthy plants.

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AZALEAS in all the best varieties for Forcing and Greenhouse, bushy plants, well set with flower-buds, 18*s.*, 24*s.*, 30*s.*, and 40*s.* per dozen; AZALEA MOLLIS and GHENT AZALEAS, extra strong plants, well set with flower-buds, 2*s.* and 2*s.* 6*d.* each, 20*s.* and 25*s.* per dozen. CAMELLIAS, well set with flower-buds, all distinct varieties, 21*s.*, 25*s.*, and 35*s.* per dozen. ERICAS and EPACRISES, 18*s.* and 25*s.* per dozen. CATALOGUE on application.

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DELPHINIUMS, PYRETHRUMS, and PÆONIES, 8*s.* per dozen; 12 of each for 21*s.*

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Show or Fancy PANSIES, the finest sorts, PHLOXES, PENTSTEMONS, ANTIRRHINUMS, 3*s.* 6*d.* per dozen; 12 of each (5 dozen) for 15*s.*

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HERBACEOUS PLANTS.—Selections of the finest sorts for Garden Decoration, cheap, all named, poor weedy varieties not included. The present is the best time to plant.

	Per dozen.	Per 50.	Per 100.
	s. d.	*s. d.*	*s. d.*
The Finest Sorts	6 0	21 0	35 0
Good Sorts	3 6	13 0	25 0
Rock Plants	3 6	13 0	25 0

Spring Flowering PERENNIALS (not Violas or Pansies), the brightest, the finest, the hardiest—colours White, Yellow, Red, or Purple—including DAISIES, 5*s.* per 100, excluding Daisies and the red colour, 8*s.* per 100.

BEDDING VIOLAS or PANSIES, fine named sorts (not Seedlings), in colour as desired, per dozen, 2*s.*; per 100, 8*s.*, 10*s.*, or 12*s.*, according to variety. One of the finest collections, and thousands of strong plants.

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		From stores.	In 5-inch pots.
CINERARIAS	per doz.,	1*s.* 3*d.*	good plants: 5*s.*
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RHODANTHE, coming in bloom	,,	—	,, 5*s.*
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DUTCH and FRENCH BULBS, HYACINTHS, CROCUS, TULIPS, and other BULBS and ROOTS. In this department we combine the best quality that can be bought with moderate prices, by adopting the principle of small profits and quick returns. Terms cash.

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FRUIT and FOREST TREES, ROSES, RHODODENDRONS, CONIFERS, THORN QUICKS, &c., all good in quality and low in price, from

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ACER DASYCARPUM, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 8 to 9 inches.
,, PLATANOIDES (Norway Maple), 12, 14 to 16 feet, girting 5 to 8 inches.
ACACIA BESSONIANA, 10 to 12 feet, and 12 to 14 feet.
BEECH, Common, 10 to 12 feet.
,, Purple or Copper, 10 to 11 feet.
CHESTNUT, Horse, 10 to 12 feet; 14 to 16 feet, girting 7 to 10 inches.
,, Scarlet, 10 to 14 feet, girting 8 to 10 inches.
LIMES, 12 to 14 feet, girting 5 to 6 inches; 15 to 18 feet, girting 9 to 11 inches.
OAKS, Scarlet American, 12 to 14 feet, girting 5 to 6 inches.
PLANES, Occidental, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 7 to 10 inches.
POPLAR, CANADENSIS NOVA, 12 to 14 feet; 14 to 18 feet, girting 8 to 10 inches.
SYCAMORE, 12 to 16 feet.
,, Purple, 14 to 15 feet.

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MULBERRIES, LIMES, &c., by the dozen or 100. Prices on application to
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CARNATION, GLOIRE DE NANCY.—The largest White Carnation. First-class Certificate this year. For full description and price, see New List of Hardy Florist's Flowers for immediate Planting, containing also Single and Double Pyrethrums, Pansies, Pæonies, Pinks, Yellow and Border Carnations, &c., free on application.
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STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

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Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

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Strain of these cannot be surpassed. They are sold in Packets, 2s. 6d., 3s. 6d. and 5s. each; but quality is the same.
HIGHGATE, LONDON, N., and BARNET, HERTS.

STRONG HEALTHY PLANTS.

	Per doz. s. d.	Per 100. s. d.
PRIMULAS, finest strain, fringed	1 0	7 6
AQUILEGIA albo-cœrulea	0 9	5 0
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Post-free, or extra plants for carriage.
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Stour Valley Seed Grounds, Bures, Suffolk.

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Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

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SPECIAL OFFER OF PLANTS.

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ANTHURIUM SCHERZERIANUM, in 60's	each	2 6
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ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.

Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.

AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.

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To the Trade.

FERNS—FERNS—FERNS.

	Per dozen. s. d.	Per 100. s. d.
PTERIS CRETICA	2 6	18 0
NEPHRODIUM MOLLE	3 0	20 0
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NEPHRODIUM MOLLE CORYMBIFERUM	3 6	25 0
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Many thousands of the above splendid stuff in 60's, fit to pot on. Special terms by the thousand. Orders over 20s. carriage paid to London. Sample plant of each for 5s.
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MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
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5000 Cyclamen persicum. 5000

ALL FROM THE VERY BEST Covent Garden strains, dwarf, free bloomers, fine flowers, varied colours. Fine plants, to flower this autumn, in 54's and 48's, 7s. 6d. and 10s. per dozen; 55s. and 75s. per 100. Exceptionally fine plants, in 48's, now showing bloom, which will average over fifty flowers each, 25s. per dozen.
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GEE'S superior Bedfordshire-grown CABBAGE and OTHER PLANTS; ASPARAGUS, SEAKALE and RHUBARB ROOTS; 1, 2 and 3-yr. old QUICKS; WALLFLOWERS, DAISIES, and many other Spring-flowering Plants, &c. Cheap and good.

FREDK. GEE begs to inform his many Friends and Patrons he is again prepared to supply the above in any quantity, and which for quality and price cannot be surpassed. Large Buyers liberally treated with. LIST for present season, also General CATALOGUE, &c., on application to
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INDUCES the GIVING AWAY as under, for Cash:—
LIGUSTRUM OVALIFOLIUM, 3 to 4 feet, 30s. per 1000.
THUYA LOBBII, 2 to 3 feet, 25s. per 100.
STANDARD APPLES and PEARS, 60s. per 100.
WEBB'S COB NUTS, 21s. per 100.
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R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.

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TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1d. stamp. R. S. & Co.'s selection of 100 good showy varieties for 25s.
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B. B. have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

AJUGA REPTANS ATRO-PURPUREA, a valuable hardy dark-foliage Bedding Plant for Winter and Summer use (see *Gardeners' Chronicle*, Sept. 17, p. 371); 1s. 6d. per dozen, 8s. per 100.

VIOLET BELLE DE CHATENAY, extra strong clumps, from open ground, 4s. per dozen.

Choice SHOW and FANCY PANSIES, BEDDING PANSIES, and VIOLAS, strong plants for Autumn Planting, at low prices.
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FRITILLARIA MOGGRIDGEI.—Large, deep golden-yellow flowers, netted with crimson; perfectly hardy, easy of culture in common borders. 1s. 6d. each, 15s. per dozen.

FRITILLARIA BURNATI.—Similar in size and form, equally hardy and easy to cultivate. Flowers deep brownish-purple, netted with darker veins. 1s. each, 10s. 6d. per dozen.

Strong roots of both the above scarce and handsome Perennials can now be supplied by
JAS. BACKHOUSE AND SON, York Nurseries.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.

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HARDY BEDDING PLANTS would make Flower Beds gay three months before Summer Plants can be used:—

VIOLA—DUCHESS OF SUTHERLAND, light mauve; GOLDEN PERPETUAL, yellow; ADMIRATION, purple; PURITY, white; in very strong plants of last year, at 12s. 6d. per 100.

DOUBLE DAISIES: SWEEP, crimson; GEM, pink; SNOWFLAKE, white; 5s. per 100.

SCHIZOSTYLIS COCCINEA—Now throwing up flower spikes, 12s. 6d. per 100; strong clumps, in or out of pot, 5s. per dozen. Apply,
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ABIES PARRYANA.—A most beautiful Spruce Fir, combining the extreme hardiness and silver hue of the White Spruce with denser and longer foliage, and more robust growth. As an ornamental tree this is specially handsome, and will certainly take first-rank position both in Parks and Forests. Fine healthy plants from Seed—

9 to 12 inches, 12s. per dozen, 80s. per 100.
12 ,, 15 ,, 15s. ,, 100s. ,,
15 ,, 18 ,, 18s. ,, 130s. ,,

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SEAKALE and ASPARAGUS for FORCING.—Extra strong SEAKALE; fine ASPARAGUS, nine years—excellent stuff. Land must be cleared. Also one, two, and three years transplanted.
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CYCLAMEN PERSICUM, all colours
CYCLAMEN GRANDIFLORUM, newest sorts
CYCLAMEN GIGANTEUM, in variety

Unflower Seedling Splendid Quality large 60s. p. 100 in 48's 70s. per 100.

Sample Roots, 6d., 1s., and 1s. 6d. each, according sort.

JAMES CARTER & CO.,
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ROSES—ROSES—ROSES

The Finest Lot of Plants in England,
STANDARDS and DWARFS.

For DESCRIPTIVE CATALOGUE apply to

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ROSE GROWER, COLCHESTER,
The holder of the Champion Cup of the National Rose Society.

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In order to make room for thousands of New and Rare Plants J. H. L. is compelled to offer a large number of very beautiful YOUNG PLANTS at far below their value. The plants are all perfectly clean and healthy, well grown, and full of roots, are not grown in heat, but fully exposed to the air, and if potted on at once will make fine specimens before winter. Now is the best time of year for all plants to travel. Packages gratis. Cash with Order, and on Puchases of £5 Additional Value of 10s. can be selected by Buyer. This only applies to plants in the present advertisemen, to effect a rapid clearance.

12 ACACIAS, 4 choice sorts
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12 CRESTED ATHYRIUMS, Hardy
12 GRACEFUL PLANTS, for Table
12 AZALEA INDICA
12 ,, PONTICA
12 ,, MOLLIS
12 GLOXINIAS, very fine 6s. and
12 BEGONIAS, Ornamental Foliage 6s. and
12 ,, Tuberous
12 CROTONS, Splendid Colour
12 CREEPING STOVE PLANTS, FITTONIAS, &c.
12 PASSION-FLOWERS, 6 rare sorts
12 CLIMBERS, Greenhouse, all distinct
12 SPIRÆAS, for Forcing
12 TREE FERNS, Strong
12 CLEMATIS, all distinct, Hardy
12 ROSES, Dwarf, H.P., finest sorts

Early orders ensure best selection of plants. Nurseries five minutes from West and ten minutes from East and New Cross Stations, London, Brighton, and South Coast Railway and South-Eastern Railway.
JOHN H. LEY, Royal Nursery, London Road, Croydon.

Roses.

CHARLES TURNER'S Descriptive CATALOGUE is now ready.

Fruit Trees.

CHARLES TURNER'S Select LIST of the above is also ready.

Ornamental Trees, Shrubs, &c.

CHARLES TURNER'S CATALOGUE may be had on application.
The Royal Nurseries, Slough.

Special Offer, to Clear the Ground.

AUSTRIAN PINE, 6 to 7 feet, transplanted last year; CUPRESSUS LAWSONIANA, 5 to 10 feet; and a few other Choice EVERGREENS, 5 to 8 feet. Cheap offer on application.
W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester.

Roses.—Roses.

MR. JOWITT, who is leaving the Old Weir, offers for Sale his magnificent collection of DWARF HYBRID PERPETUAL ROSES, from which upwards of FORTY FIRST PRIZES in the Amateur Classes have been gained this season, as also the TWENTY-FIVE GUINEA GOLD MEDAL at the Alexandra Palace, for the best 1000 Roses staged. Price for all the leading varieties, 1s. each. Cash with order.—Apply to Mr. JAS. ALDRIDGE, Gardener to T. Jowitt, Esq., Old Weir, Hereford.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ANTHONY WATERER respectfully invites the attention of intending Planters to the following List of desirable and in every way first-class Nursery Stock:—

BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
YEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
" Golden, many thousands, 3, 4, 5, to 10 feet high.
The Golden Yews in this Nursery are quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
" Irish, hundreds of fine specimens, 6, 7, and 8 feet high.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10 and 12 feet high.
" LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS', and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high.
" Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high.
" Golden Queen, many handsome specimens, 4, 5, 6, to 10 feet high.
" Silver, in variety, 4, 5, 6, to 10 feet high.
" Waterer's, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 feet high: hundreds.
PICEA PINSAPO, 6, 7, 8, to 10 feet high; hundreds.
" NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds
CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choice to be met with in no other Nursery.
" " GRACILIS 4 and 5 feet high.
" " ARGENTEA, 4 and 5 feet high.
" " LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIBOCEDRUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6, and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine plants, 3, 4, and 5 feet high.
THUYOPSIS BOREALIS, 4, 5, and 6 feet high.
" DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high; splendid specimens.
THUYA WEAREANA, an immense quantity of fine specimens up to 10 feet.
" AUREA, 2, 3, and 4 feet high.
" SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
" Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.
The Plants referred to in this Advertisement have all been recently transplanted.
Knap Hill Nursery, Woking, Surrey.

TEA ROSES, on own Roots.—Extra fine and strong for forcing, now in 7-inch pots.
W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester.

WINTER BLOOMING and DECORATIVE PLANTS.

CALCEOLARIA BURBIDGEII—This most distinct and valuable winter-blooming variety can now be supplied in strong flowering plants, at 18s. and 24s. per dozen.
CHAMÆROPS EXCELSA—Fine plants, with from six to eight leaves, 21s. per dozen.
CORYPHA AUSTRALIS—Fine plants, six to eight leaves, 24s. per dozen.
DRACÆNA AUSTRALIS—Fine plants, ten to twenty leaves, 12s. per dozen.
" CONGESTA and RUBRA—Fine plants, twenty to thirty leaves, 18s. per dozen.
EUPATORIUM GRANDIFLORUM—This is the finest of all—a strong growing plant with immense heads a foot or more across, of pure white flowers, which are produced in winter and early spring. Very strong plants, in 6 and 8-inch pots, 18s., 21s., and 30s. per dozen.
GREVILLEA ROBUSTA—Fine plants, 9s. per dozen.
PITTOSPORUM EUGENOIDES—A most distinct myrtle-like shrub, admirably suited for window decoration, bushy plants, 9s. and 12s. per dozen.
SEAFORTHIA ELEGANS—Fine plants, 12s. and 18s. per doz.
PALMS—Large plants of various species, extra well grown, 60s. to 84s. per dozen.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

TO THE TRADE.

STRAWBERRY PLANTS,

Splendid quality, in pots and out of pots.

DR HOGG	KEENS' SEEDLING
BLACK PRINCE	BRITISH QUEEN
BELLE DE PARIS	COCKSCOMB
ELTON PINE	ELEANOR
PRESIDENT	PREMIER
SIR J. PAXTON	SIR C. NAPIER

Lowest Prices on application.

CARTERS', 237 and 238, High Holborn, LONDON.

ROSES.

WM. PAUL & SON

Have to offer 500,000 ROSES, of all sorts and sizes, from 30s. per 100 to 42s. each. The largest and best stock in Europe.
See Priced Descriptive CATALOGUE, free by post.

FRUIT TREES.

Several Acres of Standards, Pyramids, Dwarfs, Fan-trained and Horizontal-trained Trees; FILBERTS, GOOSEBERRIES and CURRANT BUSHES, by the thousand; GRAPE VINES, Fruiting and Planting Canes, RASPBERRIES, STRAWBERRIES, &c.
Priced Descriptive CATALOGUE, free by post.

EVERGREEN AND ORNAMENTAL TREES AND SHRUBS.

Several Acres in the finest possible condition for removal, having been frequently transplanted, and having passed through the recent severe winter uninjured by frost.
Priced Descriptive CALALOGUE, free by post.

CAMELLIAS.

The largest and finest stock in Europe; plants with flower-buds, from 25. 6d. to 30 guineas each.
Priced Descriptive CATALOGUE, free by post.

HYACINTHS, TULIPS, AND OTHER BULBS,

Of the best quality, both for Greenhouse and Outdoor Culture.
Priced Descriptive CATALOGUE, free by post.

**** *Large Buyers of the above will be charged at special and reduced rates.*

IMPORTANT.—Please observe the Christian Name and Address—

WM. PAUL & SON,
WALTHAM CROSS, HERTS.

Tea Roses.—To the Trade only.

CHARLES WILSON,

SUMMERHOW NURSERIES, KENDAL,

IS STILL OFFERING

MARECHAL NIEL, NIPHETOS, and GLOIRE de DIJON,

at £28 per 1000. All other Leading Varieties at £3 3s. per 100.

SEVERAL THOUSAND BOUVARDIAS

still on hand, in 4½-inch pots, 9s. per dozen.

Also ADIANTUM CUNEATUM,

from 25s. to 40s. per 100.

Plants given over to compensate for Carriage.

Spotted Calceolarias.

H. CANNELL AND SONS now supply these, the best strain in London, pricked out Seedlings, 1s. 6d. per dozen, 10s. per 100, post free; established in small pots, 2s. 6d. per dozen, 20s. per 100.
Special prices per 1000. These are properly grown, and will be sure to give satisfaction.

Single Dahlias.

H. CANNELL AND SONS have immense quantities of the following splendid kinds, in strong pot roots, nearly all carrying flower-buds:—

	Each. s. d.	Per doz. s. d.
PARAGON, splendid	2 0	—
LUTEA, yellow	1 0	10 0
COCCINEA, scarlet	1 0	8 0
CRIMSON MEXICANA	1 0	10 0
SCARLET CERVANTESII	1 0	10 0
" DWARF	1 6	10 0
" GEM	1 6	12 0
YELLOW DWARF	1 6	12 0
" GEM	1 6	15 0
JUAREZII, grand	2 6	—
MORNING STAR, new colour	2 0	—
IMPERIALIS (bloom at Christmas)	2 0	20 0
" ROSEA " "	2 6	24 0
ARGENTEA, variegated	1 0	—
VIRIDIFLORA, green	1 6	15 0

See H. C. & SONS' CATALOGUE.

THE HOME FOR FLOWERS, SWANLEY, KENT.

SPIRÆA PALMATA, the largest stock of Forcing Plants in Europe.
SPIRÆA JAPONICA, fine forcing plants.
ANDROMEDA FLORIBUNDA, the finest blooming plants I have ever seen.
RHODODENDRONS, covered with buds, for forcing.
STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.
CHARLES NOBLE, Bagshot.

3000 Tree or Perpetual Flowering Carnations. 3000

MISS JOLIFFE, blush pink; LA BELLE, white; A. ALEGATIERE, scarlet; LE FAVORI, carmine-pink; L'HERMINE, white, &c., 1s. 6d. and 2s. each, 15s. and 20s. per dozen; SOUVENIR DE LA MALMAISON, 2s. each, 21s. per dozen; fine healthy stuff, in 48-pots, for early flowering. Full LIST on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

HARDY FLOWERING PLANTS, PANSIES, VIOLAS, &c.
Our immense Stock is offered at one reduced uniform price, 1s. per dozen, in consequence of our Nursery Ground being sold to the London and North-Western Railway Company. Our GUINEA COLLECTION will be increased to thirty dozen, really worth £5, and sufficient to stock a Garden forever. Everything transplanted, not rooted offshoots. Baskets gratis.
CATALOGUES free.
JOHN PIRIE AND CO., Stechford, near Birmingham.

To Gentlemen, Nurserymen, and Builders.

R. AND G. NEAL, having to give up a portion of their Nursery for building purposes, beg to inform the Trade, and others engaged in planting, that they have a large and varied Stock that they can offer at a great reduction in prices to effect a clearance. An early inspection invited.
The Nurseries, Wandsworth Common, S.W., one mile from Clapham Junction, on the high road from Wandsworth to Tooting, and a quarter of a mile from Wandsworth Common Station, London, Brighton, and South Coast Railway.

CABBAGE PLANTS, LETTUCE PLANTS, from selected seed stocks.—Fine autumn-sown Early Enfield Market, Early Rainham, Shilling's Queen, Sugarloaf, Nonpareil, Drumhead, Thousand-headed, Drumhead SAVOY, Green Curled SCOTCH KALE and ASPARAGUS KALE, 4d. per 100, 2s. 6d. per 1000. Bath Cos, White Cos and Immense Hardy Green LETTUCE, 6d. per 100, 4s. per 1000. BRUSSELS SPROUTS, CAULIFLOWER, Early and Late BROCCOLI, Red Pickling, &c. Send for LIST.
N.B. Plants guaranteed free from club. Well packed. Delivered on to rail.
EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c, £6 6s. per truck.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.
Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway, by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
Fresh SPHAGNUM, 10s. 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,
CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3s. (truck-load free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1850, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

TRANSPLANTING TREES.—A Patent, Expeditious, Economical, Labour-saving, Powerful Implement, £2 2s., removes large trees in a few minutes, with large section of earth and roots uninjured. Extract sent from *Gardeners' Chronicle*, March 5; *Chambers' Journal*, May 2; *Field*, June 2; *Design and Work*, Aug. 20, 1881.—Agent, Mr. J. CHARLTON, Landscape Gardener, Tunbridge Wells.

NEW RASPBERRY.

BAUMFORTH'S SEEDLING.

From the "Gardeners' Chronicle," July 30.

"I am always anxious to try anything new in the way of fruits, and with this view I gave "Baumforth's Seedling" Raspberry a trial this season, and so striking is the plant and fruit that every gardener calling here has noted it. It is no doubt the best of its kind yet out; the habit is strong, the fruit large and handsome with plenty of it, for the dessert it is a great acquisition. I shall increase it and make it my principal stock here."—H. Culverwell, *Thorpe Perrow.*

Orders are now being booked for delivery in November.

Price, per doz. Canes. 7s. 6d.; per 100, 50s.

For Description and Testimonials see *Gardeners' Chronicle*, September 24, page 420.

The Following is a List of Nurserymen

who have already ordered a supply :—

Backhouse, Jas., & Son	York.
Badman, W.	Gravesend.
Balchin, W.	Brighton.
Barber, E.	Castle Cary.
Barron, William	Swansea.
Beard, W.	Chesterfield.
Brown & Co.	Bristol.
Bull, Wm.	Chelsea.
Bunyard, G., & Co.	Maidstone.
Cannell, H., & Sons	Swanley.
Clibran, W., & Son	Altrincham.
Cooling, George, & Son	Bath.
Cranston Seed & Nursery Company	Hereford.
Cripps, T., & Son	Tunbridge Wells.
Croll, D. & W.	Dundee.
Cypher, J.	Cheltenham.
Dickson, F. & A., & Sons	Chester.
Dickson Jas., & Sons	Chester.
Dicksons & Co.	Edinburgh.
Dixon, J. E.	Gainsborough.
Downie & Laird	Edinburgh.
Ewing & Co.	Norwich.
Fisher, Son & Sibray	Sheffield.
Forbes, John	Hawick.
Fraser, J.	Cheytoo.
Foreman	Dalkeith.
Garaway, J., & Co.	Bristol.
Golding, J.	Hastings.
Harrison & Sons	Leicester.
Hartley, S.	Headingley.
Hedley, W.	Yarm.
Holmes, Edward	Whittington.
Imrie, T., & Sons	Ayr.
Ireland & Thompson	Edinburgh.
Jefferies, J., & Sons	Cirencester.
Lamont, J., & Son	Edinburgh.
Laing, Jno., & Co.	Forest Hill.
Lane, H., & Son	Berkhampstead.
Lawson Seed & Nursery Company	Edinburgh.
Lee, C., & Son	Hammersmith.
Low, H., & Co.	Clapton.
Lott & Hart	Whitehill.
May, Hy.	Bedale.
Moore, S. S.	Dorset.
Morrison, Bros.	Aberdeen.
Nelson, J.	Rotherham.
Nicholson, Mrs.	Yarm.
Noble, Chas.	Bagshot.
Neuman, Robt.	Erfurt.
Ormiston & Renwick	Melrose.
Osborn & Sons	Fulham.
Palmer, John, & Son	Annan.
Parker & Son	Bristol.
Pattison, R.	Carlisle.
Paul & Son	Cheshunt.
Paul, W., & Son	Waltham Cross.
Perkins, T., & Sons	Northampton.
Procter, R. W.	Chesterfield.
Pocock, Chas.	Wincanton.
Rivers, T., & Sons	Sawbridgeworth.
Reed, J., & Sons	Roupell Park.
Sang, E., & Sons	Kirkcaldy.
Saunders, M., & Son	Cork.
Shaw, Hiram	Sheffield.
Sheppard, James	Bedford.
Smith, Jas.	Matlock.
Smith, W., & Son	Aberdeen.
Stuart, Mein, & Allan	Kelso.
Sutton & Sons	Reading.
Smale, W. B.	Torquay.
The Liverpool Horticultural Co. (John Cowan), Limited.	Garston and Liverpool.
Tweedy, W.	Rothbury.
Thomas, J.	Seaforth.
Walters, J.	Abergavenny.
Williams, W.	Ryde.
Wetherspoon, J.	Chester le Street.
White & Chignell	Havant.
Wilson, Jas.	St. Andrew's.

☞ *A beautifully Coloured Lithographed Plate of the Fruit can be had Post-free for 1s., or Gratis to Customers.*

EDMUND PHILIP DIXON,

Seed Merchant and Nurseryman,

HULL.

NEPENTHES RAJAH

Messrs. James Veitch & Sons

Can now offer SEEDLING PLANTS of this most remarkable of a NEPENTHES, of which the Pitchers are larger than those of any other known species.

Nepenthes Rajah is thus described by Sir J. D. Hooker, in the "Transactions of the Linnæan Society of London," vol. xxii., p. 421 :—

"This wonderful plant is certainly one of the most striking vegetable productions hitherto discovered, and in this respect is worthy of taking place side by side with the *Rafflesia Arnoldii;* it hence bears the title of my friend, Rajah Brooke, of whose services, in its native place, it may be commemorative among botanists. . . . I have only two specimens of leaves and pitchers. The broad ampullaceous pitcher is 6 inches in diameter and 12 long; it has two fimbriated wings in front, is covered with long hairs above, and studded with glands within. The operculum (or lid) is 10 inches long and 8 broad."

A First-class Certificate was awarded to it by the Royal Horticultural Society on October 11.

Healthy young Seedling Plants, with five and six leaves, Five Guineas each.

ROYAL EXOTIC NURSERY, 544, KING'S ROAD, S.W.

NEW CRIMSON-FLOWERED BOMAREA "BOMAREA CONFERTA."

Shuttleworth, Carder & Co.

Have great pleasure in offering the above beautiful species.

As a Conservatory Climber it is unequalled, its lovely, many-flowered bunches of rich crimson Lapageria-like flowers rendering it especially attractive. Every head of bloom will produce from thirty to sixty flowers, each flower being from 2 to 2½ inches long. *Vide* description, by D. Masters, in the *Gardeners' Chronicle* for September 10, 1881, p. 330.

Strong, healthy Plants are now offered, price 10s. 6d., 21s., and 42s. each.

A few extra strong plants, price on application. Usual Discount to the Trade.

SHUTTLEWORTH, CARDER & CO.,

ORCHID and NEW PLANT IMPORTERS, 191, PARK ROAD, CLAPHAM, LONDON, S.W.

THE THAMES BANK IRON COMPANY

UPPER GROUND STREET,

LONDON, S.E.,

Have the largest and most complete stock in the Trade to choose from.

HOT-WATER BOILERS, PIPES, AND CONNECTIONS,

AND all CASTINGS for HORTICULTURAL PURPOSES.

Their New Illustrated Catalogue, 12th Edition, now ready (price One Shilling).

Hot-water and Hot-air Apparatus erected complete, or the Materials supplied.

Price List on application free.

BEAUTIFUL FLOWERS

FOR

WINTER and SPRING.

Suttons' Autumn Catalogue

Gratis and post-free on application.

FOR Open Ground, 42s.	FOR Pots & Glasses, 42s.
1200 Choice Bulbs.	370 Choice Bulbs.

20s. Value Carriage Free.

SUTTONS'

COLLECTIONS

OF

FLOWER ROOTS

Contain the Best and Most Liberal Assortmente.

FOR Pots & Glasses, 21s.	FOR Open Ground, 21s.
180 Choice Bulbs.	600 Choice Bulbs.

5 per Cent. Discount allowed for Cash Payment.

Suttons' Autumn Catalogue

Gratis and post-free on application.

Sutton & Sons

THE QUEEN'S SEEDSMEN,

and by Special Warrant to

H.R.H. THE PRINCE OF WALES,

READING, BERKS.

NOTICE.—SELLING OFF OF NURSERY STOCK.

Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz. :

15 per Cent. for Cash with order,
10 per Cent. for Cash within One Month of date of invoice.
5 per Cent. for Cash within Three Months of date of invoice.
After Three Months no discount can be allowed.

The following are some of the Goods they hold large and very fine Stocks of:—

ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 9s. to 15s. per dozen, 63s. to 100s per 100. £28 to £40 per 1000.
,, Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 100.
NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen.
,, French Varieties of 1880, 18s. per dozen, 130s. per 100.
CURRANTS—Black, Red, and White, good bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 100.
NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6s. to 9s. per dozen, 40s. to 60s. per 100, £18 to £27 10s. per 1000.
ASPARAGUS—extra fine, strong planting roots, 2s. 6d. to 3s. 6d. per 100, 20s to 30s. per 1000.
JERUSALEM ARTICHOKES, 1s. 6d per stone, 10s. per cwt.
TARRAGON—Fine roots, 3s. per dozen, 16s per 100.
HERBS of many kinds, 3s. to 6s. per dozen.
PRUNUS MYROBALANA (Myrobella), for Stocks or Fencing, 1½ to 2 feet, 3s. per 100, 25s. per 1000; 2 to 2½ feet, 4s. per 100, 30s. per 1000; 2½ to 3 feet, 6s. per 100, 40s. per 1000; 3 to 4 feet, 8s. per 100, 60s. per 1000.
DOGWOOD, Red-twigged (Cornus alba)—Stout bushes. This shrub gives a fine effect in winter. 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100.
ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000; 6 to 8 feet, 25s. per 100, 200s. per 1000.
POPLAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 160s. per 1000; 8 to 10 feet, 5s. per dozen, 30s. per 100, 240s. per 1000.
WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
,, Cœrulean, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet 4s, per doz., 25s. per 100; 10 to 12 feet, 6s. per doz.
ACER—Negundo variegata, fine bushy plants, 2 to 3 feet, 9s. per doz, 50s. per 100; 3 to 4 feet, 12s. per doz., 75s. per 100.
ASH—(Fraxinus excelsior) atrovirens, 3 to 4 feet, 12s. per dozen; aucubæfolia, 4 to 6 feet, 12s. per dozen; 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
,, spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen; 4 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
BEECH—(Fagus sylvatica) Common Beech, extra transplanted, very fine well-rooted trees, 6 to 8 feet, 9s. per dozen; 8 to 10 feet, 12s. per dozen.
,, Crested-leaved, a very ornamental tree, 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen; 6 to 8 feet 24s. per dozen.
,, Cut-leaved, very beautiful, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen; 8 to 10 feet, 36s. per dozen.
,, Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12s. per dozen; 4 to 5 feet, 18s. per dozen; 5 to 6 feet, 24s. per dozen.
,, Purple-leaved, the best dark broad-leaved variety, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 75s. per 100; 5 to 6 feet, 18s. per dozen, 120s. per 100; 6 to 8 feet, 24s. per dozen.
,, Weeping, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100.
,, Scarlet-flowered, 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
,, Giant or Huntingdon (macrophyllus), 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen.
,, Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
,, Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 8 to 10 feet, 18s. per doz.; 10 to 12 feet, 24s. per doz; 12 to 15 feet, 36s. per doz.
POPLAR—Golden-leaved Canadian, 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
,, Ontario Balsam (P. candicans), 6 to 8 feet, 4s. per dozen; 8 to 10 feet, 6s. per dozen; 10 to 12 feet, 9s. per dozen.
SYCAMORE (Acer Pseudo-Platanus)—Very fine, extra transplanted trees, 8 to 10 feet, 9s. per dozen; 10 to 12 feet, 12s. per dozen; 12 to 15 feet, 24s. per dozen.
THORN, or MAY TREE—Paul's Double Scarlet, fine Standards, 18s. per dozen; fine Pyramids, 12s. to 24s. per dozen.
WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
EUONYMUS—radicans argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2s. per doz., 12s. per 100; 4 to 6 in., 3s. per doz., 16s. per 100.
ELDER—(Sambucus nigra) variegated: a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
,, cut-leaved—a handsome laciniated form, and, like other Elders, extremely useful for ornamental planting close to the sea. 6s. per dozen, 40s. per 100.

A slight extra charge must in most cases be made for packing. Where cash in payment of goods is sent *with the order*, the amount for *package* may be forwarded in stamps *after* despatch of goods. All the above prices are subject to the discounts named at head. The GENERAL AUTUMN LIST will be forwarded gratis and post-free to all applicants.

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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 15, 1881.

LEEDS CASTLE.

On the glorious 1st of October this year, when the guns were cracking in the woods, I paid a visit to Leeds Castle, now a noted and comparatively modern residence, and formerly, during eight or ten centuries, a fortress securing that branch of the main road from the coast of Kent which passes from Canterbury through Ashford and Maidstone.

Five miles of broad road through a rich and cheerful farming country, with abounding timber for ornament, and Hops for profit, bring you from Maidstone to the park gates of Leeds Castle, where the kindness to the public of the late Mr. Wykeham-Martin is now practised by his widow, and you may pass through and enjoy two miles of what was once a favourite Royal park, survey the Castle in the lake—for the moat, fed by a stream from above, spreads around the building a sheet of sparkling water—and you may then stroll on another half mile through the pretty park to the further gates on the Ashford road, which is a point of vantage, where you will certainly pause to admire the view, as I have no doubt Richard II., who was often here, and Froissart, who came here once, did in the fourteenth century; or you may turn to the right at the Castle, and quit the park by a third entrance at the little village of Leeds.

That quizzing and querulous, accomplished old fribble, Horace Walpole, whom one may praise sincerely for his merits and yet abuse with zest at other times, since he was himself sarcastic—Horace Walpole was here in 1752, when he spoke of finding no recompense for the fatigues of the journey except in the picture of the Duchess of Buckingham, quite ignoring the trees and the scenery of one of the most pleasing spots in Kent. Then he criticised the Gothic architecture of the recently restored Castle. Ye gods, think of Strawberry Hill! The Castle, it is true, was newer then than it is now, and no doubt 130 years have improved and sobered its extensive surface of stone wall and its brick chimney shafts. It is a really noble dwelling, long, and wide and lofty, though standing low, as all old castles must have done which had moats and water for their defence.

The park is exceedingly well wooded, and you may read in the appearance of the several kinds of trees growing here upon the Ragstone, that although the rags of Kent mean riches as a rule, the soil is just here better suited for such trees as the Beech, Scotch Fir, and Elm than for those whose roothold is deeper. The Oak is not abundant, and a clump of Sweet Chestnuts, planted on a high knoll, would manifestly have preferred more depth of soil and better rags for their roots to rummage in. Just outside the park, where the main road skirts a terraced hill at a commanding level, the highest ground is covered with Scotch Firs thinly planted, having an undergrowth of Elder bushes in full bearing. Within the outer walls of the Castle there are some fine specimens of the Cedar of Lebanon, a tree introduced about 200 years after King Richard had crossed the drawbridge of Leeds Castle for the last time. And others grow lower down the park on the sedgy margin of a string of ponds, where tame wild

ducks harbour and rise occasionally on the wing.

The derivation of the word Leeds is obscure. Some have argued that the place was named after a great Thane, Led, who early in the Saxon Heptarchy played first fiddle in Kent to Ethelbert II. Others say the word was derived from the Saxon *slades*—openings in the woods. It is certain that Led built the first fortress that stood on this spot, and that there has always been a castle here since. After the Conquest the Crèvecours held Leeds from the Crown, and after them the Badlesmeres, who were the greatest of the Kentish nobles till "the rich Lord Badlesmere of Leeds," as he was called, was executed for inhospitably refusing the admission and shelter to the Queen of Edward II., who passed this way and claimed customary civilities. The castle then became a royal residence, and William of Wykeham, bishop, architect, builder, and restorer of numerous royal and public buildings, having been appointed surveyor of the castles of Windsor, Leeds, and Dover, and of all the royal manor houses, the place was made, in the words of Froissart, "a beautiful palace in the county of Kent." Several of the Plantagenet kings were much here. It was easy to reach from Sheen Palace, now called Richmond, by way of Eltham, where the well-housed Plantagenets had another palace; and it was a useful halting place between London and the coast at a time when crowned heads from the Continent, and ambassadors and other distinguished strangers often came over to England, and when our kings as often crossed the Channel to visit their large possessions in France. One of the last of our kings who honoured Leeds Castle as a residence was Henry VI. Anne Boleyn was here, and left a casket behind, but there is no record of a visit to Leeds by Henry VIII.

In 1551 this ancient residence passed from the Crown by grant or sale to a member of the family of "ubiquitous Colepepers," as they were called, who flourished in great number in East Sussex and Kent. The Fairfaxes followed them—the famous Fairfaxes, a race of lawyers and soldiers renowned in Kent, and in one case renowned much further a-field. Thomas, first Lord Fairfax, was the father of nine sons, three of which were killed in action. Two of the Fairfaxes were distinguished generals on the Parliamentary side in the Civil War, and both of them, father and son, were present at the decisive battle of Marston Moor, where Thomas, the son, commanded the Parliamentary forces. The General was the third lord. Thomas, the sixth lord, emigrated to Virginia. Brian, eighth lord, came over to England, and resided at the Castle during the investigation and allowance of his title by the House of Lords; and his descendant still possesses the right of the barony.

It was not politics which drove Lord Fairfax into exile, but because, as the story runs, the lady of his love preferred a duke. He lived in Virginia, in princely hospitality, holding seignorial rights over more than 5,000,000 acres of land, which were granted to him to colonise, with power to reserve quit-rents to remunerate him for his outlay and labour. The experiment having failed, the State of Virginia relieved the Fairfaxes of the functions after the death of the popular sixth lord.

There was a private estate of 300,000 acres in the valley of the Shenandoah, the finest land in the world, which was confiscated at the Revolution ungenerously, the sixth lord having been an early patron and friend of Washington. It seems like the irony of fate that the late Civil War should have been almost entirely fought on the land which this noble family once owned, at least as seignorial lords.

The late owner of Leeds Castle, Mr. C. Wykeham-Martin, published a splendid work on his interesting historic residence—the more interesting to him, probably, from his connection by marriage with the ancient Colepepers, and with the great Parliamentary General, Lord Fairfax. *H. E.*

New Garden Plants.

Nepenthes Rajah, *Hook. f.**

This—probably the grandest of all the species—was described by Sir Joseph (then Dr.) Hooker in the *Linnean Transactions* as cited below, and was nobly figured by Mr. Fitch. So grand a plant was naturally an object of research by nurserymen, but it has not been brought before the public till Tuesday last, when it was exhibited before the Royal Horticultural Society by Messrs. Veitch, who raised it from seeds introduced from Borneo by Mr. Burbidge. The full botanical description will be found in the publications herewith cited, on which account we shall not enter into particulars of the full-grown plant, particularly as we give an illustration of a full-sized pitcher (more than a foot long without the lid) of this noble species. Another time we hope to give a figure of another almost equally fine species, also introduced by Messrs. Veitch through Mr. Curtis. For the present we confine ourselves to a description of the Rajah in its present state when the pitchers, though infantile as to proportion, have yet much of the form belonging to the adult state (see fig. 91).

Leaves coriaceous, glabrous, oblong, tapering at the base into a conduplicate channelled-leaved stalk, apex rounded, tendril given off, not from the apex as usual, but from the under-surface, a short distance below the apex. Pitchers dull purple, pilosulous, broadly cylindric or slightly saccate, slightly dilated at the base, ribbed ribs slightly fringed; mouth very broad, oval, purplish, closely ribbed, ribs ending in sharp comb-like points; lid suborbicular, spurred at the back, smooth within. Borneo, Kina Balou; altitude 5000 feet. In the dried specimen before us the margin of the pitcher is scolloped into bold undulations, but our cautious artist, thinking this the effect of shrinkage from drying, has in his sketch not represented the wavy frill which is remarkable in the dried specimen. We respect his prudence, but regret that he did not "follow copy." *M. T. M.*

Lactuca macrorhiza.

We have received from Messrs. Rodger, McClelland & Co., of Newry, a specimen of this pretty Composite, which will no doubt become a great favourite with lovers of hardy herbaceous plants. It is a hardy perennial, a native of the north-west Himalayas. The thick, fleshy root-stock produces procumbent, much branched stems, with glabrous, or nearly grabrous, variously formed leaves, which are sometimes lyrate-pinnatifid, with one or two pairs of lateral lobes, and a large roundish or roundish-cordate terminal lobe; sometimes the terminal lobe is on a long auriculate petiole without any side lobes; sometimes they are very slightly lyrate-pinnatifid; sometimes oblong and only slightly toothed; sometimes entire, oblong, and very obtusely rounded at the apex, which was more the character of the leaves on the specimen sent to us. All the stem leaves have broad stem-clasping auricles. The rather laxly corymbose flower-heads are about 1 inch in diameter, and of a bright light violet-purple colour. Altogether it is a very pretty and attractive novelty, that will form a very useful and effective rockwork plant, and is an especially welcome addition to our late-flowering hardy plants, on account of the colour of its flowers. Messrs. Rodger, McClelland & Co. thus write of it:—"We send flowers of a plant received from the Himalayas. On the rockwork it has extended nearly 3 feet in width, and is about 6 inches high, and completely studded with flowers and buds. It has a fusiform, fleshy root-stock, and is perennial. It flowered the second year from seed, and forms at the present moment a very pretty object indeed—rather unusual in colour, and quite distinct in character from everything else now in flower."

In the *Flora of British India*, vol. iii., p. 408, Lactuca macrorhiza (Mulgedium macrorhiza, *Royle Illust.*, p. 251, t. 61) is united with Mulgedium lævigatum, DC., but the latter appears to us to be at least a perfectly distinct variety. The plant here noticed is, however, the typical L. macrorhiza.

Catasetum tabulare (*Lindl.*) læve, *nov. var.*

It appears necessary to name the variety with an even table on the labellum, which I named for several correspondents "tabulare" (Sir Trevor Lawrence, Messrs. Veitch, Henderson). The eldest C. tabulare, of Dr. Lindley himself, had a small table on the lip, "whiskered across." This plant flowered in the Hamburgh Botanic Garden, July, 1880, under Herr Donat's management. It came to us from St. Albans, from Mr. F. Sander, and was no doubt of Klabochian origin. An extravagant development of many toothletted crests on the lip is the feature of C. tabulare rhinophorum which I have only seen from Mr. Bull. It is Mr. Bull, once more, who finds the specimen at hand, which makes me propose the new varietal name. C. tabulare brachyglossum is a sub-variety of this. *H. G. Rchb. f.*

Sarcanthus flexus, *n. sp.**

A robust Sarcanthus with short coriaceous ligulate bilobe leaves and a fractiflex panicle of flowers, which are a trifle larger than those of Sarcanthus panculatis, Lindl. Sepals yellowish-brown, tipped outside with reddish-brown. Petals yellowish-brown. Lips spur whitish-yellow; blade at first of the same colour, afterwards yellow. It was imported from Borneo by Messrs. Veitch, and is a botanical curiosity. *H. G. Rchb. f.*

THE HEREFORD ROSES.

As in our Wars of the Roses the fortunes of war were continually changing, the interest at one time resting with York and at another with Lancaster, so it has been in the more gentle wars of the Rose of which we of the present generation have seen and heard so much. Some of us can look to the time when Saxbridgeworth and Maresfield were household words amongst us—when dear old Rivers, then hale and hearty, was the Triton amongst minnows, and his every word was eagerly looked for as that of the very Mentor of Rose growers. We can remember his introducing Géant des Batailles, and his most successful venture, the Manetti stock, which has helped the Rose growing more than anything else. At the same time Wood and Paul and Lane and Francis held prominent places amongst Rose growers and exhibitors. Then the scene shifted, and Essex came before us as, if not the battlefield, at any rate as the court which supplied the chief champions of the day—Mr. Cant of Colchester, amongst nurserymen, and his neighbour, Mr. Hedge, amongst amateurs, carrying all before them. Again another change, and Mr. G. Paul of Cheshunt, as a grower for sale, and Mr. Baker of Exeter, as an amateur, were on every one's lips as the doughtiest champions of the queen of flowers. Of course there were others—there was Mr. Mitchell of Piltdown, Turner of Slough, Keynes of Salisbury, &c., whose prowess was exhibited on many a tented field, but "they came not up to the first two," and then again—

> "The pomp and glory of the war
> Faithless as their vain votary, man,"

had passed away to the far West, and Cranston of Hereford, and his neighbour, Mr. Jowitt, of the Old Weir, have for the last few years been the victors in the greatest number of well fought contests. I may then be of interest to your readers, as I have lately visited Hereford, to tell what I saw there, all this the rather as we shall never again see the name of Mr. Jowitt figuring as the champion amateur, as I see he leaves the Old Weir, gives up rose growing, and the place of honour which he has filled will pass to other hands.

Mr. Cranston's nursery, or rather the nursery of the Cranston Company (as it is now well known to be a limited liability company), is situated about 2 miles from Hereford, on the road to Hay and Brecon, the house itself standing by the roadside—in fact, it is in former days one of those famous inns which, in the days when George the Fourth was king, some of us can so well remember, when, descending from the outside of a "Highflyer," with feet benumbed with cold, even though the hot blood of youth was running through our veins, hungry and thirsty, we found ourselves in a warm well lighted parlour with a tempting display of good things laid out for dinner or supper, and as we "fell to" as only a hungry schoolboy can, to whom indigestion is an unknown quantity, and the unwholesome has but a shadowy existence, it seemed a very elysium, the only drawback being that we had to plunge out into the cold again. We do this differently now—we whirl along in the Flying Dutchman, warm and comfortable; but I am bound to say the refreshment for the inner man provided at our railway stations falls far short of that provided in the

* *Nepenthes Rajah*, Hook. f., Trans. Linn. Soc., vol. xxii., p. 421, t. 72, et in DC. Prod. xvii. (1873), p. 95.

* *Sarcanthus flexus*, n. sp.—Aff. Sarcantho paniculato, Lindl.: foliis ligulatis obtusis bilobis, valde coriaceis; panicula fractiflexa, pluriflora; sepalis tepalisque ligulatis obtuse acutis, labelli laciniis lateralibus linearibus bidentatis abbreviatis, lamina mediana hastato triangula, calcari amplissimo conoideo antice extus sulcato impresso, bene biloculari, callo in basi columna pandurato basi puberulo. *H. G. Rchb f.*

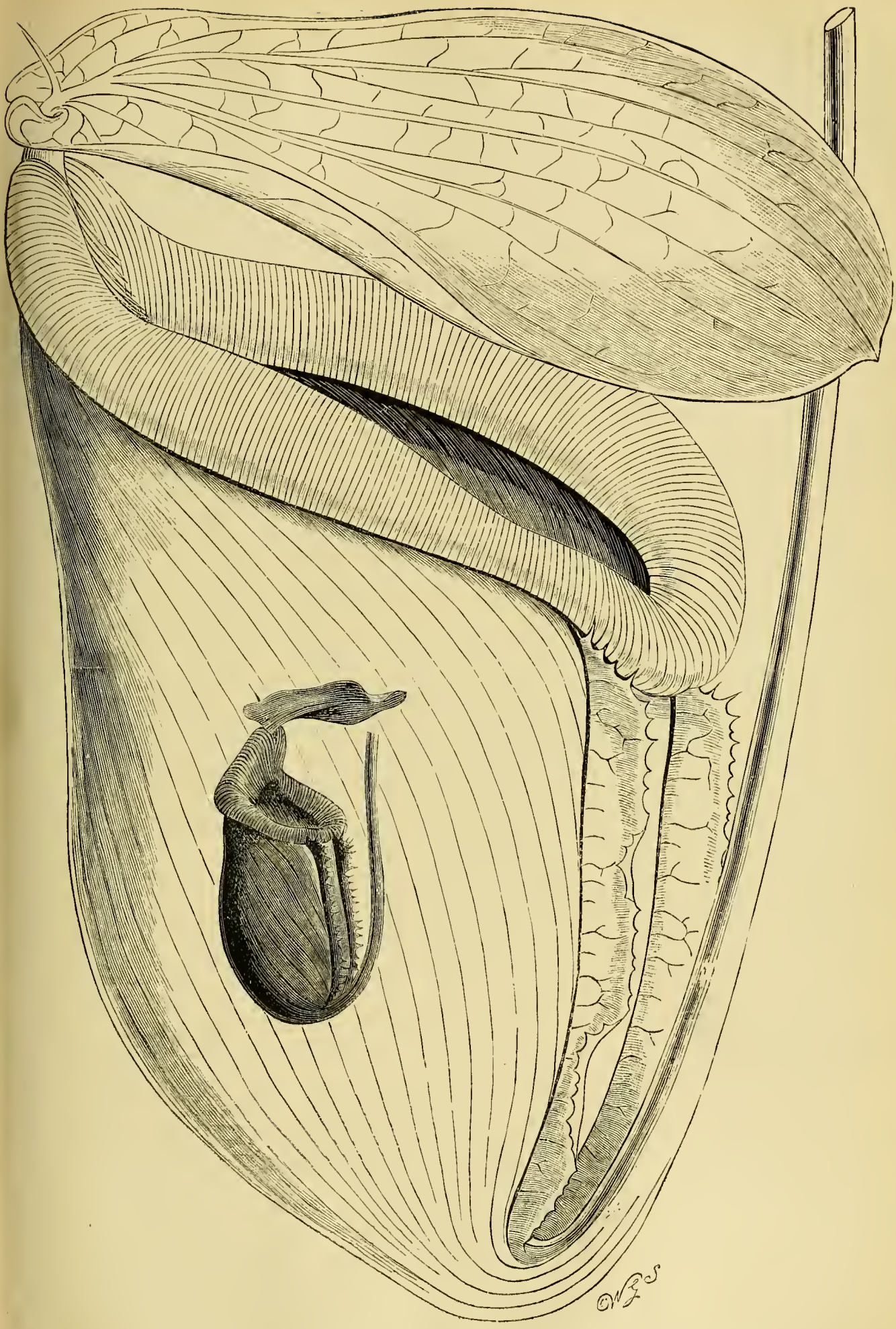


FIG. 91.—NEPENTHES RAJAH: THE YOUNG AND THE OLD ONE, NAT. SIZE: COLOUR, DEEP CRIMSON. (SEE P. 492.)

days. It would almost seem as if the hospitable character of the house had clung to it, for no one who now visits the Cranston nurseries but has found its doors wide open to receive them. Close by the house is a magnificent Cedar—and, indeed, there are many things of much interest, but over these I must not linger. Roses brought me to the place, and of Roses only shall I have, then, to tell. Close behind where the Cedar stands is the house for Tea-scented Roses, and I think I may safely say that it is without an equal in any part of the world; and when in April or the early part of May it is in full bloom, it must be indeed a sight fit for the gods—a sight which I hope to see. It is 140 feet long by 22 in width; a long bed runs down the entire centre, in which Teas and Noisettes are planted out as standards, half-standards, and dwarfs, while the supports of the house (which are about 20 feet apart) have Maréchal Niel, Gloire de Dijon, Cheshunt Hybrid, and other climbing Roses planted against them. They run up in wild luxuriance, making growths from 18 to 20 feet long, and must be, when in flower, a glorious sight. Along the sides of the house are ranged on the shelves a large quantity of Tea Roses in pots, consisting of all the best varieties—Perle des Jardins, Jean Pernet, Jean Ducher, Souvenir de Paul Néron, Pauline Labonte, a Rose not often seen (the outer petals are cream-colour, with a salmon-buff centre); Anna Ollivier, Niphetos, Goubault, Caroline Kuster, Souvenir d'Elise, &c., and all in the most perfect health.

It may readily be supposed from the wondrous specimens exhibited by Mr. Cranston that both soil and situation are in his favour, and to a great extent they are; but some of his Roses are grown on a much exposed hill, and on by no means favourable soil. The greater part of the nursery, however, is of a rich, deep, unctuous loam, requiring and receiving but little or no manure. The land is turned up by a cultivator, which does not turn up the subsoil, the idea being entertained here that deep ploughing, so as to turn up the subsoil, is a mistake, the same remark applying to double trenching, which is pronounced to be also wrong, unless, indeed, you can allow the turned-up subsoil to remain for a year to be exposed to the action of sun, rain, and frost, when it becomes sweetened, otherwise it is heavy and dull. Roses abound on every side, and in immense quantities; here, for instance, is a walk 250 yards long, the border on each side, about 12 feet wide, planted in its entire length with Roses. How grand they must be when all are in full bloom may be imagined. The last winter made its gaps here (when the thermometer fell below zero), as it did everywhere, and here, too, I noticed the same thing which has struck me in other places: the Roses had many of them been pruned pretty hard, but in many cases the remaining portion of the pruned shoot had died away, and the Rose had started afresh from near the ground, below the mulching, or snow line, as the case may have been, and had made vigorous plants. I need not say that all the best varieties are to be found along the famous walk, and judiciously planted so as to afford proper combinations of colour.

It may give some idea of the magnitude of the culture of the Rose here, if I mention the quantities under the three divisions—the plants which are ready to be delivered in October, those which have budded for next year, and the cuttings which are prepared for next year's budding. Here is one piece of 13 acres, on which there are 130,000 plants on the Manetti: these are all stout and vigorous plants of all the best kinds, and taking into account the other plants ready for sending out, and the Roses in pots in the same condition, 40,000 to 50,000, there are not less than 250,000, and even these will not be sufficient to meet the demand, and already upwards of 25,000 have been obtained. Then in another part of the grounds there is a piece of 10 acres, where not less than half a million of Roses are budded for next year's growth—the budding, which, as may well be imagined, is a process of no short duration, and at the time of my visit, had only just been completed. From these the maiden blooms of next season will be obtained, and it may well be imagined that, with such an army, it will not be easy to beat Mr. Cranston. We drove on then to another field, where Manetti cuttings and seedling Brier plants had been planted for next year's working: there were in it 450,000 plants on Manetti, and 130,000 seedling Briers. In another part there was a grand lot of Mr. Cranston's new Rose, Mrs. Jowitt, which has been so well exhibited this year, and which, for brilliancy of colour and vigour, is likely to be very useful. Another good Rose, which is to be distributed this autumn, is Mary Pochin; but there is, I think, a better one than either, which has been exhibited and obtained First-class Certificates—Mrs. Gretton, distinct in colour and shape: thus, to supply all wants, there are ample resources, whether the demand be for the old-established varieties or for novelties.

Mr. Cranston has long been the champion of the Manetti, as Mr. Prince of the seedling Brier; and although he has somewhat modified his practice—as the large number of seedling Briers bear witness to—yet he maintains that for light loam or peaty soils the Manetti must still be considered the stock, while he is willing to accord to the seedling Brier that it is a most valuable stock for Teas and Noisettes, and for many of the weaker-growing kinds of perpetuals, and especially for cold and stiff soils. While he thinks it is suited for all Teas, he believes it to be especially so for the yellow Roses. Roses on their own roots are also largely grown, but I do not think any decided preference is expressed for them.

It was with a melancholy intent that I drove on to see the Old Weir, which, as its name implies, is on the banks of the Wye, and from whence have come the magnificen blooms that Mr. Jowitt has won so many honours with—melancholy, for it is no longer to be associated with his name; he leaves it in November, wishing for the sake of his family to get nearer London. One can imagine what will be its fate—the grand Roses all gone, their place occupied by Cabbages and Turnips, here and there perhaps a straggler that has not been removed, testifying by its long unkempt branches that the loving care once bestowed on it no longer exists; but I was very glad that I saw it before its glories had departed, and when I saw the number of the plants, the vigour of the cutbacks, and the quantity of maiden plants, it was no longer a mystery to me how Mr. Jowitt had won and retained the place he had attained as the first amateur in the kingdom. We have been so accustomed of late years to see him, not at one or two shows, but at nearly every one of importance, that to no longer see those grand trusses of blooms which we were wont to return to once and again, will be a loss indeed. No amateur has ever entered upon the cultivation of the Rose with such ardour as Mr. Jowitt, and no one has achieved such success. It will be remembered as a proof of this, that he and Mr. Cranston once chartered a special train for the purpose of bringing up their Roses to the show of the National Rose Society. Mr. R. N. G. Baker, of Exeter, has indeed held a nearly equal place, but then he only exhibited at a few shows in the early part of the Rose season. Mr. Jowitt began with the first and ended with the last, coming up to each contest with renewed vigour, and such Roses! There will ever remain in the memories of those who saw them the blooms of Niphetos at the Crystal Palace in 1879, his stand of thirty-six at Birkenhead in 1880, and of his Dr. Andry and A. K. Williams of the present year; then what colour he got into his Jacqueminots and Horace Vernets, and what size into his Duchesse de Mornys, and how every Rose was treated according to its requisites I could now see.

Such, then, are the Hereford Roses; and although the leading amateur will no longer hail from the bright and cheery city of the West, yet the Cranston Company still remains a most formidable competitor to all who enter the lists with them, and giving evidence that next season will see them as prepared as ever to claim the victory in many a (rosy) field.

Wild Rose.

APPLEY TOWERS.

In a suburb of Ryde, on the very banks of the Solent, and embowered in trees, is Appley Towers, the residence of Sir William Hutt, K.C.B. (see fig., p. 501). The mansion is a large and elegant structure of red brick with stone facings, and is noteworthy for its detached clock tower, which calls to mind that of the House of Parliament at Westminster. The garden establishment, with which alone we are here concerned, is large, unusually interesting, and exceedingly well managed. The kitchen garden and forcing-houses are separated by a public road from the pleasure-grounds around the mansion. Entering the kitchen garden the first range we come to is a hip-roofed structure, devoted mainly to Orchids, of which, however, but few were in bloom at the time of our visit, but there were some grand masses of Cattleyas and Lælia purpurata, and in one compartment numerous stove plants. A similar range was devoted to late Grapes and divided into three compartments. In the first, Bowood Muscat, Lady Downe's, Gros Colmar, and Alicante, were bearing good crops. Here, too, was a curiosity in the shape of a specimen of the Currant Vine, the small berries of which furnish the so-called currants of commerce. The long leaf-stalks are of a reddish colour, and the large palmately-lobed blade has somewhat roundish notches, and is deep green, nearly glabrous above, softly downy beneath. Several bunches of its peculiar fruit were commencing to ripen. In the second compartment the Hamburghs were nearly all cut. The Vines, planted about eight years, are grown on the one-rod system with the roots both in and outside the house. The third compartment is a Muscat-house and the fourth compartment is devoted to late Hamburghs, the bunches even and well coloured.

The first compartment of a third range is span roofed, with a central and side stages, and occupied with stove plants, such as Tabernæmontanas, Allamandas, Ixoras, Combretums, Stephanotis, and, among other more common inmates, the rarely-seen but very beautiful Kopsia fruticosa. Its pink flowers remind one in colour of those of Vinca rosea, but the leaves are lanceolate-acuminate. Astrapæa Wallichii and Gardenia Stanleyana had lately flowered. In the adjoining compartment Orchids, such as Dendrobes, Aerides, and Saccolabiums, together with Caladiums, found a place. The remaining compartments are used for Australian and Cape plants turned out for the summer. The Peach-houses occupy a range of glass about 140 feet in length, with a central 3-gable bay, about 48 feet long. This Peach-house was a sight alone worth going to Appley to see.

In the first compartment the trees—some in pots, others at the back of the house against the wall, in the border—were going to rest. Mr. Stanbury, the gardener, finds that Early Rivers is with him quite as early as Early Beatrice, and of much better quality. In the other compartments the crops were something marvellous, the fruit not of great size, but beautifully finished. The branches of a tree of "D. Hogg" were weighed down to the ground with fruit; four to five dozens had already been gathered, and many more dozens were to follow. This, with several other standard trees, equally laden, were planted out in the centre of the house. All the best varieties are grown, such as Grosse Mignonne, Dagmar, Bellegarde, Dymond, Elruge Nectarine, &c. Some 300 Peaches were gathered from this house last year, and this season 1500—some of the trees which had become too large having been removed last winter. The large Peach gathered this year was a Late Admirable weighing over 12 oz., several others weighing 10 oz. An orchard-house with a lofty hip roof contains a large number of trees, mostly in pots: Cherries, in 12-inch pots, furnish about 1¼ lb. of fruit from each tree. Plums—such as Oullins Golden Gage, and various others—were bearing large crops; Apricots were bearing in profusion. Curiously, Apricots do not succeed here out-of-doors, the spring wind being very injurious to them. Diospyros Kaki fruited in the house for the first time in Europe; some thirty to forty fruits were produced in 1878 and in 1879, and it is now bearing again. Those who grow this fruit should remember that it must be bletted like a Medlar before the full flavour is brought out. Those who doubt the capabilities of an orchard-house should see the marvellous crops produced by Mr. Stanbury, and, as he says, with comparatively little trouble. It is, however, not every gardener that could successfully compete with him.

The pleasure grounds, as has already been said, are on the opposite side of the road to the kitchen garden, they command lovely views of the Solent, and so full of interesting subjects are they that it is difficult to deal with them without writing a mere catalogue of names. For several years Sir W. Hutt has been gathering together for experimental purposes the best and choicest shrubs, many of which demand greenhouse treatment in less favoured localities. They are disposed in beds on the lawns, in shrubberies and in other situations, so that it is hardly possible to take them in proper order and so the must needs be taken promiscuously, and as not a title can be mentioned, preference is given to those to which special interest attaches on the score of ability to resist such winters as the two last. Abelia floribunda and A. rupestris are both hardy here. Azalea amœna was quite uninjured by the last two winters. The beautiful Leptospermum lanigerum with its small hoary leaves and relatively large Myrtle like flowers, was in full bloom, as also was Olearia Haastii, to whose good qualities, as often made public in these columns, must now be added that of hardihood. Eugenia apiculata and E. Ugni flower freely here, and the latter fruits out-of-doors. Fremontia

californica, killed near London against a wall, was flowering freely as a standard in the open air, as were also Desfontainea spinosa and Calceolaria violacea. Edwardsia grandiflora shows no trace of injury, nor the gorgeously tinted Parrottia persica. Grevillea rosmarinifolia is perfectly at home, but some species of Lomatia have been injured. Pittosporum Tobira is less hurt than common Laurels, and Choisya ternata, with its bright green foliage, has passed the winter scatheless. The same remark applies to Benthamia fragifera, Staphylea colchica, Xanthoceras sorbifolia, Philesia buxifolia, and Colletia cruciata. Lapagerias against a wall have been much punished but are still alive; Gunneras and Dimorphanthus mandshuricus, both remarkable, though in different ways, for their grand foliage, seem none the worse for the winter. The New Zealand Flax, Phormium tenax, is comparatively little the worse for the winter, though more so than in previous years. Chamærops Fortunei, of which there are several plants scattered through the grounds, and several small plants in one bed, is not at all hurt, though quite unprotected during the winter. Aralia Sieboldii forms magnificent shrubs. Melianthus major, though cut to the ground, springs up again, the young foliage being specially attractive. Among other plants entirely or almost uninjured are Acacia Nemu, Magnolia Campbellii, Camellias, Myrtles, Veronica Traversii, Azara microphylla, and A. dentata, Japan Maples, Philesia buxifolia, Cinnamomum sericeum, Laurus Camphora, of which there is a good sized tree; Arbutus procera, Ceanothus azureus, Desmodium penduliflorum, Leycesteria formosa, and Escallonia macrantha. Of the Sikkim Rhododendrons almost all the introduced species are grown, almost all prove hardy, R. Nuttalli being, we were told, the only one injured. Azalea mollis and A. indica are grown in beds together, and afford a pleasing contrast when in bloom; other beds are filled with Agapanthus, which only needs a little mulching in winter; others again with Carnations and Picotees, among which it is noted that the dark ones were more injured than the lighter ones.

Among Conifers a magnificent Pinus insignis, 60 feet high or more, is quite unhurt, as also a good plant of the Golden Larch, Abies Kæmpferi. Abies Pinsapo does not however thrive. Against an arcade near the conservatory Stauntonia latifolia, Berberidopsis corallina, Akebia quinata, Trachelospermum jasminoides are all flourishing as if such a thing as frost were not. Lest it might be thought that in this Paradise Jack Frost never did his work of slaughter it is necessary to say that we were told that several Australian and New Zealand shrubs, which had resisted some fifteen previous winters, succumbed, and had to be removed; it would be interesting to have more particulars as to these. Among those injured which fell under our own observation were Acacia dealbata, a tree some 15 feet in height, which was nearly killed; Olive, Olea europæa, much injured; the Golden Catalpa, also much hurt; a specimen of Eucalyptus globulus, 40 feet high, was killed this last winter, but another species (E. Gunnii, probably), though slightly injured, began to make new shoots almost before the frost was gone.

After such a wealth of interest out-of-doors the contents of the conservatory seemed tame. Nevertheless this elegant structure, built by Boulton & Paul to correspond with the house, is filled with good things: Camellia Mathotiana produces flowers of enormous size, and so heavy that their weight becomes a matter of interest; Rhododendron Countess of Haddington, planted out, forms an admirable plant for conservatory decoration, as also R. Veitchii and R. fragrantissimum; but the feature at the time of our visit were the Tacsonias, which were trained from end to end of the house in such a manner that they obstructed the light as little as possible. The sorts grown were T. exoniensis × and T. insignis, both described for the first time in these columns. They are both magnificent flowers, but T. insignis is not quite so free as T. exoniensis, though more so than T. eriantha.

The orangery is a fine structure adjoining the mansion, with Lapagerias, Cantua dependens, Iochroma longiflora, and such-like plants draping the pillars. The other tenants, the fine Orange trees, were out on the terrace for the summer. We have spoken of the admirable fruit houses, and the superlatively interesting collection of trees and shrubs, because these are exceptional in character. It must not be thought that bedding out is not practised. It is so, on a large scale, and effectively; but good as it is of its kind, it presents little matter for comment save this, that where in one or two departments there is so much variety and interest it is not likely but what, in degree at least, the same characteristics should be manifested in the bedding-out; and so here we find the bedding, instead of being limited to Pelargoniums and Calceolarias, extended to Clematis, Zinnias, Dahlias, Gladiolus, Fuchsias, Lantanas, and many others. Not one "look round," but many at all seasons would be required to gain an adequate idea of the interest and beauty of this fine establishment, on whose keeping and condition Mr. Stanbury may justly pride himself. *The Rambler.*

FRUIT NOTES.

Autumn and Winter Pears.—For early autumn use the old Williams' Bon Chrétien still stands unrivalled, but owing to the continuous wet and absence of sun it has not been up to the mark this season, as the fruit has been watery and wanting in the peculiar aroma so characteristic of this very popular kind. As an immediate successor none are superior to Beurré d'Amanlis, which is a remarkably prolific sort, and bears fine large fruit, which when ripe is of a greenish yellow, very soft and buttery in the flesh, which is rich and of a most agreeable flavour. The tree is a strong grower, making large leaves and shoots that soon become thickly set with big fat buds, and is so distinct in habit and appearance to most other Pears, that it may easily be picked out from among a collection either in summer or winter. There is a striped variety of Beurré d'Amanlis, which only differs from it in having the bark and foliage striped, and similar bands of colour run longitudinally over the rind of the fruit. Next to Beurré d'Amanlis in value I should place Beurré Superfin, which is a splendid autumn Pear, following quickly after the last-named, and which has the merit of not only being of first-class quality, but is noble-looking, and makes a fine dish at dessert. To succeed the foregoing, Doyenné du Comice is the best, and well bears out the high credentials under which it was sent out some twenty years ago. The fruit of this variety is obovate and rather uneven in outline, as it swells out more on one side than the other, but for all that it is handsome looking, as the fruit has high-coloured skin, and the flesh is tender and smooth, full of rich sweet juice, and most delicately flavoured and luscious. Marie Louise is so good at all points and so well known that it scarcely needs any recommendation, but to have it of the high excellence it is capable of attaining, the trees should be grown on a sunny wall, as there the fruit finishes up in a more perfect way than it does on trees grown as pyramids. Glou Morçeau is by far the best winter Pear, and is one that remains in use much longer than most others, as, kept in a cool room, it begins to ripen early in December, and continues on quite up to the end of the following month, when Joséphine de Malines comes in. This is a valuable Pear, and should be largely planted; but like all late sorts, it requires a warm situation, and should be allowed to hang as long as it will on the trees. This and Bergamotte d'Esperen will carry on a supply as late as Pears can be kept, and although the list here given is not a long one it contains such as may be depended on, and those about planting will find it much better to have a select few than to go in for so many just for the sake of variety, as the result in the end is disappointment, and it takes some time to graft and get the trees into a fruit-bearing condition again. *J. Sheppard.*

Pears.—We have nearly finished gathering our hardy fruits, and owing to the fine dry weather experienced during the last few weeks the crop has been secured in capital condition. The earliest really good Pear with us is Beurré Giffard, which grows to a good size, and is of excellent flavour. We have two trees of an earlier one, Doyenné d'Ete, but that is one too many; one tree is quite enough for any establishment. Succeeding Beurré Giffard is the Jargonelle, a fine old sort, of which wasps and birds are very fond, even before the fruit is ready to gather. Before Jargonelle is over, Williams' Bon Chrétien is in use, and with three different gatherings it will last a month. As the Williams are cleared out, we start with Louise Bonne of Jersey, which brings us into October, when the best Pears are plentiful for the next two months. Marie Louise succeeds Louise Bonne, to be followed immediately by Beurré Superfin, a grand Pear. I think it is unsurpassed in its season. Maréchal de la Cour, is also a grand Pear at the end of October. We have also a most abundant crop of Beurré d'Aremberg, which comes in later. We tried Beurré Bosc, another good November Pear, double grafted, as recommended by Mr. Rivers, but it has been quite a failure; the tree neither grows satisfactorily nor does it bear fruit, whereas a tree grafted on the Pear stock is the strongest growing and largest tree in our garden, and from it we gather fine fruit by the bushel. The only very late Pear that does well here is Joséphine de Malines; some seasons it is very good, and the fruit is useful in January and February. *J. Douglas.*

Apple, Winter Peach.—I think very few possess this variety, although it is undoubtedly enumerated in the lists of some of our nurserymen. "A. D." says it is much like Wellington, but the fruit is more flattened, wider at the base, has not such a large open eye, and the stalk is inserted in a deeper cavity than in that variety. It is a very handsome Apple, especially when covered with bloom. The fruit here this season is roundish, flattened at the apex, and very broad at the base; skin clear yellow, tinted with delicate rose on the sunny side, strewed with numerous dark red dots in the sun, but grey in the shade, and covered with bloom; stalk sometimes short and thick, at other times an inch long, inserted in a wide, deep, regular, and russety cavity; eye half closed, and placed in a much ribbed basin, the segments being generally reflexed; flesh white, crisp, rich, juicy, and possessing a pleasant acidity. It is a valuable late-keeping variety, as it keeps in fine condition till May. The tree is of upright growth, with large light green foliage, exactly like Devonshire Buckland. *W. Roberts, Merriott Nurseries.*

Scarlet Nonpareil Apple.—This in shape and appearance is about as perfect as an Apple can be, and as a dessert fruit is as well deserving of cultivation as any I know, as besides the good qualities referred to above, it keeps well and has firm crisp flesh of very fine flavour. Grown as standards, the trees form round symmetrical heads, and are of remarkably free bearing habit. Looking at Cox's Orange Pippin and comparing the two I have been struck with their similar appearance, and have no doubt but that Cox's is a seedling from it, as it partakes very closely of its characteristics, and shows that the offspring is well worthy of the parent, and that both deserve to live side by side. *J. S.*

Pear Trees at Ashridge.—Two of the finest and most remarkable examples of wall-trained Pear trees are to be seen in the gardens at Ashridge. The one, a Passe Colmar, is trained horizontal fashion, the branches extending a length of 66 feet, and about 12 feet in height; the other, a Beurré Rance, is fan-trained, and extends nearly as far. Both trees are pictures of health and vigour, and are bearing a grand crop of very fine fruit. As Mr. Sage has had the charge of these gardens now for a good many years, it speaks volumes as to the correctness of his management as regards pruning, &c. *A. F. B.*

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.—VII.

Subgenus III. Codonocrinum.—Perianth-tube permanently curved. Limb horizontal or sub-erect the oblong-lanceolate segments permanently convivent in the lower half. Stamens declinate, nearl parallel with one another and with the style.

* Tropical Asian species.

40. *C. latifolium*, Linn., Sp. Plant., edit. ii., p. 419 Roxb. Fl. Ind. ii. 137; Lindl. in Bot. Reg., t. 1297 Wight, Ic., t. 2019-2020; C. ornatum var. latifolium, Herbert, Amaryll. 263; Kunth, Enum. v. 573; C. Linnæi, Roem. Amaryll. 89.—Bulb subglobose, sometimes 6—8 inches in diameter, without any distinct neck. Leaves numerous, lorate, bright green, thin in texture for the genus, 2—3 feet long, 3—4 inches broad, tapering to the point, the narrow cartilaginous edge slightly scabrous. Peduncle 1—2 feet long, about ½ inch in diameter, arising usually from the bulb outside the rosette of leaves. Flowers 10—20 to an umbel; pedicels none or very short; spathe-valves deltoid, reflexing, about 3 inches long. Ovary oblong, with 5—6 ovules in each cell. Perianth-tube greenish, 3—4 inches long; limb horizontal, about the same length as the tube, its oblong-lanceolate segments about 1 inch broad, faintly tinged with red in the centre on both sides, acute, reflexing at the tip when fully expanded. Filaments declinate, 2½—3 inches long; anthers about 1 inch long. Style finally protruded beyond the anthers.

Widely spread through the plains of India. Of this species C. longistylum, Herb.; C. speciosum, Herbert, in *Bot. Mag.* t. 2217; C. moluccanum, Roxb. *Fl. Ind.* ii. 140; *Bot. Mag.* t. 2292; and C. insigne, Schultes (Amaryllis insignis, Gawl. in *Bot. Reg.*, t. 579), seem to me only slight varieties, differing a little in size and robustness, and the length, absolute and relative, of the perianth-tube and perianth-segments, and the colour of the latter, which in latifolium is never more than a blush-red, which does not form a distinct band. There is a fine figure in Roxburgh's series, marked C. amabile.

41. *C. zeylanicum*, Linn., Syst. Veg. 263; Linn. Mant. 363; Roxb. Fl. Ind. ii. 139; Amaryllis zeylanica, Linn. Sp. Plant., edit. 2, 421; Amaryllis ornata, Bot. Mag., t. 1171 and 1253; C. latifolium, Andr. Bot. Rep. t. 478; C. Herbertianum, Wall. Pl. Asiat. Rar., t. 145; C. Wallichianum, Roem. Amaryll. 85; C. ornatum vars. zeylanicum and Herbertianum, Herb. Amaryll. 262.—Bulb globose, often ½ foot in diameter, without any distinct neck. Leaves 6—10 to a bulb, lorate, bright green, thin in texture for the genus, undulated towards the edge, 2—3 feet long, 3—4 inches broad, narrowed to a point, the narrow cartilaginous edge more or less scabrous. Scape often 2—3 feet long, as thick as a man's finger, and tinged with claret-red. Flowers 10—20 to an umbel, very fragrant; pedicels very short; spathe-valves bright-coloured, lanceolate-deltoid, 3—4 inches long. Ovary ½—¾ inches long, with 5—6 ovules in each cell. Perianth-tube curved, green or red tinted, usually 3—4 inches, rarely 5—6 inches long; limb horizontal, 3—4 inches long, the segments about 1 inch broad, furnished with a broad band of bright red down the back. Stamens about 1 inch shorter than the perianth-limb; anthers about ½ inch long. Fruit sub-globose, 1½—2 inches in diameter.

Widely spread through Tropical Asia and in Tropical Africa. It is the commonest species in cultivation of the present section. It differs mainly from the last, by having a distinct band of bright red down the outside of the perianth-segments, and is more hardy and more robust. My description is mainly taken from a plant that flowered at Kew in February, 1874, of which the bulb was sent from the province of Ambroz in Angola, by the late Mr. J. J. Monteiro. The name ornatum, which was originally applied to C. yuccæflorum, was used by Herbert to include this species and the last collectively.

42. *C. brachynema*, Herb. in Bot. Reg. 1842, Misc., n. 28; Kunth, Enum. v. 581; Hook fil, in Bot. Mag., t. 5937; Flore des Serres, t. 2303.—Bulb ovoid, 2½—3 inches in diameter, without any distinct neck. Leaves lorate, not developed till after the flowers, 1½—2 feet long, 3—3½ inches broad, moderately firm in texture, bright green, with a narrow entire cartilaginous edge. Scape about 1 foot long, pale green, little compressed. Flowers 15—20 to an umbel; pedicels sometimes as long as the ovary; spathe valves lanceolate, pale green, 1½—2 inches long. Ovary oblong. Perianth-tube slender, green, not much curved, 1½—1¾ inch long; limb suberect, pure white, 2 inches long; segments oblanceolate, obtuse, with a cusp about ¾ inch broad above the middle. Filaments only ¼—⅓ inch long; anthers small, yellow. Style not protruded out of the perianth-tube.

A native of the Bombay Presidency. My description is taken from a plant that flowered at Kew in May, 1877, the bulb of which was sent by Mr. Woodrow. Easily marked at a glance from all the varieties of latifolium by its small pure white obtuse segments, short tube, and very short stamens. There is a misprint in the length of the filaments in Kunth's description, which is copied from Herbert—¾ inch should be ⅜ inch.

** Australian species.

43. *C. flaccidum*, Herbert, in Bot. Mag., t. 2133; Amaryll. 266, tab. 14, fig. 11; Kunth, Enum. v. 576; Benth. Fl. Austral. v. 454; Amaryllis australasica, Gawl. in Bot. Reg., t. 426.—Bulb without any distinct neck. Leaves linear, 1½—2 feet long, 1—1½ inch broad, closely veined, scabrous at the edge. Scape 1½—2 feet long, green, much compressed. Flowers 6—8 in an umbel; pedicels sometimes 1—1½ inch long; spathe-valves lanceolate-deltoid, 3—4 inches long. Ovary oblong, ½ inch long, with several ovules in each cell. Perianth-tube 3—4 inches long, straight and erect, or nearly so, in the fully expanded flower. Limb about the same length as the tube, not tinged at all with red, the oblong-lanceolate ascending segments ¾—1 inch broad at the middle, narrowed gradually to an acute point. Filaments considerably shorter than the perianth-segments; anthers about ½ inch long. Style nearly reaching up to the tip of the perianth-segments.

A native of New South Wales and South Australia. I am not aware that it exists in this country alive at the present day. It seems a well-marked species that forms an excellent connecting-link between the sections Platyaster and Codonocrinum. C. Weinmanni, Roem. *Amaryll.* 90, seems from the description to be this species. Although Robert Brown did not name it, there is a specimen at the British Museum which he gathered in the neighbourhood of Port Jackson. *J. G. Baker.*

(*To be continued.*)

THE HUNTINGDON NURSERIES.

Almost in the centre of the busy town of Huntingdon, and hardly ten minutes' walk from the Great Northern Railway Station on the main line, is the head-quarters of Messrs. Wood & Ingram's well-known seed and nursery business, which has long been established in its present position. The seed shop, clerk's offices, and warehouses, are of the most convenient and commodious description, substantially built, and fitted with every modern appliance that is known to facilitate the conduct of business with the greatest degree of comfort and economy. The glass structures, offices, and packing sheds, together with all the choicest nursery stock, are here within easy reach of the heads of departments, who must find such excellent arrangements a great assistance to them in discharging their respective duties. Many of the glass structures are under repair before the general housing of stock takes place, but the bulk of them are even now either gay with flowering plants or filled with healthy nursery stock.

Thousands of dwarf grown Cytisus of a suitable size for decorative purposes, Kalosanthes, Veronicas, the white Agapanthus (umbellatus albus), pits of tricolor Pelargoniums, and hundreds of Phloxes are arranged in methodical order ready for housing or such other purpose as the exigencies of business may require. Beauty of Hebron Potatos are being stored in pits, as fine a sample as could be found in the kingdom, well-harvested, sound and clean, rather an extensive stock of so good a variety. There is a large collection of all the leading kinds of Strawberries, tree Carnations, Centaureas, and over 20,000 border Carnations and Picotees. In a glass structure with portable sides (removed for the present) there is a fine stock of all the best "show kinds" of Carnations and Picotees and those that are most useful for marketing. Large quantities of Ampelopsis Veitchii are grown in pots, Australian Dracænas, Yuccas, summer-flowering Chrysanthemums, and such other plants as are most useful in their season for general purposes.

The stock of Dahlias is extensive, a good many of the singles possessing charming hues, and being very neat in habit. Tritomas, too, are a grand show, the variety known as Uvaria glaucescens being undoubtedly the best; it is an early flowerer, and usually escapes the autumn frosts, which plays such mischief with the late-flowering kinds.

Violets of all kinds are here largely represented, and hardy bulbs are grown in quantity. The beds of autumn Crocus in fine varieties are the most charming sight in the nursery out-of-doors. Narcissi and Scillas are also grown for spring flowering, in order to have the borders attractive at all seasons, and to have a display from which visitors may be able to make their own selections.

The stock of Clematis consists of the very finest sorts, such as Henryi, nearly white; Duchess of Edinburgh, Robert Hanbury, Lord Nevill, Gipsy Queen, and Fairy Queen; Liliums are also grown by the thousand. Some half-dozen or more houses of Telegraph Cucumber, grown for producing, seed are bearing marvellous crops of finely-shaped fruits—a true stock indeed of this invaluable variety. The houses are 83 feet long and 13 feet wide, with a pathway up the middle, and are used for wintering plants after the Cucumbers are cut and the seed harvested.

The plants are grown in narrow beds of soil, and are not more than 6 inches in depth. Some of the houses are stocked with plants grown in boxes equally fruitful, and not an insect to be seen on the plants. Stock Fuchsias, Chrysanthemums for winter flowering, thousands of Mrs. Pollock Pelargonium, and over 1500 Verbenas are quoted as being a moderate estimate of the quantities of these plants grown in a season at these nurseries.

Alpine and herbaceous plants, and all the most popular hardy flowers, receive a full share of attention, and are healthy and well grown. Whole houses are filled with the finest varieties of Pelargoniu[illegible], seedling Cyclamens, Statice profusa, Ferns in all [illegible] leading and most useful kinds, and the propagati[illegible] house also contains a useful selection of seedling [illegible] other Ferns until the busy season for raising st[illegible] demands their removal to fresh quarters. There [illegible] span-roofed Peach-house, 83 feet long by 20 feet wi[illegible] with a substantial flag-path, always cleanly to look[illegible] which was erected for the purpose of testing [illegible] kinds of Peaches—a very commendable practice wh[illegible] cannot fail to produce its fruits and engender a fee[illegible] of confidence in the minds of purchasers. Upon [illegible] right and left of this structure several low span-roo[illegible] houses are filled with splendidly grown Bouvard[illegible] Solanums, and Azaleas, of the newest and choi[illegible] kinds, as well as the older kinds that are most fam[illegible] for early forcing.

A large span-house, used as a "show house [illegible] winter, is filled with Camellias, large Azaleas, [illegible] a miscellaneous collection of ornamental plan[illegible]; and in a smaller structure I noticed Anthericum va[illegible] gatum, a nice collection of Todeas, of which pellu[illegible] and superba appeared the freshest and best, and s[illegible] good plants of T. hymenophylloides; also large bat[illegible] of Ferns for furnishing, seedling Gloxinias, Begon[illegible] Achimenes, and many other decorative plants.

In a border in front of one of the plant-house[illegible] fine sample of Hyacinthus candicans has borne st[illegible] over 4 feet 6 inches in length, and duplicates of al[illegible] and herbaceous plants, Pinks and other florists' flo[illegible] already mentioned, together with Ivies, and a l[illegible] stock of hybrid Rhododendrons, by the side of a [illegible] flower garden, are some of the principal objects [illegible] seemed deserving of special remark. In a house [illegible] apart for specialities in Ferns I was shown the [illegible] anese Lastrea aristata variegata with a yellow st[illegible] up the centre of the frond, which is very beautiful [illegible] which should give the variety a prominent positio[illegible] a furnishing plant.

About 50 acres of Conifers and fruit trees [illegible] grown; over 30,000 Apples are worked in a si[illegible] season, and other fruit and forest trees are gr[illegible] in proportion. Roses as standards and dw[illegible] and pot Roses, Conifers in pots, and the ha[illegible] kinds of ornamental plants for furnishing, are gr[illegible] in large numbers and of all sizes; so that the [illegible] fastidious taste can hardly fail to be satisfied w[illegible] there is so much that is good and such variet[illegible] select from.

In the warehouses I noticed samples of se[illegible], roots, and bulbs of the first quality, and my [illegible] curiosity (perhaps I should say inquisitiveness) prom[illegible] me to inquire into the history of a Pea which st[illegible] me as being a rather superior sample. The va[illegible] turned out to be the "Old Huntingdonian," wh[illegible] if I mistake not, would "be in the hunt" [illegible] many so-called new kinds bearing a more mo[illegible] history.

My visit to these nurseries was perforce a s[illegible] one; but it was sufficiently long to enable m[illegible] form a correct judgment of the pains and skill [illegible] are bestowed upon the supervision of every de[illegible] ment, and the excellent results accruing. An [illegible] telligent manager and competent assistants [illegible] contributed no small share to the success whic[illegible] practically shown in the fine health of every plant [illegible] tree grown in the nursery. There are no d[illegible] corners, not even in the stokehole, where Me[illegible] Weeks' tubular boilers are giving great satisfactio[illegible] the heating of the different structures referred t[illegible] these remarks. *W. H.*

NOTES FROM HAWKSTONE

The white Lapageria that is planted out in [illegible] conservatory here, and which now covers the gr[illegible] part of the western end of the structure, and a po[illegible] of the roof as well, shows by the unusual strength [illegible] shoots annually produced that Lapagerias, alth[illegible] not liking too much of the sun's rays coming dir[illegible] on them whilst the young growth is being made, [illegible] nevertheless benefited by plenty of light. The h[illegible] in question is a high one, some 12 feet to the e[illegible] glazed almost down to the level of the floor; [illegible] the position the plant occupies the young shoo[illegible] soon as they get well above the soil are unde[illegible] influence of full light, being trained regularl[illegible] within a few inches of the glass that composes th[illegible] of the house, about 14 feet in breadth of which it co[illegible] The shoots as they appear above-ground are [illegible] stout Asparagus, and with the abundance of [illegible] they are subjected to, maintain their strength as [illegible] extend; the size that the leaves attain, and [illegible] quantity of flowers produced are proportiona[illegible] the general vigour present. As will be obvious, o[illegible] western aspect the plant is not much under the [illegible] influence until the afternoon is so far advance[illegible]

ts power is much reduced. There is also a good xample of the red variety. On the opposite end of he house there is a large plant of Bougainvillea specabilis, which, as a matter of course, receives similar reatment as to heat that the Lapagerias do so well vith, blooming freely every spring.

The collection of Nepenthes, which is in such ondition for health and vigour as these plants are eldom met with, gives evidence that Mr. Pratt has it upon the treatment they require. They are grown n large wood baskets, suspended with their heads ear the glass, over the back path of a lean-to stove bove 50 feet in length, and which they quite fill. The askets are similar in construction to those used for Orchids. Many of the plants consist of eight or ten hoots each, full of healthy foliage and pitchers; umbers have attained considerable age, and have een headed down several times, without which they an never be had in the dense, bushy condition, with heir leaves and pitchers hanging down, over, and elow the sides of the baskets so as to almost hide hem. The plants run from 2½ to 3 feet high; the inds are N. Rafflesiana, N. Hookeri, and several ybrid varieties. A specimen of N. Hookeri, which Ir. Pratt exhibited in his collection of stove and reenhouse plants at the late Shrewsbury show, was ich an example of successful cultivation as is rarely et with amongst Pitcher-plants.

On the back wall of a lean-to Fern-house the old latycerium alcicorne (the Elk's-horn Fern) is used ith better effect than I ever recollect to have seen . The wall is covered in the usual way with a w inches of sphagnum or similar material for the erns, &c., to grow in, which is held in its place with ire netting. In this Lycopodium denticulatum and . lævigatum form a beautiful dense close groundork in which are interspersed irregularly, but not o closely, the Acrostichum and Adiantum cuneatum.

Of the most useful winter flowering Orchids—Denrobium nobile, Calanthe Veitchii, and C. vestita—Ir. Pratt grows unusual quantities; the Dendrobiums e mostly large examples, a good many of them in allow pots, 18 or 20 inches in diameter, the largest mass of bulbs near upon 4 feet across; well grown these are, and present in such numbers, they give succession of their beautiful coloured enduring lowers through the greater part of the winter and pring. The Calanthes occupy a shelf running on he back of the Pine, Melon, and Cucumber houses, ear upon 200 feet in length; placed in this way close p to the glass, with the requisite amount of warmth, ght, air, and moisture, they thrive well, some of the ulbs of C. Veitchii growing to a length of 9 or 10 ches. Any one provided with well-managed plants f these Calanthes may rely upon being able to keep n cutting their lovely flowers for three or four months uring the autumn and winter.

Fruit-growing, as heretofore, is well carried out at lawkstone, as proved by the position Mr. Pratt has eld at different exhibitions this year—at Shrewsbury particular, where, in a good competition, he succeeded in taking most of the principal prizes, both for ollections of fruit and for Grapes: of the latter, Black Hamburgh, Madresfield Court, Black Alicante, nd Lady Downe's, are very well done; as also are ines, of which Queen, Black Jamaica, Smooth Cayenne, and Charlotte Rothschild, give evidence in oth the fruiting and succession stock of their vigorous ealthy condition. *T. B.*

WILLOW DISEASE.

The Willow is one of the chief ornaments of our arks, gardens, and woodlands. Its value as an ornamental tree when planted by rivers and brook-sides is lmost inestimable. It is picturesque in the highest egree whether pollarded or allowed to grow naturlly, the trunk and its habit of growth—inclined at ifferent angles—is peculiar and picturesque, and the ght beautiful foliage, with its beautiful form and olour, is always pleasing, whether seen on hot and uiet summer days or when disturbed by autumnal torms. Few persons have failed to notice the fine ffect of Willow foliage when seen jet black against a ellowish sky on an autumn evening.

Unfortunately Willows are extremely subject to isease, caterpillars of many species of moths devour he foliage, others pierce the stems and devour the ood, the most notable of the latter class being peraps the caterpillar of the goat moth, a large and nathsome-looking larva with a powerful odour of the e-goat, repulsive to some persons but not unpleasant to others. Gall insects attack the foliage, many microscopic fungi attack the leaves, and several very large ones prey upon the stem and branches. Osiers and Sallows are frequently attacked by the Willow-brand fungus, Melampsora salicina. Willows being so commonly afflicted from top to bottom it is no uncommon thing for them to be rotten at the heart whilst apparently fairly sound without. Therefore, when the winds of autumn sweep over our gardens, parks, and fields, it is common for great limbs of Willows to be torn off, or for even entire trees to be broken off or rooted up and thrown prostrate on to the grass or into a river or brook.

The subject of our illustration is a bad disease of Willow foliage, named the Willow Rust—Lecythea mixta; it is termed a "rust" because the spores of the fungus when they burst through the pustules on the leaf are rusty orange in colour. It grows on both surfaces of Willow leaves, and is extremely common. At A, fig. 92, is illustrated a section through one of the leaf-tumours or pustules enlarged three diameters, and showing the hypertrophied and discoloured substance of the Willow leaf. The fungus is at first contained within the leaf, and the mycelium or spawn has the effect of discolouring and enormously enlarging and thickening the leaf-cells. This is one very common effect of fungus spawn inside a leaf, and it is perhaps better seen in the Willow rust fungus than in any

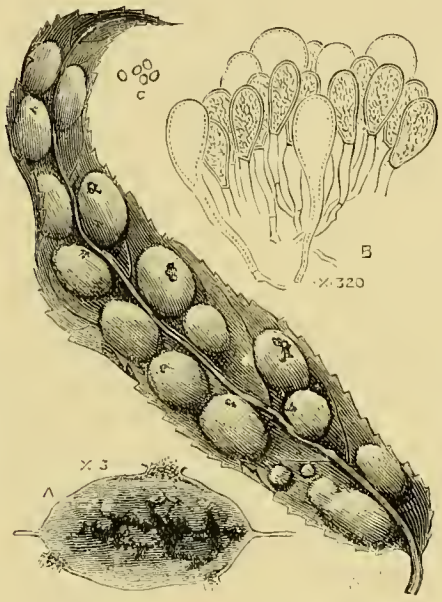


Fig. 92.—Willow disease: Lecythea mixta.

other species. When the distended tumour on the leaf is fully ripe it bursts at the top and bottom as shown (in three places) in the illustration, and from these openings the yellow spores pour out. At B the Pear-shaped spores are illustrated enlarged 320 diameters; they are produced on the tips of short stalks. Intermixed with the spores are large numbers of transparent bladders, as shown in the illustration; the shaded bodies are the spores, and those shown in outline are the cysts, cells, or bladders. No explanation has at present been given of the nature of these transparent flasks, although their meaning is obvious enough to persons who are always looking at such things. Although invisible as grains to the naked eye, yet the spores of the Willow Rust are very large in comparison with those of other fungi. At C five spores of the pasture Mushroom are engraved to the same scale as the Willow Rust spores, to show the great difference in size between the two. There is a second species of Willow Rust, named L. saliceti, distinguished easily by sight, as the pustules only grow and burst on the under surface of the leaves. That the fungus causes the disease and causes the tissues to thicken and enlarge, as in the fungus of Peach-blister, there can be no doubt. There are blisters caused by wind, drought, and insects, as well as by fungi, and these should never be confused with the blistering peculiar to fungi. In reference to the much-discussed Peach-blister, Mr. Berkeley never said that all blistering of Peach leaves is of fungus origin; he distinctly says, *Outlines*, p. 376, under Ascomyces deformans, "causing *one form* of blister."

When leaves are ill-developed, or in any way extensively injured, the effect on the plant is always bad. In the Willow Rust the leaves are distorted, swollen, and ruined, the intercellular spaces in the leaves everywhere filled with corrosive poisonous mycelium, and the organs of transpiration obliterated. The effect on the tree, therefore, of a bad attack of Willow Rust can be no other than highly injurious.

Many of the larger fungi grow on Willows, and they are very destructive. One, an Agaricus (allied to the great Agaricus of the Elm), is named A. salignus. More remarkable is the woody fungus named Trametes suaveolens, with a strong and pleasant odour of anise. A close ally to this is named T. odora; both species are large, corky, anise-scented, and very much alike; it takes a born fungologist to tell one from the other; the day, we hope, is rapidly approaching when the number of species of fungi will be greatly reduced. Several of the large woody fungi are either peculiar to or often found upon the Willow. One of these is Polyporus salicinus, another P. salignus. P. igniarius, a gigantic woody species, is very fond of the Willow. These fungi are parasites, and live on the juices of the tree attacked; it must be remembered, however, that, parasites as they are, they seldom or never attack sound trees. They begin their work after the larva of the goat moth has been paying its attention to the trunk, after branches have been blown off by wintry storms, or after the tree has been in some way damaged or thrown out of health. Some botanists say that a true parasite needs a perfectly healthy host for its development, but this opinion needs modification. Animal parasites attack the ailing and unwashed; and plant parasites, as a rule, make their first attack on the weakly or ill-grown. No doubt parasites of both classes are capable of beginning an attack upon the healthy; but that they need the healthiest individuals on which to make their first and strongest attack we unhesitatingly deny. *W. G. Smith.*

Orchid Notes.

Work in the Houses.—For the next five months we shall require all the light that we may be favoured with in our Orchid-houses, therefore all blinds, shadings, whitewashings, &c., must be cleared away at once. If the glass outside is dirty, choose a dry day and give it a thorough good washing. The inside also should be done, but this can be managed on a wet day. To what extent or in how great a measure we lose or obstruct the life-giving properties of light, by our glass and woodwork, we may not be able accurately to determine; sufficient for us at present is it to know, that plants are much weakened by darkened houses, and that the more open and free our houses are to the direct rays of the sun, so too will be the vigour and health of the subjects contained therein. With less light and lower temperatures moisture in less quantities will also be required, more especially in the early part of the day. If the morning is dull or wet it is better to defer the sprinkling of the paths, stages, &c., until the temperature has risen a few degrees by fire-heat; then any watering necessary must be done, and such blocks or baskets as need it may be dipped. Many of these will either have finished, or be just about ceasing growth, and will only require just enough to keep them from shrivelling on the blocks probably twice a week, whilst baskets will only need dipping once during that time. Again, in the afternoon let the damping round be done early so that there may not be heavy moisture in the houses during the evening and night; as the temperature naturally falls during the night there will be sufficient moisture generated by this means without unnecessarily adding to it by heavy wettings. Of course when with keen frosty nights we are obliged to use strong fire-heat moisture may be added, otherwise the atmosphere will speedily become harsh and dry. A few of the earliest plants of Dendrobium nobile may now be brought from the cool-house and placed in a little more warmth; as the buds swell and push away they must afterwards be placed in the Dendrobe-house, where the extra heat and moisture will in due course bring the flowers forward, so that the first may open by about Christmas. As others of this class make up their bulbs stand them in a cooler house for the resting and ripening process. Unless it is really necessary to increase the stock of the Masdevallias, when they are potted, which may yet be done, do not

cut them up, but pot them on; for, however convenient it may be to have a large number in thumbs or 60's, it surely cannot be well for the plants to be always splitting them up; nor do such small pieces commend themselves as fair average size specimens capable of bringing from thirty to fifty flowers apiece. If a plant such as these has so grown that all the centre is bare, shake it out, and split it in half and so turn one piece that the shoots will naturally incline to the middle whilst the remainder will turn towards the edge of the pot. *W. Swan, Fallowfield.*

Oncidium dasytyle.

This is one of the more recently discovered species which were first described in a recent volume of the *Gardeners' Chronicle*. It is a native of the Organ Mountains in Brazil, from whence it was introduced by Mr. B. S. Williams. It is an elegant plant with a slender flower-stalk, bearing a few peculiarly coloured yet handsome flowers. The sepals and petals are pale straw-coloured, blotched with brown-purple; the large lip is pale yellow; the much elevated dark purple shining basal crest bearing a striking resemblance to the body of some large insect. In this species the mimicry is as marked as in a number of the European terrestrial Orchids, which have on that account received especially distinctive names. It is now in flower at Kew. *G. N.*

Dendrobium aqueum.

This I think is a very lovely species, though without claim to showiness. A plant has been flowering in the Cambridge Botanic Garden for more than six weeks, and now another is about to open its blossoms. They are numerous, and approach 2 inches in width. At first they are greenish, but by the time of full expansion assume a pure white colour, with just a suspicion of yellow on the labellum. It flowers with the leaves of the current year's growth, thus forming an elegant association. This species is well figured in the *Botanical Magazine* of 1852, tab. 4640. *L.*

Orchids at the Clapton Nurseries.

Will the time ever come when the supply of many of the favourite Orchids that are now brought to England in such endless quantities will be exhausted, or are they like the herrings, which are said to grow more plentiful the more there are caught of them? If the former happens, and it should turn out that the destruction of these beautiful plants was a sin, then Mr. Stuart Low and his half-dozen collectors will have a heavy account to settle when the day of reckoning comes; and if the offence is proved, about which there will not be much difficulty, what will be the punishment? I should hope it will not be worse than confinement for a time in a thicket of perpetual flowering Bulbophyllum Beccari! Possibly at no previous time has the Clapton establishment contained such quantities of Orchids, especially in newly imported species, as at present. In a long house are many hundreds of Cattleya Mendelii, C. chocoensis, C. Leopoldii, C. Trianæ, in large masses, composed of big plump bulbs, some with leaves on them as fresh as if they had been grown here. With these are numbers of Lælia purpurata, some of the masses of which are over 3 feet long, and nearly as much in bulk as a man could clasp with both arms. Of Odontoglossum crispum and others, there are now enough to fill half-a-dozen big houses. Quantities of the last received, O. crispum, consist of large pieces with bulbs of a size such as have not before been seen, the old many-branched flower-stems indicating that the maximum forms of this grand Orchid have yet to be known. Angræcum Ellisii and A. citratum, are present in a long row, stout pieces in little hanging-baskets; Lælia harpophylla by the thousand, getting nicely established; the scarce Vanda Hookeri, in the shape of a bulky dense mass of stems, each a plant in itself, 3 to 4 feet in length, growing and fruiting freely; long stages full of Cypripedium Stonei, with very strong crowns; and numerous other old favourites. The distinct and handsome autumn flowering Aerides quinquevulnerum fills the entire centre stage of one of the long spans, all fully established, and many of them blooming. Half a houseful of A. crispum, also established in baskets, not small pieces, but six or eight stout growths in each. A. maculosum in untold quantities, equally strong and vigorous. Dendrobium heterocarpum philippinense, one of the freest and most profuse of autumn flowerers, is literally a sheet of bloom, occupying one side of a house. In the principal Phalænopsis-house the plants have made excellent growth this summer, and are now pushing up quite three times the number of flower-spikes they bore last season. This house will indeed be a sight when the plants are in bloom. It would be difficult to imagine anything more interesting than watching the growth and opening of the flowers, in the quantities of distinct looking forms in the thousands of plants included in the different importations of Orchids received here yearly, and amongst which there is ever something new making its appearance. Many there are who would wait the blooming of such as present a chance of turning out gems of the first water, but Mr. Low has not followed this course: when a buyer comes, off the plants go, to make room for others which quickly follow. In this way not a few growers have become possessors of new species and beautiful varieties. *T. B.*

Orchids at Mr. Bulls.

The addition of Mr. Cuming's collection has added some large healthy specimens to the collection, especially of Cattleyas and Lælias. The well known Lælia purpurata is represented by fine examples. Phalænopsis Schilleriana and P. amabilis are also remarkably fine; of the former some plants have leaves 14 inches long by 4½ across. Microstylis metallica is a striking plant from its glossy bronzy-purple foliage; its small singular looking flowers, each one reminding you of a fox's head, being thickly placed on small spikes. Dendrobium canaliculatum Fitzallani is now in flower in a Cattleya-house temperature; it is a very pretty species, from Queensland; the sepals and petals are narrow, white tipped with yellow, and lip purple. Oncidium ornithorhyncum, in 48-sized pots, grows with the greatest freedom and is in luxuriant health; they are smothered with blooming spikes. This seems to do remarkably well with cool-house treatment. There are few Orchids better adapted to produce cut flowers for small vases: they are of a pretty rose colour, and sweetly scented. Miltonia spectabilis usually flowers in July and August. It was producing its large solitary flowers in the cool Cattleya-house. This is a fine Brazilian species: the sepals and petals pinkish white, with a very large pale purple lip. Odontoglossum Uro-Skinneri, also in flower, is a very strong species, well known in most collections. To do it well it requires a considerable portion of peat in the compost, and rather more pot-room than some, as it produces a quantity of large fleshy roots. One or two of its tall, strong, upright spikes are produced from this season's pseudobulbs. Oncidium incurvum was flowering very freely. Its large branched spikes of pale rosy-tinted flowers continue a long time in good condition, and are very useful at this season as cut flowers. It does very well in a cool-house. *J. Douglas.*

The Orchids at Cromwell Range.

Amongst those who have recently made the culture of Orchids a speciality, and a favourite means of relaxation and pleasure, few, at all events in our immediate neighbourhood, have done so with more earnestness than the proprietor of Cromwell Range, Fallowfield, Manchester, Oscar Schneider, Esq. For several years past I have had opportunities of watching the increase and growth of all that pertains to this collection. At first the houses appeared to get too small, then too few; and still additions were made, and fresh arrivals put in an appearance, until, about four years ago, Mr. Schneider determined to have a range of houses suited in every respect to the successful culture and growth of stove-plants, but Orchids principally. This range, which is now fairly stocked with plants, includes six divisions: one devoted to East Indian plants, Dendrobes, Cypripediums, &c.; another to Calanthes, and stove plants, &c.; the third to Oncidiums and Cattleyas; the fourth to the same class of plants, chiefly imported pieces; the fifth to Odontoglossums, Masdevallias, &c.; and lastly, a large greenhouse, which can easily be turned into a Cattleya-house when that class are too cramped in their present situation; for it must be confessed that here, as in many other places, when once Orchids are grown well, duly appreciated, and admired, all other plants are speedily relegated to very subordinate positions. I noticed a few days ago the following amongst others at present in flower:—Cypripedium Sedeni, a summer, autumn, and winter bloomi variety, for in truth it is a most accommodating fo and well deserving of extensive culture; Roezlii and C. Harrisianum; Oncidium Lanceanu grown in a pot and nicely in flower; t is still a hard doer; would that we not o could do it well, but keep it so. Van cœrulea, in the Cattleya-house, a stout pie with short leaves and healthy roots, had three spik on it, one with seventeen flowers, another w twelve, and the remaining one eleven—a very cred able performance, whether we bear in mind the grow or the plant. Miltonia Morelliana, known to ma as Callender's variety, with very large dark flowe of which there were nine. This irresistibly broug to my mind two Orchid enthusiasts connected w this plant, now unfortunately no more, though so of us can remember very pleasant times we have spe with them—I refer to S. P. Callender, Esq., and late gardener, Mr. A. Beesley. On some blocks w nice pieces of Lælia Dayana in flower, whilst in sm pans Dendrobium formosum was also finely bloomi Among the Oncidiums were many fine forms O. tigrinum, O. Barkerii, O. unguiculatum, stro spikes with many laterals on them; the bright y low of the labellum of this section, and withal the sw Violet scent observable, make these very desirable a effective; O. varicosum, in variety, was also numer and good; and O. Forbesii, prætextum, crispum, a Krameri were also in flower, or just about open their buds. A splendid batch of Odontogloss spikes was coming on, the plants themselves being robust health. The pretty little Dendrobium nodat in a basket was also flowering, and some nice pie of D. crassinode were already showing for flow Mr. Holmes deserves much credit for the excell condition in which he is keeping everything under charge. *W. Swan, Fallowfield.*

Messrs. Veitch's Orchids.

Cypripedium tessellatum porphyreum, a rat pretty and distinct hybrid, raised in the Exotic N sery, Chelsea, by Mr. Seden, is now in flower. I the result of a cross between C. concolor and C. b batum, and, as usual, is quite intermediate betw the parents. There are now three flowers to be s on one stem, as large as barbatum, with the pur tints of that variety on a pale yellow ground, and unmistakable form of the concolor flowers. Spicerianum, one of the most unique and pretty the whole genus, is growing freely in the warm house, and producing eleven blooms. Cattl Loddigesii is also in flower at present, and is a v distinct and pretty species. The sepals and pet are of a pleasing rosy tint, and the lip creamy whi This is a very desirable Brazilian species, and c trasts well with those that have more richly-colou lips. *J. Douglas.*

Garden Operations.

KITCHEN GARDEN.

The frosts (4° and 5°) which we have had on t nights of the 5th and 6th inst., have sufficien affected such tender subjects in this department French Beans, Scarlet Runners, and Tomatos, as forcibly remind us that the time of year for harvesti and protecting subjects of a hardier nature is near hand; therefore advantage should be taken of t first favourable opportunity to get up the Beet cr and store it away out of the reach of frost, and wh at the same time the roots are not likely to beco too dry, as is the case when they are packed clos together in sand in a dry shed. In order to prese their freshness the roots should be packed in dar material, which will not tend to absorb the moist from them in a cool situation, and for this purp the following is the most simple and effectual way procedure:—The roots should be taken up before th get injured by frost, and with care, so as not receive damage in the process of lifting, which wou cause them to bleed—a circumstance to be stric avoided—and taken to a dry and high border unde south or west wall. An opening should be taken c at the end of the border, 12 or 15 inches deep, a about the same width, and the digging of the grou proceeded with; when the trench is filled and t ground levelled in the ordinary way, the soil is c straight down the whole width of the border, and two three rows of Beetroots placed perpendicularly in

opening so formed, and the digging is again proceeded with until the roots are all covered, burying the crowns about 1 inch under the surface of the soil. The operation is thus continued somewhat after the style of transplanting young forest trees from the seed beds in nurseries, until the job is finished. The leaves, which are not removed from the crown, will afford sufficient protection to the roots from several degrees of frost, but in the event of its being very severe a protection of dry litter or Fern will be necessary. In the spring, before the roots show signs of growth, they should be taken up, the leaves with the surface of the crown cut away, and the root laid in again as above recommended. Thus treated, our Beetroots are always fresh and of a good colour.

Carrots, with the exception of cutting off the tops close to to the crown at the time of taking them up, are treated precisely in the same way as the Beetroots; if wintered in this way there need be no fear of fermentation ensuing as is so frequently the case where a bulk of them has been put together, sometimes to the entire loss of the crop. Where Parsnips are not grown in great quantities, or where the ground is not required for some special purpose, they are best left during the winter in the ground in which they have been grown, in which position they will require no protection whatever from frost further than covering a sufficient piece for present use, so that in the event of severe frost there will be no difficulty in taking up roots sufficient to meet the demand. I find roots wintered as above described are always superior in flavour and appearance to those which have been wintered on the "dry shed and sand" principle. Salsafy and Scorzonera may be wintered in the same way as recommended above.

Late plantings of Lettuce in the open should be taken up forthwith, with good balls of earth attached to the roots, and transplanted carefully into the and frames specially reserved for this purpose, and well watered immediately after planting, with a view to re-establishing the plants in their fresh quarters, where they must have abundance of air on all favourable occasions. Broccoli, Cabbage, Winter Greens, &c., should be divested when the weather is dry of all useless and decaying leaves that would be likely to become offensive through decomposition; their removal will enable the stems, through being more fully exposed to light and air, to become hardened, and better able to withstand severe weather. Autumn-planted Cabbages should now have some soil drawn to them; the landing up of late plantings of Celery and Leeks should also be proceeded with when the plants are sufficiently dry for the work being done. Before the seed on the Asparagus stems begins to fall off, they should be cut and removed to the rubbish-heap, saving some of the best berried stems for seed, which should be tied together and hung up in a dry shed in readiness for shelling during inclement weather. This done, remove all weeds from the surface of the beds, and then 2 or 3 inches of the loose surface soil, which should be drawn into the alleys and the beds covered with 3 or 4 inches thick of the richest and shortest manure that can be had, which in most places is specially retained for the purpose.

Frame Ground.—Look well after slugs, which are very partial and destructive to the subjects in this department. They may be easily caught with the assistance of a bull's-eye at night feasting upon the leaves of the youngest and most tender Lettuce plants, and which, if not diligently looked after, they will speedly skeletonise. Remove forthwith any decayed leaves of Lettuce and Cauliflower from the plants as soon as they appear, and ventilate them freely on all favourable occasions, and in the event of sharp frosts, cover the sashes at night with mats. Pits covered with wooden shutters will not for the present require other protection.

Mushrooms.—Beds which were made up at the end of July and early in August, and subsequently attended to as from time to time directed in these columns, should now be producing Mushrooms. When the surface of the bed becomes dry, water at a temperature of 85° or 90° should be applied through a fine rose and a long-spouted water-pot; and in order to prevent a stagnant atmosphere in the house the top ventilator should be opened a little, more or less, in accordance with the superabundance of moisture necessarily arising from the fermentation of the horse-droppings when taken into the house. Collect droppings for successional beds and place them in a dry airy shed, where they can be turned over half-a-dozen times or so before being taken into the Mushroom-house, to dry, and also to allow of the rank heat escaping—a procedure that should be repeated for a few mornings after the droppings have been placed upon the shelves with the same object in view. This done, the horse droppings should be beaten together as firmly as possible, and when the heat has declined to 70° the spawn may be inserted in pieces about the size of large Walnuts under the surface of the bed 6 or 7 inches apart, and a little fresh horse droppings spread over it; and when it has been ascertained that the heat in the bed is not likely to rise above 70° or 75° it can be covered thinly with finely-sifted light maiden loam of the same temperature as the house (the barrows containing the soil having been placed in it the preceding night), and beaten well together with the back of a spade. A rather moist atmosphere, with a temperature of from 60° to 65°, should be maintained in the Mushroom-house for the present. *H. W. Ward, Longford Castle Gardens, Wilts.*

FLOWER GARDEN.

Winter Bedding.—The first frost of the season (4°) occurred on the morning of the 5th inst., Iresines, Coleus, and Alternantheras being badly injured. Such plants, however, are used but sparingly here; hence the flower beds continue almost as brilliant as ever, but steps should be taken to secure the tender plants needed for another year. In our own case the only plants that are to be so preserved are various kinds of variegated Pelargoniums, particularly those kinds that are of weakly growth; some few Abutilons, as they are very useful for conservatory and house decoration in winter, and some of the rarer varieties of succulents, such as Echeveria metallica, Echeveria Peacockii, and Pachyphytum roseum. All other plants will be replaced with hardy kinds for the winter. Ajuga reptans purpureum is now being planted where Althernantheras have done summer duty, Erica herbacea in place of Iresine, and Veronica incana (silvery white) in place of Coleus; this latter colour being just as effective as the Coleus, seeing that the adjoining colours are dark green—Herniaria glabra, and greenish-yellow—Sedum acre elegans. As Pelargoniums and other massing plants are removed their places will be filled with dwarf shrubs, such as small Cupressus, Aucubas, Cotoneasters, and Periwinkles, or in other cases with various Sedums, Stachys, Thymes, and Lamiums. To some the labour of so planting a garden for the winter may seem very great; but it is found to be otherwise, where, as in our own case, the aim has for years been so to work and arrange the summer garden that by little additional labours the same arrangement should continue throughout the year. By a free use of hardy plants we have secured—perhaps at a little loss of summer brilliancy—a continuously furnished parterre, at decidedly less cost both as to providing ol plants, planting, and maintaining in good order, than what it originally cost for summer furnishing only.

Herbaceous Plants.—Perhaps it should be added, that the foregoing remarks are only applicable to formal or geometrical gardens, which must of necessity, at least as I think, be treated as to planting, in a formal manner. Where there are no such gardens and the flower beds and borders are not of any set design, or, in any position necessitating formal planting, then the best style of flower gardening is undoubtedly that consisting principally of hardy herbaceous plants. We have such beds as gay now with Rudbeckias, Michaelmas Daisies, Japanese Anemones, Pyrethrum uliginosum, Violas, Stocks, &c., as they have been at any time during this year, and the only attention they have had has been to keep them tied (not bunched) to supports, and the ground free from weeds. As the varying heights of this class of plants can now be seen, the present is a good time to transplant and re-arrange any requiring to be done, the first condition to their well-doing being liberal treatment of the ground; trench deeply, and manure heavily, then the plants will need no further help, in that respect, for years. As soon as the general arrangement is complete, should the ground look naked, which is probable, fill in with patches of surface-rooting plants, such as Stonecrop and Sedums. Additional neatness may be ensured, at but little cost, by coating the entire border with cocoa-fibre refuse.

Propagation and Housing of Plants.—Cuttings of Violas, Pansies, and Calceolarias should now be got in; they strike and winter perfectly in cold frames that are protected with litter and mats in severe weather. All kinds of half hardy succulents also winter successfully in like positions, but must be very sparingly watered. Cuttings of Pelargoniums that have been struck in the open border must now be housed, as must every kind of plant that will not bear frost, for we are never safe now. Give plenty of air to bring them up sturdily, and there will then be no difficulty as to wintering them successfully.

General Work.—If neatness must be maintained, and it ought, sweeping and rolling must now incessantly go on. Owing to so much rain, the walks have got very weedy and moss-grown, and the best way to clean them would be to break up the surface and apply a sprinkling of fresh gravel and well roll them down again. Salt would clean them, but on most gravels it makes the surface soft the whole of the winter, hence it is only suitable for application on very stony walks, and even on these, though it kills the weeds at the time, it eventually acts manurially; it is, therefore, a very questionable remedy. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Peaches and Nectarines.—The trees in the early house will by this time have naturally shed most of their leaves, and may be finally pruned, but where they have been summer-pruned according to directions given, very little will now be required. Sashes that were taken off early houses (if not already done), should be painted and made ready to be put on at any time when required. Rafters and also any painting that is easier get-at-able inside when the sashes are off, may also be done. If the weather keeps mild, I shall keep ours off till the end of this month. If the young wood in succession-houses is quite ripened the heat may now be discontinued, but late houses will still require a little fire-heat to assist them. I gathered our last Peaches (indoors) on the 6th of this month. Our first were gathered the second week in May, and since that time we have not been without a dish of Peaches. *J. Wallis, Keele Gardens.*

Melons.

During the past fortnight, a considerable change for the better having taken place in the weather, Melon crops have much improved, and crops generally are beginning to assume a much more vigorous appearance. Where a good deal is expected from limited means there may be from two to three different sets of plants in the same house, with a view to securing a late succession of fruits, which are in most places much appreciated at this season of the year, especially where a large number of dishes are required for dessert for shooting parties or other purposes. The atmosphere that is requisite for the one set of plants may not be altogether the best for the others; but at this late period of the season so little moisture is necessary for crops at any stage that a middle line may safely be taken that will meet the requirements of each without seriously interfering with the progress of plants in younger stages of growth. Where fruits are rapidly advancing towards maturity the atmosphere should be kept quite dry, except for a couple of hours about mid-day, where the paths might be sprinkled over once or twice. Once the fruits have changed to a high colour, it is not necessary to wait until they are quite ripe before cutting them. If when they are removed from the plants they are wrapped up in silk paper and put in any warm house where the temperature ranges at about 70°, or even if put in a warm room for a few days, they will finish off beautifully, and the fact of removing them will give the succession crops a better chance of being rationally treated as regards air-giving and moisture. Now that plants have strengthened a good deal during the bright weather of the past fortnight, it will be advisable to make the best of fine days by pushing them forward in a higher temperature—say a mean of 70° to 75° at night, rising to 85° or a few degrees higher at closing time in the afternoons. Anything, however, like high-pressure must be avoided in dull weather, or the constitution of the plants will be undermined by strong heat and scanty ventilation. If the weather should continue fine, a supply of fairly flavoured Melons may be kept up till the end of November. *W. Hinds.*

Cucumbers.

Crops that were planted early in August will now be coming into bearing, and where the main supply for the winter is expected from these, the greater part of the fruits should be removed from the plants unless they are required for immediate use. Of course, where there are two or more successions, or even one promising one coming forward, the plants might be allowed to bear at once as much as they would, in order to make the most of them before winter sets in; but in the majority of private places, it is more a continuous supply that is aimed at than large quantities for short periods. In any case it is best to keep on the safe side, and while a large or small surplus of any kind is at all times welcome, still it is best to be on the right side at the fag end of the winter. Successional crops that are found to be on the late side should be advanced during the present month with all despatch while there is yet reasonable hope of obtaining that degree of light and solar heat that is indispensable in furnishing plants with tissue and vigour for the winter. It is only a question at any time of having plenty of heat and moisture to be able to start plants growing, but it is quite another thing to give them strength and fruiting power. Encourage surface root-action by moderate dressing of rich compost, finishing off with a mulching of decomposed manure, into which the young rootlets will permeate in all directions; and avoid as far as possible such conditions as are known to encourage an exuberance of foliage, which will only last for a few weeks during the finer part of the autumn. The symptoms that are most desirable in early spring forcing would be fatal to prolonged success with a long winter before us, so that moderation should be the rule of all who desire to stand upon a firm footing, and not trust to chance for a consummation of things that may never be realised. *W. Hinds.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 17	Sale of Dutch Bulbs, at the Auction Mart, by Protheroe & Morris.
Tuesday,	Oct. 18	Sale of Nursery Stock and Greenhouse Plants, at Tuffin's Nursery, Lee, by Protheroe & Morris.

HOW true it is that we often do not know our best friends. How humiliating the reflection that we not only often despise, but actually wage war upon creatures that are not only unoffending, but are really valuable ministers to our wants. Some such feelings as these must needs, we think, strike the reader of Mr. DARWIN's latest book,* whose publication we briefly noted last week. Another feeling we can indulge in with more complacency, and that is with reference to the admirable illustration this book affords of the operation of true scientific method, and the ultimate practical value of well ascertained facts when observed and marshalled as they are in the work before us. The vastness of scope, the profusion and complexity of detail observable in other of Mr. DARWIN's books, may, in some instances, have repelled the superficial reader, and rendered them distasteful to any but professed students. But in the present work we have simpler and less complex issues, and in consequence a work which will commend itself to the general reader desirous of obtaining an insight into scientific method. Here we have a work devoted to one subject—the natural history of earthworms, and their agency in covering the land with mould—subjects which the superficial thinker would be at first glance disposed to treat with ridicule, or to consider as of little importance. A perusal of this work, the gist of which may be gleaned in an hour's reading, will, however, put a totally different construction on the matter. We have brought before us a whole series of observations extending over half a century, observations individually trifling, as it might seem, but which when grouped with the patient accuracy and fidelity of which Mr. DARWIN has shown so many transcendent illustrations, lead to the most important general conclusions. Fact is added to fact so cleverly, with so little apparent effort, that when the time comes to sum up and to draw the necessary inferences, it is found that the great body of cumulative evidence is all but completely unassailable, completely so for all practical purposes, for though it may be possible that some points may have been misinterpreted, or do not bear out the inference sought to be drawn from them, yet on the whole the reader is led on from point to point till he is absolutely compelled, from the sheer force and weight of evidence, to give his assent to the general conclusions. A more admirable instance of scientific induction could hardly be pointed out, and it is the more valuable from an educational point of view for the reasons we have stated—that the problem, however gigantic, is yet simple and less encumbered with details and cross issues than many others attacked with so much success by the author.

It should, and doubtless will, prove a great encouragement to those who have, in ever so feeble a degree, the faculty of observation to find, as they will find, from a perusal of these pages, that the simplest, most readily made observations may, if carried out with patience and perseverance, lead to the most important results. Of course, there are few indeed who have the faculty of observation so finely developed as Mr. DARWIN. Few have his unwearied patience, his clearness and candour of statement; but on, the other hand, we think no one of ordinary intelligence can read these pages without feeling that it is in his power also, if he will but give the necessary patience, to add materially to the store of knowledge, and to arrive at results likely to be practically useful. The earlier chapters are devoted to the structure and habits of worms. So lowly organised are they that they have neither eyes, nor ears, nor sense of smell; they are, nevertheless, endowed with a digestive system, delicate sensibility to touch, and powerful muscles—even intelligence is not denied to them. We must refer our readers to the book itself, wherein these facts are substantiated by repeated observations and carefully devised experiments. These observations and experiments are very interesting—most important for the purpose to which they are applied—and valuable from the point of view we have already alluded to, viz., the ease with which they may be made even by unskilled observers; but to allude to them at length here would be as unfair to the reader and author as it would be to pick out the plot of a novel and unravel its *dénouement*. This is better done by the reader himself.

Briefly, then, we may say that the object of the volume is to show that worms have and do contribute a very large share in the formation of vegetable mould in districts where they exist, and to point out in what manner they do it. This necessitates an examination of their structure, and a study of their habits. As long ago as 1837, Mr. DARWIN published the results of his first observations, in which he showed that small fragments of burnt marl, cinders, &c., thickly strewn over the surface of some meadows, disappeared after a few years, and were found in a uniform layer at some few inches from the surface, buried beneath the accumulated fine soil brought to the surface by worms in the form of castings. "I was thus led to conclude," says Mr. DARWIN, "that all the vegetable mould over the whole country has passed many times through, and will pass again many times through, the intestinal canals of worms; hence the term animal mould would be in some respects more appropriate than that commonly used of vegetable mould." In a communication to the *Gardeners' Chronicle* so long ago as 1844 (p. 218) Mr. DARWIN gives an account of the successive layers of lime and cinders which he found in a pasture, and the varying depths at which he found them in succeeding years. At first on the surface, they were found in subsequent years 1, 2, 4, up to 17 inches below the surface. In the present volume evidence of a similar character is given on soils of various characters. Step by step, item by item, the evidence is given, till, as we have said, the inference becomes inevitable. At first sight it may appear to many as if the agency must be too insignificant to produce such vast results. Mr. DARWIN alludes to this in his introduction, wherein he quotes some remarks made by Mr. FISH (*Gardeners' Chronicle*, April 17, 1869, p. 418), in which that writer assumed—we call attention to the word assumed—that such feebly endowed creatures could not have accomplished such stupendous work. "Here," says Mr. DARWIN, "we have an instance of that inability to sum up the effects of a continually recurrent cause, which has so often retarded the progress of science as formerly in the case of geology, and, more recently, in that of the principle of evolution." Knowing what we do now as to the "stupendous" work continually carried on by creatures individually the most insignificant, the objection has, indeed, not much value; but it is not in Mr. DARWIN to be satisfied with "assumptions" when direct evidence can be obtained, and so, not content with his previous observations and the large number of similar ones made by himself, or by others at his instigation, he resolved to attack the problem from another side, and to ascertain the number of worms that live within a given space, and to weigh all the castings thrown up within a given time in a measured space, as had been done also by VON HENSEN. As to the number of worms from his own and HENSEN's statements it appears that an acre of land may contain 57,767 worms. With reference to the weight of earth brought up by worms, numerous experiments were made in different places and under different conditions. We have only space to cite one case wherein a quantity of earth derived from worm castings in a given time over a square yard, well dried before a fire, was found to weigh 3½ lb., or at the rate of 7.56 tons of dry earth per annum per acre. In other cases 15 to 18 tons per acre were estimated to have been ejected, the thickness of mould so accumulated over the whole surface being estimated at from 0.83 inches in poor soil up to as much as 2.2 inches in the course of ten years.

Space will not allow us to do more than allude to the important and interesting chapters in which Mr. DARWIN has shown how ancient buildings, Roman villas, and the like have become covered up by the agency of worms, nor to those in which he treats of the amount of denudation of the rocks which form the earth's crust effected by worms, and the formation of parallel horizontal ledges on hill-sides, which he thinks may, in some instances, owe their formation to this agency. What worms do for the farmer and gardener is told in the following extract, which will show that, however objectionable these creatures may be in a flower-pot their value in a pasture or in an arable field is beyond all that we have previously conceived on the subject:—

"Worms prepare the ground in an excellent manner for the growth of fibrous-rooted plants and for seedlings of all kinds. They periodically expose the mould to the air, and sift it so that no stones larger than the particles which they can swallow are left in it. They mingle the whole intimately together, like a gardener who prepares fine soil for his choicest plants. In this state it is well fitted to retain moisture and to absorb all soluble substances, as well as for the process of nitrification. The bones of dead animals, the harder parts of insects, the shells of land-molluscs, leaves, twigs, &c., are before long all buried beneath the accumulated castings of worms, and are thus brought in a more or less decayed state within reach of the roots of plants. Worms likewise drag an infinite number of dead leaves and other parts of plants into their burrows, partly for the sake of plugging them up and partly as food.

"The leaves which are dragged into the burrows as food, after being torn into the finest shreds, partially digested, and saturated with the intestinal and urinary secretions, are commingled with much earth. This earth forms the dark-coloured, rich humus which almost everywhere covers the surface of the land with a fairly well-defined layer or mantle. VON HENSEN* placed two worms in a vessel 18 inches in diameter, which was filled with sand, on which fallen leaves were strewed and these were soon dragged into their burrows to a depth of 3 inches. After about six weeks an almost uniform layer of sand, a centimetre (.4 inch) in thickness, was converted into humus by having passed through the alimentary canals of these two worms. It is believed by some persons that worm-burrows, which often penetrate the ground almost perpendicularly to a depth of 5 or 6 feet, materially aid in its drainage; notwithstanding that the viscid castings piled over the mouths of the burrows prevent or check the rain-water directly entering them. They allow the air to penetrate deeply into the ground. They also greatly facilitate the downward passage of roots of moderate size; and these will be nourished by the humus with which the burrows are lined. Many seeds owe their germination to having been covered by castings; and others buried to a considerable depth beneath accumulated castings lie dormant, until at some future time they are accidentally uncovered and germinate.

"Worms are poorly provided with sense-organs, for they cannot be said to see, although they can just distinguish between light and darkness; they are completely deaf, and have only a feeble power of smell; the sense of touch alone is well developed. They can therefore learn little about the outside world, and it is surprising that they should exhibit some skill in lining their burrows with their castings and with leaves, and in the case of some species in piling up their castings into tower-like constructions. But it is far more surprising that they should apparently exhibit some degree of intelligence instead of a mere blind instinctive impulse, in their manner of plugging up the mouths of their burrows.

* *The Formation of Vegetable Mould through the Agency of Worms; with Observations on their Habits.* By Charles Darwin, LL.D., F.R.S. (Murray.)

* *Zeitschrift für wissenschaft. Zoolog*, b. xxviii., 1877, p. 360.

They act in nearly the same manner as would a man, who had to close a cylindrical tube with different kinds of leaves, petioles, triangles of paper, &c., for they commonly seize such objects by their pointed ends. But with thin objects a certain number are drawn in by their broader ends. They do not act in the same unvarying manner in all cases, as do most of the lower animals; for instance, they do not drag in leaves by their footstalks, unless the basal part of the blade is as narrow as the apex, or narrower than it.

"When we behold a wide, turf-covered expanse, we should remember that its smoothness, on which so much of its beauty depends, is mainly due to all the inequalities having been slowly levelled by worms. It is a marvellous reflection that the whole of the superficial mould over any such expanse has passed, and will again pass, every few years, through the bodies of worms. The plough is one of the most ancient and most valuable of man's inventions; but long before he existed the land was in fact regularly ploughed, and still continues to be thus ploughed by earthworms. It may be doubted whether there are many other animals which have played so important a part in the history of the world as have these lowly organised creatures. Some other animals, however, still more lowly organised, namely corals, have done far more conspicuous work in having constructed innumerable reefs and islands in the great oceans; but these are almost confined to the tropical zones."

—— Hybridisation.—The presentation of a substantial testimonial to Mr. Dominy, on Tuesday last, as mentioned in another column, deserves comment, not only because it was individually well merited, of which there can be no question, but it is of interest from the point of view of progress. It is not so very long ago that hybridisation was looked on askance by botanists as tending to confuse what were termed species, and as introducing inextricable confusion in neatly devised plans of classification and so forth. But the work of Dominy and such experimenters as he has not only very materially added to the sum of human happiness and welfare, but has proved of the utmost value from a scientific point of view, as teaching us how Nature herself operates, and as giving us an insight into her methods, and thus of greatly improving our knowledge of natural forms, the manner in which they vary, and the limitations and extent of their variation. So far from hybridisation introducing confusion, properly looked at it extends our knowledge, opens up new avenues for future progress, gives us more worlds to conquer—and all this in addition to the more direct increase of practically useful facts. All honour, then, to Mr. Dominy and his associates. Would they were more numerous, and acted on well-devised lines of action. We cannot doubt, from the results already obtained, that progress in this direction will be secured by this and other means, and progress is what we must all aim at if we are even to hold our own.

—— Anthurium Andreanum.—There are some very fine flowering examples of this remarkable Aroid to be seen at present in Mr. Bull's nursery. The largest spathes are 5 inches long and 4½ inches across. The singular conformation of the spathe has been faithfully delineated in a previous number. The colour is glossy scarlet, like superfine sealing-wax, and a striking feature of the plant is the white spadix tipped with yellow. Each individual spathe lasts in good condition for three months, and as each leaf is formed a spathe speedily follows, so that the plant may always be had in flower. Its cultural requirements are much the same as those of the well-known A. Scherzerianum.

—— Plant Labels.—Mr. G. F. Wilson exhibited at South Kensington, on Tuesday, some Holly and Box-wood labels, which, on account of their low price and the hard, durable character of the woods, deserve to be widely made known. The samples shown were 5½ inches long, ⅝ inch wide, and 1/16 inch thick; and cost 5*s.* 6*d.* per thousand, the vendors being Messrs. John Wolstenholme & Son, Mill Street, Ancoats, Manchester.

—— Dracæna Goldieana Flowering.—Some time since we announced the flowering of Dracæna Goldieana at Marseilles in the garden of M. Renouard. A pamphlet, bearing the signature "A. H. F. M.," is now before us, giving the particulars of this interesting event. The top of a specimen grown in the open air was layered, *marcotte*, in August, and separated in October. At the beginning of November it was turned out of the pot and placed in a border consisting of light peaty soil in an Orchid-house devoted to the culture of East Indian species. On December 15, 1880, the plant, now about 25 centimetres in height, showed signs of flowering, bracts made their appearance in place of leaves, the outermost leaf gradually becoming smaller, and the innermost of a bright rose colour. In this condition the bud remained for two months, and then, gradually expanding, it formed a sort of Cauliflower-like inflorescence, made up of closely packed yellow folded bracts. The first flowers appeared on February 15. They are described as

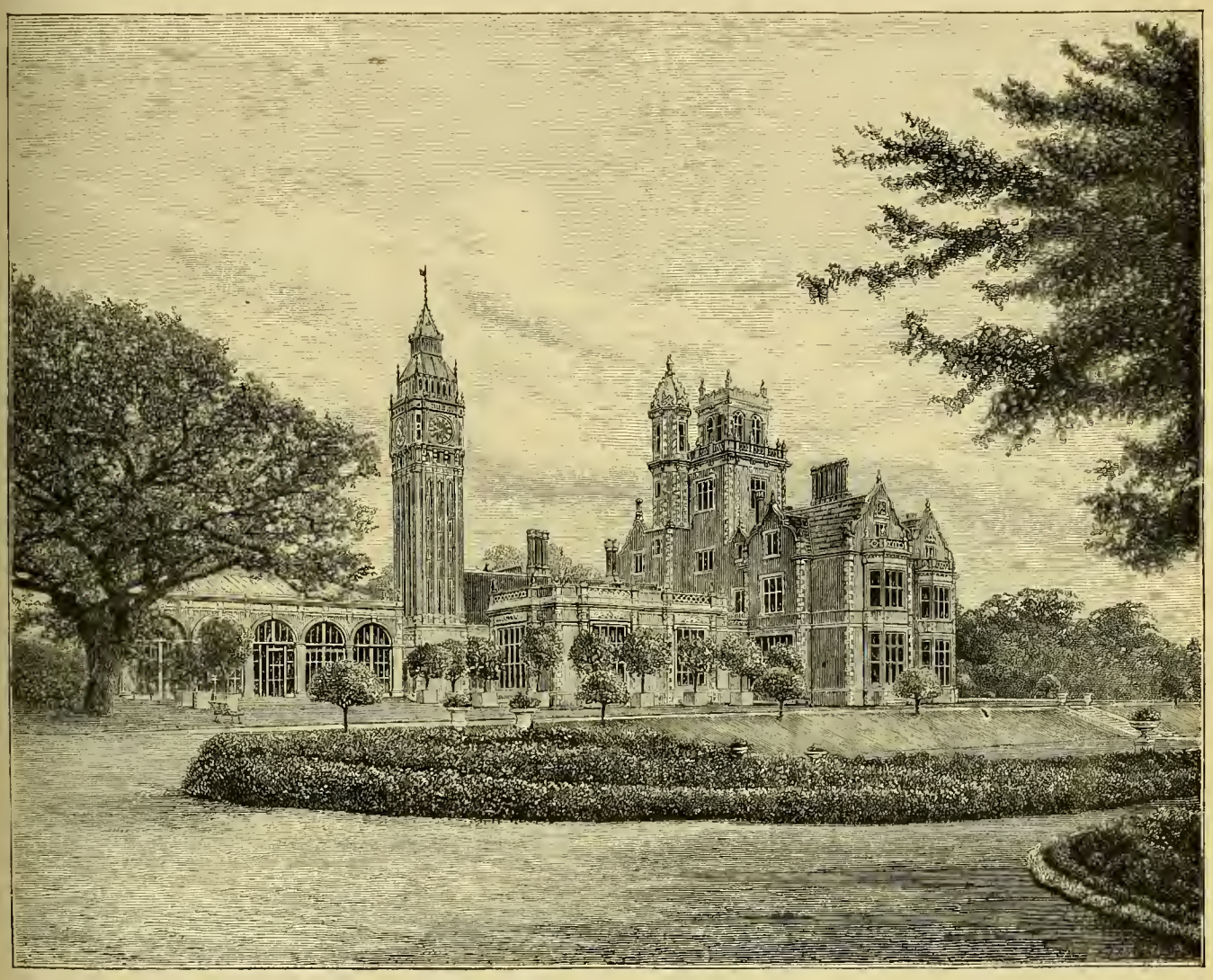


Fig. 93.—The garden-front of Appley Towers, Isle of Wight. (see p. 494.)

like those of D. Sieboldi. Their colour and size is that of white Hyacinths, of which they have also the perfume. The flowers open in groups, at first twelve at a time, afterwards as many as fifty were open at the same time, the expansion commencing between 3 and 4 P.M., according to the light. The stigma ripens before the anthers (proterogynous). The flowering period lasted twenty days, during which time about 500 flowers were produced. It is not stated whether any of the flowers set. It remains to be seen whether the inflorescence always presents the contracted character above-mentioned, or whether that is an accident arising from the circumstances under which the plant was grown. Now that the plant has once flowered we may expect it to do so elsewhere.

—— The First Frosts.—Although no tangible miracles are now evident, we might well realise, in Biblical phrase, in the earlier of the autumn frosts the touch of the Destroying Angel. Intense as was the occasional heat of the past summer, and much as vegetation now and then fell prostrate beneath its fierce glow, yet it left behind no such evidences of death on vegetable life as does the low temperature of 30°, even though to humanity it brings no inconvenience, and evokes at the most but a passing shiver. With frost beginning early in October, and being present more or less till the beginning at least of May, we have seven months of the year when the portion of the earth on which we live is within the winter solstice, whilst the summer is thus of very limited duration. And yet despite our cool position in the terrestrial sphere we are perhaps more than any other people of the earth dependent upon summer-growing or almost exotic vegetables or plants for our food and garden supplies; and thus it happens that when, as happened last week, the whole earth seemed alive with freshness and beauty, and the tender flowers and vegetables were full of bloom and of produce, the keen white frosts—*avant-couriers* of much harder and more potent ones—came truly like thieves in the night and purloined the freshness and beauty, and left, like a destroying angel, death and decay in their track. When we had what we naturally regarded as excessive heat we grumbled and felt much inconvenience, although we had, as compared with the cooler length of the year, little enough. But never at the most do we get more than four months of decent summer weather, and too often not more than two months of real summer heat, so that whilst perhaps to the thoughtless our wry faces under the sweltering sunshine were productive of amusement, they were very natural, seeing how throughout the rest of the year a cold temperature predominates, and against the effects of which we have to protect the body with ample clothing. If, however, our summer is past, and its tender plants, too, are gone, we are not without our consolations, for Nature with us is never deficient in charms. Late autumn with its glorious foliage hues, and early spring with its lovely flowers, are delights we would not fain forego.

—— Dried Bananas from Jamaica.—An attempt is being made to find a market for this product, and there is no doubt, from a sample submitted to us through the courtesy of Sir J. D. Hooker, that they will form an acceptable addition to the dessert-table, as they have the sweetness of the dried Fig without the inconvenience of the numerous seed-like fruits. We have no doubt also that they have a considerable nutritive value.

—— Dracæna (Cordyline) australis variegata.—A correspondent has obligingly furnished us with a leaf of this plant, beautifully striped with longitudinal bands of yellow. The plant, all the leaves of which are similarly striped, was grown in the open air in the Isle of Man, and is a seedling raised among many others, all of which were green, from plants growing in the open air in that favoured island. It is to be hoped that so fine a variety will be propagated, as then a substantial addition to greenhouse variegated plants will be made.

—— National Auricula, Carnation, and Picotee Societies.—The annual general meeting was held in the Council-room of the Royal Horticultural Society, on the 11th inst., by permission of the Council, James McIntosh, Esq., in the chair. It was decided to hold the exhibitions for 1882 in the gardens of the Society—that for Auriculas on April 25, and for Carnations and Picotees on July 25. It was also decided to make some alterations in the Auricula schedule, in the interest of small growers. Exhibitors of twelve and six show Auriculas are not to exhibit in the classes for four and two. The prizes offered for seedlings are to be continued as usual.

—— Davallia fijiensis.—In Mr. Bull's nursery this is seen to be by far the best species that has been introduced since D. Mooreana. The gracefully drooping fronds and finely divided pinnæ mark it as a much more elegant plant even than D. Mooreana; and Mr. Bull's handsome specimen shows what an excellent exhibition plant it will be. It is also very free in growth.

—— Young Azaleas Planted Out in Summer.—At Messrs. Cutbush's Barnet nursery the practice of planting out young Azaleas in beds of prepared soil has this summer been adopted with the best results. The stock so treated has made beautiful growth, with foliage as clean and free from thrips or red-spider as if these pests had never been in existence. They are now taken up, potted, and stood in a house where they can be kept a little close. This is the method followed by the Continental growers; with us the summers have by many been thought to be too short and uncertain to make the practice successful, but this is evidently a mistake, so far, at least, as applied to the south of England. The advantages are—freedom from insects, a great reduction of labour in the matter of watering, with less likelihood of injury through the soil unobservedly getting dry, a condition more or less certain to occur in very dry weather, where there is a large stock in little pots; for it is necessary to bear in mind that it is only in the case of small stock that can be put in 6 or 8-inch pots that the system could with advantage be carried out, and, where practised, the plants should have a little warmth for some weeks after potting to induce root-action and plump up the flower-buds.

—— A Noble Cyperaceous Plant.—The *Irish Farmers' Gazette* says:—"What has been long known in our plant-stoves as the Paper-reed of the ancients, and erroneously named Papyrus antiquorum—P. syriacus being its true name—has hitherto been deservedly regarded as a highly ornamental plant in collections, and as being among Cyperaceous plants the queen of the tribe. A rival of similar aspect and habit, but to our mind in every way more imposing and elegant, has come to the front in the shape of Cyperus pseudo giganteus, a fine example of which may be seen just now, forming one of the most striking features in the Victoria-house at Glasnevin."

—— Irises Attacked by a Fungus.—It has often been said that in cases of malignant diseases, which are in general incurable, that the patient is comparatively happy when he is once certain as to the nature of the affection. The horticulturist is often obliged to be contented with similar comfort; even when the cause is known he does not know any remedy. The genus Iris, like some other beautiful objects of cultivation, have had a bad life of it this year. A celebrated physiologist has written to us as follows:—"Can you tell me anything about the fungus on the leaves of Iris Tolmieana which I enclose? I saw it first last last year; this year it is more abundant, and threatens to do me damage; it attacks both broad-leaved and narrow-leaved forms, and though it does not kill the plants it keeps them poor, it prevents their flowering. I can, I think, distinctly trace it to plants which I had from Max Leichtlin." It is quite clear that the cause of disase is Uredo Iridis, an imperfect form of Puccinia truncata, B. and Br., which occurs occasionally in this country on Iris fœtidissima. It is very possible that the German form may be more hostile than that which is indigenous, as the disease has not been long known amongst our cultivated Irides. These pests, however, when once introduced, generally come from a distance, as that of Hollyhocks, in an unusually virulent condition. *M. J. B.*

—— Eranthemum albiflorum.—This is an easily grown stove Acanthad, which is well worth growing as a decorative plant. It has large handsome deep green leaves, and panicles of twiggy racemes of snow-white flowers, which, although smaller than those of many of the other species of the genus, are produced in such abundance as amply to make up for any deficiency in that respect. It w first raised in this country from Bahian seeds Lucombe, Pince & Co., of Exeter, nearly for years ago, and was at about the same time figured the *Botanical Magazine*. Now in flower at Kew.

—— Clover Seed Lying Dormant on th Ground.—An Iowa correspondent of the *America Naturalist* communicates some particulars respecti the behaviour of red Clover (Trifolium pratense). appears that in 1879 the crops of red Clover were ve luxuriant, and after the haying season it made second growth, and ripened very perfectly. But the surprise of the farmers thereabouts the followi spring found the Clover killed out. It is stated th the Clover was doubtless killed by the severe fro in the winter of 1879-80, after a period of very gre dryness during the latter part of the summer and through the autumn. Little snow fell during t winter, so that the plants were without the usual pr tection. The farmers, however, all thought that t seed shed on the ground the previous season wou germinate in the spring, and produce a new stock plants. In this they were disappointed, and in ma meadows where the Clover had been thickest th were bare patches of ground all summer long. I the Timothy-grass, Phleum pratense, that had be sown with the Clover spread and largely suppli its place. During the spring of 1880 there was l than the usual amount of moisture in the soil, wh the summer and early autumn were excessively d hence the reason the Clover seed did not germinate. the spring of 1881 the ground was full of moistu and to the surprise of most people, after the seeds h lain upon the ground two winters and one summer, germinated by millions promising a heavy crop of h

—— Ceanothus latifolius.—The most co spicuous of the wall-plants at Kew at the prese moment is the subject of this notice. It has som what large dark green leaves, and large corymb panicles of rather dark blue flowers.

—— Paphinia cristata.—This really handso yet very curious Orchid is now in flower at Kew. is anything but common in collections, although en nently worth growing. It is a native of Trinidad a New Granada, and was first published by Dr. Lin ley as a Maxillaria, but was afterwards raised him to generic rank. It has short drooping solit flower-stalks, each bearing a single (rarely two) lar showy blossoms. The spreading sepals and pet are alike in form, the former being larger in size th the latter; the ground colour of both is white, a this is variously barred and blotched with da chocolate-brown. The specific name is due to t crest or long white glands at the tip of the lip.

—— Hardy Flowers at Chiswick.—The are several attractive subjects in bloom at Chiswi just now. A bed of the varieties of the Sweet Sult (Centaurea moschata) suggests the value of the vari ties for cutting from late in summer. There are t purple, lilac, white, and yellow varieties, the latt particularly fine, and fine blooms could be cut at t present time. Liatris squarrosa is a conspicuo feature growing in pots, throwing up a long stem li a skyrocket in appearance, which puts forth numero rough flower-heads of a bright purple colour; t flowers commence to expand at the summit of t flower-stem, and gradually bloom till its base reached. L. pycnostachya is flowering in the borde it is a distinct form, with pale purple flowers, a flowers similarly to the preceding. On the rockwo the pretty Plumbago Larpentæ is blooming freely, a so is Crocus speciosus—a king among the autum flowering species. Clumps of the showy Lobelia f gens form richly-coloured summits at various poin their brilliancy of hue being in marked contrast to t sober hued foliage beneath and about them. Ast Amellus is very fine, reminding one in appearance the head of flower of a Cineraria. In the open bord Rudbeckia speciosa, with its large golden blo soms, with a conspicuous black centre, is very stri ing; and so is Anemone japonica hybrida, the scarce of the three garden forms of this most useful lat flowering perennial. Dianthus hybridus multiflor represented by two varieties, bearing in one case ros coloured, and in the other white flowers, are very us ful for cutting from also, besides being of a vigoro growth. Of all late-flowering bedding plants f summer the varieties of the large-flowering Phl

Drummondi appear the most valuable and useful. Clumps and beds of them are now blooming very freely at Chiswick, and the fine richly-coloured form known as grandiflora splendens eclipses by a long way the finest scarlet Verbena yet raised. It is only the zonal Pelargonium that can approach the annual Phlox for brilliancy of hue, but it has not yet reached the flashing brilliancy of splendens grandiflora.

—— Aristotelia Braithwaitei.—Under this name Baron Ferd. von Mueller describes a newly discovered tree, native of the New Hebrides. It was found by Captain George Braithwaite, brother to Dr. Braithwaite, so well known for his researches on Mosses. It is described as a beautiful plant with large flowers, with (white?) fringed petals, giving it a claim for ornamental culture. It is said to be intermediate in character between Elæocarpus and Aristotelia, having the floral characteristics of the former, and the foliage and inflorescence of the latter.

—— Wintering Dahlia Roots. — We have reached that season of the year when the "woods have a rumour that prophecies death," and the rapid manner in which the leaves are taking on tints beautiful in decay shows that the autumn is rapidly running its course. The nights are clear and cold, and frost will leave its deadly mark on vegetation ere long. One of the first things to suffer is the Dahlia, and as soon as this happens the cultivator must turn his attention to wintering his Dahlia roots, lest sharper frosts should reach the tubers and do them irreparable harm. The roots require to be lifted with care on a dry day. Not a single tuber should be detached from the parent root while this is being done; the greater portion of the soil should be carefully separated from the tubers, and then the roots left to dry for a few hours. They can then be removed to a cellar that is cool or dry—a loft, stable, or any such place, provided the roots can be preserved from frost during the winter. The stalk should be cut away to within 3 inches of the root, and as the base of this is hollow care should be taken that it be not filled with moisture, as rot is thereby conveyed to the roots. Those who have to winter a larger number of roots generally fit up a shed for the purpose, where during the period of severe frost a portable stove can be used to keep all snug and safe. It is a great advantage to keep valuable roots where they can be constantly examined. Sometimes great losses occur, even in cases where every precaution is taken to ensure safety. As with other flowers, so with Dahlias—it is the choicer and more valuable sorts that require being watched with the greatest vigilance. The commoner sorts can be stored away in boxes or large flower pots, but need to be examined at times; a wet winter's day is a fitting opportunity to do this. The great points are to keep the roots cool and dry, and free from frost; and it is the latter agency that works the most harm. If any part of the tubers decay, the part so affected should be cut away, and the cut dusted with charcoal dust. The greatest danger is from the remains of the main stem rotting, and the rot finding its way down to the neck of the root. Many winter their Dahlias by placing the roots under the greenhouse stage; but they should not be piled in heaps, but laid out singly, so that any water falling on them from the plants can dry quickly. Especially is it necessary, under these circumstances, to examine the hollow stems, as previously directed. It would be best to so arrange the roots as that the stems have a downward direction, so that the wet does not rest in the hollow part of the tube. It is a practice with some growers to pot in dry soil the roots of any choice or delicate varieties of a valuable character, and so preserve them during the winter.

—— Carpinus Americana.—On account of the lovely tints assumed by the decaying leaves of the American Hornbeam in autumn, it is well worthy a place in the ornamental shrubbery and plantation. Whereas in the British Hornbeam the leaves turn a yellow or brown before falling, in the American one they put on beautiful shades of red. One of the American representatives of our common Hazel (Corylus americana), too, makes a fine object when planted in a mass, the foliage varying from yellow to red and orange-scarlet.

—— Sorbus domestica.—We have before us a specimen of the true Service tree, from the gardens at Linley, Salop. The tree is not unlike an Ash in general aspect, and the foliage is that of the so-called Mountain Ash, which latter, despite its popular name, has nothing to do with an Ash, but is a true Sorbus. The true Service tree is, or rather was, once wild in Wyre Forest, in the adjacent county to that in which Linley is situate, and its history has been told by Prof. Buckman and others in our columns. An illustration was given at p. 283, vol. i., 1874.

—— A New Australian Conifer.—We extract the following note by Baron Mueller from the *Gartenflora*:—"Recently a representative of the genus Dacrydium has been found in continental Australia . . . Dacrydium Fitzgeraldi has hitherto only been found in small quantity in a single locality in the Blue Mountains, not so very far from Sydney; and it appears to be restricted to the cliffs of a solitary waterfall. So far as we know the species it does not exceed 10 feet in height. The lower part of the stem is creeping and rooting. This species occurs both monoicous and dioicous. When I first defined it for the *Fragmenta* I had neither female flowers nor fruits. These have since been found, and prove that the species belong to the section Pherosphæra, which may deserve generic status, though it only differs from the true Dacrydia in wanting the cupular disk of the fruit. In D. Kirkii this organ is so reduced that this species also might be referred to Pherosphæra. The fruit of D. Fitzgeraldi strongly resembles that of Pherosphæra Hookeriana." This is a very interesting discovery, for, although the genus had not previously been recorded from Australia proper, its general distribution pointed to its existence. The genus is dispersed over the Indian Archipelago, New Caledonia, New Zealand, and one species, known as the Huron Pine, inhabits Tasmania. There are three species in New Zealand, one of which, D. cupressinum, the Red Pine, is a fine tree, common throughout the island, and yielding a very valuable timber. The Pherosphæra proper consists (or consisted) of a single species restricted to elevated montane localities in Tasmania.

—— Aloe Greeni.—In the Succulent-house at Kew this species, one of the most desirable of the mottled-leaved dwarf-growing Cape Aloes, is now in flower. A. Cooperi, another species from the Cape, is also blooming nicely. In the same house there is a fine specimen of an unnamed species, also from the Cape, which merits more than a passing mention. It is a strong-growing robust plant, with large leaves, more finely variegated than, or at least as beautifully marked as, the finest striped Agave.

—— Publication Received:—*Health Lectures for the People* (Heywood, Manchester).

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending October 10, issued by the Meteorological Office, London:—The weather has been dull and rather unsettled in all parts of the kingdom. Showers have fallen generally, and heavy rain, accompanied by thunder and lightning, occurred over the south-east of England on the 8th. The temperature has been below the mean in all districts except "Scotland, E." Over England the deficit has been very marked, being as much as 7° at the central and southern stations. The maxima for the period have ranged from 57° in the west of Scotland to 61° in the south of Ireland. The minima, which were registered in most places on the 6th, were very low, ranging from 29° over central England, 30° at Marlborough, and 31° at Arlington (North Devon) to 36° on our extreme north-east coasts. The rainfall has been equal to the mean in "Scotland, E.," and a little more in the south and east of England, but elsewhere considerably less. Bright sunshine shows a great decrease, the percentages ranging from 34 in "England, S.W." to 18 in "Scotland, E." Depressions observed: — The distribution of pressure and direction of wind have varied greatly. On the 4th and 5th an area of high pressure was shown over Scandinavia, while the barometer was lowest over France, the winds being moderate from between east and south-south-east; but on the 6th a depression was shown over the Netherlands, causing the wind to shift to the north over England. On the 7th and 8th the winds were very variable, some depressions passing from south-west to north-east outside our west and north coasts on the former day, and a large shallow one lying over England on the latter. During the remainder of the period moderate to fresh west or west-north-west winds were general, the barometer being highest over the Bay of Biscay and west of France, and lowest in Scandinavia.

WITLEY COURT.

The well known seat of the Earl of Dudley and one of the finest palatial residences in England, stands upon an eminence, and overlooks the most complete geometrical garden in the kingdom, of well-balanced proportions, and surrounded by a park richly diversified by Nature in its formation and abounding in giant Oaks and other noble trees, situated in one of the most picturesque districts in Worcestershire, about 6 miles from Stourport, the drive being of the most pleasant description, the air bracing, and the woodland scenery refreshing in the extreme. From the main road to the entrance, which is but a short walk, there are many evidences of rural sublimity and quiet industry, but once you enter the lodge gates the attractions grow too numerous for one to contemplate much the details of rural life.

The avenue calls for no special comment beyond the mention of its fine trees and the rich verdure upon either side. The house, an immense pile, has been remodelled and enlarged, and the principal front on the south side, containing the largest apartments, possesses a fine elevation and commands extensive views of the surrounding country.

From the terraces (south and east) splendid views of the gardens and park are obtained, but of course the chief attractions are the fountains, the principal of which is the group of Perseus and Andromeda (on the south front) the largest piece of sculpture in Europe. The figures are 26 feet high from the water line, and 24 feet in diameter at its octagon base: were designed by Nesfield, and executed by Forsyth in Portland stone. The legend, according to Ovid, is that as Perseus was passing the territories of Libya he descried on the coast of Ethiopia the naked Andromeda chained to a rock, and exposed to the furies of the sea monster. Struck with the sight he raised himself in the air, riding on his flying horse, flew to the monster and slew it. For this he obtained the lady in marriage. He is thus represented in the act of his chivalrous rescue, mounted on the winged steed Pegasus. The water for supplying the fountain is brought from a reservoir a mile distant, to which it is forced up by a steam-engine of 40-horse power, yielding an average supply of 5000 gallons a minute, the maximum being 10,000, capable of being kept eight hours a day with all the jets in full play, the centre one sending up water to a height of 120 feet. The cost of the waterworks and sculpture exceeded £20,000. This was figured in our volume for 1873, p. 813.

The east front fountain is also a very elegant and elaborate piece of work, the centre figure representing Flora, upholding by a massive cornucopia the principal jet, supported as a base by Tritons or Neptune's trumpeters, which furnish a torrent of water, while the fountain is surrounded with a chain of jets crossing each other; altogether this is perhaps the most pleasing fountain, although much the smallest of the two.

The garden is enclosed by an elaborate stone balustrade, and its beauty (as I have already stated) is enhanced by its well balanced proportions. In looking at the garden there is a pleasing admixture of shrubs and trees, the two borders at the southern extremity flanking the garden upon either side being a recent addition in the shape of a mixture of shrubs and the taller kinds of flowers.

I will now proceed with the details and arrangement of the different styles of grouping plants adopted by Mr. Westland, with such good taste and effect. Approaching the terrace from the west side, a mixed bed, with a tall Dracæna for a centre and surrounded by Castor-oils and variegated Maples, and edged with the drooping Begonia ascotensis, is the first object that arrests the eye; the groundwork of the bed is composed of Iresine Lindeni, kept dwarf, and edged with Cineraria maritima. Perhaps the great feature of the bed is the rich effect of the Begonia ascotensis, which has a future before it, either for summer bedding or as a decorative plant for the show-house or conservatory.

The next is a carpet-bed, with a variegated Yucca for a centre, the lines drawn with Golden Feather, and associated with Alternanthera latifolia, the best of the large growing kinds, Leucophyton Brownii, and triangles of the yellow Alternanthera magnifica aurea, enclosed by Echeverias, and banded with Veronica repens and Alternanthera amœna, with a double row of Echeverias as an edging. Another pretty arrangement, and one that would give tone to many a large garden, is produced by grouping tall well-proportioned

free flowering kinds of Fuchsias, which as seen at Witley are very handsome, having a groundwork of Artemisia judaica, which is in happy contrast to the rich scarlet bells of the Fuchsias—I cannot help repeating, a good way of creating variety and pleasant-to-see old-fashioned plants finding a suitable place, and improved by their association with foliage plants. One of the grandest sights at Witley, from the terrace in front of the house, is the two rows of beds upon either side the boundary walks of circles and oblong figures, the former having a handsome variegated Holly for a centre, edged with Viola Blue Perfection, and the latter with centres of Pelargoniums and edged with blue Ageratum. The total absence of anything patchy is the great secret of the grand show in these gardens. Blue, for example, I had never seen so extensively used before, and yet the long lines of it over which the eye travels is but a modest feature where there are other neutral tints, of golden and variegated leaves, greensward and bright well kept gravel-walks. Another prominent feature midway upon the ascending slope at the extremity of the garden are two beds (circles) of Clematis Jackmanni, trained upon hoops and raised about 2 feet above the level of the bed; the health of the plants and the profusion of their flowers of bluish-purple, such a mass of floral beauty, and in such a commanding situation between two borders of mixed flowers and ornamental shrubs that they shine forth *par excellence* the most charming ornaments of the whole garden.

But I must take my notes in proper order, and return to describe the oval groups of flowers on the slopes in front of the terrace, the Rhododendron and sub-tropical beds comprising Cannas (very dark kind), variegated Maples, and Ailantus glandulosa. The ovals are designed in Box—a very pretty group of figures, tastefully planted with walks alternately of dark and light gravel, each figure being bordered with Lonicera variegata cut close inside the Box edging, and having a very pretty and chaste effect. The groups of Rhododendrons are edged with ornamental stone and golden Yews, trimmed, trained Hollies, and large stone vases with garlands of flowers draping their sides and affording infinite variety, while Nature's broad expanse of dense green carpet is the groundwork upon which the artificial objects are introduced or placed only in so far and in such proportion as they ornament and improve. The carpet bedding is very suitably situated on a grass terrace upon the south side of the large fountain—the prettiest piece of carpet bedding I have seen during the whole season. Perhaps Mr. Westland has advantages at Witley that are not common everywhere: the rich verdure of the lawns, the brilliant nature of the surroundings, the situation of the beds nestling at the base of a green bank, and in proximity to sculpture and ornamental vases, all tend to lend attraction to the charming colours and neat designs of the carpet beds. Making allowance, however, for the favourable circumstances enumerated above, there is something still wanting to account for so good a display as Mr. Westland has produced this season. One reason is that simplicity of design is rigidly adhered to, another is that the beds are broken up, or rather every alternate bed is broken up, by low ornamental shrubs or succulent plants; and a third reason is that Mr. Westland employs a different edging for his carpet beds to that commonly used in general practice. The long beds have in all cases a bold margin of Sedum acre elegans, which is a kind of compound mixture of grey and gold, and relieves the whole design of that sombre tone which is created by that much abused (over-used) plant, Herniaria glabra. How people generally follow in the blind wake of carpet bedders who use green so extensively against green I know not, but Mr. Westland has set a practical example which will go far towards unloosing the shackles which bind us so firmly in the grasp of "copy," and the foolish followers of one system where there is room to work out fresh ideas of our own if we only choose to try. One of the finest effects produced in the long row of carpet beds is a neat design of diamonds and balloon-shaped figures, formed by a broad band of Leucophyton Brownii, with Yuccas dotted in the diamonds, which are planted with Alternanthera versicolor grandis, a band of Herniaria glabra, and edged with Sedum acre elegans. Circles intervene between the oblong beds planted in variety of Abutilons, Ficus, Fuchsias of the dwarf growing kinds, and bright silver margins of suitable plants. The Conifers used are Juniperus chinensis aurea, Biota elegantissima, Retinospora argentea, which are varied by a spare use of Agaves, Echeverias, and other succulents—dark coloured Castor-oils, golden Abutilons, and variegated Artemisia are used in contradistinction to a groundwork of Sedum lydium, Herniaria glabra, &c. The broad borders upon either side the extreme slope of the garden before referred to, and but recently planted with mixed ornamental shrubs, are now adorned with many varieties of single Dahlias, Hollyhocks, mop-headed Acacias, Aralia papyrifera, and Anemone alba. Salter's bedding scarlet is one of the most striking of single Dahlias. The golden Yews, too, have an admirable effect, such as any one can picture in their mind's eye by contrasting green and gold, both of the deepest hue. The gates opening into the park are not only substantial but ornamental, and were the prize gates at the London Exhibition of 1862.

From this point the cricket-ground is seen lying east, and closely shaven—a herd of deer are sauntering about in the park not far from the historical Oak, which measures 38 feet in circumference, and a peep of five lakes within a radius of a mile. These are some amongst many of the principal objects in a landscape upon which Nature has bestowed her favours bountifully, and which has moreover been improved and embellished upon true principles of modern Art. Proceeding from here to the east front the central jet of the great fountain is sending up a continuous stream of water to its highest point, and the smaller jets in proportion. It was a sight not easily forgotten as I leisurely ascended the second slope and looked down upon the dashing spray blown by the wind and glistening with sunbeams, for a moment sparkling like jewels, now silver, and anon passing into golden drops as the last flash of light grew dim before the shadow of a passing cloud. The east front is now reached, and here there is much that is instructive and interesting to the horticulturist. There are practically three gardens—a central one, flanked by a smaller one upon either side. The gardens are partly laid out in Box and in grass; the former are flowing scroll designs, with walks of red and white gravel, which will doubtless have a good effect in winter, but are now eclipsed by the gay colours of Pelargoniums, Ageratums, masses of Mangles' variegated Pelargonium, and Viola Bluebell, beds of Coleus margined by Cineraria compacta, and splendid groups of Tropæolum Hunteri—a variety worthy the name of so estimable a man and so good a cultivator. Harrison's Musk, too, does well in this garden as an edging for Cineraria compacta and Coleus. Upon either side the fountain are two grand raised beds having centres of Golden Yews, and an appropriate finish of plants agreeably intermixed, pleasing to the eye, and adapted to the situation.

I noticed some fine examples of Conifers on the lawns and slopes adjacent, including Picea Webbiana, Wellingtonia gigantea, over 60 feet high, said to be the finest in England; also a variegated specimen, and a Picea nobilis of unusually large proportions. The next feature of interest (and not the least interesting either), are the dells, which afford a very enjoyable retreat from the more classic grounds. From the north side of the garden a brook flows, and forms a succession of pools a mile in length. This deep valley is effectively planted with American plants and ornamental trees and shrubs, with a profusion of spring flowering bulbs and plants.

The conservatory close to the house is a large, spacious structure, in which are noble specimen plants and baskets of grand Petunias suspended from the roof. Camellias planted out and in tubs are in fine health, as are specimen Dicksonias and other New Zealand Ferns. There are also some good Palms grouped round the fountain in the centre of the house, and having a noble effect; Dasylirions, Beaucarneas, large Azaleas, and Adiantum Ferns, about 4 feet across, are amongst the most noteworthy plants. The front stage is gay with Campanula pyramidalis and C. alba arranged alternately with good effect; and the general collection comprises Fuchsias, tuberous-rooted Begonias, Pelargoniums, and the usual run of summer-flowering plants. The back wall is draped with flowering creepers, such as Tacsonias, Cobœa scandens variegata, Begonias, and many others.

Leaving the ornamental portion of the grounds, I passed through long strips of Roses, borders of herbaceous plants and thriving shrubs on my way to the fruit garden.

The fruit garden is one of the finest sights in the county of Worcestershire. Here are Williams' Bon Chrétien Pear propped up by stakes, and Ribston Pippin, Flower of Kent Apples, the Seckle Pear and Jefferson Plums all needing supports to keep them from breaking to pieces under the crushing weight of fruit they are bearing. Victoria Plums are also good, but are superseded at Witley by Belgian Purple, which never fails and is a fine cooking variety. In the orchard a fair average crop of most kinds has been secured, such kinds as Lord Suffield being abundant and of large size. I should state in passing that Worcester Pearmain does well at Witley, is of good colour, and a fair average cropper.

Violets are grown in large quantities, and Dielytras and such-like ripening off by the hundred for early forcing. The stock of winter-flowering plants is worthy of more than passing notice, not only because of their number, but also because of the great variety of flowers which they produce at the dullest season of the year. The wealth of winter-flowering plants in cultivation would hardly be believed by many unless an actual example were brought under the notice of those who do not enjoy the privilege and opportunity of gathering information from reliable sources. Mr Westland pointed out as being particularly useful for autumn-flowering a batch of Aster versicolor in pots and Veronicas, which he assured me were most useful subjects. Salvias in great variety, including many of those lately sent out by Mr. Cannell, such as Bethellii, Bruanti, Pitcheri, and many other varieties, are largely grown. A grand lot of Azaleas, healthy and hard as nails, and a fine batch of Erica melanthera, which, if not a showy cut flower, makes a pleasing decorative plant. Tea Roses, scented Geraniums, Hebecliniums ianthinum, Centropogon Lucyanus, Rivina humilis, flowering Begonias, in addition to the commonest kinds of winter-flowering plants, are grown at Witley in large numbers, to meet an increasing demand for cut flowers.

The range of span-roofed pits, formerly employed as fruit-houses, are now being converted into plant houses, and are already stocked with a useful variety of plants. The Witley Pines are not yet forgotten by those interested in that branch of fruit culture, and the grand samples of Queens, Charlotte Rothschild, Smooth Cayennes and others, now ripe or ripening from 5 to 8 lb. in weight, makes one cast a large regret at the fact that Pine growing in England in finest gardens is fast becoming extinct. The houses are each divided into two compartments, and very commodious and convenient plant-houses they make. One house has a fine crop of late Melons, consisting of Eastnor Castle, Sutton's Hero of Bath, William Tillery, and others—a very fine crop. The second compartment is filled with sweet-scented flowers, Stephanotis, Gardenias, Tabernæmontanas, and other; also a batch of Callicarpa purpurea, a useful plant for winter decoration. No. 2 is still occupied with Pines, and the adjoining division with Euphorbias and other well known plants. No. 3 is nearly exclusively devoted to Calanthe culture—there are four bulbs in each pot of 9 inches in diameter, such bulbs and leaves as are seldom seen! Mr. Westland grows them in turfy loam mixed with cowdung and charcoal. Phaius, Marantas and Dracænas, are also grown in variety. Pancratiums, Eucharis and Bouvardias occupy another division, and a large succession of the latter is planted out-of-doors. Eupatoriums, Lantanas, Habrothamnus aurantiacus, &c., occupy the remaining divisions; and altogether there is free evidence at every step you take, that this fine garden is managed by a skilled and painstaking cultivator whose speciality is to leave nothing undone, and to do everything as well as it is possible to do it. *W. H.*

COLONIAL NOTES.

Lahore.—We have received a copy of the report of the Punjab Agri-Horticultural Society for the year 1880-81, from which we learn that much damage was done by hail in March last. The climate appears to be too cold for the Rain tree (Pithecolobium Saman), but some of the Eucalypti succeed well, the specially recommended for planting in the plains of the Punjab being Eucalyptus bicolor, E. hæmastoma, E. resinifera, E. rostrata, and E. tereticorn besides others not yet named; Grevillea robusta has also been distributed, and is doing well. The Carob (Ceratonia Siliqua) succeeds well, and experiments are to be tried with grafted plants. The cultivation Olive does not thrive on its own roots, but when grafted on the wild Olive stock the result is very satisfactory. Apples and Pears do not succeed in the plains. In Kulu, in the Kangra Valley, the success in fruit culture has been such that it is anticipated that Kulu Valley and the adjacent district will become

great fruit producing country. As regards vegetables it is considered preferable to import seed each year from Europe rather than trust to Indian grown seed, but this remark apparently does not apply to Peas the "acclimated" seeds of which give a greater yield than the imported seed. Over 28,000 plants were sent out to various districts in the province, especially to places along the Indus Valley Railway. Mr. Edgar Spooner is the superintendent of the Society's garden.

Calcutta.—The annual report of the Royal Botanic Garden for 1880-81 has reached us. It contains the details of the works which were commenced several years ago, and are still in progress. Dr. King reports unfavourably of Rheea culture as a fibre-producing plant in Bengal. Various trials have been made with native grasses (species of Saccharum) as materials for paper-making, but without much success. The cultivation of the Plantain for this purpose is recommended. The Ceara rubber (Manihot Glaziovii) gives prospect of success, but in the case of large trees requiring many years for their development the prospect is not hopeful. Indeed, the climate and soil of Bengal seem specially unsuitable for most of the economic plants hitherto recommended for trial. The Mahogany is an exception. A tribute is fittingly paid to the memory of Mr. John Scott, the late Curator of the Garden, whose observations on cross-fertilisation are well known. Dr. King says of him that he was "a man fitted to have filled a far higher position than he ever attained to." Mr. Pantling is now Curator, and Mr. Craig Assistant Curator of the Garden, Mr. Brace being appointed to the Curatorship of the Herbarium.

THE OAT FLY.

The injury committed by various minute species of two-winged flies (Diptera) upon our cereal crops is far greater than is supposed to be the case by the majority of our agriculturists or even by professed entomologists. Weak and harmless as the little creatures appear to be, they show in a very striking manner the absurdity of the old legal maxim *De minimis non curat lex, i.e.*, "The law does not trouble itself with trifling matters." The injuries produced by these small insects are effected whilst they are in the immature condition, as little footless grubs, which attack either the young grains or the young plants just above the surface of the ground. The Wheat midge, Cecidomyia Tritici, is a very delicate orange coloured gnat which deposits its eggs by the assistance of its long telescope-like ovipositor in the centre of the flower of the Wheat when in blossom; the small yellow grubs or maggots hatched from these eggs eat the pollen and thus prevent the impregnation of the flower, thus in certain seasons destroying a twentieth part of the crop, as stated by the late Mr. Kirby (*Linn. Trans.* iii. 242). Musca (Oscinis) Frit is a minute species of Muscidæ which attacks the ears of Barley in Sweden, occasionally destroying a tenth part of the produce of this crop at an annual loss of more than 100,000 golden ducats, as we learn from Linnæus (*Act. Stockholm*, 1750, p. 128).

Other minute species of Muscidæ confine their attacks in the larva state to the youog shoots of the plants when only a short distance out of the ground. The Musca pumilionis of Bjerkander (*Act. Stockholm*, 1778) introduces its eggs into the hearts of the young shoots of Rye, and occasions so many to perish that from eight to fourteen are lost in a square of 2 feet—an injury which, until the real cause had been ascertained, was attributed to frost. This fly is stated in the *Proceedings of the Entomological Society of London* to have been found, in 1841, doing damage in the neighbourhood of Kingston, in Surrey.

A pretty little species, Musca (Chlorops) lineata (fig. 95), in like manner lays its eggs in the head of the young plants of Wheat, whereby the principal stem is invariably destroyed; but the mischief is partially remedied by the root throwing out fresh shoots on every side. An account of this insect, by the author of the present article, appeared in the *Gardeners' Chronicle*, 1848, pp. 780 and 796.

Another species, with somewhat similar habits, is described by Mr. Curtis in the *Transactions of the Agricultural Society*, and farm insects, under the name of Oscinis vastator. It is shining greenish-black, the crown of the head with a shining triangular space, the thorax with an impression on the disc; the wings transparent, iridescent, and slightly smoky; the base and tips of the four anterior tibiæ ferruginous, as well as the base of the first joint of the tarsi. The larvæ were found in some at the base of the stems of Wheat or Barley, and the perfect insects appeared at the end of July. Other species of these little flies have been named Chlorops Cereris and Chlorops messoria by Fallen, evidently from their connection with cereal plants.

It is the habit of Chlorops lineata, figured below, to find its way into houses after the harvest has been gathered in, for the purpose of hybernating, often

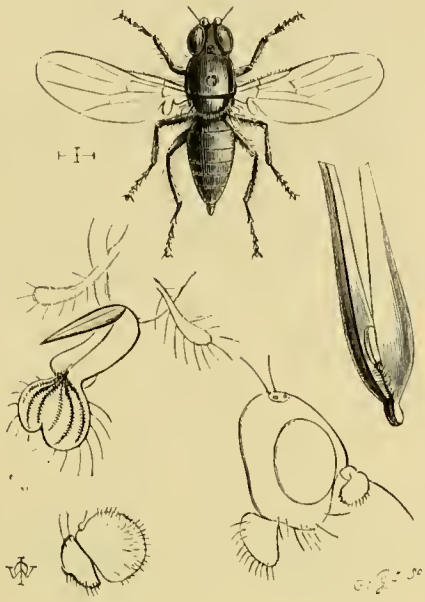


Fig. 94.—Oat-fly (Oscinis atricilla).

assembling in vast numbers on the ceilings of rooms the windows of which look upon cornfields. We are now enabled to lay before our readers another remarkable instance of this assembling in vast numbers of these little flies inside farm buildings. We recently received the following note, dated September 15 last, from J. B. Yonge, Esq., of Otterbourne, Winchester:—

"Sir,—You may perhaps be interested in an unusual abundance of insect life that has just occurred here. Mr. Dennis, one of the farmers, lately threshed about 25 qr. of Oats in the field, and stored the grain in bulk in a

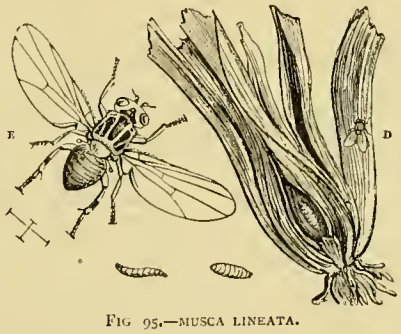


Fig 95.—Musca lineata.

loft. A few days afterwards a stratum of flies was seen on the top of the Oats, coming up among them, and passing away through the window. The stratum was about 4 feet long, 1 broad, and 3 inches thick, and being continually renewed from below as those above passed off, an immense number must have gone through during the four days it was observed. I enclose a bottle containing a few specimens. The grain does not appear to be injured. There are a quantity more of the same Oats in a rick in the field where they were grown. Would you kindly tell me what is the species of fly, and what its habits and the food of the larva? Whether it is one of those injurious to corn? and if it would be prudent for the farmer to thresh out the rest of the Oats as soon as he can for fear of damage by the maggots; or if there are any other precautions that would be prudent in order to destroy the eggs?"

Hitherto I believe no instance has been recorded of injury sustained by Oats from the attacks of these little flies, the omnivorous wireworm and an aphis being the only depredators upon that kind of cereal. Many of the flies which accompanied Mr. Yonge's communication were alive. They are very minute, being only about 1 line in length, and about 2¼ lines in the expansion of their wings. They are black, slightly glossy, and with a very little brassy tinge; the halteres are whitish, the legs entirely black, the wings colourless or but very slightly ashy-coloured, with dark slender veins. The forehead is elevated and rounded, the face is slightly emarginate in front of the eyes for the reception of the antennæ, which have the principal joint short and semi-rounded, with a slender and slightly setose terminal bristle. The mouth is a beautiful microscopical object, with two clavate, setose palpi, a strong short-pointed horny tongue, and a large fleshy lip notched in the middle of its terminal edge, so as to form two lobes, each of which is traversed by three fine transversely striated muscles. This species, judging from about ninety individuals forwarded by Mr. Yonge, although closely allied to Oscinis vastata of Curtis, differs in the colour of the legs, which are uniformly black. I was, therefore, led to infer that its habits were identical with those of Mr. Curtis' insect, and that its larva fed in the stems of the Oats. This supposition was, however, contradicted by the fact tha the flies had only made their appearance after the grain had been threshed out in the field and the Oats stored in the barn. At all events, the mischief, whatever it might have been, had been done, and no more damage was to be apprehended from the flies, which were making their appearance in such incredible numbers.

Finding, however, in the bottle which contained the flies two or three grains of the Oats I opened them carefully and found within the protecting scales of one of the grains the remains of an aphis, and within another, on which the grain itself had disappeared, leaving only the shrivelled, feathery styles of the ovary, above which was the empty scaly covering of the puparium of one of the little flies which had left the grain and joined its companions in their escape from the barn. Thus the cause of the appearance of these flies after the grain was housed was accounted for, and the species was proved to agree with the Cecidomyia Tritici in its habit of feeding upon the young grain, and not within the stem of the plant like the Chlorops lineata. Hence, too, we learn that instead of the housed grains being uninjured, each fly must have destroyed one of the Oat grains, remaining within the scales until the crops had been housed. Hence, too, we learn, that if it were possible to submit the grains as soon as thrashed, and before being housed, to the action of a degree of heat sufficient to kill the flies without injuring the grains, the chances of next year's crop of Oats being free from their ravages would be greatly increased.

Although it would seem that the habits of this little species are now for the first time recorded, I am inclined to think that the insect is identical with the Oscinis atricilla described by Zetterstedt in his work on the *Insects of Lapland* (col. 781, No. 11). It is the only one of the sixty species described by Meigen, Fallen, or Zetterstedt, with which it can be compared. O. atricilla is described as entirely black, with the bristles of the antennæ and the legs of the same colour, the wings hyaline and the halteres whitish. It is said to have the greatest resemblance to Oscinis pugilla (which I believe is identical with the Osc. vastator of Curtis) differing in being blacker and less metallic in colour and in having the anterior tibiæ and tarsi blackish-brown (which does not quite agree with my insect. In the accompanying woodcut (fig. 94) the upper figure represents the fly magnified, the natural size being indicated by the small crossed lines at the left side of the figure. The left-hand middle figure represents the parts of the mouth very highly magnified and extended by pressure, showing the clavate setose palpi, the acute horny tongue and the large bilobed lower lip; the right-hand lower figure represents the head seen sideways, and that to the left the two basal joints of one of the antennæ (the long, finely setose terminal bristle having been omitted by the engraver): the figure on the right hand in the middle represents the outer scales of an Oat grain partially opened, showing the shrivelled plumose style, and the empty oval shell of the puparium of the little fly. *I. O. Westwood.*

NOTES FROM STUDLEY.

Studley, with its gardens and beautifully wooded park, and the grand ruins of Fountains Abbey adjacent, with its magnificent and well kept grounds, offers a combination of interest such as few places in the kingdom can lay claim to. At no time within the memory of this generation could the lover of sylvan scenery derive more pleasure from a ramble through the grounds that stretch far and wide round these marvellous old walls than at the present. Much as there is that is attractive in the way of novelty and appearance in the numbers of new trees which have been introduced within the last forty years, yet the extent to which so many of them have suffered during the last few winters makes one in the humour to discount no small portion of the gain they prove after a sight of the surroundings of the old Abbey, where naught that is new has been planted, and where all the old seem to have defied the cold death grip of the two past winters—for here there is not a trace of the destruction so apparent in most places. The fury of the winds, which at times leave their destructive mark on the trees in the more exposed grounds of the park, pass harmlessly over the sheltered ravine chosen by the founders for their seclusion.

Fountains Abbey, its history, and most matters connected with it, are so well known that it is scarcely needful to say the grounds as they now exist are the work of times much more recent than the date at which the Abbey became a ruin, having been laid out in their present form within the last 200 years. Long a period as this seems in calculations respecting many things, it is but a span in the reckoning of tree-life; yet so well have the trees grown, consequent upon the suitability of the soil and the sheltered position, that many have attained a colossal size. Spruce above all succeed in a way that they are seldom seen to do, the largest being over 130 feet in height, other species, deciduous as well as evergreen, thrive equally well. At the higher end of the stream, near the mill wherein the monks ground their corn, stands an old Yew which deserves mention. Legend gives it a place here before the monks, the first of whom it is said to have given shelter to; it has a fine thick old trunk, hollow, in fact a mere shell, but hale and full of health. Much has been done by the Marquis of Ripon to preserve the walls from decay, by securing them against the ingress of water, the most destructive of all agents, for which all who take an interest in these grandest of old ruins will accord their thanks.

The grounds collectively are beautifully kept, the grass closely mown, the walks smooth, clean, and scrupulously free from weeds. From many of the commanding points with which the ground abounds, there are some of the most charming vistas imaginable; these are the result of careful arrangement in the first planting of the place, and of equal care in keeping them open up to the present time. In the Park the old patriarchal trees, particularly Oaks, with which the place abounds, are in the state of slow decay, in most cases showing by the association of leafless branches with others green and healthy, that they have passed the meridian of their existence. Well-timed attention has been given in late years to the planting of young ones that in the distant future will take the place of those which have stood sentry here for so many centuries. This work of preparing for generations yet unborn might with advantage be pushed much further in many old places like Studley. Few are the places in which such numbers of Spanish Chestnuts are to be met with as at Studley, where they have been planted by hundreds in clumps and irregular lines by themselves, and also in association with Oaks and other species—in all cases with the best results, for although many of them have attained great age and size, they show much less signs of decay than the Oaks.

At the northern side of the park, in the direction of the kitchen garden, considerable quantities of Oaks have been planted within a comparatively much later date than the old trees above-mentioned, possibly from 150 to 200 years back by their present appearance; these show by the size they have reached and the vigorous thriving state they are still in, how well suited the soil is to the growth of timber, especially Oak. Some of these younger Oaks, although not near half the thickness in their trunks that the old ones are, measure from 10 to 11 feet round at the usual distance above the ground. In the enclosed grounds near the park are a number of thriving coniferous trees, which by their condition prove that they equally with the deciduous kinds like the situation. Amongst them a Wellingtonia, planted eighteen years, is now 60 feet high; Abies cephalonica, over 70 feet, and bearing on its upper branches numerous cones; Pinus excelsa and Cedrus Deodara, equally large and handsome examples for their age. There is also here a beautiful young Acer platanoides, which the Marchioness brought from near where, 'tis said, lie the bones of Shakespeare's greatest hero, Hamlet, Prince of Denmark. This was handed to Mr. Clark, now twenty years gardener at Studley, a tiny seedling, which he for a time nursed on in a pot, after which it was planted out. It is at present 25 feet in height. Near it is one of the finest and most perfect examples of Tree Box I have met with, 40 yards in circumference and 10 yards high, perfectly symmetrical, and so clothed with healthy leaves of the deepest green colour, that it is impenetrable to the eye.

Within the garden Mr. Clark is carrying out the renewal of some of the Vines; a large house in which Camellias are grown has been planted the past May with young Vines raised this year from eyes. The kinds used are Alnwick Seedling, Gros Maroc, and Madresfield Court, which latter variety Mr. Clark has so often exhibited in fine condition. The first-named variety—Alnwick Seedling—is a favourite with Mr. Clark. In other houses devoted to Vines there was a nice crop of useful fruit, consisting of most of the popular kinds, including the late-keeping sorts. Muscat Hamburgh, one of the finest of all black Grapes, is grown in considerable quantities. The early Peaches occupy a long lean-to range, that is filled with established trees in good condition, forced to come in from the beginning to the end of May. In two of the succession Peach-houses there was a remarkably fine crop of fruit—Princess of Wales Peach and Pine-apple Nectarine, in particular were large, plentiful, and extremely well finished. There is a large extent of good wall, on which Apricots especially are grown in quantity, and although the trees here, as elsewhere, have suffered during the past winters there was yet a nice crop of large fruit. Peach growing has been reduced on the open wall lately, the trees having suffered very much, but such as still remain are bearing a nice crop. In a corner covering a considerable portion of wall there is a large old Mulberry with a thick trunk, from which the branches are trained horizontally, Pear fashion, that yearly produces quantities of fruit, seldom failing. In this way this fruit, so much liked by many, can be had in localities where it refuses to bear grown as a standard.

Stood out-of-doors were a number of unusually fine plants of Laurustinus grown standard fashion, with clean stems, furnished with fine close heads from 4 to 5 feet through, thickly set with bloom, and which are excellent for forcing. Richardia æthiopica is prepared for winter work by planting out in rows during the summer, and then transferring to pots.

In the kitchen garden Culverwell's Prolific Marrow Pea was in fine growth, bearing almost down to the ground. Mr. Clark considers it the best late Pea in cultivation. *T. B.*

APPLES AT SOUTH KENSINGTON.

Those who found their way to South Kensington on Tuesday last—and they were not too many—were agreeably surprised to find greeting them a fine and very varied assortment of Apples, the majority exhibiting capital form, good colour, and those interesting features which are found prominent in all good kinds. "Wherever I remark a particularly notable kind," said a looker-on, "there do I invariably find an old well-known one." That was partly, but not strictly, true; still it was an undoubted fact that many old kinds were very prominent. It was not the least of the many features of interest attached to these Apples that nearly all had been grown near to London. The splendid lot shown by the Messrs. Veitch & Sons were all grown at Fulham, and their peculiarly bright aspect was accounted for by the fact that becoming sooty in that very metropolitan district they have to be well wiped ere they can be exhibited. It was only where the natural bloom so peculiar to some Apples had been removed by this cleaning that the fruit exhibited deficiencies. Still it must be admitted that a good deal of the bloom this year has been washed off by heavy autumn rains. The huge collection of almost innumerable kinds, somewhat carefully classified, which came from Chiswick, if exhibiting less of size than the Fulham-grown fruit, was certainly grown, too, within the London radius; and a small collection from Bedfont were grown not entirely beyond the range of the London smoke. The fine lot of kinds from Berkhamstead, shown by the Messrs. Lane, were stri country grown, and though rarely better than Messrs. Veitch, were generally excellent samples.

Perhaps no better opportunity for studying Ap nomenclature will offer this autumn than Tuesd meeting afforded, and, though in a minor deg it was largely availed of. But the question naturally arose—How far are the fruits before us rectly named? And there were without doubt c where the names were open to doubt and distr But no one seems in the nomenclature of Apple err designedly, as is the case sometimes with ot products. If a tree or many trees go out incorre named, the error is spread far and wide, but yet results from a simple mistake at the first. It urged on Tuesday that much good might result if collections of Apples could remain for several d for further study, and to give others an opportu to improve a too deficient knowledge. It is no all certain, however, if that opportunity would could be largely made use of, and thus little good wo result. But a far more effectual method of revis Apple nomenclature would be for the Council of Royal Horticultural Society to solicit growers fi all parts of the kingdom to send collections of g kinds, not worthless ones, to South Kensington this time of the year, each kind having with it a la legibly written, giving its name and where grown.

Then it should be the business of the Society to all these Apples arranged in the various kinds, s as all the Ribstons together, the Blenheims the sa and so on throughout, and when completed t throw open the show to the public. If, as there good reason to think would be the case, some 3000 4000 dishes were sent, the show would be, first grand display of Apples, and second, it would o the finest opportunity to correct nomenclature e presented. But in addition to such arrangement i named groups a very interesting feature might found in forming the collections farther into sectio groups, that is to say, in arranging them so that kinds which have similar characteristics should brought together, for this would enable observers more quickly to note how far from or how nea kinds were agreed, and doubtless would, in not a instances, cause us to remark—"How strange th should such difference be, 'twixt tweedledum tweedledee." But we shall perhaps more clea exhibit what is needed in this respect if we run o the grouping or classifying made by us on Tues from the various Apples then exhibited, specially from the very large assortments s by the Messrs. Veitch and from the Chiswi Gardens. The Codlin has numerous repres tatives, the most popular of which are Keswick and Lord Suffield. One of the earli known of the section is the big Catshead, now lit seen, but which is a very distinct Apple. Added these are the Manx, Harvey, Royal, and Dutch Codl —these latter very much alike, and Lord Grosver —this kind being somewhat irregular of outline and a richer colour than many others. Then that w known variety, Warner's King, has its type ve strongly marked on many fine kinds, though its perhaps as fine and handsome as any of them; t Ecklinville Seedling is allied to it; so also are t Loddington Seedling, as shown so very finely by o exhibitor. Barker's Seedling, from Fulham, rea like the Ecklinville; Tower of Glamis, but a tri more conical; Gloria Mundi, but this is more ribb and has a dense bloom; Lord Derby, this again more erect; Cobbett's Fall Pippin, as shown, thou this is usually called Reinette Blanche d'Espagne, really a Canadian kind, and was shown also under th name; Kentish Fillbasket, and or two others may added to this group.

Then the famous Blenheim Orange or Pippin h its allies, of which one very like though even han somer is Peasgood's Nonsuch; but this comes near to the Cellini for texture and taste: and this latt we must add to the group. So also Lady Hennike though it be more angular, and, if lacking the han some roundness, has the conical form of the Beauty Hants—a very fine erect selection from the Blenheim Wadhurst Pippin, if smaller, is very like the Ble heim too, but has a closed eye. Holland Pipp is another fine kind in this group, and, curiousl enough, it was not found in either of the large colle tions, but came only from Bedfont. Still furthe there is a close resemblance between that an the fine kind, shown largely by Messrs. Lan under the name of Prince Albert, but of th

rowing habit of which we know nothing. Our old nd handsome friend, the Emperor Alexander, gives its haracter to not a few kinds that are strongly marked ith its form and colour. Cox's Pomona is handmely striped if somewhat angular, and Wooting's avourite is like, and is either a kind little known or is got a new name. Mère de Ménage has the stripe ery prominent, and with more colour than the Emperor, nd, further, is angular, but it belongs to the group, also does the singularly-striped Hoary Morning, hich wears such a dense coating of bloom. The nadian samples of this Apple shown by Mr. Wills ere very handsome, and a little larger than our owing, but not more richly coloured or evenly iped. Flower of Kent and Beauty of Kent—if ese kinds be not a little mixed—also fall in here, d in very good company.

A very richly-coloured and strongly marked kind is t favourite of boyhood days, the Scarlet Admirable, which it seems to be precise now to call Hollandry. Old Kirke is said to have been its raiser. any case it has been known more widely as Kirke's arlet Admirable than as Hollandbury. This is ominently angular and distinctive, but as we cannot e one kind a group to itself, it must go in with Emperor Alexander. Then the Old Hawthornden es its features to a goodly series, of which we can shortly summarise the New Hawthornden, though be finer; Stirling Castle, Small's Admirable, nter Peach, Wellington, Royal Somerset—very e the Wellington, yet quite distinct—Aitkin's Seedg, though this is a little striped, and Waltham bey Seedling. We feel also constrained to put this group the handsome Golden Noble, and h it of course Veitch's Queen Victoria, which is so ch like it. Then there are the Pearmain, or perhaps pin types, and here, taking the Ribston as the del, we have the King of Pippins, Cox's Orange pin, Mother Apple, Melon Apple, Cornish matic, Margil, Hambledon Deux Ans (if the ple shown was true), Cobham, and Belle Bonne. Pearn's Pippin is an admirable type of another up, into which may go Nonsuch, Barchard's Seed; as shown, Margil, Court-pendu Plat, Kerry pin, Jefferson, and Forge Apple. The old Red arrenden gives form and colour to Sops-of-Wine, d Astrachan, Worcestershire Pearmain, Duchess' vourite, Reinette Baumann, Rostocher, and eral others. Our last group, although we have itted the russet types, is the Golden Pippin group, which there are, besides Yellow Ingestre, Golden inette, King Harry, Dornton Pippin, Edmund p, Yellow Bough, &c.

That this rough classification is imperfect there can little doubt, and many will perhaps demur to some he associations. Whatever be its defects, howr, it does offer some sort of basis upon which se who desire to effect reforms in nomenclature y proceed, and will eventually perhaps evolve an angement of groups that shall be useful, if not fect.

Home Correspondence.

Single Dahlias.—Instead of harking forward we m to hie back in the matter of Dahlias, as there is te a mania just now for single kinds, which, though at is the fuss made about them, are not one whit ter, if so good, as those grown upwards of sixty rs back, that is, if one may judge by some well cuted plates issued by Curtis in 1820, to which my ention has just been drawn by the Messrs. Gilbert, Ipswich, who have them hanging in their seed p. The two plates show fifteen flowers of various s and colours, two among them being semibles, which, no doubt, were considered a great vance in those days, when such a multiplicity of als, formed and packed with the regularity and sh they now are, were beyond the wildest dreams he florist. Perfect and beautiful, according to our as, as Dahlias now are, most of them are too large, bular, and heavy for cutting to dress in vases, and it ere where the single ones have "the pull," as some them certainly are of great use in that way, and the nts look very well in the backs of herbaceous or ubbery borders. *J. Sheppard.*

Dahlia Beauty of Cambridge.—As this is nounced one of the finest of the single Dahlias ly becoming so popular its origin will no doubt of interest. It was raised in the Cambridge anic Garden from D. variabilis Paragon, possibly ssed by D. coccinea, near which it grew. It has the appearance of D. Paragon, except in the ver-heads, which are much larger, and have deep nson self-coloured ray-florets. This year as well last a fine variety has been raised from seeds, the nts flowering no later than those from cuttings. Merckii occurs in three forms—a very beautiful e white, a deep lilac, and an intermediate, from ds taken from the white and lilac growing together. This is of no ornamental value, and shows that seeds cannot be trusted, except perhaps from plants that are isolated. D. coccinea occurs in shades of scarlet, with also a curiously erect kind bearing small bright flowers. Among those which partake chiefly of D. variabilis there is great variety. The yellows vary little among themselves except in form, but on this account they require selection. The bronzy coloured ones, however, vary much in the mixture of red and yellow, which produce that effect. Both colours are closely approached, and there is almost every intermediate. Some have a yellowish ring around the centre, and shade off from the deeper colour next it to a pale circumference. Others have faintly the disposition of shades, as in D. Paragon, and with the preceding appear to show that by selection we may have parti-coloured effects, with which at present we have no acquaintance. The indications, it must be said, are faint, but quite sufficient to point the line of development. Other colours of D. variabilis are a lilac and a pure white, possibly the same as White Queen. The genus is also represented by several kinds of established interest, as the Cactus Dahlia, and the so-called green Dahlia, now producing in some of its heads the real purple florets. *R. J. Lynch.*

Grapes within Grapes.—Mr. Douglas has sent us samples showing a curious growth of a Grape within a Grape. The variety is Barbarossa, a variety in which we have several times seen the same appearance. Why this particular variety (and so far as

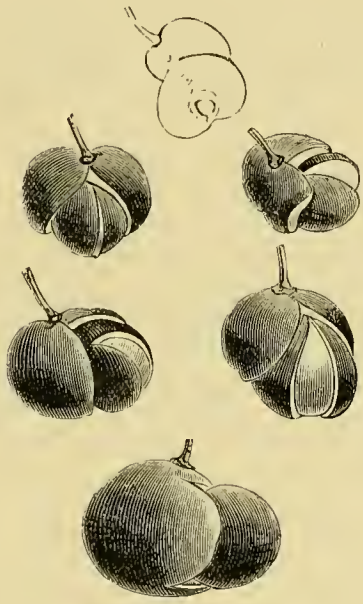


Fig. 96.—Proliferous Grapes.

we know no other) should behave like this we do not know. In the fully developed ripe condition it is impossible to see clearly what the real nature of the growth is, all we can say is that it occupies the position of a seed, but whether it is a modification of the coats of the seed, or the result of the growth of a second flower within the first by prolification, we cannot say. Eds.

Gloxinias.—It is pretty well known that these will grow and flower in a greenhouse or room after they have been grown to the flowering stage in a hothouse. I presume the plants alluded to by Dr. Bennet were treated in this way. It may not be so well known how easily the Gloxinia may be raised from seed. The Messrs. Sutton, of Reading, sent me a packet of seed for trial; they were sown about March 1, in heat. The seeds speedily vegetated, and the young plants were treated very much the same as seedling Cinerarias or Calceolarias would have been treated as regards pricking out or potting. The plants are now in 4 and 5 inch pots, flowering freely, and very useful they are for decorative purposes; there is not a bad variety amongst them, and a large proportion are as good as the named varieties. It will be necessary to save corms of old plants over the winter to flower early in the year, but for September and October bloom give me seedlings. The upright flowering sorts are most esteemed; but I think, for the sake of variety, it is as well to grow a few that have drooping flowers. What the Gloxinia wants is good rich light soil, with plenty of heat, the plants to be placed near the glass, but shaded from bright sunshine while making their growth; when the flowers begin to open the plants must be inured to a lower temperature, but it ought to be borne in mind that the flowers opened in a cool stove are the best. *J. Douglas.*

Virginian Creeper.—I have never seen this more striking than I saw it to-day about the fowl-houses at Stoke Park, so well known to poultry fanciers, where Lady Gwyder has had it used extensively for covering the ironwork and wire netting in front and over most of the pens, where it answers admirably as a shade to the occupants beneath just as long as it is wanted, and is a great ornament to the whole of the numerous buildings, which it clothes in a garb of great beauty. Just now the numerous, long, loose branches are streaming in the wind, and the foliage on them is coloured up from darkish red to scarlet, almost as bright and vivid as that of the bracts of Poinsettias. This Ampelopsis is often good on houses, but it is seldom one witnesses it in such perfection as when growing pretty much in its own natural manner under the full influence of sun and air, which in fine autumns give such finishing touches to the leaves. Planted in parks or pleasure-grounds so as to run up the trunk and about the branches of old Oaks or other sparse-habited trees, the Virginian Creeper gives life to the scenery and landscape, and shows up in most pleasing contrast the more sombre hues. By way of contrast, the Traveller's Joy—Clematis Viticella—may be used with good effect, the long grey beard of its seed-vessels, with which the bine is now so profusely laden, being very effective in the hedgerows and copses where plants are established. The two grown together and allowed to intermingle would be quite a new feature in gardens, and, I think, a grand sight, as they are both in perfection together, and I throw out the hint in the hope that some one may profit by it. *J. S.*

Lapageria rosea.—I send you a branch of Lapageria rosea. The plant that I cut it from is growing in the conservatory here, trained up a column, and reaches 40 feet in height, and so densely is it covered with flowers that it is impossible for any one to count them. The branch I send you I cut 3 feet from the ground, and I could cut now 100 similar ones to it. I have other plants in the same house doing equally well. I attribute my success to growing it solely in peat and sand, giving it very slight fumigations whilst making its growths, a liberal amount of soft water at the roots, and never letting the direct rays of the sun reach my plants. *Arthur Chapman, Weston Birt, Tetbury.* [The spray received bore fifteen splendid flowers on a length of 15 inches. Eds.].

A Golden Pinus austriaca.—We send you a small twig of a Golden Pinus austriaca, which has a very pretty appearance in contrast with the sombre green of the common sort. We at first appearance, feared it might not continue constant, but we have had it now for four years, and each successive year it has preserved the same appearance, a bright golden colour. We were much struck with a circumstance in variegation of foliage: a considerable number of common Mountain Ash budded (6 to 7 feet from the ground) with the variegated weeping variety came away all right, not only so, but all the shoots underneath the buds were also variegated. We found the same in Horse Chestnut, and even in some instances where the buds failed the foliage from the natural stock was variegated. *M. B., Inverness.* [Interesting cases to add to the now numerous ones showing the influence of the scion on the stock. Eds.]

The Climate of Bridge of Allan.—As showing the mildness of the climate here, I may state that although the weather all through the summer has been very ungenial, the Tomato, Figs, and Grapes have ripened in my garden in the open air; the Passion-flower also has bloomed freely in the open for some months past. An authority on climate, Dr. Burslem, of Bournemouth, when visiting here some years ago, remarked that no better proof of the mild climate was wanting than the plants and flowers growing so luxuriantly in my garden. Bridge of Allan is now becoming a great resort during the winter and spring months for invalids suffering from chest complaints, and many English physicians are now sending their patients to Bridge of Allan in preference to many other health resorts in the South of England or even South of Europe. *Alex. Paterson, M.D.*

Rhododendron Duchess of Edinburgh at Messrs. Downie & Laird's.—I have had occasion from time to time to mention Messrs. Downie & Laird's Rhododendrons. As I passed through Edinburgh the other day I took my chance of seeing something good in their establishment, and was delighted to find the very finest plant I ever saw of R. Duchess of Edinburgh in full bloom. This is one of Messrs. Veitch's hybrids from Malayan species, the flowers being of a most brilliant crimson, and their habit that of large trusses of a giant Jasmine. The plant is

about a yard high, and as much through, and was profusely covered with trusses of blossom, containing each some ten flowers arranged in a well-balanced umbel. The general effect was gorgeous in the extreme. These hybrids grow in popularity daily, and their habit of almost perpetual bloom makes them invaluable. The plant I am noticing had bloomed previously in the spring, and was now flowering again with every prospect of opening fresh clusters till far into the winter. The gorgeous colour is chiefly derived from a scarlet Malayan species, but R. javanicum contributes and R. jasminiflorum has a share in the form and foliage. Some years ago I described in this journal my introduction to the Duchess by Mr. Dominy, and my certainty of her success. To say nothing of Yorkshiremen for the present, canny Scotchmen have discovered the value of the plant, and in good sooth are growing it grandly. *J. H. Mangles.*

Movement of the Leaves of Meconopsis.—Here in our old garden we have Meconopsis Wallichii (blue), and M. nepalensis (yellow), both true, from Edinburgh Botanic Garden seeds, 1879-80, and our plants of both species illustrate and corroborate your remarks as to the erection and slight infolding of the innermost leaves at night. Our plants are 15 inches or more in diameter, forming attractive rosettes of very hairy leaves. M. simplicifolia also shows the infolding of the central leaves, but not so evidently as do the other two species. It has large blue flowers, finer even than those of M. Wallichii. In foliage all three species are amply distinct, and easily recognised even from the early seedling stage—M. Wallichii having leaves 6—12 inches long, light green, rather deeply pinnatifid and hairy; M. nepalensis having leaves 6—10 inches long, olive-green, densely clothed, especially when young, with long yellowish or ferrugineous hairs; and M. simplicifolia, having leaves 3—7 inches long, of a glaucous or blue-green tint, slightly hairy, rhomboidal in outline, and rarely lobed. The erection of the leaves at night is very evident to the most casual observer when pointed out. I had not noted it, however, previous to the publication of your note in the *Gardeners' Chronicle*. Is it not analogous to a similar movement in the leaves of Marantas and some Aroids? [Yes]. *F. W. Burbidge, Trinity College Botanic Garden.*

Dahlia alba and D. White Queen.—Having purchased a small plant of the first-named of these plants at the commencement of this summer for the moderate sum of 1s., it has now grown into a fine bushy plant, and having been lifted into a pot from the open ground it is now covered with its beautiful large pure white flowers, and forms one of the most conspicuous objects in my autumn conservatory. I have compared it minutely with your description of White Queen in your last issue, and find it exactly corresponds in every respect, and that its petals are as pure a white when they fall as when they open, without the slightest shade of pink in them. I also saw cut blooms of both at the great show at Manchester, and could see no shade of difference between them. *W. E. Gumbleton.*

Choretis glauca.—I shall only be too happy to hear that your correspondent has really secured this interesting plant. I am away from home, and my books of reference, but I can state so far, from recollection, that in Choretis glauca the leaf is glaucous and the foliage deciduous soon after flowering, the plant remaining dry and dormant through the winter. "Habit of Ismene, inflorescence of Hymenocallis" (*Herbert Amaryllis*). To this may be added that the cup is distinctly tinged with green. I can give no further information, having never possessed the living plant, but the foregoing description (from Herbert) should enable your correspondent to judge whether his plant conforms to it. *R. T. Clarke.*

Tigridia grandiflora.—Since the large importations of Tigridia grandiflora from North America it has become a favourite flower in many gardens. The usual practice is to take up the roots in winter and replant in spring, or, if very fine plants are desired, to plant freshly imported roots. We tried some experiments in a field at Wisley, planting on March 19, 1880, a number of roots. They flowered well last year in the grass, and had tall, strong stems; this year they have come up quite dwarf but blooming well, and looking among the grass almost more beautiful than the flowers on the tall stems. The flowers themselves were very little smaller. *G. F. Wilson, Weybridge.*

Town Trees.—There are only two things that we can do for town trees, namely, puddle them when planted, and shelter them afterwards. A tall brick wall with a southern aspect in a town would do half the work itself, and do it well, as we may see any day in a Peach wall bearing flowers and fruit, but the wall and the tree must be managed skilfully. Trees of the Juniper type, tall and thin, will stand an amount of ill-usage in transplanting scarcely to be believed. I have moved them with a frozen ball of earth, and it did not kill them. If you sift earth fine, and pour water upon it, it will just be wet earth, and not otherwise altered; but if you put your foot on it a few times it becomes puddle, and it will take some time to undo what has been done. Puddled earth has been used to make the gutters that retain canals and dams in their places, and it is pretty nearly the only aid we can give to a newly-planted tree to puddle it; and when this is well done it will take a length of time to dry the puddle and the roots of the tree. The roots being safe, the next thing to be attended to is the inner bark, to keep it as moist as we can by winding the stem with hay ropes lined with puddle of the consistency of paint. This prevents the weather from drying on the one hand, whilst a coat of moist puddle is damping the stem. Town trees have to be reared with difficulty, and the land should be well trenched at least 2 feet deep, and enriched with fresh soil when such is needed. If we plant a tree behind a north wall, what can we expect from it but leaves, still the shelter will tell in the long run in favour of the plantation. It may seem rather strange that Privets should do well under the shadow of St. John's Cathedral, Salford, that failed so signally in the ground of the old parish church; but the mystery is easily cleared up, for one had good earth to grow in, whilst the other had rations of clay and stones. Plants without roots, or with few roots, live by water, and they ought to be well watered outside until the sap gets to work. Your correspondents have suggested trees and bushes suitable for such localities, and the sooner they set to work the better it will be for the success of the affair. *Alexander Forsyth.*

Cockroaches.—We would recommend O. Orpet, Cirencester, to prepare a mixture of oatmeal and plaster of Paris in equal quantities with sufficient water to make it adhere, dropping it in small quantities in different parts of the floor, or stokehole, where the cockroaches frequent we believe with this method he will soon relieve himself of these disagreeable pests. *Harrison & Sons, Leicester.*

Ware's White Queen Dahlia.—To those of your readers who want a new sensation I would say, run down to Tottenham to see this fine plant before the frost comes to spoil its beauty. Imagine some 100 plants, each as large as a good-sized Black Currant bush, literally covered with a profusion of the purest white flowers as elegant in form as Anemone Honorine Jobert, and almost as rich in texture as Eucharis amazonica. The æsthetic people ought to go crazy over it. As a lady's flower it is A 1, and the Sunflowers nowhere. We have grown alba here for two years, but it has none of the free-flowering habit of White Queen, and Stella Bianca almost declines to bloom at all. I consider Mr. Ware's plant a gem, either as a decorative plant for the flower garden, or as a cut flower. *Edwin Cooling, Jun., Derby.*

Horticultural Boilers.—In reply to the letter of Messrs. Weeks & Co., I beg to say that powerful and good as the upright tubular is known to be, I think there are four advantages in the horizontal form over the upright: 1st, it can be purchased for much less money; 2d, does not require so deep a stokehole; 3d, will cost less for fuel, as it will burn any kind of rough fuel; and, 4th, there is not the liability of the fire hanging up and going out, of which there is a danger in all upright boilers. I quite agree with them that a dry stokehole has a great effect on the durability of any boiler, but my experience is that cast-iron boilers are much more durable than wrought-iron ones, especially where the situation is damp. I have just taken out a good form of wrought-iron saddle boiler to make room for a horizontal tubular, and which has only been in work for six years, and it is nearly done for; the stokehole is very damp. *John Charlton, Summer Vale Nursery, Tunbridge Wells.*

Does Eucharis amazonica require Resting and Partially Drying?—If we consult the plant the reply is an emphatic "No." There are a dozen good growers within as many miles of your office who grow them without doing so, and I have had the same plants produce four different lots of flowers in one year, and as many as twenty-four spikes in 12-inch pots, and as few as six. In a pot of that dimension it is rarely that all the bulbs are in the same stage of development. Some of the leaves will be just peeping through, others half-grown, &c.; it is, therefore, evident that to subject the plants when in this state to a temperature too low for them to continue growing, would not be conducive to their future welfare. The Eucharis must be either growing or flowering—both processes go on in the same pot by different bulbs, and the two months' rest advocated by "H. H." is so much loss of time. I saw recently some plants of Eucharis at Fenniscowles, the residence of F. Yates, Esq.; one of them must be 5 feet in diameter, but that is not of much consequence. I questioned Mr. Thomson, the gardener, if he rested them at all? "No," was the reply, "they are seldom without flowers; that plant (the one referred to above) has had two dozen spikes at a time and as few as you see now." There might have been eight on it. No doubt such a plant if caught in its minimum state of excitement, and transferred where the temperature and atmosphere are cooler and drier, would throw up more spikes at one time. Even this can only be expected on the supposition that some that would come earlier are retarded. It is a point scarcely worth debating, but it leads me to another side of the question. When flowers are required at certain seasons in particular, then the resting and partial drying may be resorted to. The latter condition is not so much a requisite, but it is demanded by the lower temperature they have to submit to. We must not overlook the fact that the progress of the plants is impeded in proportion to the rest given. Here is an instance of the utility of the retarding or resting. In going through one of our stoves a month ago, with one who grows largely for market, making a stand in front of a number of infantile Eucharis, I remarked, "I suppose you have these in flower all the year!" "Well, no, we have not," was the reply; "we keep them as quiet as we can until later on, when there is plenty for sale for them. It will thus be seen that I am not contending that Eucharis will not succeed as "H. H." describes, but that it is not necessary for their welfare, and should not be resorted to except ing where circumstances require it as hinted above. *W. P. R.*

Echeveria retusa.—Succulents have of late come to the fore for bedding, but it is seldom one sees them grown for the embellishment of greenhouses and conservatories during the winter, and yet there are some among them most valuable for that purpose, one of the best of which is Echeveria retusa, which, though not remarkable for the beauty of its leaves, is exceedingly floriferous, especially when grown as I saw some the other day at Birkfield Lodge, under the management of Mr. Payne, who has a fine batch of it in 6-inch pots. The plants were standing out in full sun on a low brick wall dividing some Vine borders, and were branching out in all directions, each spike being crowded with blossom-buds just opening, and the when fully expanded will make a fine show and look fresh and gay nearly the whole winter through. For table decoration or window-boxes in dry rooms such plants must be of great value, as they will stand where most others would perish. *J. S.*

GREENHOUSE FLORISTS' FLOWERS.

Amaryllis.—These very beautiful and showy spring flowers bid fair to be even more popular in the future than they have been in the past. They are very easily cultivated if their simple requirements are studied, and they obtain a period of rest. They have now entered into that period, and will require little attention until they again start into growth. The leaves of many varieties are yet green, but water must be withheld until the soil in the pots is very dry. It may not be well to dry them off too rapidly although some persons—successful growers, too—are not scruple to withhold water entirely until it is time to start them again. The plants ought now to be in a cool airy house. Any varieties that started very late, and may not be much past the flowering stage should be grown on in heat for some time longer.

Azaleas.

The specimen plants intended to flower early should now be in a cool airy house, well exposed to the light. Remove all decaying leaves, and see that there is no trace of red-spider or thrips on any of the plants. I saw a very successful cultivator dipping plants the other day, and on examining them before they were plunged in the bath of diluted tobacco water, I found no insect pests on the leaves, and the prudent owner remarked that he did not intend that should be; he preferred prevention to cure. Young plants intended to be grown up speedily into specimens should not receive a long resting period, although it is scarcely wise to drive them on in a high stove temperature all through the winter, although this has been done by exhibitors eager to obtain a large specimen rapidly, and at any cost.

Chrysanthemums.

If the plants are not yet removed into the house, no time should now be lost in so doing, as frost may come sufficiently severe to do the blooms that are showing colour much injury. Ours have not yet been

laced inside, the reason being that the house is not et prepared for them; but, as a rule, it is best to lace them inside about the second week in October. ven earlier than this in the north there is almost ire to be greenfly, and mildew, too, on the leaves; ut they ought both to be removed before the plants e placed indoors. The specimen plants must be ed into shape as opportunity offers. Our own plants quire no more than a sufficient number of sticks to revent the stems from breaking down with the eight of the flowers. The system of training the ems down, and bending them until a humpty-umpty specimen is formed considerably resembling mole-hill, is not a good one, and is in bad taste. he natural form of a plant is the best, as it is also e most pleasing.

Herbaceous Calceolarias.

If it is intended to propagate a stock of any of these om cuttings, it will be found that they form roots ery readily if they are put in at this time. The lants produced from seeds sown early should now be otted on into their flowering pots, using good loam, af-mould, and rotten manure, as the Calceolaria kes rich soil. Eight-inch and 9-inch pots are the est for large specimens. Later plants must be otted on as they require it, handling the plants care-lly, as the roots and leaves are easily injured. Use liberal proportion of sand in the compost for small ants.

Chinese Primulas.

The earliest plants are now in full bloom, and quire to be kept in a house rather warmer than a ol greenhouse. In cold damp weather many of the ants will go off at the neck unless the house is armed a little. The double varieties propagated om cuttings in May are also in flower; they seem do best if they are allowed to flower at this season, hich is their natural one, instead of retarding them keeping them cool, and picking off the flower-asses, to get them to flower later. It is easy to ep up a succession of flowers after this time, and to March or April, by pushing on the later-sown ants in a warm rather airy house. They flower ell in the same temperature as zonal Pelargoniums; e growth is also better, and the flowers brighter, if e plants are near the glass.

Cinerarias.

Up till this time the plants have been in cold frames, d they do as well there as anywhere else up to the ne that they are likely to be injured by frost, when ey must be removed somewhere safe from its intru-on. Unlike the Chinese Primula, the Cineraria ther prefers a moist atmosphere, and even yet must ot be too much exposed to the sun, and we would ther place them on the shady than the sunny side the house. The earliest plants will soon be in ower; they are now well established in their flower-g pots. Plants intended to flower in the spring ould be potted on as they require it; and in order form large specimens the flowering growths must be refully tied out, and the plants should receive plenty f light and air.

Hyacinths.

We pot the bulbs for exhibition about the end of e month, the compost having been previously repared as advised at p. 376. In potting do not ack the mould in too firmly; the bulbs should be ut in moderately firm with the fingers, and the own of the bulbs should be just above the soil. The ots containing them should be placed in the open round, on a hard bed of ashes, which will prevent orms from getting into them; then cover them uite over with some Cocoa-nut fibre refuse to the epth of 3 or 4 inches over the crowns. Some per-ons place them under the stage of a greenhouse until ey start, which is a blunder, as some of them may ecome too wet and others get over-dry.

Pelargoniums.

See that the show varieties are potted into their owering pots before the days are much shorter. fter repotting them it is easy to make a blunder by iving too much water; they should have none or a week after, then give enough to thoroughly wet e whole mass of roots, and do not water again until e soil is dry. The leaves are not likely to be ffected by spot if the plants are, where they ought to e, in a light airy position. Zonal varieties are now oing us good service in producing abundance of their rilliant coloured flowers, toned down by the white, delicate, or deep rose-and-salmon coloured varieties. The single varieties are the most beautiful, but the double varieties are very showy, and most useful to cut for bouquets, &c. It will be necessary soon to keep up the temperature by artificial heat; 50° to 55° at night will be sufficient, and the plants must be well exposed to the light.

Petunias and Verbenas.

The cuttings should now be rooted, and placed on shelves near the glass in a cool-house to stand over the winter. If the plants are potted out thinly in 4 or 5-inch pots, in light soil, they will make healthy growth when the weather is fine. Keep the Verbenas free from mildew by dusting the leaves with flowers of sulphur where they are affected by it. *J. Douglas.*

The Dahlia.—As an admirer of the Dahlia from, I may almost say, its infancy, or nearly fifty years, I very much regret to see it fall so low in the estimation of the present generation. How many are there now living who do not feel as I do respecting it, and remember those palmy days at the Crystal Palace when we saw Turner, Keynes, and others, contending for first place in those great classes for forty-eight and upwards, and others among the amateurs in those for twelve and twenty-four, besides the Asters from the Berkshire and other growers. I think, from what has been shown at Manchester, the Crystal Palace, and South Kensington this season, from Messrs. Turner, Keynes, Harkness, Cannell, and others, that a revival has fairly set in. I myself am ready to subscribe liberally towards a fund for prizes, and have no doubt others could be found to join, so as to bring about a good show for next year at the Alexandra or the Crystal Palace, and to offer such prizes as will induce our old friends from afar to come again amongst us. *Geo. Smith, New Villa, Hedge Lane, Edmonton.*

Reports of Societies.

Royal Horticultural: *October* 11.—Sir Trevor Lawrence, Bart., M.P., in the chair. At the conclusion of the usual routine business conducted at the afternoon meeting, and which included the election of fourteen Fellows, the Chairman presented Mr. John Dominy with a handsome gold watch, and a purse of 200 guineas, and in doing so stated that for nearly forty-three years Mr. Dominy had been in the service of the Messrs. Veitch—a fact in itself which spoke volumes in his favour; and, indeed, his high personal character was well known to them all. But it was not altogether on this score that his friends had combined to do him honour, but rather on account of his achievements as the first raiser in this country of hybrid Orchids. In 1864 Mr. Dominy was presented with a piece of plate by the Devon and Exeter Horticultural Society to commemorate the raising of his first hybrid—the beautiful Cattleya exoniensis ×, which was the result of a cross between the Syon House variety of Cattleya Mossiæ and Lælia purpurata, and which grew for seventeen years before it flowered. In 1865 Mr. Dominy also received a Medal for Calanthe Veitchii ×. Sir Trevor then alluded to the writings of Mr. Darwin, and the recent lectures of the Rev. G. Henslow on the fertilisation of Orchids and Nepenthes, the latter of which were male and female, and by no chance could be self-fertilised; and next remarked that as travellers exhaust the more remote and still little exposed parts of the world, they would have to depend on the skill of the hybridists for the production of new forms and varieties—a contingency not likely to arise in this generation, but which none the less would come. Mr. Dominy had raised some twenty-three or twenty-four hybrid Orchids alone, and no fewer than nine were that day exhibited, which showed how great an interest was being taken in them. The more remarkable of his hybrids were the Cattleya exoniensis ×, before alluded to; Cattleya Dominii ×, the result of a cross between C. Dowiana and the hybrid C. exoniensis ×—a most beautiful flower, which will almost outstrip C. exoniensis; and Calanthe Veitchii ×, which was found in every collection, bringing a flush of pink into the houses at a time when high colours were scarce. When a wish was expressed by friends that a present should be made to Mr. Dominy on his retirement from the service of the Messrs. Veitch, he (Sir Trevor) was happy to do all he could in furtherance of the object, and the result had been the subscription of over £250 by 116 friends. From this had only been deducted the expense of advertising, and the purchase of a gold watch, which was to bear the following inscription:—"Presented to John Dominy, with 200 guineas, by 116 friends, as a mark of regard and esteem, and of admiration for his skill and success in raising and growing Orchids, and in horticulture generally.—Trevor Lawrence, Bart., M.P., Oct. 11, 1881;" and which with the purse he had very great pleasure in handing to Mr. Dominy.

Dr. Masters desired to add his testimony to the good work done by Mr. Dominy and other hybridists in assisting botanists in the pursuit of vegetable physiology and the unravelling of species, and was glad that so much honour had been paid to a hybridist whose operations at one time were looked on askance. Mr. Dominy briefly returned thanks, and remarked that he was much gratified to know that his conduct through life had met with the approval of so many friends. What he had done he had achieved by perseverance and a genuine love of his work.

Floral Committee.—James McIntosh in the chair. This was one of the pleasantest of autumn meetings, the tables being full, and the number of horticulturists larger than usual. One of the nicest contributions was a capital group of small flowering and fine-foliaged plants from Chiswick, including among the former a pretty lot of small flowering plants of Bouvardias in all the best varieties, such as elegans, leiantha, jasminoides, flavescens, corymbiflora, Humboldtii, Dazzler, Maiden Blush, especially fine; Hogarthii, &c. Also conspicuous were several plants of a species of Solanum with small round orange-scarlet fruits; and Mr. B. S. Williams' Capsicum Little Gem, a rightly-named plant—the specimens, shown in 48's, being dwarf, compact, and profusely laden with small scarlet berries. From Mr. B. S. Williams came a showy group of Orchids and other plants which included amongst the former nice examples of the charming Indian Crocuses (Pleiones), Oncidium ornithorhyncum, the creamy yellow-flowered Dendrobium heterocarpum Philippinense, the bright yellow Oncidium chrysothyrsus, and the striking Cœlogyne Massangeanus, with two handsome drooping spikes of flowers. Amaryllis Mrs. Garfield, an interesting hybrid between A. reticulata and a garden variety named Defiance, with the large bold flowers of a blush ground colour, and the venation well defined with rose-pink, also came from Mr. Williams' establishment. An especially interesting group of new plants came from the Messrs. Veitch. This included a young seedling plant of the gigantic-pitchered Nepenthes Rajah, one of the Bornean introductions of Mr. Burbidge and Mr. Peter Veitch, and which is described and illustrated in another column (p. 492), and the new and distinct Nepenthes madagascariensis, which we shall also shortly figure and describe; the same plant of the Bornean Globba coccinea, which was shown at the committee meeting held on June 28 last, and which has been in flower ever since—a circumstance which found favour with many present; Adiantum cuneatum grandiceps, a form with the tips of the fronds branched or crested; Caryopteris incana, a Verbenaceous plant, with lance-shaped serrate hoary leaves and tufts of small lilac-blue flowers, received from Japan, but stated not to be hardy; and Masdevallia velifera, a species with very thick board-like oblong-acute leaves and large olive-yellow three-tailed flowers, remarkable for their fœtid odour, and a rare plant in collections, Mr. Day being believed to be the only possessor of it until his collection was sold. From Mr. Bull came several plants of what is believed to be an autumn flowering variety of Odontoglossum vexillarium, and named rubellum. The type species and its varieties so far have all proved spring and early summer flowering plants, and exhibit great variations in the size, colour, and markings of their flowers, whereas in this form, which is flowering now, and promises to continue so till Christmas, the colour and markings of all the blossoms are exactly alike. Another fine Orchid from Mr. Bull was Lælia autumnalis atrorubens, distinct alike from the type species and the variety known in some collections under the name of grandiflora. The flowers are very richly coloured, and altogether it is one of the brightest orchids in flower now. Dion edule lanatum, and a specimen of Oncidium incurvum with three grand spikes, also came from the same exhibitor. The General Horticultural Company (John Wills) send a handsome specimen of the new Adiantum Lathomii, a bold, free-growing, handsome Fern of the A. scutum type, which promises to become a popular exhibition plant. Mr. Henry James, of Lower Norwood, also sent a small group of Orchids in flower, consisting of the new Odontoglossum hebraicum, Vanda cœrulea, Oncidium incurvum, O. Forbesii, &c. Remarkably heavily fruit-laden branches of the Sea Buckthorn, Hippophæ rhamnoides, was brought from Mentmore by Mr. Smith, and Senecio pulcher and three or four species of Aster were represented by cut flowers staged by Mr. Riches, of Tooting. Messrs. Cannell & Sons brought from Swanley a very showy lot of Dahlias, double and single Begonias, &c., among the former being the single white, named alba, in even finer form than usual, and a small double half-and-half sort of flower, named Glare of the Garden, a bright crimson in colour, and useful as a border plant. The Messrs. Rawlings Brothers, of Romford, also made a good show of the large florists' Dahlias, and Mr. Turner sent from

Slough a very showy fancy flower of a clear yellow ground colour tipped and mottled with white. It is named Beauty, and was much admired. Mr. Salter, gr. to J. Southgate, Esq., Streatham, showed a fine white sport from the Japanese Chrysanthemum, James Salter; and Mr. King, gr. to G. Simpson, Esq., Wray Park, had in Coleus Ada Sentance the most novel and most distinct variety that we have yet seen, and the beauty of which is hardly describable. The leaves are large, with pale green margin, shown up by well defined maroon blotches, and a rich rosy-pink centre. A very fine cut spike of Oncidium unguiculatum came from Mr. G. F. Wilson, and amongst several seedling Coleuses staged by Mr. R. Lloyd, gr., Brookwood Asylum, Woking, was one named Dolly Varden, very distinct, and of a green ground, mottled with many shades of colour, which took the fancy of many. Mr. Balchin, of Hassock's Gate, again staged his remarkable double-flowered white Mignonette; and Mr. Croucher, gr. to J. T. Peacock, Esq., had a fine form of Lælia Dayana named superba.

The following are the awards of the Floral Committee:—

First-class Certificates.

To Messrs. James Veitch & Sons, for Globba coccinea.

To Messrs. James Veitch & Sons, for Nepenthes Rajah.

To Messrs. James Veitch & Sons, for Nepenthes madagascariensis.

To Messrs. James Veitch & Sons, for Adiantum cuneatum grandiceps.

To Messrs. James Veitch & Sons, for Masdevallia velifera.

To Mr. W. Bull, for Odontoglossum vexillarium rubellum.

To Mr. W. Bull, for Dion edule lanatum.

To Mr. W. Bull, for Lælia autumnalis atrorubens.

To Mr. Turner, for fancy Dahlia Beauty.

To Mr. G. King, for Coleus Ada Sentance.

To Mr. R. Lloyd, for Coleus Dolly Varden.

To Mr. B. S. Williams, for Amaryllis Mrs. Garfield.

To Mr. B. S. Williams, for Davallia gibberosa.

To Mr. B. S. Williams, for Cœlogyne Massangeana.

To the General Horticultural Company, for Adiantum Lathomii.

Cultural Commendation.

To Mr. Bull, for Oncidium incurvum.

Votes of Thanks.

To Messrs. Cannell & Son, for cut flowers.

To Mr. Riches, for hardy flowers.

To Mr. G. F. Wilson, for Oncidium verrucosum.

To Mr. H. James, for a group of Orchids.

To Messrs. James Carter & Co., for African Marigolds.

To Messrs. Rawlings Bros., for collection of Dahlias.

Fruit Committee.—H. Webb, Esq., in the chair. The proceedings of this body were of a more interesting character than they have been for some time past. For all interested in fruit, and especially Apples, there were very complete and most interesting collections of the latter, sent from Chiswick; from Fulham by the Messrs. Veitch; and from Berkhamstead by the Messrs. Lane & Son; and which are commented upon in another column. The Messrs. Veitch also sent a large group of Kales in pots; and in addition to the Apples sent from Chiswick there was a collection of over 100 dishes of Potatos. These were all staged in the vestibule, and came in for a large share of attention from the practical men present. In the Council-room were many seedling Apples sent up for the opinion of the committee, and some with the view of getting their names, but there was nothing strikingly novel amongst them, and none which gained an award. Mr. R. Dean, Ealing, had a small collection of Apples and Pears, very good samples of their respective kinds, and also a collection of Grapes cut from the open walls. Pines were well represented. Mr. Coomber, gr. to J. A. Rolls, Esq., M.P., Hendre, Monmouth, had a grand Smooth Cayenne, about 8 lb. in weight, and well-ripened. Mr. Wilson, of Castle Hill, South Moulton, had a similarly fine fruit of the same variety, weighing 8 lb. 2 oz.; and Mr. Roberts, Gunnersbury, showed a couple of beautiful Queens, weighing 5 lb. and 5 lb. 12 oz. respectively. Four other good Queens also came from Mr. J. C. Mundell, gr. to Lord Ebury, Moor Park, Rickmansworth. The Messrs. Lane & Son sent baskets of Black Hamburgh, Gros Colmar, Muscat of Alexandria, Alicante, Trebbiano, Muscat Hamburgh, Golden Queen, and Barbarossa Grapes, very good samples, but not equal to what has been previously sent out of the Berkhamstead Vineyard. The Messrs. Hooper & Co. offered prizes for four dishes of Potatos, which, however, only brought two competitors, the 1st prize going to Mr. Howard, of Canterbury. The following are the awards made:—

Cultural Commendation.

To Mr. Roberts, for Queen Pines.

To Mr. Mundell, for Queen Pines.

To Mr. Wilson, for Smooth Cayenne Pine.

To Mr. Combes, for Smooth Cayenne Pine.

To Messrs. H. Lane & Son, for collection of Grapes.

Medals Recommended.

Silver, to Messrs. Veitch & Sons, for a collection of Apples.

Silver, to Messrs. H. Lane & Son, for collection of fruits.

Bronze, to Mr. R. Dean, for collection of fruits.

Scottish Horticultural Association. — The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew Square, Edinburgh, on Tuesday, October 4; the President, Mr. John Downie, in the chair. Mr. P. W. Fairgrieve, Dunkeld Gardens, exhibited a collection of eighty sorts of Apples, mostly grown on dwarf standards in Dunkeld Gardens. The sorts were Gogar, Kerry, Sturmer, Ribston, Nottingham, Honey, Stone Hill, Norfolk Stone, Cockle, Ogle Grove, Galloway, King, Lemon, Ravelston, and Leather Coat Pippins; Dumelow's, Philip's, Burns' and Malcolm's Seedlings; Wormsley's, Spring Grove, Keswick, Hyslop's, and Irish Codlins; Northern and Yorkshire Greenings, Hawthornden, New Hawthornden and Red Hawthornden, Alfriston, Astrachan Red, Lord Suffield, Peasgood's Nonsuch, Lady Henniker, Ganges, Golden Harvey, Custard, Cellini, Kentish Fillbasket, Fail-me-Never, Winter Redstreak, Bedfordshire Foundling, Bramwell's Pearmain, The Professor, Nelson's Glory, Winter Strawberry, Irish Pitcher, Ecklinville, Lord Nelson (Kirke's), Nonsuch, Dog's Snout, Cross Hill, Majestic, Devonshire Quarrenden, Stewart's Seedling, Rymer, Scarlet Nonpareil, Alexander, Prizetaker (Dean's), Wine, Worcester Pearmain, Irish Peach, Waltham Abbey, Croftanreigh, Braddick's Nonpareil, Warner's King, Early Harvest, Stirling Castle, Ringer, Pearmain, Mannington's, Ecylur, Tower of Glamis and Gravenstein. Crabs: Montreal, County, and Transcendant.

Mr. Fairgrieve described the principal sorts in the collection. The last time he appeared before the Association it was with fruit grown on walls in the open, but now he showed them Apples grown almost exclusively on dwarf standards, and on a future occasion he promised to exhibit a collection of stone fruit grown on standards. In different localities the same fruit went under different names, for example, the Oslin Pippin is well known in the south of Scotland, but in the north it is known as the Arbroath Pippin. This often led to confusion, and he suggested that the Association might be able to do something to prevent this constant cause of error. The selection of Apples would then be rendered easy, as they would be under one name in all the nurseries in the kingdom. The selection of the proper sorts for the different localities is one of the most important points in pomology. Six varieties of good cooking Apples is almost enough for most places. The names of them are Lord Suffield, a grand Apple, splendid quality and fine bearer and which will cook from September to January. It does not do nearly so well in many parts of England, particularly in Kent. Tower of Glamis is well known to be a fine cooking Apple, large and profitable, and keeps long into spring. Warner's King, a first-class cooking Apple. Ecklinville is a grand cooking Apple, and an excellent bearer. Keswick Codlin is a household word among all fruiterers and requires no comment. Yorkshire Greening carries you well into next summer, and is a capital Apple in every way, only not very pretty. The above six varieties are about the six best in cultivation. Waltham Abbey is a splendid Apple, the tree having a first-class constitution, strong, and very hardy. It should be more grown than it is. It got a Certificate in 1821 from the London Horticultural Society. Rymer is a beautiful Apple, only this season it has not swelled so well as some of the other sorts; this has been owing to the cold. He could recommend this Apple as a very free bearer, good quality, and of capital dwarf habit. Ecylur, an Apple to which he had not given a long trial yet, but it promises very well and seems a free bearer, besides having a good appearance. Peasgood's Nonsuch is really a fine cooking Apple, and might be used as a dessert Apple also. It got a Certificate at London in 1872. It will yet get to be a very popular autumn Apple. Alfriston is another of the best keeping Apples we have, and good bearer. Stirling Castle is another of the best of our culinary Apples, and comes early into use, a free cropper, and a most desirable variety for dwarf standards; they fruit freely the second year. Lady Henniker is a variety that was shown as something very wonderful at one of our Internationals, but he had failed to see any special merit in it. There was nothing in fruit that graced our tables more than well finished dessert Apples, more especially during the winter. It has been said, What is a Scotch Apple after all? meaning, he fancied, that it was scarcely worth growing. He did not agree with that, and with all due respect to friends on the other side of the Atlantic and their great facilities in transit, he considered, that well grown and properly ripened Scotch Apples were equal if not superior to any other. The American Apples, although very fine many of them, still they wanted that sharp aromatic flavour which adds so much to the quality of an Apple. More varieties of eating Apples are required than cooking. A few of the best sorts are Ribston Pippin; a good dish of this sort cannot be beaten. He would approve, however, of having it planted in our most select spots, so as to prevent it, as far as possible, going to canker. Among early Apples Summer Thorle is the best, being preferable to Juneating or Summer Strawberry. Ogle Grove Pippin is a first-class dessert Apple, and keeps very well, although not generally a well-known variety. It is a very heavy cropper, and he intended planting more of it; he got it from Messrs. Dicksons & Co. Ravelstone Pippin, when in season, is said to be one of the very best; it is grown on the walls in Wigtonshire, and is considered very fine; the sample shown on the table was grown on a dwarf standard. In colour it could compete with any of the American varieties. It is gro largely in England. He thought it slightly wanting flavour. Emperor Alexander cooks very well, but place is among dessert Apples; it has a grand appe ance, and very fair quality—a dish of it has a charm appearance on the table. Cellini is considered a v fine Apple, and is to be found classed among culina he used it always as a dessert Apple, and very usefu was in that capacity, but there are many superior cooking. It is a very pretty Apple and a good bea and much grown. Early Harvest is a splendid flavou Apple, one of the best of the American dessert App and should be more grown. Devonshire Quarren is very sweet and very pretty, also a good cropp however, it is not among the first of our dessert App Hawthornden White: he did not come so near the s of its nativity as Edinburgh to describe this well-kno Apple, only his opinion of it was that it was one of very best in cultivation. Gravenstein: this is a m remarkable Apple for quality, and its flesh like amb Dr. Hogg says of it that it is not much known, speaks in extraordinary terms of its quality; it is n however, a heavy cropper. King of Pippins is a medium-sized dessert Apple, of good quality, and a s bearer of fruit. Hawthornden Red is a new Apple, which he could not as yet say much, but it had merit of being beautiful. The three varieties of C Apples on the table were American sorts; they look v fine, and are good for preserving.

The Chairman, in moving a vote of thanks to M Fairgrieve, said that the Association would award h a Cultural Certificate for the collection of Apples, that the matter would have to come before the Counc

Mr. T. Fergusson, Shu-le-Crow Gardens, Keswi exhibited new seedling Potatos which he had raised fr seed from the Victoria. Mr. J. Cossar, Champfleu Linlithgow, exhibited fine samples of New Hawthorn Apple; also a pot of white Lobelia. Mr. Chris Little Dunkeld, exhibited fine samples of Ecklinv Apples, also a dish of Caledonian Plums. Messrs. Di sons & Co. exhibited a basket of fine plants of Prim capitata. Messrs. Downie & Laird exhibited a fine pl of Rhododendron Duchess of Edinburgh, with a r scarlet truss of the shape of a Bouvardia flower. W three plants of it you could have flower for nine mon in the year, the first plant of it having flowered on N Year's Day. Mr. M. Chapman, Easter Duddingsto exhibited Rosa rugosa alba, Cape Gooseberry, Hydran paniculata, Gaultheria carnea, and other plants.

Mr. W. J. MacAdam's lecture on the Chemistry Plants was postponed till the first Tuesday in Novemb owing to the members being invited to the Freemaso Hall, George Street, at 8 o'clock, to hear an address Sir Richard Temple, Bart., late Governor of Bomb on "Forests of India."

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDO

For the Week ending Wednesday, October 12, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	I
Oct.	In.	In.	°	°	°	°	°	°			
6	30.14	+0.46	52.0	35.5	16.5	45.4	− 7.5	41.8	89	W.: N.W.	o
7	30.27	+0.58	53.5	45.5	8.0	48.0	− 3.7	46.3	93	W.: N.W.	o
8	29.78	+0.09	48.8	44.5	4.3	45.8	− 6.4	43.0	95	E.: S.E.	o
9	29.66	−0.03	50.0	43.2	6.8	46.6	− 5.3	43.4	93	W.: S.W.	o
10	29.83	+0.14	56.5	43.5	13.0	54.3	+ 2.7	52.3	93	W.: S.W.	o
11	29.60	−0.09	61.0	50.0	11.0	54.8	+ 3.5	52.4	91	S.: S.W.	o
12	29.63	−0.07	56.0	45.0	10.1	52.5	+ 1.5	49.5	90	W.: S.W.	o
Mean	29.84	+0.15	54.0	44.0	10.0	49.7	− 2.2	47.0	92	S.W.	o.

Oct. 6.—Cloudy till the evening; fog in morning, gloom day. Fine clear night.

— 7.—Sun shining brightly in the morning: overcast aft noon. Fine night.

— 8.—Overcast all day. Very cold, dull, and gloom day. Rain in the evening.

— 9.—Dull and gloomy day. Fog. Fine night.

— 10.—The morning fine, but dull; an overcast day a night.

— 11.—A fine day, but generally cloudy. Fine clear nigh

— 12.—A fine day, but generally cloudy, frequently du A fine night, but overcast.

London: *Atmospheric Pressure.*—During the wee ending October 8, the reading of the barome at the level of the sea increased from 30.25 inches the beginning of the week to 30.31 inches by 9 A.M on the 2d, decreased to 30.15 inches by 9 P.M on the same day; increased to 30.23 inches by 9 A.M on the 4th, decreased to 30.13 inches by 9 A.M on the 5th, increased to 30.49 inches by 9 A.M. o the 7th, and was 29.90 inches at the end of the wee

The mean reading for the week at the level of the ea was 30.21 inches, being 0.04 inch lower than ast week, and 0.34 inch above the average of the veek.

Temperature.—The highest temperature in the hade during the week was 61°.5, on the 3d; the ext in order was 61°.2, on the 2d. On October 5 he temperature did not rise above 48°.5. The ean of the seven high day temperatures was 54°.4.

The lowest temperature in the week was 35°.5, n the 6th; on the 7th the lowest temperature was 5°.5. The mean of the seven lowest temperatures as 41°.9.

The greatest range of temperature in one day was 7°.2, on the 2d; the smallest was 8°, on the 7th. he mean of the seven daily ranges was 12°.5.

The mean daily temperatures were, on the 2d, 1°.4; on the 3d, 51°.3; on the 4th, 47°.4; on the h, 42°.2; on the 6th, 45°.4; on the 7th, 48°.9; nd on the 8th, 45°.8. These were all below their verages by 2°.8, 2°.6, 6°.1, 11°, 7°.5, 3°.7, and .4 respectively. The mean temperature for the eek was 48°, being 5°.5 lower than last week, and .7 below the average of the week for sixty years.

The highest reading of a thermometer with black-ed bulb in vacuo, placed in the full rays of the sun, as 131° on the 2d; the highest, on October 8, was ly 55°. The mean of the seven readings was 94°.8.

The lowest reading of a minimum thermometer th its bulb placed on grass and fully exposed to e sky was 33°.9 on the 6th. The mean of the ven readings was 38°.8.

Rain.—Some rain fell on two days to the amount 0.79 inch, of which 0.77 inch fell on October 8.

England: *Temperature.*—During the week end-; October 8 the highest temperatures were 63°.4 at mbridge, and 63° at Truro. The highest tempe-ure at Brighton was 57°.2, and at Sheffield and ill was 59°. The mean from all stations was °.4.

The lowest temperatures in the week were 31° at iro, 32°.5 at Bristol, and 32°.7 at Cambridge. e lowest temperatures were 41°.9 at Bradford, and at Leeds. The mean from all stations was 36°.7.

The greatest ranges of temperature in the week e 32° at Truro, 30°.7 at Cambridge, and 28°.5 at stol. The least ranges were 18° at Sheffield, 19° Leeds, and 19°.1 at Bradford. The mean from all ions was 23°.7.

The mean of the seven high day temperatures was exceeded 57° at Truro and Plymouth, and was less n 54°.5 at Brighton, Blackheath, and Sheffield. e mean from all stations was 55°.8.

The mean of the seven low night temperatures ex-ded 45°.5 at Liverpool, Leeds, and Bradford, and s less than 40° at Wolverhampton, Cambridge, and stol. The general mean was 43°.4.

The mean daily range was 20°.8 at Truro, 18°.2 at nbridge, and 16°.5 at Bristol, and was only 9°.5 at effield, 9°.9 at Leeds, and 10° at Bradford. The an from all stations was 13°.4.

The mean temperature for the week was 50° at eds, 49°.2 at Truro, and 49° at Liverpool and Brad-d, and was 46° at Brighton, 46°.2 at Bristol, and 4.4 at Wolverhampton. The mean from all stations s 48°.

Rain.—The largest amounts registered were 0.79 n at Blackheath, 0.47 inch at Nottingham, and 0 inch at Sunderland, Hull, and Sheffield. The t falls were 0.18 inch at Truro, 0.22 inch at mouth, and 0.31 inch at Liverpool. The mean n all stations was 0.38 inch.

cotland: *Temperature.*—During the week end-it October 8 the highest temperatures were 64°.2 at enock, 64° at Paisley, and 62° at Glasgow. At dee the highest temperature was 56°. The eral mean was 60°.

The lowest temperature was 31°, at Paisley; at erdeen the lowest temperature was 44°.1. The eral mean was 38°.6.

The mean temperature for the week was highest at erdeen, 50°.7, and lowest at Edinburgh, 48°. The eral mean was 49°.2.

Rain.—The largest falls were 0.45 inch at Dundee 0.42 inch at Greenock. No rain fell at Glasgow, only 0.08 inch at Paisley. The general mean was 5 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

rns: *J. Colebrooke.* Sow them as soon as ripe in ins of loamy soil, and let them stand in a cold frame l they germinate. We recommend this because you y they are choice varieties. Ordinary Acorns may sown in beds in the open ground.

ter Willow: *W. Smith & Son.* Salix purpurea.

ks: *D. B.* The new edition is not yet out.—*W. H. ropical Agriculture,* by P. L. Simmonds (Spon); d Henfrey's *Elementary Course,* new edition an Voorst).—*F. Taylor.* We do not know of any ok that would give you what you want.

Clubbing in Cabbages: *J. B. S.* Dip the roots of the young plants in a puddle made of clay and soot. Young plants should be selected free from the affection; if not, all the clubbed portions should be carefully trimmed away.

Insects: *A. M.* The Privet Hawk-moth (Sphiax ligustri).

Names of Fruits: *W. G. T. Apples:* 1, Keswick Codlin; 3, Kerry Pippin; 4, Downton; 7, Blenheim Orange; 8 and 13, Waltham Abbey Seedling; 10 and 16, Dutch Mignonne; 11, Dumelow's Seedling; 12 and 15, Court of Wick; 17, Court-pendu Plat; 18, Margil; 25, Lord Suffield; 26, French Crab.—*H. Coster. Peach:* Salwey. *Pears:* 1, Maréchal de la Cour; 2, Beurré Diel; 3, Beurré d'Amanlis; 5, Huyshe's Victoria; 7, Uvedale's St. Germain; 8, Doyenné du Comice; 9, Bergamotte d'Esperen; 11, Gansell's Bergamot; 12, Glou Morçeau; others not recognised.—*Received without letter—postmark, Halesworth—two Pears:* Large fruit, Hacon's Incomparable; small, Thompson's.—*James Brown.* Your Cherry is named St. Margaret's, or Tradescant's Heart.—*A Constant Reader. Apple:* King of the Pippins.—*J. C. Apples:* 1, Rymer; 2, not recognised.—*A Subscriber. Apples:* 1, Rymer; 4, Kerry Pippin; 5, Irish Peach; 3, a Codlin of some sort, but such miserable samples to send!—*J. E. Apples:* 1, Court-pendu Plat, very fine; 2, Frogmore Prolific, but not sure; 3, Autumn Pearmain.—*D. Walker. Pears:* 1, Pitmaston Duchess; 2, Doyenné du Comice; 3, Beurré Hardy; 4, Fondante d'Automne; 5, Bergamotte d'Esperen; 6, probably Joséphine de Malines.—*M. T. & S., Ayr.* The Pear may probably be the old Autumn Bergamot. It is of no value.—*C. B. Apple:* Carlisle Codlin of Thompson—*E. M. Pears:* 1, Fondante d'Automne; 3, Beurré d'Arenberg; 4, Winter Crassane; 5, Passe Colmar; 2, not recognised. No Apples received, as stated.—*Charles Bennet. Pears:* 1, Flemish Beauty; 2, Grosse Calebasse; 3, Beurré Superfin (?), very fine; 4, Doyenné Boussoch; 5, Van Mons' Léon le Clerc; 6, Beurré des Charneuses (?).

Names of Plants: *J. Bryan.* 1, Pyrethrum uliginosum; 2, Harpalium rigidum.—*W. L., Glasgow.* Viburnum Lantana.—*W. Stevens.* 1, Helenium autumnale; 2, Veronica, species not recognised; 3, Francoa sonchifolia; 4, Diplacus glutinosus; 5, Clematis Viticella; 6, Œnothera Lamarckiana; 7, not recognised.—*W. C. B.* 1, Chlorophytum orchidastrum; 2, Tricyrtis hirta; 3, Clitoria Ternatea; 4, Begonia, not recognisable without flowers; 5, Sempervivum aizoides.—*W. M.* 1, Cratægus coccinea; 2, Cratægus Azarola; 3, Rudbeckia speciosa; 4, Pyrethrum uliginosum; 5, Hieracium aurantiacum; 6, Sisyrinchium gramineum.—*R. Parrington.* Alecost, or Costmary (Balsamita vulgaris).—*D. Wallace.* 1, Polystichum angulare proliferum; 2, Davallia, probably D. pentaphylla, but altogether immature; 3, Pteris serrulata; 4. Pleopeltis pustulata; 5, Selaginella Martensii, one of the smaller forms.—*E. C.* 1, Dennstædtia dissecta; 2, Pteris cretica; 3, Sempervivum aizoides variegatum. The others next week.—*A. F. H.* 1, Pteris argyrea; 2, Rhopala elegans; 3, Maeleania sp. (see punctata, *Bot. Mag.*); 4, Jasminum syringæfolium, Wall.—*W. E. C.* Eucomis punctata.—*C. W. D.* 1 and 4, typical Campanula garganica, Tenore = C. Portenschlagiana, Koch, non R. and S. = C. muralis, Reich., non Portenschag; 2 and 3 seem merely hairy forms of the same.—*Connon & Reid,* Asplenium flaccidum.—*H. H. D.* Leptinella falcata.—*J. F. R.* 1, Phlebodium aureum; 2, Adiantum affine; 3, Doodia caudata; 4, Anemidictyon Phyllitidis; 5, Lomaria Patersoni; 6, Tradescantia zebrina var.; Selaginella uncinata; 8, Abutilon Thompsoni.

Oaks Dying: *Analyst.* The tar appears to have soaked through to the growing tissue beneath the bark, which is quite sufficient to account for the death of the tree.

Red-Spider: *E. Batch.* The best remedy is good cultivation—abundant syringing during the development of the young shoots. If the insect has gained a footing, wash the pipes or flues with a mixture of flowers of sulphur and a little lime, or of sulphur alone.

Seeds: *H. H.* No doubt Abrus precatorius.

Stoves: *J. C.* We have no faith in oil-stoves, or, indeed, any other, inside the building for heating greenhouses. A small hot-water apparatus with the boiler inside, heated from a furnace with either gas or coke, is the safest and best.

Vines: *H. E. W.* Due to over-cropping; the failure to properly thin the berries; the want of warm air on wet days; and, we should imagine, of indifferent management generally.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors,*" and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ Foreign Subscribers sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

J. Cheal & Sons, Crawley, Sussex—Ornamental Trees and Shrubs, &c.
W. Cutler, Seacroft, Leeds—Dutch Bulbs.
H. Cannell & Sons, Swanley, Kent—Florists' Flowers, Winter Flowering Plants, Bulbs, &c.
R. Mack & Son, Catterick Bridge, Yorkshire—Roses, and General Nursery Stock.
André Leroy, Angers—Plants, Trees and Shrubs, Fruit Trees, &c.
Cranston Nursery and Seed Company, Hereford—Roses.
Charles van Geert, Anvers, Belgium—Vines.
Ellwanger & Barry, Rochester, N.Y.—Select Roses.
V. Lemoine, Nancy—New and Rare Plants.
Thomas Imrie & Sons, Ayr—Dutch Flower Roots.
S. Owens & Co., Whitefriars Street, E.C.—All Kinds of Appliances for Raising and Distributing Water, &c.
Desfossa Thuillier et Fils, Orleans, France—General Nursery Stock.
Osborn & Sons, Fulham, S.W.—Trade List of Nursery Stock.
R. Tucker, Faringdon, Berks—Forest, Fruit, and Ornamental Trees, &c.
James T. Anderson, 149, Commercial Street, Shoreditch—Russia Mats, Canvas, Sacks and Bags, Garden Netting, &c.
The Lawson Company, Edinburgh—Forest and Ornamental Trees, Shrubs, &c.
J. C. Schmidt, Erfurt—Bouquets, Wreaths, &c.
Munro Brothers, Inverness—Trade List of Forest and Ornamental Trees and Shrubs.

Communications Received.—H. Correvon.—W. T., Jun.—J. S.—W. A. C.—H. & S.—G. D. V. (many thanks).—W. F. B.—H. E. W.—T. S. W.—E M.—S. H—D. W.—T. W., Harrow.—T. B.—T. N.—M. T.—D. T. F.—F. F. G.—J. B. T.—G. Smith.—T. W.—H. E.—J. S. L.—W. H. S.—T. S. (we really cannot tell you).—W. R.—A. M. C. J. C.—F. S. & Co. (next week).—A. B. P.—R. J.—C. L.—G. M.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Norfolk Beefing Apples.—Can any of your readers tell me how to "press" these Apples in the way they are done by confectioners. They are half-baked, then pressed, and baked again, or undergo some such process as this, and I am anxious to get the recipe. *T. W.*

Markets.

COVENT GARDEN, October 13.

We have little to note this week, our market having settled down to a quiet trade. English Pines are in demand; also Kent Cobs. *James Webber, Wholesale Apple Market.*

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 2- 0 4	Mignonette, 12 bun.	1 6- 3 0
Asters, 12 bunches	4 0-12 0	Pelargoniums, 12 sprays	1 0- 1 6
Bouvardias, per bun.	0 9- 1 0	— zonal, 12 sprays	3 0- 6 0
Camellias, 12 blooms	6 0- 9 0	Primula, double, per bunch	0 6- 1 0
Carnations, 12 blms.	1 0- 2 0	Rhodanthe, 12 bun.	8 0-12 0
Chrysanth., 12 bun.	4 0- 9 0	Roses (indoor), doz.	1 0- 3 0
Cornflower, 12 bun.	1 0- 3 0	— (outdoor), 12 bun.	4 0- 9 0
Dahlias, 12 bunches	4 0- 0 0	Stephanotis, 12 spr.	6 0- 9 0
Eucharis, per doz.	6 0- 9 0	Sunflowers, 12 blms.	0 9- 2 0
Feverfew, 12 bun.	3 0- 0 0	Sweet Pea, 12 bun.	3 0- 6 0
Gardenias, 12 blms.	3 0- 8 0	Sweet Sultan, 12 bun.	4 0- 8 0
Gladioli, 12 sprays	1 0- 2 0	Tropæolum, 12 bun.	1 0- 3 0
Heliotropes, 12 sp.	0 6- 1 0	Tuberoses, per dozen	1 0- 2 0
Lapageria, white, 12 blooms	2 0- 4 0	Violets, 12 bunches	0 9- 1 0
— red, 12 blooms	1 0- 3 0		
Marguerites, 12 bun.	4 0- 6 0		

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0-42 0	Evergreens, in var., per dozen	6 0-24 0
Asters, per dozen	4 0- 6 0	Ferns, in variety, per dozen	4 0-18 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ficus elastica, each	1 6- 7 0
— (common), dozen	6 0-12 0	Foliage Plants, various, each	2 0-10 6
Begonias, per doz.	4 0-12 0	Fuchsias, per dozen	6 0-12 0
Chrysanthemums, per dozen	6 0-12 0	Lilium auratum, per dozen	24 0-60 0
Cissus discolor, doz.	18 0-24 0	Myrtles, per doz.	6 0-12 0
Cyperus, per dozen	6 0-12 0	Palms in variety, each	2 6-21 0
Dracæna terminalis	30 0-60 0	Pelargoniums, scarlet, per dozen	3 0- 6 0
— viridis, per doz.	12 0-24 0	Solanums, per dozen	9 0-12 0
Euonymus, various, per dozen	6 0-18 0		

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0- 6 0	Lettuces, Cabbage, per doz.	0 6- 1 6
Beans, French, p. lb.	0 4- ..	— Engl. Cos, score	1 6- ..
Beet, per doz.	1 6- 2 6	Mint, green, bunch	0 4- 0 6
Cabbages, per doz.	1 0- 2 0	Mushrooms, p. baskt.	1 0- 2 0
Carrots, per bunch	0 4- 0 6	Onions, per bushel	5 0- ..
Cauliflowers, English, dozen	2 0- 4 0	— Spring, per bun.	0 6- ..
Celery, per bundle	1 6- 2 0	Parsley, per bunch	0 4- ..
Cucumbers, each	0 6- 1 0	Peas, per bushel	5 0- 8 0
Endive, per doz.	1 0- 1 6	Radishes, per bun.	0 2- 0 6
Garlic, per lb.	1 0- ..	Small salading, pun.	0 4- ..
Herbs, per bunch	0 2- 0 4	Spinach, per bushel	2 6- ..
Horse Radish, p. bun.	4 0- ..	Tomatos, per lb.	0 9- 1 0
		Vegt. Marrows, doz.	2 0- ..

Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatt's, 100s to 120s.; Magnum Bonums, 90s. to 110s.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve..	1 0– 4 6	Peaches, per dozen..	6 0–12 0
Figs, per dozen ..	0 6– 1 0	Pears, Eng., ½-sieve	2 6– 5 6
Grapes, per lb. ..	0 6– 2 6	— French, per doz.	1 6– ..
Kent Filberts, per lb.	0 8– 0 9	Pine-apples, Eng., lb.	3 0– 5 0
Lemons, per 100 —	4 0– 6 0	Plums, per ½-sieve..	4 0– 6 0
Melons, each ..	1 0– 2 6		

SEEDS.

LONDON: *October* 12.—The market to-day was poorly attended, and business generally was inactive. In America the Clover crop seems to be proving larger than was supposed, and, in consequence, a further reduction in the rates demanded is cabled to this side. The article just now most in favour is Trefoil. Good dry samples of winter Tares sustain late rates, but damp parcels are quoted at irregular figures. Canary seed is easier. Higher prices are asked for new French Millet. Peas and Harlcots keep firm. There is a better trade doing in Linseed. The Board of Trade returns just published, state the imports into the United Kingdom last month of Clover and grass seeds as 11,729 cwt., value £22,346; against 10,910 cwt., value £18,308, for September, 1880. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday well-conditioned samples of Wheat were sold without difficulty at firm rates, whilst indifferent parcels were difficult to quit, and the average price was further reduced. Foreign Wheat was 1*s.* lower where sales were effected. Flour maintained steady value, but sold slowly. Barley was fairly supported. Beans showed 1*s.* per quarter advance on the week, Oats 3*d.*, and Peas tended against buyers; maize was slow, and barely up to the previous Monday's value.—On Wednesday the Wheat trade was heavy, and prices very unsettled. The limited sales effected were mostly at 1*s.* per quarter below Monday for spot parcels. Flour was dull and barely so firm; Beans and Peas were steady and unchanged; fine Barley was firm, secondary sorts dull; and Maize weaker, owing to a decline in New York. Stocks of Oats here being large, there was a pause in the demand, and rates were nominal.—Average prices of corn for the week ending Oct. 8:—Wheat, 46*s.* 9*d.*; Barley, 34*s.* 10*d.*; Oats, 20*s.* 2*d.* For the corresponding period last year:—Wheat, 41*s.*; Barley, 34*s.* 2*d.*; Oats, 20*s.* 10*d.*

CATTLE.

At the Metropolitan Market on Monday increased supplies of cattle met less demand, and prices were not so well sustained as last reported. Prime qualities were scarce and realised previous value, but all other descriptions ruled fully a quotation lower, and sales made but slow progress. The sheep trade, whilst rather slower than on Monday se'nnight, was not appreciably depressed. Prime calves were unaltered in value; plain were dull of sale, and lower. Quotations:—Beasts, 3*s.* 8*d.* to 4*s.* 8*d.*, and 5*s.* to 5*s.* 8*d.*; calves, 4*s.* 8*d.* to 5*s.* 10*d.*; sheep, 5*s.* to 5*s.* 8*d.*, and 6*s.* to 7*s.*; pigs, 4*s.* 6*d.* to 5*s.* 2*d.*—Thursday's trade was very quiet. Beasts and sheep sold slowly at about Monday's prices, and calves and pigs were quiet on former terms.

HAY.

Tuesday's Whitechapel Market report states that supplies were not so heavy, and prices steady, with a quiet demand. Quotations:—Prime old Clover, 100*s.* to 136*s.*; new, 100*s.* to 128*s.*; inferior, 75*s.* to 90*s.*; prime old meadow hay, 100*s.* to 134*s.*; new, 100*s.* to 126*s.*; inferior, 60*s.* to 65*s.*; straw, 30*s.* to 52*s.* per load.—On Thursday the short supply of fodder on sale met with a dull trade, and prices were without alteration.—Cumberland Market quotations:—Superior meadow hay, 120*s.* to 132*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

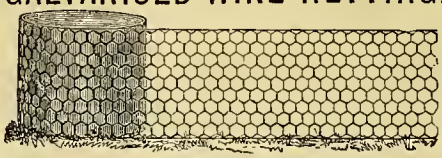
The Borough and Spitalfields Markets reports state that moderate supplies of English are to hand, but rather large arrivals of German. The trade was dull and prices easier. Quotations:—Essex Champions, 55*s.* to 60*s.*; Essex Regents, 70*s.* to 80*s.*; Magnum Bonums, 80*s.* to 90*s.*; Kent Regents, 80*s.* to 90*s.* per ton; German blues, 4*s.* per bag.—The imports into London last week were 15,360 bags from Hamburgh, and 209 bags from Antwerp.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 15*s.* 9*d.*; Ravensworth West Hartley, 15*s.* 9*d.*; East Wylam, 17*s.*; Walls End—Hetton, 19*s.*; Hetton Lyons, 17*s.* 6*d.*; Lambton, 18*s.* 6*d.*; Original Hartlepool, 19*s.*; Wear, 17*s.* 6*d.*; Tunstall, 17*s.* 6*d.*; Chilton Tees, 18*s.* 3*d.*; Tees, 18*s.* 9*d.*; Hawthorns, 17*s.* 9*d.*; South Hetton, 19*s.*; Radford Navigation, 17*s.* 6*d.*

Government Stock.—On Monday Consols for delivery closed at 98⅜ to 98¾, and for the account at 98 13/16 to 98 15/16. On Tuesday the figures were, for delivery, 98½ to 98⅝, and 98 11/16 to 98 13/16 for the account. Wednesday's final quotations were, 98⅜ to 98¾ for delivery, and 98⅞ to 99 for the account: the same record was posted on Thursday.

CHAMPION PRIZE
GALVANISED WIRE NETTING.



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ADELAIDE EXHIBITION, just awarded.
FIRST PRIZE AWARDS
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and every International First Prize Award during the last 12 years.
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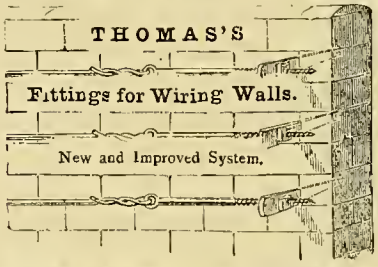
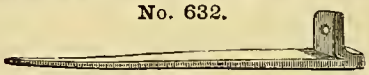
J. B. BROWN & CO.,
90, CANNON STREET, LONDON, E.C.



DRIVING EYES—Galvanised. No. 631.

Spaced about 10 feet apart for guiding the wires on the wall.
1½ 2 2½ 3 3½ 4½ in. long.
2*d.*, 3*d.*, 4*d.*, 5*d.*, 7*d.*, 9*d.* per doz.
New and Improved Pattern.

TERMINAL HOLDFASTS—Galvanised.
No. 632.



One required for each line of Wire. 5 in. long, price 2*s.* per doz.
The above pattern EYES and HOLDFASTS are very much superior to those usually sold, being WARRANTED TO DRIVE INTO THE HARDEST WALLS WITHOUT BREAKING.
STRAINING BOLT and HOLDFAST (No. 635), as illustrated above, price 4*s.* per dozen. Best Quality GALVANISED WIRE, 1*s.* 9*d.*, 2*s.*, and 2*s.* 6*d.* per 100 yards.
The following Prices give the total cost of each line of Wire, including Holdfasts, Straining Bolt, Intermediate Guiding Eyes, 10 feet apart, and best quality Galvanised Wire:—

Length of Wall	20 yds.	40 yds.	60 yds.	80 yds.	100 ys.
	s. d.	s. d	s. d.	s. d.	s. d.
No. 14 Gauge Wire	1 0	1 7	2 1	2 7	3 1
No. 13 Gauge Wire	1 2	1 10	2 5	3 0	3 7

Illustrated Lists, with full particulars of the above, and Fittings for Espalier Trainers, on very economical principles, free on application.
5 *per cent. discount allowed for cash with order.*

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Show Rooms { 87, Queen Victoria Street, E.C.
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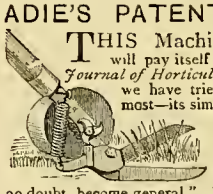
Manufactory { Paddington Iron and Wire Works,
362, Edgware Road, London, W.

ADIE'S PATENT LAWN EDGER.



THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and" he further adds, "the use of it will, we have no doubt, become general." Prices 27*s.* and 30*s.*
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MATTHEWS, Royal Pottery, Weston-super-Mare.

Geometrical Mosaic and Encaustic
TILE PAVEMENTS, for Conservatories, Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.
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CORRY, SOPER, FOWLER AND CO. (Limited) are now prepared to offer their New Stock of Hyacinth, Specimen, and other GLASSES, in every variety and quality. Price Lists on application to
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HORTICULTURAL WINDOW GLASS,
15-oz. and 21-oz., in Boxes containing 200 feet.
Carriage Paid to any Railway Station in England.
Price Lists on application.
ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 6 and 8, Pentonville Road, London, N.

BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities of
BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.
B. & Son have always a large stock in London of 20-in., 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 21-oz.; and also large sizes in all qualities for cutting purposes, in 200-ft. and 300-ft. cases.

T. MILLINGTON AND CO.,
43, Commercial Street, E.
PLATE, SHEET, CROWN GLASS
SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz., 300 feet,	30*s.* 0*d.*,	if 21-oz., 200 feet,	30	*d.*
Fourths ..	,,	,, 34*s.* 6*d.*	,,	,,	34 *d.*
Thirds ..	,,	,, 38*s.* 6*d.*	,,	,,	38 *d.*
Seconds ..	,,	200 feet, 42*s.* 0*d.*	,,	,,	48 *d.*
Best ..	,,	,, 51*s.* 0*d.*	,,	,,	61 *d.*

Also 26-oz., 28-oz., and 32-oz. Glass.
SMALL SIZES, IN 16-OZ., PER 100 FEET.
6 × 4 to 7½ × 5½ .. 8*s.* 6*d.*, 9*s.* 6*d.*, 10*s.* 6*d.*, 11*s.*
8 × 6 to 10½ × 8½ .. 9*s.* 0*d.*, 10*s.* 0*d.*, 11*s.* 0*d.*, 12*s.*
11 × 9 to 14 × 10 .. 10*s.* 0*d.*, 11*s.* 6*d.*, 12*s.* 6*d.*, 13*s.*
15 × 10 to 18 × 12 .. 11*s.* 0*d.*, 12*s.* 0*d.*, 13*s.* 0*d.*, 14*s.*
20 × 12 to 20 × 18 .. 11*s.* 6*d.*, 12*s.* 6*d.*, 13*s.* 9*d.*, 15
21-oz., 14*s.*, 15*s.* 6*d.*, 17*s.* 6*d.*, 19*s.*
SHEET LEAD, WHITE LEAD, OILS, TURPENTINE, and COLOURS.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES, also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.
F. ROSHER AND CO., Brick and Tile Merchants
See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per 100 or Truckload, on Wharf in London, or delivered direct. Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharf.
A liberal Discount to the Trade.

Oil Paint No Longer Necessary.
HILL AND SMITH'S BLACK VARNISH,
for Preserving Ironwork, Wood, or Stone.
(*Registered Trade Mark.*)

This VARNISH is an excellent substitute for oil paint for all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no stirring or thinning, and is used cold. It is used in the royal Windsor Castle, Kew Gardens, and at the seats of hundreds of the Nobility and Gentry, from whom the flattering testimonials have been received.
Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.
UNSOLICITED TESTIMONIAL.
"*Piercefield Park, June* 21, 1876.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask to be filled and returned with as good Varnish as the last I had, which I candidly admit was the best we ever had. A. Varnish to Piercefield Park, Chepstow.—I am, Sirs, respectfully, WM. COX."
CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so widely advertised.
H. & S.'s Varnish has been an article of common use on some of the large estates in the kingdom for upwards of thirty years, and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.
Large Illustrated CATALOGUE of Fencing, Hurdles, Gates and Entrance Gates, &c., sent free on application to
HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 180, Buchanan Street, Glasgow.

JOHNSON BROTHERS & COMPANY (Limited),

6, WATERLOO PLACE, LONDON, S.W.,

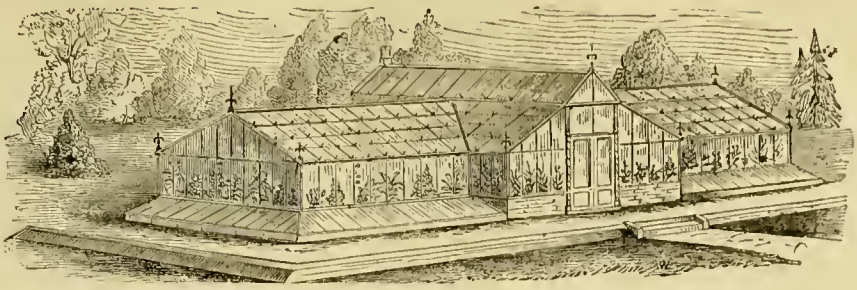
Manufacturers of

PATENT HOTHOUSES

and every description of Roof where Glass is required.

The Glazing is effected entirely without Putty and all materials being of an imperishable nature, the usual heavy expenditure in the maintenance of Putty-glazed Houses is avoided.

HEATING by HOT WATER, on the most approved principles.



Testimonial from Joseph S. Moye, Esq., *Architect to the Hurlingham Club.*

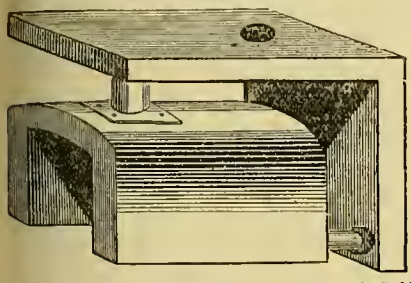
"Gentlemen,—I have much pleasure in stating that during the recent heavy storms there has not been the slightest leakage or drip through the roof of the Smoking Saloon at Hurlingham, and may safely recommend it as being thoroughly efficient and sound in construction. The Ventilation is also perfect.—I am, Gentlemen, faithfully yours,

"Joseph S. Moye,

"3, Southwick Street, W.,

"June 2, 1881."

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1000	16	0	0
24 ,,	24 ,,	48 ,,	1400	20	0	0
28 ,,	28 ,,	60 ,,	1800	25	0	0

Larger sizes if required.

From Mr. Charles Young, *Nurseries, Balham Hill, S.W., May* 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES and SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

When ordering Boilers please refer to the above advertisement.

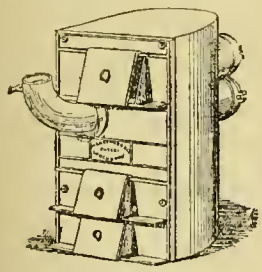
STOVES—STOVES.

Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Healthy Heat twenty-four hours or longer for about 1*d.*, without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Pateotee's—THOMAS ROBERTS,

112, Victoria Street, Westminster, S.W.



THE "LOUGHBOROUGH" BOILER, now introduced, is intended to supply a want long felt, of a cheap Boiler for small Greenhouses, requiring neither brick setting nor iron case. The Boiler is placed in the wall of the Greenhouse, so that the heat from the Boiler itself is utilised in heating the house.

Price with fittings, £2 2*s.*

The apparatus for a Greenhouse, 20 feet by 12 feet, complete, for £6 8*s.* Prices and full particulars on application.

MESSENGER and CO., Loughborough.

The Best System of Heating is by Hot Water.
The Best Hot-Water Joint is Jones' Expansion Joint.

JONES & ATTWOOD,

ENGINEERS & IRONFOUNDERS,

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THE BEST

HOT-WATER JOINT.

Medal Awarded, Horticultural Show, Aston, 1875.

SIMPLE, DURABLE, NEAT, CHEAP.

Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c.

Illustrated CATALOGUE; also Estimates for Heating with the most improved BOILERS, EXPANSION JOINT PIPES, or COILS, on application.

PIPES and FITTINGS,

FOR HEATING APPARATUSES.

The largest stock in the Kingdom. 4-inch pipes, 1*s.* 6*d.* per yard.

SILVESTER & SAINSBURY,

Castle Hill Foundry, Newcastle, Staffordshire.

THE COTTAGE POULTRY HOUSE, TENANT'S FIXTURE.

Of improved construction, can be erected in a few minutes, with Roosting House, Covered Run, Nests, Perches, &c., complete, 12 feet long, 4 feet wide. Price £6 10*s.*, carriage paid. Write for Illustrated Catalogue, containing useful Treatise on Poultry Management, free by post.

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GREENHOUSE SASHES,

6 feet by 3 feet, Best Pine, Primed and Glazed,

15-oz., 9s.,

21-ounce, 10s. 6d. each.

W. RAMSEY,

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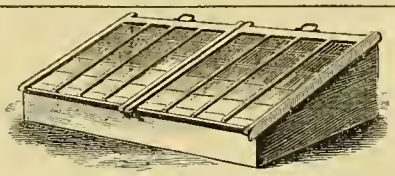
GLASSHOUSES & HEATING.

B. W. WARHURST & SON

PRICE FREE

HIGHGATE ROAD, LONDON, N.W.



No. 75. MELON, or CUCUMBER FRAMES.

CASH PRICES—Carriage Paid.

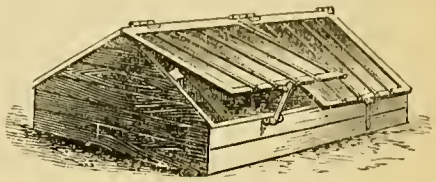
No. 2 size	..	8 ft. long	..	6 ft. wide	..	£3	7	6
No. 3 size	..	12 ft. long	..	6 ft. wide	..	4	17	6
No. 4 size	..	16 ft. long	..	6 ft. wide	..	6	7	6

These Frames are 13 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. These Frames are made of the best hard red deal, shipped from the best districts for durable wood, all painted four coats of best oil colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales; also to Edinburgh and Dublin.

Estimates for Garden Frames, Pit Lights, Sashes, &c.

"The Frames you sent me give the greatest satisfaction."—W. Smith, *Bentley Terrace, Melton Mowbray.*

BOULTON & PAUL, NORWICH.



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R. HALLIDAY and CO. desire to draw special attention to their Plant Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

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6 feet long, 5 feet wide	3	15	0
12 feet long, 5 feet wide	6	10	0

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R. HALLIDAY and CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.

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HORTICULTURAL BUILDER,

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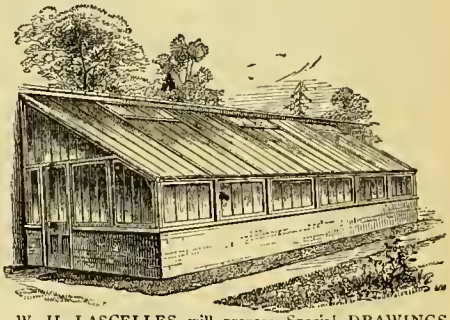

W. H. LASCELLES will prepare Special DRAWINGS and ESTIMATES for GREENHOUSES, if desired, without charge, and send his Illustrated Sheets, post-free, and also Sketches of Wooden Buildings for Tool-houses, Store-houses, &c.

Horticultural Work of every description executed in the very best manner.

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Royal Botanical Gardens, Stretford, Manchester, October 22, 1879.

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To Mr. E. G. HUGHES.

Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d., 7s. 6d.; Gallons, 12s. 6d each.

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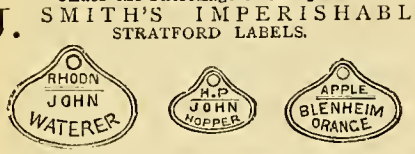

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Samples and Price Lists free.

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DOULTON'S
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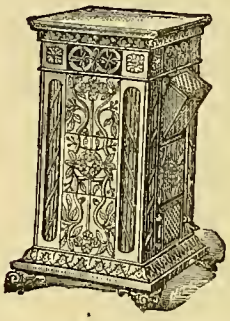

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This paper offers an excellent medium for Advertisements of every description of industry and of every article of Consumption in the countries and places above mentioned.

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Address, the Editor of the *Cultivator*, St. Michael's, Azores.

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AND
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MANUFACTURERS TO THE QUEEN, BELFAST.

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TWO SHILLINGS PER DOZEN IN LONDON,
or Half-a-Crown packed for the Country
LARGE CHAMPAGNE BOTTLES.
GUARANTEED PURE DISTILLED WATER,
Aërated with Carbonic Acid Gas and nothing els
No Soda! No Minerals! No Impurities!
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WANTED, a Temporary MANAGER f the Hull Botanic Garden Co. (Limited). Must b thoroughly competent Gardener.—Applications to be sent to t DIRECTORS, 16, Parliament Street, Hull.

WANTED, a HEAD GARDENER, for miles from London.—Thorough general knowledg married; to live in lodge; Wife to keep entrance gate. O those with first-class references for sobriety need apply. P perquisites.—Apply, stating age, full particulars of experienc and wages required, J. D., 158, Great Dover Street, S.E.

Leicester Borough Asylum.—Gardener Wanted.
WANTED, a thoroughly good WORKIN HEAD GARDENER.—Must understand Gardeni in all its branches. Wages 25*s.* a week, with house and gard attached, rent and rates free. Preference will be given to a m who has had experience with Stock, or having a knowledge Sewage Farming.—Apply on or before Tuesday, October either personally or by letter, giving references as to charact and capabilities, to Dr. FINCH, Medical Superintende Leicester Borough Asylum.

WANTED, a HEAD WORKING GA DENER, with Wife as thorough LAUNDRESS. T Gardener must thoroughly understand the Management of Fr and Flower Gardens, Grapes and Melons, Conservatory a Orchard-houses. He has one assistant. Wages for Man a Wife, 32*s.* per week, with a good house.—Apply to M. C. Mrs. Willett Baker Red Hill, Surrey.

VANTED, a SECOND GARDENER, with good character and thorough knowledge of the fession, w thout encumbrance preferred. Lodge and coals vided. Wife to open gate.—State wages required, and all ticulars, by letter only, to W. H. WORTHINGTON, Esq., went Bank, Derby.

VANTED, in a large Nursery, a young MAN, aged 25 to 30, under the General Foreman—one ing a thorough knowledge of Fruit Trees and their Cultiva- t; must be an expert and successful Budder and Grafter. ll be required to assist in the execution of orders. Good acter indispensable. Apply, stating wages required, to J., *Gardeners' Chronicle* Office, W.C.

VANTED IMMEDIATELY, a GROUND OFFICER and FORESTER, for an Estate in Aber- dshire, Scotland. Must be thoroughly acquainted with lining Dyking, the Planting and Management of Trees, and to Measure Land, Draw Plans and Specifications, and ntend the Erection of Farm Buildings.—Apply, by letter, statement of age, qualifications, experience, and references, OHN GORDON, Parkhill, Aberdeen.

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THE

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RICHARD SMITH AND CO., Nurserymen, Worcester.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

Hyacinths, Tulips, &c.
BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B. have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

LAKE DISTRICT FERNS. — Twenty varieties, including virida, Ceterach rigida, lobatum, Royals, angulare, 3 of each, 5s.; or 5 of each, 7s. 6d.; carefully packed and correctly named. LIST free.
JAMES STEPHENSON, 43, Fell Croft, Dalton-in-Furness.

HARDY and COOL CONSERVATORY CLIMBERS.—A most Complete LIST of above, including grand Specimen Magnolias, &c., will be posted gratis to all applicants.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application.
Lion Walk, Colchester.

CEDRUS DEODARA
Handsome plants, well-rooted:—
3 to 4 feet .. .. 26s. per dozen, 200s. per 100.
4 to 5 feet .. .. 36s. per dozen, 250s. per 100.
Trade price on application.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton

RICHARD ILLMAN can supply Gold, Silver and Green EUONYMUS, 2 to 3-yr. old, 8 to 14 inches high, very bushy, 70s. per 1000, for cash.
The Nurseries, Strood, Rochester.

HELLEBORUS NIGER —the CHRISTMAS ROSE.
Nice, fresh imported plants of this valuable and beautiful Winter Flower now ready for delivery. Prices, 25 roots, 6s.; 50, 10s. 6d.; 100, 15s.; 500, 60s.; 1000, 100s.; 5000, £20.
HOOPER AND CO., Covent Garden, London, W.C.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

CABBAGE PLANTS.—300,000 Robinson's Drumhead, 2s. 6d. per 1000; 100,000 Early Rainham, 3s. per 1000, for Cash, put on at Heckington Station.
JOHN TINDALL, Heckington, Lincolnshire.

MULBERRIES, LIMES, &c., by the dozen or 100. Prices on application to
PONSFORD AND SONS, Nurseries, Brixton, Surrey, and Bromley, Kent. Also GENERAL NURSERY STOCK.

SALES BY AUCTION.

Monday Next.
UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, and every following Monday, extensive consignments of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other BULBS from Holland, lotted to suit the Trade and private buyers.
Catalogues at the Mart, and 8, New Broad Street, E.C.

Important Sale of a First-class Collection of Dutch BULBS, a superb assortment of about 300 Standard and other ROSES, selected FRUIT TREES, hardy CONIFERÆ, SHRUBS and AMERICAN PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, the above, at the City Auction Rooms, 38, Gracechurch Street, E.C., on TUESDAY, October 25, at 12 o'Clock precisely.
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Friday Next.
UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, at 12 o'Clock precisely, 700 Lots of DUTCH BULBS, consisting of choice Hyacinths, Tulips, Crocus, Narcissus, Snowdrops, Lilies, &c.; also a very fine assortment of particularly well-grown GREENHOUSE PLANTS, including Azaleas, Ericas, Epacris, Cyclamens, Solanums, Dracænas, Exotic Ferns, Palms, Roses, Bouvardias, &c.
On view morning of Sale. Catalogues at the Mart, and 8, New Broad Street, E.C.

Wandsworth Common, S.W.
GREAT UNRESERVED FOUR DAYS' CLEARANCE SALE, the Land having to be cleared immediately for Building.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. R. & G. Neal, to SELL by AUCTION, on the Premises, the Nurseries, Wandsworth Common, S.W., close to the station, on TUESDAY, November 1, and three following days, at 12 o'Clock precisely each day, several acres of valuable NURSERY STOCK, in good condition for removal, including 20,000 Deciduous Shrubs, 3 to 6 feet, in great variety; 2000 Standard Weeping Trees, 10,000 Poplars, of sorts, 10 to 12 feet; 10,000 Limes and other Ornamental Trees, 4000 fine trained and other Fruit Trees, 10,000 Ivies in pots, 5000 Green Hollies, 2 to 6 feet; 20,000 bushy oval-leaved Privet, 3 feet; 2000 Aucubas, 2000 Rhododendrons, 5000 Virginian Creepers in pots, 5000 Climbing Plants, thousands of Coniferæ and Evergreen Shrubs, 10,000 Herbs, of sorts; 50,000 Asparagus, and large quantities of other Stock too numerous to mention.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.
On view the mornings of Sale, and Catalogues had.

Thursday Next,
ODONTOGLOSSUM SANDERIANUM, Rchb. f.
Prof. Reichenbach says:—"Flowers are equal and very much like those of Odontoglossum nevadense."
ANGRÆCUM ARTICULATUM.
The major form of Angræcum Ellisii, one of the rarest and finest Orchids extant. Professor Reichenbach says:—"This species flowered first in Europe, September, 1871, with Rev. Mr. Ellis; its fine ivory-white flowers stand in a raceme, that finally surpasses a span's length. It is stronger, easier to grow, and flowers earlier than Angræcum Ellisii, whose dangerous rival it must be regarded."

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 27, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, St. Alban's, a superb Importation of each of the above NEW ORCHIDS. The whole of the lots are in splendid health.
May be viewed the morning of Sale, and Catalogues had.

Thursday Next.
LILIUM AURATUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 27, an Importation of 2000 Bulbs of LILIUM AURATUM from Japan, just arrived in fine condition.
May be viewed the morning of Sale, and Catalogues had.

To Noblemen, Gentlemen, and Others intending TO PLANT.
EXTENSIVE SALE of VALUABLE NURSERY STOCK.

MR. DAVID MITCHELL, HORTICULTURAL AUCTIONEER and VALUER, has received instructions from Messrs. Peter S. Robertson & Co., to DISPOSE OF, by PUBLIC AUCTION, at their Nurseries, Inverleith, Edinburgh, on THURSDAY, November 3, at 11 o'Clock, many millions of SEEDLING and TRANSPLANTED FOREST TREES, composed of Native Larch, true Native Scotch Fir, Black, White, and Norway Spruce, in various sizes; Austrian, Cembra, and Laricio Pines; Silver Fir, Privet, Thorns, Beech, Birch, Poplars of sorts, Ash, Elm, Sycamore, Oak, Maple, Alder, Hazel, Hornbeam, Laburnum, Spanish and Horse Chestnut, Scarlet and common Elder, &c.; all in the finest possible condition for removal. There will also be exposed for sale some thousands of well-grown SHRUBS and ORNAMENTAL DECIDUOUS TREES for immediate effect, comprising Bay and Portugal Laurels, Hollies, Junipers, and other choice Shrubs.
Catalogues now ready. Note.—All the lots purchased will be carefully lifted and put on rails in bulk, free of cost, by P. S. R. AND CO.; four months, or up till March 1, 1882, being allowed for removal, thus giving purchasers ample time to choose their own planting season.
N.B.—Mr. MITCHELL would beg to draw the attention of Planters to this IMPORTAAT ANNUAL SALE. He also takes this opportunity in intimating to intending purchasers that, from his long experience and knowledge of Trees and Shrubs, he is enabled to give practical advice as to kinds suitable for different districts.
6, Comely Bank, Edinburgh, October 1, 1881.

Collycroft, near Ashbourn, Derby.
CLEARANCE SALE.

MESSRS. BROWNSON AND SON will SELL by AUCTION, at Godwin & Son's Old Nursery, Collycroft, near Ashbourne, on WEDNESDAY, November 9 next, at 11 o'Clock, several thousand Red-twigged LIMES, from 6 to 12 feet; English YEWS, from 3 to 6 feet; and sundry lots of Trained, Standard, and Dwarf PLUMS, Standard ROSES, APPLE TREES, &c.
Clifton Station (North Staffordshire Railway) is half a mile from the Nursery, and trains arrive at 10 and 12.50.

TO BE DISPOSED OF, a good SEED and NURSERY BUSINESS: a great bargain. Fine Shop, in good situation. Good Dwelling-house, Nursery, and Greenhouses, all well stocked. Long lease, low rent. For particulars apply to
FLOOD AND SONS, Westbourne Grove, London, W.

Nursery, near Crystal Palace.

FOR SALE, a bargain, Goodwill, 19 years' Lease. Good Dwelling-house, Greenhouse, with Vinery 100 feet by 16 feet, and Stock. Nearly half an acre of good Land. Established 16 years. One contract pays the rent. Good chance for business man. Apply to
WALFORD AND WILSHIN, House Agents, Anerley, S.E.

FOR SALE, a SEED BUSINESS, in a good Town in the Midlands. Convenient Premises, well fitted up, and capital position in main thoroughfare. Stock and Fixtures at Valuation or by Agreement. An excellent opening for moderate capital. For full particulars apply,
VENDOR, *Gardeners' Chronicle* Office, W.C.

TO BE SOLD, by TENDER, without reserve, a SEED and FLORIST BUSINESS, doing a good Trade; Four new Glasshouses, &c., heated with 1000 feet of 4-inch pipe, well stocked; good Shop, well fitted and stocked. A portion of the purchase money can remain. Tenders to be in on November 1. An inspection and Tenders solicited,
Apply on the Premises, to C. FREELAND, close to Station, Tonbridge.

TO BE LET, a good old-fashioned GARDEN, with fine Timber Trees, in connection with a convenient House on the hill at Croydon, by order of the Executors, as the late owner, whose family now occupy and for many years have occupied the adjoining larger and more important property, the two gardens being separated by a strained wire fence and evergreens. House just repaired; about 17 or 18 rooms, and accessories not obtainable in connection with a modern builder's house. Rent £120. Stabling if needed. Apply to
Messrs. BLAKE, SON AND HADDOCK, 21, High Street, Croydon; or to Messrs. DEBENHAM, TEWSON, FARMER AND BRIDGEWATER, 80, Cheapside, E.C. (34,744.)

LANDSCAPE GARDENING.—ALEXANDER SHEARER, many years Head Gardener to the Marquis of Tweeddale, Vester, having COMMENCED BUSINESS as LANDSCAPE GARDENER, is prepared to give Plans, Specifications, &c., for Laying-out Ornamental Grounds, Parks, and Plantations, and the Erection of Vineries, Conservatories, and other Horticultural Buildings, on the most approved system of construction and heating. From wide experience and practical knowledge of the best mode of carrying out such operations, A. S. confidently anticipates being able to give satisfaction to all who may favour him with their patronage.
4, Marchmont Street, Edinburgh.

DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., and 12s. 6d. per 100; 30s., 42s., 63s., 84s., and 105s. per 1000. Descriptive LIST on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

APPLE TREES with MISTLETO growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

KENTISH FRUIT TREES.—One of the largest and best stocks of every description, in 300 Varieties, including the most profitable kinds for Market Growers, at 25 to 50 per cent. under usual prices. Immense stock of AUCUBAS, 1 to 5 feet, very cheap.
T. EVES, Gravesend Nurseries.—Established 1810.

TO BE SOLD AT ONCE, for £7 10s., a nice Collection of about 70 ORCHIDS. Many are good-sized flowering plants. Includes Cœlogyoe cristata (making 8 bulbs), C. flaccida, Oncidium curtum (about to flower), O. v. Rogersii, Odontoglossum grande, O. Alexandræ, O. vexillarium, &c.; Dendrobium densiflorum, D. crumenatum, Lælia autumnalis (in basket), Cattleya citrina, and many others.
LIST on application.
Apply to C., 5, Eaton Villas, Loughton, Essex.

ISAAC DAVIES' SELECT LIST of Sweet-scented and other RHODODENDRONS and AZALEAS (including Rhododendrons Daviesii and floribundum, which have received several Certificates and are now being sent out for the first time) is now ready and will be forwarded to any address on application.
Some of the Sweet-scented Rododendrons at 21s. each are large bushes, 2½ to 3½ feet high, and covered with flower-buds.
Brook Lane Nursery, Ormskirk.

TO THE TRADE.

CYCLAMEN PERSICUM, all colours	*Unflowered Seedlings, Splendid Quality, large 60's 50s. p. 100, in 48's 70s. per 100.*
CYCLAMEN GRANDIFLORUM, newest sorts	
CYCLAMEN GIGANTEUM, in variety	

Sample Roots, 6d., 1s., and 1s. 6d. each, according to sort.

JAMES CARTER & CO.
237 and 238, HIGH HOLBORN, LONDON, W.C.

New Catalogue of
BEAUTIFUL FLORISTS' FLOWERS, i
Garden Decoration or Exhibition, should be planted bought now for next year's bloom, all named, fine varieties (common Seedlings).
DELPHINIUMS, PYRETHRUMS, and PÆONIES, per dozen; 12 of each for 21s.
POTENTILLAS, 6s. per dozen.
Show or Fancy PANSIES, the finest sorts, PHLOXI PENTSTEMONS, ANTIRRHINUMS, 3s. 6d. per dozen; of each (5 dozen) for 15s.
CATALOGUES, post-free; terms cash.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrinchan

New Catalogue of
HERBACEOUS PLANTS.—Selections the finest sorts for Garden Decoration, cheap, all nam poor weedy varieties not included. The present is the b time to plant.

	Per dozen.	Per 50.	Per 100.
	s. d.	s. d.	s. d.
The Finest Sorts ..	6 0 ..	21 0 ..	35 0
Good Sorts	3 6 ..	13 0 ..	25 0
Rock Plants	3 6 ..	13 0 ..	25 0

Spring Flowering PERENNIALS (not Violas or Pansi the brightest, the finest, the hardiest—colours White, Yell Red, or Purple—including DAISIES, 5s. per 100, exclud Daisies and the red colour, 8s. per 100.
BEDDING VIOLAS or PANSIES, fine named sorts (Seedlings), in colour as desired, per dozen, 2s.; per 100, 8 10s., or 12s., according to variety. One of the finest collectio and thousands of strong plants.
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STOVE and GREENHOUSE PLANTS.—The cheapest in the Trade. All buyers invited to insp the large fine stock of clean, healthy, low priced plants of th at the Oldfield Nursery, 8 miles from Manchester, 25 miles fr Liverpool, 30 miles from Chester, 32 miles from Cre Altrincham, West Timperley and Broadheath Stations, all n the Nursery.
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THE FOLLOWING, of t

Finest Strains:—	From stores.	In 5-inch po
CINERARIAS .. .. per doz.,	1s. 3d. good plants:	5s.
PRIMULAS .. .. ,,	— ,,	5s.
RHODANTHE, coming in bloom .. .. ,,	— ,,	5s.
Herbaceous CALCEOLARIAS .. .. ,,	2s.; in 3-inch pots,	4s.

New Catalogue of
DUTCH and FRENCH BULBS, HY CINTHS, CROCUS, TULIPS, and other BULBS a ROOTS. In this department we combine the best quality t can be bought with moderate prices, by adopting the princi of small profits and quick returns. Terms cash.
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STRAWBERRY PLANTS.—Before buyi see our List, about 50 varieties, true to name. Purchase selection, 3s. 6d. per 100; ours, 2s. 6d. per 100; 500, in sorts, 1 FRUIT and FOREST TREES, ROSES, RHODODEN DRONS, CONIFERS, THORN QUICKS, &c., all good quality and low in price, from
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

3000 Camellias, Azaleas, and Heaths. 30
AZALEAS in all the best varieties for Forcir and Greenhouse, bushy plants, well set with flow buds, 18s., 24s., 30s., and 40s. per dozen; AZALEA MOLL and GHENT AZALEAS, extra strong plants, well set w flower-buds, 2s. and 2s. 6d. each, 20s. and 25s. per doze CAMELLIAS, well set with flower-buds, all distinct varieti 21s., 25s., and 35s. per dozen. ERICAS and EPACRISE 18s. and 25s. per dozen. CATALOGUE on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

SPECIAL OFFE TO THE TRADE.

5000	ERICA HYEMALIS, 60-pots,	per 100,	20s.
8000	,, WILMOREANA	,,	15s.
2000	,, PERSPICUA ERECTA	,,	20s.
2000	,, HYBRIDA	,,	18s.
2000	,, GLOBOSA ALBA	,,	16s.

The above are all fine healthy plants.
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Dutch Bulbs direct from the Growers.
ANT. ROOZEN AND SO HYACINTHS, TULIPS, CROCUS, GLADIOI &c., at Growers' Prices, delivered entirely free to the Railw Stations in London, Edinburgh, Leith, Glasgow, Hull, Liv pool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-o Tyne. Orders amounting to £8 are sent carriage paid destination. Our complete and revised CATALOGUE, English, for 1881, is now ready, and will, as usual, be hand to all Gardeners and Amateurs free on application to our Agent Messrs. MERTENS AND CO., 5, Billiter Square, Londo E.C., or to ourselves direct. Early orders requested.
Collections B, C, E, and F, can be had from Mess MERTENS AND CO., during the season; also half C and Collections, at 10s. 6d. each, against cash payment.
ANT. ROOZEN AND SON, Nurserymen, Overveen, ne Haarlem, Holland.

GOLDEN EUONYMUS, Silver and Gree fine plants, in pots, 6 to 18 inches high, per dozen 100, price on application; and also a few thousand EAS LOTHIAN STOCKS, Scarlet and White, fine plants, 2s. p 100, 15s. per 1000. Cash with order. Please apply to
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GRAPE VINES and ORCHARD-HOUS TREES in POTS.—GRAPE VINES, extra stron sbort-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARI HOUSE TREES, Fruiting in Pots, consisting of Peache Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Fig Descriptive Price LIST for 1d. stamp.
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Autumn Planting.
FOREST and ORNAMENTAL TREE and SHRUBS. Intending Planters are respectfully i formed that the extensive stocks of Seedling and Transplante Trees and Shrubs are this season in excellent condition. Spec offers upon application.
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"CHIONODOXA" COLLECTION OF BULBS

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BEDS and BORDERS,

£1 1s.

This Collection will contain Bulbs of the lovely new CHIONODOXA LUCILLIÆ, or Glory the Snow, which has been so much praised by those who have seen it; also the very varied sortment named below. If any varieties are not required we will substitute those asked for.

6 Chionodoxa Lucilliæ	12 Oxalis	6 Pancratiums	100 Tulips
12 Hyacinths	12 Jonquils	24 Narcissus	25 Ranunculus
50 Snowdrops	100 Crocus	25 Anemones	12 Bulbocodiums
25 Aconites	6 Scillas	6 Triteleias	6 Babianas
12 Dog's-tooth Violets	12 Fritillarias	12 Alliums	3 Cyclamen
6 Tritonias	6 Ixias	6 Sparaxis	12 Muscari.
6 Gladiolus	25 Iris	6 Lilies	

Half Collections, 10s. 6d. Double Collections, 42s.

£1 in value carriage free.

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BULB MERCHANTS, CIRENCESTER.

EW CRIMSON-FLOWERED BOMAREA, "BOMAREA CONFERTA."

SHUTTLEWORTH, CARDER & CO.

Have great pleasure in offering the above beautiful species.

As a Conservatory Climber it is unequalled, its lovely, many-flowered bunches of rich crimson, pageria-like flowers rendering it especially attractive. Every head of bloom will produce from rty to sixty flowers, each flower being from 2 to 2½ inches long. *Vide* description, by Dr. asters, in the *Gardeners' Chronicle* for September 10, 1881, p. 330.

Strong, healthy Plants are now offered, price 10s. 6d., 21s., and 42s. each.

A few extra strong plants, price on application. Usual Discount to the Trade.

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HORTICULTURAL BUILDERS.

irst Prize for Best Greenhouse, June 8, 1881,
Royal Horticultural Society—Sixteen Competitors.

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irst Prize for Best and Most Durable Greenhouse, August 23, 1881,
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With other matters pertaining to Roses and the Rose Garden, in aid of Exhibitors and all Lovers of the Queen of Flowers, will appear in

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For OCTOBER 29.

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		s.	d.
ANTHURIUM SCHERZERIANUM, in 60's ..	each	2	6
GARDENIA GRANDIFLORA, in 48's	dozen	24	0
CROTONS, splendid variety, from	,,	12	0
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ADIANTUM CONCINNUM, in 60's	,,	9	0
,, FARLEYENSE, in 60's	,,	24	0
BOUVARDIA, ALFRED NEUNER. The new double white—the finest stock in Europe, doz., 55s. & 100			0

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ROSES—Strong Dwarf, in variety, 35s. per 100.
SCOTCH ROSES, strong Double White, 10s. per dozen.
RANUNCULUS ACONITIFOLIUS, fl.-pl., 6s. per dozen.
MYOSOTIS SEMPERFLORENS, 2s. per dozen.
DAHLIAS, store roots, Guiding Star, &c., 4s. per dozen.
SPIRÆA JAPONICA, large clumps for forcing, 10s. per 100.
Cash with order from unknown Correspondents.
Inspection solicited.
G. WERMIG, Lingfield Nursery, Woking, Surrey.

Roses! Roses! Roses!

The Finest Lot of Plants in England,

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Tea Roses.—To the Trade only.

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SUMMERHOW NURSERIES, KENDAL,

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MARECHAL NIEL, NIPHETOS, and GLOIRE de DIJON,

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SEVERAL THOUSAND BOUVARDIAS

still on hand, in 4½-inch pots, 9s. per dozen.

Also ADIANTUM CUNEATUM,

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Plants given over to compensate for Carriage.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

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STRONG HEALTHY PLANTS.

	Per doz. s.	d.	Per 100. s.	d.
PRIMULAS, finest strain, fringed	1	0	7	6
AQUILEGIA albo-cœrulea	0	9	5	0
POTENTILLA atrosanguinea	0	9	5	0
CANTERBURY BELLS, fine mixed ..	0	9	5	0
MIMULUS, large flowered, splendidly marked	0	9	5	0
CAMPANULA pyramidalis	0	9	5	0
SWEET WILLIAMS, finest strain	0	9	5	0

Post-free, or extra plants for carriage.

H. J. HARDY, F.R.H.S.,
Stour Valley Seed Grounds, Bures, Suffolk.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

Standard and Dwarf Roses.

THOMAS S. WARE'S Autumn CATALOGUE of the above, also Climbing, Noisette, Tea, Moss, and all the finest Single Roses, Standard Ornamental Trees, Miscellaneous Hardy Shrubs, a most complete List of Hardy Climbing Plants, including grand specimen Magnolias, 4 to 6 feet, is now ready. Post-free on application.
Hale Farm Nurseries, Tottenham, London.

To the Trade.

MILES' HYBRID SPIRAL MIGNONETTE.—New Seed of this splendid variety, saved from selected pot plants, now ready, and will be sent out this season in sealed 1s. retail packets only. Early orders solicited. Trade price on application.

MILES' NEW ZONAL PELARGONIUM, "West Brighton Gem," the best scarlet in cultivation, awarded First-class Certificate by the Royal Horticultural Society. 1000 good plants for Sale, cheap, before potting for winter. Address
W. MILES, West Brighton Nurseries, Cliftonville, or 30, Western Road, Brighton.

New Seedling Apple "The Queen."

Awarded a First-class Certificate by the Committee of the Royal Horticultural Society.

SALTMARSH AND SON, The Nurseries, Chelmsford, are now Booking Orders for this splendid variety, which they feel confident must become the most popular Apple for either Market or Exhibition purposes.

For description and Testimonials, see advertisement in this Journal on October 1, p. 452.

Maiden Plants ready in November, 10s. 6d. each, with the usual discount to the Trade.

A Supplementary List of Nurserymen ordering "The Queen," will shortly be advertised.

A correctly and beautifully coloured Plate, by Severeyns, of Brussels, will be sent to any address on receipt of seven stamps.

☞N.B.—The Stock being limited, early orders are requested.

STRAWBERRIES.—Strong roots for fruiting next year, 4s per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

TO SELL, from HAND to HAND, an extraordinary beautiful collection of very strong ANANAS PLANTS, 2-yr. and 3-yr. old (plus-minus 400 to 500 pieces), in the most pretty and finest sorts and varieties. May be had also in smaller quantity. For further particulars concerning prices, &c., apply to
Mr. A. P. VAN STRIEN, Gardener, Backershagen, at Wassenaar, near Leiden, Holland.

CABBAGE PLANTS, LETTUCE PLANTS, from selected seed stocks.—Fine autumn-sown Early Enfield Market, Early Rainham, Shilling's Queen, Sugarloaf, Nonpareil, Drumhead, Thousand-headed, Drumhead SAVOY, Green Curled SCOTCH KALE and ASPARAGUS KALE, 4d. per 100, 2s. 6d. per 1000. Bath Cos, White Cos and Immense Hardy Green LETTUCE, 6d. per 100, 4s. per 1000. BRUSSELS SPROUTS, CAULIFLOWER, Early and Late BROCCOLI, Red Pickling, &c. Send for LIST.

N.B. Plants guaranteed free from club. Well packed. Delivered on to rail.
EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

To Gentlemen, Nurserymen, and Builders.

R. AND G. NEAL, having to give up a portion of their Nursery for building purposes, beg to inform the Trade, and others engaged in planting, that they have a large and varied Stock that they can offer at a great reduction in prices to effect a clearance. An early inspection invited.

The Nurseries, Wandsworth Common, S.W., one mile from Clapham Junction, on the high road from Wandsworth to Tooting, and a quarter of a mile from Wandsworth Common Station, London, Brighton, and South Coast Railway.

HARDY FLOWERING PLANTS, PANSIES, VIOLAS, &c.

Our immense Stock is offered at one reduced uniform price, 1s. per dozen, in consequence of our Nursery Ground being sold to the London and North-Western Railway Company. Our GUINEA COLLECTION will be increased to thirty dozen, really worth £5, and sufficient to stock a Garden forever. Everything transplanted, not rooted offshoots. Baskets gratis. CATALOGUES free.
JOHN PIRIE AND CO., Stechford, near Birmingham.

3000 Tree or Perpetual Flowering Carnations. 3000

MISS JOLIFFE, blush pink; LA BELLE, white; A. ALEGATIERE, scarlet; LE FAVORI, carmine-pink; L'HERMINE, white, &c., 1s. 6d. and 2s. each, 15s and 20s. per dozen; SOUVENIR DE LA MALMAISON, 2s. each, 21s. per dozen; fine healthy stuff, in 48-pots, for early flowering. Full LIST on application.
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SPIRÆA PALMATA, the largest stock of Forcing Plants in Europe.

SPIRÆA JAPONICA fine forcing plants.

RHODODENDRONS, covered with buds, for forcing.

STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.

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CHARLES TURNER'S Descriptive CATALOGUE is now ready.

Fruit Trees.

CHARLES TURNER'S Select LIST of the above is also ready.

Ornamental Trees, Shrubs, &c.

CHARLES TURNER'S CATALOGUE may be had on application.
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HARDY BEDDING PLANTS, would make Flower Beds gay three months before Summer Plants can be used:—

VIOLA—DUCHESS OF SUTHERLAND, light mauve; GOLDEN PERPETUAL, yellow; ADMIRATION, purple; PURITY, white; in very strong plants of last year, at 12s. 6d. per 100.

DOUBLE DAISIES: SWEEP, crimson; GEM, pink; SNOWFLAKE, white; 5s. per 100.

SCHIZOSTYLIS COCCINEA—Now throwing up flower-spikes, 12s. 6d. per 100; strong clumps, in or out of pots, 5s. per dozen. Apply,
T. L. MAYOS, Nurseryman, Hereford.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 15s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.

BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

RHUBARB, Victoria and Albert, strong, per 100, 16s.; cask and packing included.
T. EVES, Gravesend Nurseries.—Established 1810.

STRAWBERRY PLANTS.—The two best late Strawberries are Unser Fritz and Helena Gloede. Fruit very large and of splendid quality, and most abundant bearers. Good plants 4s. per 100. A quantity of extra strong Sir J. Paxton plants at 10s. per 1000.
R. WHATELEY, Market Gardener, Kenilworth.

TO DISPOSE OF, a large quantity of prepared MANETTI and BRIER CUTTINGS, and also ROSE CUTTINGS, true to name, leading sorts.
DAVIS, Rose Grower, Sutton, Surrey.

CHOICE NAMED CARNATIONS and PICOTEES, strong plants, including all the finest varieties, 40s. per 100; TREE CARNATIONS, for winter flowering, good stuff, in 60-pots, 45s. per 100; BOUVARDIAS, VREELANDII and HOGARTH, good plants, 40s. per 100; CAMELLIAS, good bushes, well set, 2 to 2½ feet high, 24s. per dozen.
W. JACKSON, Blakedown, near Kidderminster.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

To Planters.

J. SCOTT begs to offer an exceptionally fine assortment of FOREST TREES and ORNAMENTAL SHRUBS, which are, this season, in excellent condition for removal. He also begs to make an especial offer of fine STANDARD PEARS, 6 feet stems and good heads, 18s. per dozen; PYRAMID PEARS, 15s. per dozen; fine WALNUT TREES, 6 feet stems, 18s. per dozen; PLUMS, 6 feet stems, 2 and 3-yr. old, 12s. per dozen; GOOSEBERRIES, Black, Red, and White CURRANTS, fine plants, 25s. per 100.

Six tons of fine ONIONS for sale; also 200,000 CABBAGE PLANTS, at 4s. 6d. per 1000.
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The Merriott Nurseries contain the finest collection of Hardy Fruit Trees in the World. See *Orchardist*.
CATALOGUES free on application.

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RHODODENDRONS—HYBRID SEEDLINGS, from the best crosses, to produce brilliant colours, fine bushes with flower-buds, 2 to 2½ feet high, 18s. per dozen; ditto, selected and numbered according to colour, well budded, 3 to 3½ feet high, at 30s. per dozen. SEEDLINGS, from scarlet, rose, and white varieties, each colour separate, good bushy plants, 12 to 15 inches high, at 30s. per 100.

RHODODENDRON CAUCASICUM ALBUM, fine healthy bushes, a portion with buds, 9s. per dozen.

AZALEA PONTICA, mostly with buds, 12 to 18 inches high, 5s. per dozen, 40s. per 100.

ANDROMEDA FLORIBUNDA, fine bushes, 12 to 18 inches high, 9s., 12s. to 15s. per dozen.

HOLLIES, Green, fine bushes, well rooted, 2 to 3 feet high, 15s. per dozen, £5 per 100.

PRIVET, Oval-leaved, 12 to 18 inches, bushy, 4s. per 100.

DAPHNE MEZEREUM, red, flowering plants, 15 to 20 inches, 4s. per dozen, 25s. per 100.

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Terms cash, or reference from unknown correspondents.
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About Eighty of the above to be cleared, 20 to 25 feet in height, well transplanted, stout, straight stems, and good heads. Apply to
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Strain of these cannot be surpassed. They are sold in Packets, 2s. 6d., 3s. 6d. and 5s. each; but quality is the same.

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COCOA-NUT FIBRE REFUSE,

3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.

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COCOA-NUT FIBRE REFUSE, new made, as supplied to nearly all the Principal Nurseries and Head Gardeners in England. In 4-bushel bags at 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3s. (truck load free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

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Fibre Works, West Ferry Road, Millwall, London.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchid Stove Plants, &c., £6 6s. per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per truck. Sample bag, 5s.; 5 bags, 22s.; 10 bags, 45s. Bags included. Fresh SPHAGNUM, 10s. per bag.

SILVER SAND, Coarse or Fine, 52s. per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 tons. GRAVEL, good colour, 25s. per truck of 6 tons.
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SOLUBLE FIR TREE OIL INSECTICIDE.

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DEAR SIR,—We have used your Fir-tree Oil, and find it a most effectual destroyer of all kinds of pests to which plants are subject. I have a very strong impression that it will be more extensively used, at any rate it ought to be.—I am, yours truly, BRUCE FINDLAY.
To Mr. E. G. HUGHES.

Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s., 7s. 6d.; Gallons, 12s. 6d. each.

Manufacturer, E. GRIFFITHS HUGHES, Operative Chemist, Victoria Street, Manchester.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlasted many preparations intended to supersede it. In Boxes, 2s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected parts.

GISHURSTINE keeps feet dry, softens leather, boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

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FOR SALE, a large quantity of TOBACCO CLOTH and PAPER, at 6d. and 5d. per pound. Or sold by the cwt. of 100 lb. weight or more delivered free. Apply to
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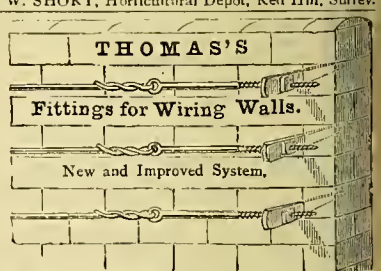

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Spaced about 10 feet apart for guiding the wires on the wall.
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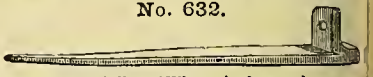

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The above pattern EYES and HOLDFASTS are very superior to those usually sold, being WARRANTED TO DRIVE THE HARDEST WALLS WITHOUT BREAKING.

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The following Prices give the total cost of each line of Wire, including Holdfasts, Straining Bolt, Intermediate Guiding, 10 feet apart, and best quality Galvanised Wire:—

Length of Wall	20 yds.	40 yds.	60 yds.	80 yds.
	s. d.	s. d.	s. d.	s. d.
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CROTONS—All the Newest and Best, finely coloured, from 3*s.* 6*d.* upwards, according to size and variety.

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TABLE PLANTS—In variety, handsome and choice assortment, from 42*s.* to 60*s.* per dozen, according to variety.

Also a fine Stock of all the leading **PALMS**, in all sizes, from 1*s.* 6*d.* each upwards.

Early Orders solicited, while the weather is favourable for transit.

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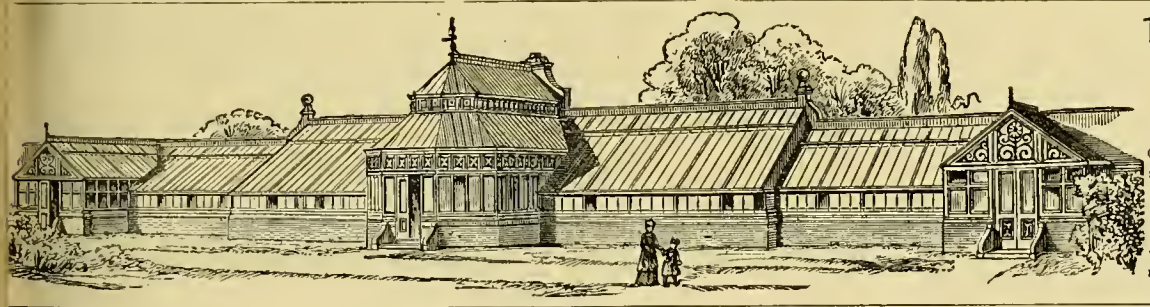

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FERNS from Devonshire, Cornwall, and Somerset.—(Best time to plant). Instruction Book for making Rockery, Planting Ferns, &c., with each 5s. order. 14 named varieties, 7s. per 100; small (post), 30 for 2s. Fine ASPLENIUM FONTANUM, SEPTENTRIONALE, and HOLLY FERNS, 1s. each; the three, 2s. 6d. 1000 varieties, British and Exotic. CATALOGUE 2d. Established 25 years.
E. GILL, Lodging-house Keeper, Lynton, Devonshire.

To the Trade.

ASPARAGUS ROOTS, for FORCING.—Very fine, 7-yr. and 8-yr. old, 50s. per 1000 for cash.
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BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.
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R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.
The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

An Over Stock

INDUCES the GIVING AWAY as under, for Cash:—
LIGUSTRUM OVALIFOLIUM, 3 to 4 feet, 30s. per 1000.
THUYA LOBBII, 2 to 3 feet, 25s. per 100.
STANDARD PEARS, 60s. per 100.
WEBB'S COB NUTS, 21s. per 100.
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5000 Cyclamen persicum. 5000

ALL FROM THE VERY BEST Covent Garden strains, dwarf, free bloomers, fine flowers, varied colours. Fine plants, to flower this autumn, in 54's and 48's, 7s. 6d. and 10s. per dozen; 55s. and 75s. per 100. Exceptionally fine plants, in 48's, now showing bloom, which will average over fifty flowers each, 25s. per dozen.
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MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

To the Trade.

FERNS—FERNS—FERNS.

	Per dozen. s. d.	Per 100. s. d.
PTERIS CRETICA	2 6	18 0
NEPHRODIUM MOLLE	3 0	20 0
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„ TREMULA	3 0	20 0
„ CRETICA ALBA LINEATA	3 0	20 0
LOMARIA GIBBA	3 0	20 0
PTERIS SERRULATA CRISTATA	3 6	25 0
„ LONGIFOLIA	3 6	25 0
NEPHRODIUM MOLLE CORYMBIFERUM	3 6	25 0
LYGODIUM SCANDENS	3 6	25 0
DOODIA MEDIA	3 6	25 0
GYMNOGRAMMA ARGYROPHYLLA PERUVIANA	3 6	25 0
GYMNOGRAMMA MARTENSI	4 0	28 0
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Many thousands of the above splendid stuff in 60's, fit to pot on. Special terms by the thousand. Orders over 20s. carriage paid to London. Sample plant of each for 5s.
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ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.
Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.
AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.
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CARNATION, GLOIRE DE NANCY.—The largest White Carnation. First-class Certificate this year. For full description and price, see New List of Hardy Florist's Flowers for immediate Planting, containing also Single and Double Pyrethrums, Pansies, Pæonies, Pinks, Yellow and Border Carnations, &c., free on application.
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TO SUPPLY THE TRADE.

SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, are now booking Orders for LILY of the VALLEY, very strong clumps; also SPIRÆA JAPONICA, DIELYTRA SPECTABILIS, &c.
Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.
☞ Please observe Name and Address.

Roses.—Roses.

MR. JOWITT, who is leaving the Old Weir, offers for Sale his magnificent collection of DWARF HYBRID PERPETUAL ROSES, from which upwards of FORTY FIRST PRIZES in the Amateur Classes have been gained this season, as also the TWENTY-FIVE GUINEA GOLD MEDAL at the Alexandra Palace, for the best 1000 Roses staged. Price for all the leading varieties, 1s. each. Cash with order.—Apply to Mr. JAS. ALDRIDGE, Gardener to T. Jowitt, Esq., Old Weir, Hereford.

TO BE SOLD, about 780 Yards of HORNBEAM HEDGE, 7 to 8 feet high, in splendid condition, and particularly well suited for Nurserymen or Horticulturists; also about 30 yards of PRIVET, and a small quantity of HORNBEAM and THORN mixed; now growing on the grounds of the Preston Nursery Company. Tickets to view may be had from, and offers must be made in writing to W. F. MOORE AND SONS, Chartered Accountants, 9, Chapel Street, Preston.

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CARTERS' POPULAR COLLECTIONS of BULBS

Comprise liberal Assortments, and consist of fresh-imported Roots of the most showy and easily cultivated varieties.

The total cost includes free delivery to nearest Railway Station in England or Wales, or nearest Irish or Scotch Port (unless under 21s. value); packing also free.

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(RCHB. F.)

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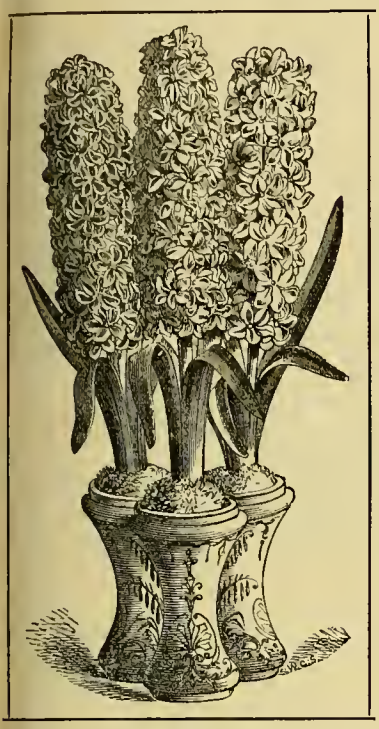

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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 22, 1881.

MY GARDEN.

AN old friend called the other day to tell me of his recent good fortune. He was a schoolmaster by profession, but passionately fond of flowers, and had done much in the neighbourhood in which he lived to promote and encourage a love of gardening. Early morning, noon, and evening he might have been seen mowing his bit of lawn, pricking out seedlings, budding his Briers, criticising his Roses, or, in the hot August days, gathering carefully the crackling seed-pods of certain so-called florists' flowers. I seldom passed his gate on my way to town without pausing a moment to glance under the drooping Sycamores at his charming cottage and garden.

Better times, it seems, had befallen the tall grey man. His story related to one of those agreeable reverses of fortune which occasionally befal even poor schoolmasters, and it was told me with a minuteness of circumstantiality and photographic nicety of detail which left no doubt of its genuineness. I will relate it, as nearly as I can remember, in his own words. "After more than thirty years spent in an arduous and ill-paid profession, I was at last to be the happy possessor of a garden and house of my own. The poor old uncle who had promised years ago to leave me his modest fortune, but had taken offence at some imaginary slight and altered his will, had at last relented, and left me enough to rest and be thankful. Never shall I forget the sensation of relief experienced when the kind and genial white-haired lawyer read the will, nor the pleasant twinkle in his calm grey eye as he glanced at me for a moment over his gold-rimmed eyeglasses. In order to retire from a profession which was gradually becoming distasteful to me through the petty annoyances of some who might have helped me with their sympathy, it was unnecessary to become a burden to one's children or wait with the hope deferred that had already sickened some brave hearts for the promised Government pension. At last I might delve and plant and till land of my own. Roses and Honeysuckle and Jasmine clustered on my porch and looked in at my cottage windows; Jargonelles and Plums and Figs ripened on my walls; the front garden was aglow with flowers—no one at any provincial show could touch me for Roses and Carnations, Grapes, Cucumbers, and Potatos. Already I was surrounded with all the usual accessories of a comfortable country home. But all this was mere conjecture: 'Now for business,' said I, so, wheeling round my easy chair to the open window, I lit my churchwarden with the air of a man who can afford to smoke in peace (wife and daughters being out to tea), and began to peruse the advertisement columns of that charming exponent of a certain phase of English character, the *Field*, purchased for this occasion only. For years I had borrowed the paper from a sporting friend, and read the attractive announcements with fond imaginings. I now examined them with the keen interest and swelling importance of a man who had the means to *purchase* 'Residential Estates, Charming Country Residence, Deer Forest

Moor, Woodland, Trout and Salmon Fishing,' &c. 'Old Manor House'—what's this? I put down my pipe for a moment, and rubbed my glasses — a kind of mist had suffused them as thoughts of my present good fortune mingled involuntarily with reminiscences of the past:—'Old Manor House, with large walled garden and paddock, ten minutes from a railway station and within half-a-mile of the sea. Freehold for sale.' Next morning I took a return-ticket to Beeminster, arrived at the station, and inquired of the railway porters for Appleton Lodge. They looked at each other significantly, and then directed me to the spot. I heard, however, as I was leaving, the half-suppressed guttural chuckle of ignorant people who think they know. As I approached the spot, and paused at the gate, an old lady hurried out of a neighbouring cottage, and held forward a bunch of rusty keys, saying, 'Take 'em, sir; but lock the doors after you, and give me the keys again.' I caught a side-long glance of her thin, troubled face and uplifted hand as she hastened back to her cottage. What did it mean? The place had evidently been long closed, and the front garden, where it was not shaded by Elms and Walnuts, was covered with tangled masses of shrubs and creepers and coarse weeds. It was a bird's paradise—rooks and jackdaws, starlings, blackbirds and thrushes cawed and chattered and sang in the trees above and on the earth beneath. The house itself was stone-built, gabled and bay-windowed, and the front, which faced the south, was literally smothered with Vines and Apricots, and the porch with Roses and Jasmine. The walls on the east and west were planted with Pears, Plums, and Figs. How strange! no one seemed to trespass here; pecks of Apricots and Plums lay rotting beneath the trees. A high buttressed wall bounded the property on the west, and a huge Holly hedge on the east. The front rooms were spacious and old-fashioned and wainscotted, with dark Oak dado. From the upper front rooms, by parting the screen of drooping Vines, one could see the mouth of a small river, and beyond it a line of blue sea. Some small coasting and fishing-boats lay moored in the little harbour, their slender masts cutting a line of distinct woodlands; on the left were some fishermen's huts, and on the right the Ivy-covered tower of a venerable church. I am describing the view as I saw it at first; it is somewhat changed now. The back garden was nearly an acre in extent, and rose at its further end to a level with the housetop. It sloped also towards the west, and was separated from the paddock by a pretty little stream fed from springs in the wooded hill on the north. The upper part of the garden was planted with Apple and Rose trees; the latter, having broken away from their supports, were rambling at their own sweet will. There was a rustic seat here, from which some charming Rose-bordered vignettes might be had of the village and wooded hills and sea. After sauntering for an hour or so through the shaded and silent rooms and the wild luxuriance of the gardens, I hurried back to Beeminster to treat for the purchase. Not without misgivings, however; the furtive glances and suspicious mutterings of the porters, and the wistful and troubled expression of the old lady's face, hinted at a mystery which I should have been glad to fathom. They said plainly enough, 'There, don't ask questions, we mustn't talk.' Then the vendor—his house of dingy and disreputable exterior, gloomy, musty, and forbidding within, and he himself of crabbed and anxious visage, from which one shrank instinctively. I caught the reflection of his sardonic grin as he turned his back for a minute in the glass door of a bookcase. His voice, too, was so harsh and business-like in its rapid utterance, so sharp—not a quaver of pathos—a hater he must be of children and flowers and music. The vivid recollection, however, of the fine old house and garden, and capabilities of the latter, prevailed. I bought the freehold of Appleton Lodge—it is mine. It was not without heavy hearts, however, that we turned our backs—I, my good wife, and daughters—on the Ivy-covered cottage and sweet little garden at Greenhill. It was the birthplace of my boys and girls, and we were leaving good friends there, and though now independent I could ill afford to lose them. Many were the little presents we received from poor and other folk, many the kind wishes expressed for our future happiness. But the sunshine at Greenhill had grown less bright and warm and cheery, and there were bluer skies and less east wind, and richer soil at Beeminster; so, notwithstanding furtive glances, and ominous whispers, and sinister shrugs, we settled down at Appleton Lodge. The ghosts of meddlesome managers refused for a time to be laid, and a dyspeptical and irate official still troubled us with inscrutable problems and crotchetty English; but he too retired at last to the dreamland of troubled teachers. The old school bell would ring, but its sounds would gradually dissolve into the long Heave-ho! of the homeward bound seaman and the songs of birds. The hurrying footsteps of children and the varied noises of busy school life would be lost in the pleasant rustle of leaves and the music of the rippling sea. *T. W., Harrow.*

(*To be continued.*)

New Garden Plants.

Odontoglossum Sanderianum, *n. sp.**

You have not Odontoglossum nevadense? Well, it is as yet in very few collections. The finest plant appears to be in the hands of Mons. le Professeur Du Boddaert, of Ghent, whose talents as a surgeon are so highly appreciated, and who sent me the grandest inflorescence I ever saw. Well, if one cannot have a particular thing one must be satisfied with a substitute, and such a substitute has just been discovered by Mr. Arnold, one of the numerous travellers of Mr. F. Sander. The flowers are equal, and very much like those of Odontoglossum nevadense, stellate, with lanceolate acuminate sepals and petals, bearing numerous chocolate stripes; the lip is free, cuneate, pandurate, apiculate, with numerous teeth on the border, a much larger anterior part, and erect margins to the basilar stalk. It has a double rhomboid, emarginate, hence two-toothed callus in front of the base. There is a dark triangular blotch in front of these two parallel calli. The ground colour of the flower is stated to be white by Mr. Arnold. The column is rather short and thick, with narrow triangular wings. So much for positive statements. If I were now permitted to speak of my suspicions I would recommend it as a point for further investigation, whether this is a species or a hybrid between Odontoglossum nevadense and O. nævium. It resembles so much the first that Mr. Sander believed it was that, and it has the calli of O. nævium. Such mysterious similarities usually have their sound bases. I feel inclined to believe that Mr. Arnold, being at the very spot of Odontoglossum nevadense, happened to collect a few flowers of a hybrid—*qui vivra verra*. Mr. Sander should keep whole the stock for himself, and dispose of the plants when they come into flower. Some portion of the proceeds might be sent for paper and cards to Mr. Arnold to make him send packets with fine specimens in lieu of those single flowers. In anticipation of such satisfaction I have dedicated the plant to Mr. F. Sander, in due acknowledgment of his great merits in bringing to Europe so very many plants; whether our Creolian brethren feel thankful for those services I am not very clear about. *H. G. Rchb. f.*

Polygonum multiflorum, *Thunberg.*†

This is a climbing or trailing perennial, with a tuberous root and numerous long slender reddish stems. The leaves are alternate, stalked, with a tubular truncate stipule or ochrea at the base of the stalk and surrounding the stem. The blade of the leaf is 4 × 3 inches, glabrous, shining, rather thick, deep green above, paler beneath, cordate ovate acute. The stalk measures 2 inches, is bright red in colour, and channelled on the upper surface. The flowe which we have not seen in the living state, are sm but very numerous, whitish, and borne in lo spreading panicles. The plant is a native both China and Japan, but although the young shoots down in winter, the rootstock has proved quite har in Mr. Bull's nursery, where it has been fully expos for the last two winters. It would make an excell plant for covering an unsightly fence or for covering wall or rockery. Probably with a little protection might be found evergreen. *M. T. M.*

Nepenthes angustifolia (*Mast.*), *sp. nov.**

This is a species newly introduced from Saraw It was found both by Mr. Curtis and Mr. Burbid and plants raised from seeds collected by the forn are now in Messrs. Veitch's establishment. It i slender species, with stems winged by the decurre (so-called) of the leaves. The leaves are subcoriaceo glabrous, 4 by ¾ inch, sessile, amplexicaul, decurre narrowly lanceolate, acuminate, with the midrib p longed into a long tendril. Pitchers 1¾—2 inc long, green, spotted with red, flask-shaped, disten at the base, gradually passing into an elongated cy drical neck, wings narrow, fringed; mouth obliqu ovate, sulcate-striate, lid glabrous, cordate, subo cular, with a short entire or pinnatisect spur at base. According to the dried specimens the pitch never attain much larger dimensions than those h stated, so that it will not take high rank as a dec tive plant. *M. T. M.*

DAHLIA GRACILIS SUPERB

Those who are conversant with the neat, dw bushy habit, elegantly cut foliage, and brillia coloured flower-heads of Dahlia gracilis, will at o agree with us that this type of the single varietie the one most deserving of encouragement for cu vation as border flowers, to the almost total exclu of the single forms of D. variabilis, which, if gro at all, should be relegated to the shrubbery bord where their tall habit, coarse foliage, and floppy flow heads are more in character with the surroundi We make an exception in favour of the best of large flowered whites—which, so far as our observat goes, is the White Queen—on account of its dwar habit and very effective inflorescence, and Paragon doubtless find its admirers on account of its pecu colouring, but it is tall and coarse, and to the degree inconstant as to colour. The forms bred fr the true D. coccinea of the *Bot. Mag.*, t. 762 (t with dark stems covered thickly with grey ha which are not shown in the above quoted figu rank next to D. gracilis in their fitness for the flo garden, being of moderate growth (averaging ab 3 feet), bushy in habit, and remarkably free floweri

Dahlia gracilis is the most recently introdu species, having been received from Mexico by Ortgies in 1873, through M. Roezl, and figured described by the former in Regel's *Gartenflora*, t. (1876). It is unlike all the other species know its more finely-cut foliage with long pointed segme which gives it a remarkably neat appearance, elegant effect being enhanced by the abundant play of flower-heads on slender wiry stalks eleva just above the dense mass of foliage. The flow heads have a single series of ray florets of a bri orange-scarlet colour, and measure 2½ inches or th abouts in diameter.

D. gracilis superba, which Mr. Smith has re sented in the annexed woodcut (fig. 97), is an impro seedling raised in the Chelsea Botanic Gardens so two years since, and now well proved for its consta of character and its brilliancy of colour. It form dense bush of slender twiggy growth, copiously nished with thin glabrous stems and branches, clothed with bipinnate leaves, of which the leaf are narrow and long pointed as well as tooth and the rachides are wingless. Its flower-heads a trifle larger than those of the type—about 3 inc across—and the colour is much deeper and rich being of an intense crimson scarlet; these, being displayed just above the dense mass of elegant folia are very beautiful, and we have no hesitation in s ing it is much the best variety of this Dahlia which have yet seen, though all of them are beautiful, a make most charming border flowers.

* *Odontoglossum Sanderianum*, n. sp. (hybr. ?).—Simile Odontoglosso nevadensi, Rchb f.: flore stellato, sepalis lateralibus divaricatis lanceis acuminatis; labello liberrimo cuneato pandurato; laciniis basilaribus erectis antrorsum, angulato-patulis, lacinia mediana oblonga apiculata, margine denticulato crispula, callis rhombeis longitudinalibus, medio emarginatis, hinc bidentatis, geminis in basi; columnæ clavatæ brevinsculæ alis triangulo-acuminatis erectis. Ex Am trop., miss. dom. Arnold. (Hab. sicc. a cl. Sander.) *H. G Rchb f.*

† *Polygonum multiflorum*, Thunberg, Flora Japonica, i., 169, ex Meisner, Monogr Polygon., p. 64, t. 3, et in DC. Prod.; *Pleuropterus cordatus*, Turczaninow, Decad., iv. and v.; Bull. Soc. Imp. Mosq. 1848, ex Flora, 1848, p. 714.

* *Nepenthes angustifolia* (Mast.), sp. nov.—Caule te alato; foliis subcoriaceis glabris amplexicaulibus—decurrenti anguste lanceolatis acuminatis integris; ascidiis ampullifor bus viridibus rubro-maculatis postice (quoad axin plantæ, an quoad ascidiam separatam), alatis, alis angustis membrana fimbriatis, ore suborbiculari parvo peristomio angusto sulc striato circumdato, operculo suborbiculari cordato ad b calcari brevi simplici vel pinnatisecto prædito.—Saraw Curtis, n. 123, in hort. Veitch! Burbidge, in herb. Kew!

Other forms which have been originated in the ame establishment, and which make a pleasing eries of varieties, are :—

D. gracilis fulgens, most nearly resembling D. gracilis superba, the flower-heads of a bright crimson-scarlet, some shades paler than in that variety, but equally free-blooming and effective.

D. gracilis ignea, with still more narrowly cut but ess distinctly serrated foliage, and producing brilliant iery orange-scarlet florets.

D. gracilis cuprea, very free-blooming, with florets of a pale coppery-scarlet, somewhat darker around the disc.

D. gracilis lutea, similar in habit to the preceding, but with the flower-heads of a chrome-yellow. Some other seedlings of the present year are very distinct and promising, but require further trial.

There is in cultivation a Dahlia called gracilis perfecta, which scarcely comes into this category. If a seedling of D. gracilis at all, it must have been crossed with some of the larger growers, as it is taller and stouter in growth, and coarser in its foliage. It has, however, remarkably brilliant flower-heads of a clear scarlet, and the foliage partakes in some degree of the cutting of that of D. gracilis. To avoid confusion with the true gracilis type, we should suggest its being hereafter grown under its name of perfecta (omitting gracilis), a name which it very well merits. It has been in cultivation for the last two or three years. *T. Moore.*

Fig. 97.—Dahlia gracilis var. superba: flowers crimson-scarlet. (see p. 574.)

DUNORLAN, TUNBRIDGE WELLS.

Dunorlan, the beautiful seat of B. H. Collins, Esq. (see figs. pp. 532, 533), is situated in the centre of one of the most charming localities near Tunbridge Wells, and but 1½ mile distant from the centre of the town. The mansion stands upon an elevation which commands a wide range of views over Kent and Sussex, and is approached by one of the finest Cedar avenues in England. The Cedars are not so remarkable individually as they are collectively, the different specimens being as nearly as possible of equal height and proportions. The carriage entrance leads to the north front, the lawns in front of which are gently undulated and furnished with fine Wellingtonias, Sweet Chestnuts, and other trees of different shapes and habits of growth. The design of the mansion, in the Italian style, is very pleasing and elaborately finished. The exterior is architecturally striking, and a fine conservatory, containing many choice plants, adorns the west side of the building. The pleasure grounds upon the west side are pleasingly clothed with trees standing in bold groups and masses. One of the finest specimens of Cupressus macrocarpa in the whole grounds outside the conservatory has suffered from the frosts of the past two winters, but is fast recovering itself, and the injury will hardly be noticeable after another season's growth. The view from the terrace upon the south side is charming beyond description. The lake at the bottom of the grounds which divides the park from the garden proper is 140 feet below the level of the house, and beyond it is a landscape so beautifully diversified with dense woods and fertile pastures that the eye is apt for the moment to travel far beyond the beauties of the dressed grounds.

The gravel terrace in front of the house is 240 feet long, and 34 feet wide, and the terrace wall is adorned with vases filled with choice flowering plants. At the east side of the terrace is a temple containing a figure of "Helen Douglas" of Sir Walter Scott's *Lady of the Lake*, with her dog Lufra. The terrace wall is 16 feet in depth, and is built of Caen stone, except the columns, which are of Portland stone. There is a projection about the centre of the terrace, semicircular in shape, at either side of which there are steps descending to the second terrace and flower garden.

From the projecting portion of the terrace a fine view of the lake is obtained, and the slope descending to it, together with fine English Yews and belts of trees upon the park side, which are truly beautiful. The planting by the sides of the lake has been very successfully accomplished. At one point the lake might be a deep ravine bordered by trees, but a little farther in the distance the gentle ripple of the water reveals the fact that it is a beautiful winding lake faithfully representing the natural curve of a river, having Weeping Birch and Willows overhanging the water's edge. The peeps between the trees leading to and across the lake are also exceedingly pretty, especially as the view is so commanding, and the eye can range over miles of woodland scenery and a country rendered interesting by its natural charms, and many sights and objects of historical note.

Upon the east and west of the lower terrace are two sloping banks planted with Mahonias, and intermixed with monthly Roses, which have a pretty effect in the autumn. The terrace wall is covered on the lower side with that free-growing variety of Ivy, Rœgneriana, which will grow anywhere, and has a fine appearance. The flower garden is laid out in six handsome groups of beds on a sloping lawn, with a few specimen trees, and the idea is a good one. Unlike most geometrical arrangements, there is plenty of scope to vary the style; each group of figures may be planted independently of each other, and a very pleasing effect is produced from the upper terrace. One of the groups was very effectively planted with Coleus Verschaffelti and Tagetes signata pumila. A second group was brilliant with Coleus and Pelargonium Flower of Spring, and a third was gay with Pelargoniums Crystal Palace Gem, Beauty of Calderdale, Mrs. Pollock, and Lady Constance Grosvenor, with a bed of Coleus for a centre. Ageratum Lady Jane and Waltham Seedling Pelargonium were very showy in a fourth group, and so on. I have only given one or two examples in each case, to illustrate the system of planting, and I would here remark that the Tagetes is the very best autumn-flowering plant that we have for the flower garden, and, as it is so simple to raise, it might be grown in larger quantities for autumn effect.

On the south-west side of the pleasure-grounds is one of those chalybeate springs which attract so many visitors to Tunbridge Wells. The sides of the bank where the excavation has been made are planted with hardy Ferns, and otherwise ornamented in a simple natural method. A square stone is laid over the spring, and a circle is described in the stone, which leaves a cavity into which the water flows through a hole in the centre. Means are provided by a narrow channel for an overflow escape, the water continually flowing down the channel and escaping at the bottom by means of a pipe provided for the purpose. The water is said to be very salubrious, and is strongly impregnated with iron. From this part of the grounds there is a fine view of the park, Broadwater Down, grand woods in the distance, noble groups of Scotch Firs, Hawthorns in fruit, and hardy Heaths in flower. On the east side of the grounds, or, rather, east from the house, you descend by a curving walk to the rosery, a garden that is neatly enclosed and well provided with shelter. It is entered by a trellised walk formed of arches, upon which Roses are trained, which must be very pretty when the plants are in flower. The plants trained upon the trellis have suffered from the effects of the past winter's frost, but the majority of them will survive the check, although they have been somewhat crippled for the present. There are some fine specimen Deodars in this garden, and Pinus Douglasii towering above all its rivals in height and width. The north side of the garden is planted with ornamental shrubs, which hang over rocks, and which are in turn overhung by Weeping Laburnums and other flowering trees. Escallonia macrantha is here very pretty as a rough rock plant, having for a companion fine clumps and masses of Cotoneasters always in character and suitable for overhanging stones. The Roses generally are in good trim, the standards only having sustained much injury.

Leaving the rosery on the west side there is a grand Yew avenue, with a Yew hedge upon either side over 10 feet high. At the extremity of this walk are fine specimens of Cryptomeria elegans and japonica, Pinus Douglasii, Cedars, Cupressus Lawsoniana, Hawthorns, and Birches, almost forming arches over the walk. As you look lengthwise down the lake perhaps this westerly view is the most charming of the many sights of which this lovely place can boast. There is a serpentine walk upon the south side of the lake, and its winding banks are very beautifully clothed with trees. The lake is 16 feet in depth about the centre. The spire of St. Peter's Church is visible in the distance, and other local objects of note. From a rustic bridge you look upon a splendid waterfall with a Lily pond and glen immediately beneath; the water, after travelling a distance of several yards, falls from 12 to 15 feet, and is intercepted by the ledge of projecting rocks, which gives a magnificent effect. There is a serpentine watercourse from the Lily pond to the extremity of the grounds, which is bordered by weeping trees and hardy aquatic plants, and adorned with summer-houses in shaded situations. Through a peep from the east side of the lake you can see Kingston Lodge and Chilston House nestling among the trees, and two small islands at the bottom of the lake, which have not been noticed before, catch the eye from this point. This is one of the remarkable features about Dunorlan—the continual change and variety which have been produced from different points and situations instead of the dreary sameness of straight lines and angles, which are but too common in gardens.

By the north-east side of the lake there is a shaded walk nearly arched over by weeping trees at many points, which is a refreshing promenade in summer. There are some specimen Conifers here, amongst which are Abies lasiocarpa, Pinus excelsa, Taxodium sempervirens, and Wellingtonias 50 feet high. Also the deciduous Cypress, fine Araucarias, and Cupressus Lawsoniana. By the side of the watercourse there are groups and clumps of Arundos, Gynerium argenteum, Yuccas, wild grasses, &c., which are very suitable to the situation. At the end of this walk one of the finest sights in England is in store for the visitor, it is the Cedar avenue leading to the temple already alluded to in these remarks. The green-grass avenue slopes gently to the north-west, and is bordered by Cedars and Pinus Douglasii planted alternately. I believe the original idea was to have removed the Cedars, but both have grown so well, are so handsome in shape, and are such an ornament to the place that it would require an ingenious mind to conceive anything more magnificent. There are figures pl[illegible] between the lines of trees, and near the bottom of [illegible] avenue there is a fountain, the centre figure of w[illegible] is 25 feet high. The height and proportions of [illegible] different figures are in strict harmony with the ba[illegible] the fountain. There are four figures with trum[illegible] which, when there is a strong force of water are [illegible] attractive, and eight dolphins, while there are [illegible] basins continually flowing over into the base of [illegible] fountain.

Gaultheria Shallon is a grand plant for the mar[illegible] of lakes, but one hardly expects to find Came[illegible] succeeding fairly well in such a situation: yet it i[illegible] Several plants have been planted out over tw[illegible] years, and are as healthy as Rhododendrons or [illegible] other hardy shrub in the same situation. The sha[illegible] trees and a damp situation are against them, but [illegible] being in a situation like this over a score of years [illegible] ought to live anywhere. Having ascended to [illegible] temple side of the avenue, I noticed a fine ban[illegible] Irish Ivy and many fine Conifers, including Abies N[illegible] manniana and Cupressus macrocarpa, which g[illegible] rapidly at Dunorlan. Other Conifers worthy of [illegible] tion are a variety of Cedrus Deodara, nearly whit[illegible] many parts, and a very dwarf grower; Libocedrus decurrens, the first plant that fruited in Engla[illegible] Abies Pinsapo, and many others. The strip [illegible] pleasure-ground on the east side of the temple [illegible] tains many fine trees, and shrubs, and a ban[illegible] shrubs overhung by weeping trees. A summer-h[illegible] is let into the bank in such a way that it requir[illegible] trained eye to detect it.

The fruit and kitchen gardens are situated [illegible] from the mansion, and the glass in the former [illegible] considerable extent, fruit and plant-growing b[illegible] about evenly balanced as regards extent. The [illegible] range of houses is planted with Vines, and is in t[illegible] divisions. Alnwick Seedling is not held in [illegible] favour by Mr. Walker, but examples of B[illegible] Alicante and other black kinds are superbly finis[illegible] The centre division of the range is planted [illegible] Muscats bearing upon an average fourteen bunch[illegible] each Vine. The bunches and berries are of fine [illegible] perhaps there is no better example of Grape gro[illegible] in the kingdom from Vines planted only three [illegible] ago. There is only one Vine trained under [illegible] rafter, and the average girth of each Vine is 6 in[illegible] at 2 feet 6 inches from the ground. The early h[illegible] is planted with Black Hamburghs, Foster's Seedl[illegible] and Golden Queen, which is bearing long tape[illegible] bunches, handsome in appearance, but showing [illegible] usual tenderness of skin which will always preve[illegible] from becoming a popular Grape, notwithstandin[illegible] showy appearance. I was next shown into a r[illegible] of span-roofed plant-houses, with a bed in the cen[illegible] and paths and side stages all round. There are s[illegible] good specimens of Crotons, Dracænas, and Ferr[illegible] the centre of the house, chief of which are Drac[illegible] ferrea and D. Baptistii, Davallia Mooreana, Aloc[illegible] metallica, Maranta Veitchii, and a grand lot [illegible] Calanthes on the side stages, grown in 6-[illegible] pots. The collection in this house is a gen[illegible] one, consisting of Eucharis amazonica, Centropo[illegible] Lucyanus, and other winter-flowering plants. [illegible] second division of the range is used for Pine grow[illegible] and the side stages are filled with grand batche[illegible] Poinsettias and Begonia nitida and fragrans for wi[illegible] flowering. The third division is utilised in the s[illegible] way, but with a different class of flowering pla[illegible] and a grand batch of Crotons for furnishing. Th[illegible] consist of Veitchii, interruptus, Johannis, W[illegible] manni, Prince of Wales, Disraeli, &c. I noticed l[illegible] ranges of pits filled with Tea Roses on their [illegible] roots in pots for winter flowering, and large numb[illegible] of winter flowering Pelargoniums. In a range of [illegible] facing south-west there are hosts of plants for autu[illegible] and winter decoration, among which may be mentio[illegible] Browallia elata, flowering Begonias, Cytisus, and C[illegible] nillas. Several empty compartments were being [illegible] in order for winter forcing and for the housing [illegible] plants, which with the advent of Jack Frost indic[illegible] that protective remedies should no longer be defer[illegible]

The next range is half-span, in two divisi[illegible] with a path through the centre of the house, the n[illegible] interesting plant structure on the place. One side [illegible] the first division is filled with Bouvardias coming [illegible] full flower, and a grand show they make of themsel[illegible] Plants from 12 inches to 2 feet high and as m[illegible] across are swarming with flowers, white and scar[illegible] which at this season of the year have no equals [illegible] decorative plants or as cut flowers, and are also in[illegible] pensable for bouquet-making. The front stag[illegible]

led with cool Orchids and others in fine health, of hich the following are the best :—Cœlogyne cristata, dontoglossum Alexandræ, O. cirrhosum, O. grande, . Pescatorei, O. Roezlii majus, Maxillaria tenuifolia, eiones and Oncidiums, &c.

In the second division there are fine examples of endrobium formosum giganteum in flower—one nt had eight flowers on a spike with a deep orange otch on the lower lip ; the variety is a free vigorous wer, and where Orchid flowers are in request in a t state, no better variety could be selected for the rpose. The flowers are just the thing for small sses to border the margins of large dinner-tables. her varieties that appeared worthy of mention are crassinode, Barberianum, chrysanthum, Wardiam, the Dove-plant, Peristeria elata; Cypripediums, ttleyas, of which there is a good plant of the now ree C. labiata ; Dendrobium Devonianum, Vanda olor, Stanhopeas, and others. Of Ferns there are d plants of Davallias and Adiantums, and many er useful plants. The next is a fruit range in five isions, the first being occupied with Peaches good health and hard-wooded plants, such as leas and Camellias, all of which are in fine order, some of them in an advanced condition for winter ing.

he Camellias planted against the back wall are ering (end of September), and those in pots are ing forward to supply a succession for many ths to come. The vineries are being gradually wed with young Vines, and are also used for sing plants. In one of the divisions I saw a ndid batch of Dendrobium nobile, ripening up to ch amber colour, and promising a wealth of ers between now and next Easter.

he last house of the range is a fine greenhouse, of span, which was being put in order for the er. There is a stage of three tiers in the centre, a walk round it which renders it accessible convenient for workmen. The front stage is , and the paths are substantially laid and in appearance. The new houses have been by Gray, of Chelsea, and are heated with Gold al boilers. The various sheds and offices are veniently arranged, and spacious accommodation rovided for setting out plants in summer, such as leas, Camellias, Chrysanthemums, Fuchsias, panthus, Agaves, Cytisus, Coronillas, Ghent leas, &c. Over 1000 Strawberries in pots are ed, as fine plants as any I ever saw, well-ripened, set upon spars to prevent worms from finding way into the pots through the drainage. Glass s are provided for covering the Vine borders, h are first overlaid to about 1 foot in depth with leaves or litter. The fruit trees upon the walls—ed, the fruit trees generally—are in a state of high vation, and are bearing abundant crops this n. The kitchen garden, which is some distance the fruit garden, is abundantly cropped with tables for forcing, and others for immediate use. garden is divided into large quarters by grass s, and espalier-trained fruit trees are planted at back of the borders ; these are bearing good s. Altogether a more interesting or a better aged garden in a more delightful climate would rd to find in the whole kingdom. *W. H.*

PLANT PORTRAITS.

ERIDES VEITCHII, Hort., *Belgique Horticole*, t. –9, 1881.

PPLE, DUCHESS OF OLDENBURG, *Florist*, August.

PPLE, ROSSIGNOL, *Revue Horticole*, August 16.

ALLOTA ACETABULOSA, Benth., *Belgique Horti-e* t. x., 1881.—See *Gard. Chron*, Nov. 9, 1878, p. 58, c. ic.

LBERGIA LIETZEI, E. Morren, *Belgique Horti-e* 1881, t. v., vi., vii.—A new Brazilian Bromeliad of tufted habit, with strap-shaped acute leaves, spiny at e margin, flowers in loose terminal racemes, each su nded by lanceolate pink bracts, calyx rosy-pink, co la greenish, twice the length of the calyx. M. M en mentions also a double-flowered variety with p odic stamens, the first double-flowered Bromeliad y ecorded.

OMAREA CALDASIANA, *Garden*, August 6.

ATTLEYA MENDELII GRANDIFLORA, Williams' *Orchid Album*, t. 3.—Flowers 8 inches across ; sepals w , narrow, oblong, tapering to the base ; lateral p s white, ovate, crisped at the edges ; lip white, with a central yellow blotch, the anterior two-lobed portion deep magenta.

CHEVALLIERA VEITCHII, *Garden*, June 25.—A handsome Bromeliad, with broad, acutely-pointed, saw-toothed leaves, a dense cone-shaped inflorescence of scarlet bracts reflexed at the tip to show the yellow perianth. General Horticultural Company.

ERYTHRONIUM GIGANTEUM, E. REVOLUTUM, E. GRANDIFLORUM, *Garden*, August 20.

IRIS RETICULATA, *Garden*, July 30.

LÆLIA SCHRÖDERI, Moore, sp. n., in Williams' *Orchid Album*, t. 2.—Flowers 7 inches across ; sepals and lateral petals white, lip white, with a yellow base veined with purple.

ONCIDIUM CONCOLOR, Hook., Williams' *Orchid Album*, tab. 1.—A species with fluted pseudobulbs, from the base of which proceed drooping racemes of primrose-yellow flowers, in which the broad apron-like lip greatly exceeds the ovate-acute sepals and petals. Recommended to be grown in a pan or basket suspended in the Odontoglossum-house.

ONCIDIUM LIETZEI, Regel, *Gartenflora*, t. 7044.—Pseudobulbs elongate, two-leaved ; flowers brownish-yellow, 1¼ inch in diameter, in a loose panicle ; sepals roundish, narrow at the base, the two lower ones cuneate. Petals longer than the sepals, of similar form but crenulate ; lip stalked, 3-lobed, lateral lobes linear reflexed, spur-like, central lobe broad cordate acute, apex inflexed. Brazil, Lietze.

PUYA GIGAS, E. André, *Revue Horticole*, p. 315.—A new and extraordinary Bromeliad, with tufted linear, lanceolate, hoary spine-toothed leaves and erect spikes of flowers 18—30 feet in height, each flower white or rose-coloured. New Granada.

RIBES INTEGRIFOLIUM, Philippi, *Gartenflora*, t. 1047*b*, ee.—A glabrous, spineless shrub, with sub-sessile, lanceolate, serrate leaves, and pendulous axillary racemes of small yellow flowers. Mountains of Araucania.

SARRACENIAS DRUMMONDI, RUBRA, FLAVA, CRISPATA, *Florist and Pomologist*, August.

SCHISMATOGLOTTIS CRISPATA, Hook. f., *Bot. Mag.*, t. 6576.—A dwarf-growing, robust Aroid, with sheathing petioles prominently waved at the edges, and with cordate-ovate leaves, deep green in the centre, elsewhere mottled. The spathe is open at the top, greenish-white, the spadix surmounted by a sterile appendix. Introduced from Borneo to Messrs. Veitch's establishment.

SCHIZOPHRAGMA HYDRANGEOIDES, *Revue Horticole*, p. 313.—A climbing Hydrangea from Japan.

VERONICA LONGIFOLIA SUBSESSILIS, *Revue Horticole*, July 16.—A handsome Japanese herbaceous plant, which will grow anywhere. The ovate-acute, saw-toothed leaves are sub-sessile and glabrous, the numerous blue-purple flowers are borne in long spikes. It is one of the very best of the herbaceous Veronicas.

LIST OF GARDEN ORCHIDS.

(*Continued from p. 463.*)

Subtribe iii.—3. *Liparideæ.*

Stems often pseudobulbous, 1—many-leaved or leafless, with a terminal raceme. Column in the normal genera sessile. Pollinia 4 (except in Hexalectris, which has 8), 2-seriate, inappendiculate, not uncommonly acuminate at the apex and sometimes also shortly caudiculate, after dehiscence free or slightly fascicled by a very little viscous matter.

This subtribe is distinguished from the Ericæ mainly by the terminal inflorescence, from the Cœlogyneæ by the pollinia being usually free and inappendiculate, and by the usually more slender, dwarfer habit and the 1-leaved or leafless stems.

14. OBERONIA, Lindl., *Gen. and Sp. Orch.*, p. 15.—Stems not pseudobulbous. Leaves several, distichous, with compressed, equitant sheaths. Flowers minute, in dense cylindrical spikes. Column very short. Nearly fifty species are recorded from tropical Asia, Australia, the Mascarene and Pacific islands. The genus is remarkable for the rat's-tail-like inflorescence of many of the species, formed by very minute flowers closely packed together in a long tapering spike.

1. O. ACAULIS, Griff., *Not. ad Pl. Asiat.*, iii., p. 275 ; *Ic. Pl. Asiat.*, t. 286 ; *Bot. Mag.*, t. 5056.—Khasya Hills. Introduced by Mr. Simons, and flowered at Kew in 1858. A showy species with long spikes of bright yellow flowers ; the petals and lip minutely fringed on the margin.
2. O. CYLINDRICA, Lindl., *Bot. Reg.* 1840, Misc., n. 23 ; *Fol. Orch.*, n. 2.—Manilla. Imported by Messrs. Loddiges. Flowers small, green, "beautiful microscopical objects."
3. O. IMBRICATA, Lindl., *Gen. and Sp. Orch.*, p. 17 ; *Malaxis imbricata*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 395.—Java. Buitenzorg Botanic Garden.
4. O. IRIDIFOLIA, Lindl., *Gen. and Sp. Orch.*, p. 15 ; *Fol. Orch.*, n. 1 ; *Cymbidium iridifolium*, Roxb. ; *Hort. Bengal*, p. 63.—India. Calcutta and Buitenzorg Botanic Gardens.
5. O. LUNATA, Lindl., *Gen. and Sp. Orch.*, p. 17 ; *Fol. Orch.*, n. 13 ; *Malaxis lunata*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 394.—Java. Cultivated at Buitenzorg in 1866.
6. O. MICROPHYLLA, Lindl., *Gen. and Sp. Orch.*, p. 17 ; *Fol. Orch.*, n. 35 ; *Malaxis microphylla*, Blume, *Bijd. tot Fl. Nederl. Ind.*, p. 395.—Java. Cultivated at Buitenzorg in 1866.
7. O. MINIATA, Lindl., *Bot. Reg.* 1843, Misc., n. 8 ; *Fol. Orch.*, n. 34.—Singapore, Philippine Islands. Imported and cultivated by Loddiges. Vermilion flowers, in a loose nodding spike, sometimes as much as 8 inches long.
8. O. MONSTRUOSA, Lindl., *Gen. and Sp. Orch.*, p. 17 ; *Malaxis monstruosa*, Blume, *Bijd. tot Fl. Nederl. Ind.*, p. 395.—Java. Buitenzorg Botanic Garden, 1866.
9. O. MYRIANTHA, Lindl., *Fol. Orch.*, n. 23.—Khasya Hills. Cultivated at Kew in 1868.
10. O. RECURVA, Lindl., *Bot. Reg.* 1839, Misc., n. 8 ; *Fol. Orch.*, n. 24.—Bombay. Imported by Loddiges. Minute green flowers.
11. O. RUFILABRIS, Lindl., *Sert. Orch.*, t. 8 ; *Fol. Orch.*, n. 27 ; *Gard. Chron.*, n. s., xv., p. 104.—Imported by Mr. Bull. Flowers gamboge-yellow, ultimately light red ; lip and margin of the column brick-red from the first.
12. O. SIMILIS, Lindl., *Gen. and Sp. Orch.*, p. 17 ; *Fol. Orch.*, n. 46 ; *Malaxis similis*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 394.—Java. Buitenzorg Botanic Garden, 1866.
13. O. SPATHULATA, Lindl., *Gen. and Sp. Orch.*, p. 16 ; *Fol. Orch.*, n. 38 ; *Malaxis equitans*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 395.—Java. Buitenzorg Botanic Garden, 1866.
14. O. TAHITENSIS, Lindl., *Fol. Orch.*, n. 4 ; *O. iridifolia*, *Bot. Mag.*, t. 4517, not of Lindl. ; *Malaxis tahitensis*, Rchb. f., *Walp. Ann.*, vi., p. 208.—Tahiti. Sent to Kew by Mr. Bidwill, where it flowered in 1850. Flowers very small, orange-coloured, arranged in a long, very dense spike.

(*To be continued.*)

HORÆ HORTULANÆ.

ON SOILS.

(*Concluded from p. 460.*)

THE actual amount by weight of nitrogenous and saline matters taken by even a luxuriant plant is very small compared with the quantity which, through lack of knowing exactly what to do, we find it best to put into the soil ; if any one doubts this let him burn a Cabbage to ashes and carefully weigh the amount he obtains. Even the so-called "gross feeders" really take up very little ; their grossness consists in their appearing to delight in wallowing in manure. In all probability, had we the proper knowledge, we might so conduct a small quantity of food to the plant that it would at once take up all we give it—we might, so to speak, feed the plant with a spoon, directing the aliment straight into its mouth, instead as we do now, bathing it in nourishment, in the hope that somehow or other a little may trickle in through its lips ; or, to change the metaphor, we might fire single shots, making sure that each shot told, instead of blindly letting off volleys in the hope that some of the bullets will hit the mark. In the meantime, while the plant is taking up its mite of the dearly-bought manure so profusely surrounding it, heavy rains are washing the soluble elements rapidly away, and carrying them away from our garden to places where they are of no use but rather harm. Let me end by drawing upon my fancy by picturing what the gardener of the future, happy master of the science which we now lack, will do when he takes in hand a plot of rough ground, intending to make it blossom with flowers.

HIS first step, I am sure, will be to convert the raw earth into good live soil, and secure the all-important physical features of which I spoke at the beginning of this essay. He may still find it cheapest and best to bring this about by freely incorporating ordinary farmyard manure, and simply adding special substances according to the constitution of the native earth and the habits of the plant which he proposes to

grow. He may do this, but I think it more probable that, just as we now-a-days, when we grow Mushrooms, do not trust to the chance spores present in stable droppings, but sow definite spawn, of special character, in fixed amount, so he will rapidly work up his soil by the systematic addition of prepared substances and specially cultivated ferments. Of this at least I am confident, that he will carefully watch his soil, testing it from time to time to see how the processes are working, just as a brewer tests his wort or the manufacturing chemist tests the mixtures which are transforming in his vat. And I imagine that from time to time he will assist the due ripening of his soil by growing in it certain temporary preparatory crops, for the plant re-acts on the soil in as marked a manner as the soil acts on the plant, and the well known precept of agriculture, called "the rotation of crops," is, so to speak, but a mere jutting corner of a great principle of the effect of plants on land, whose full dimensions we have not as yet realised.

When he had thus prepared the ground and secured to an adequate depth a general basis of live soil, retentive of moisture but yet not wet, porous and friable but yet giving a firm holding for tender rootlets, eagerly absorptive of all the sun's rays, its particles agitated through all its depths by incessant change, the harder part of his labour will be over. Probably during this preliminary handling he will, in different plots, give somewhat different turns to the several changes as they are being evolved, securing here more, or there less permanent moisture, making this patch of firmer and that of looser texture, and varying here or there the general composition of the soil. Henceforward his task will be lighter. He will have, it is true, to keep a watch upon his soil, taking care that its activities never slacken, nor its general character deteriorate; but, that done, his chief toil will be the physically light but mentally heavy task of adding to the area of soil belonging to each plant, or group of plants, a few pinches of the particular things needed for their growth. And we may, without any great stretch, imagine that the prescription for the pinch will vary according as he wishes to call forth luxuriant foliage or solid bloom. This, and the struggle to grow together, or in succession, such plants as, while satisfying æsthetic desires, should mutually benefit each other, and do good in common to the soil, will be his chief care.

After some such fashion will I imagine the gardener of the future work—his manual labour lightened, but his mental work increased by the power of knowledge. To him the laboratory will have to be as familiar as the tool-house and the potting-shed, and he will have to strengthen practical wisdom and insight—for these will always make themselves felt—with a backbone of science.

Some such man, I hear the reader say, is the gardener to the "mansion in Spain." That is very true; but it is equally true that again and again castles once in the air have been found after awhile firmly resting on solid ground. The scientific gardening of the future may be a long time coming, but come it will, and each of us can hasten its advent by careful observation, intelligent trials, and conscientious reflection. *Dictes.*

A SYNOPSIS OF THE GENUS CROCUS.

By GEORGE MAW, F.L.S., &c.

NUDIFLORI.—Reticulati.—Vernal: *continued* (*from p.* 462.)

* Flowers orange.

36. ‡**Crocus susianus*, Ker; C. reticulatus, in part Herbert; C. revolutus, Haworth.—Corm about ¾ inch broad; tunic of strong reticulated fibre, with long interspaces, produced upwards into sharp wiry points; the basal tunic a strong cartilaginous plate surrounded by radiating wiry points. Sheathing leaves falling short of the proper spathe. Proper leaves reaching to the flowers, $\frac{1}{16}$ inch broad, the margins of keel and blade ciliated. Proper spathe diphyllous. Perianth: throat glabrous; segments about 1½ inch long and ½ inch broad, reflexed, deep orange, the outer face of outer segments variously feathered with deep brown, occasionally self-coloured orange, or evenly suffused with dull brown. Anthers orange, about twice the length of the orange filament; the style dividing at the base of the anthers, and produced into long, spreading, entire, orange-scarlet stigmata, which much exceed the anthers. Seed red, ripening to brown.

Crocus susianus has long been in cultivation under the name of the Cloth of Gold Crocus; it was placed by Herbert as an orange variety of C. reticulatus. Few botanists would now associate them; beyond the difference in colour, C. susianus is readily distinguished from C. reticulatus by its much longer stigmata, the style dividing near the throat, by its red seed and ciliated leaves; the perianth segments are also reflexed, which does not occur in any other species. The Crimea is the head-quarters of C. susianus; it is said also to occur in the Caucasus. It is one of the earliest vernal species, flowering in February.

37. ‡**C. stellaris*, Sabine.—Corm about ¾ inch broad; tunic of strong, parallel, cartilaginous fibres, reticulated upwards, and produced into strong points at the summit of the corm; basal tunic a cartilaginous disc, surrounded by broad, flat, pointed rays. Sheathing leaves falling short of proper spathe. Proper leaves about four to a corm, reaching to the level of the flowers, $\frac{1}{10}$ inch broad, glabrous. Proper spathe diphyllous, reaching nearly to the throat. Perianth: bright orange, throat unbearded; segments about 1½ inch long, acute, the outer surface of outer segments feathered with from three to five purple lines. Anthers pale orange, tapering upwards, divergent, a little longer than the orange filament, effete; the pollen grains small and irregular, almost abortive; the style dividing at the summit of the anthers, and produced into entire pale orange stigmata, which exceed the anthers. Never matures seed.

C. stellaris has been long in cultivation; its origin and history are unknown. Baker suggests that it may be an old garden hybrid between aureus and susianus, as it combines the characters of both of these species. The reticulated corm tunic differs from the tunic of any of the old garden varieties of C. aureus. It flowers early in March.

38. ‡**C. ancyrensis*, Herbert (as var. 5 of C. reticulatus); C. susianus, var. ancyrensis, Baker. — Corm pyriform, ¾ inch broad, and nearly 1 inch high; tunic of strong, reticulated fibre, terminating above and below as strong, wiry points; basal tunic of strong, wiry, branching rays, radiating from a cartilaginous disc. Sheathing leaves falling short of the proper spathe. Proper leaves glabrous, about three to a corm, reaching to the throat, the lateral channels ribbed. Proper spathe diphyllous. Perianth: tube purple; throat glabrous, generally purplish outside; segments obtuse, ovato-lanceolate, ¾—1 inch long, and ⅓ inch broad, unstriped orange. Anthers orange, tapering upwards, and divergent, almost sessile, four times as long as the very short orange filament; the style dividing, about the middle of the anthers, and produced into entire, scarlet stigmata on a level with the summit of the anthers.

C. ancyrensis was known to Herbert, who cultivated it from corms obtained at Angora; but in placing it as a variety of C. reticulatus he failed to recognise its specific rank. It occupies a distinct region to that of C. susianus, and appears to be an abundant species in many parts of the centre of Asia Minor. It flowers in cultivation in February.

39. ‡**C. gargaricus*, Herbert; C. Thirkeanus, K. Koch.—Corm exceptionally small, from ⅓ inch to barely ½ inch wide; tunic of fine, closely reticulated fibre; the basal tunic of fine radiating fibre. Sheathing leaves falling short of the proper spathe, enclosing a single scape. Proper leaves erect, glabrous, two or three to a corm, reaching to the throat, and produced to 7 inches in length at maturity; margins of blade revolute, keel narrow, the open lateral channels without ribs. Proper spathe monophyllous. Perianth bright orange, throat unbearded; segments obtuse, occasionally emarginate, about 1½ inch long, and barely ½ inch broad. Anthers bright lemon-yellow, slightly exceeding the orange filament; the style dividing near the base of the anthers, and shortly produced into entire orange stigmata, which are generally below the summit of the anthers. Capsule globose; seed bright orange.

C. gargaricus is a native of Western Bithynia and the Troad, at elevations of from 3000—4000 feet, where it flowers in April and early in May. In cultivation the flowers are produced in March. It is the only orange species with a single proper spathe, or in which the filament is distinctly darker than the anthers.

(*To be continued.*)

BIGNONIA VENUSTA. — In the stove at Sion House by far the most striking object at the present time is the subject of this note. It is a glorious plant, with its twisted "liane"-like stem and large clusters of fine orange-yellow blossoms hanging down from the roof to which it is trained. Mr. Woodbridge informs us that its flowering season lasts about a couple of months—viz., September and October.

ALPINE PLANTS.

(*Continued from p.* 407.)

GNAPHALIUM LEONTOPODIUM.—Of all the a plants the Edelweiss is the most widely spread an best known. Its Greek name, *gnaphalon*, or of snow, indicates its colour, and its specific nam allusion to the form of the inflorescence. Like m the Composites, the individual flowers are very and aggregated in terminal heads. Beneath these fl is an involucre of bracts, resembling a collar of the of Henry IV., or a delicate paper placed arou bouquet to heighten its beauty. The involu completely covered with a fine and silvery co which constitutes the chief charm of the plant. peculiarity is more or less marked, according t soil or the aspect in which the plant is growing the Engadine and in the Bernese Alps the Ede has much larger flowers and of a purer silve than in the Valais or in Tyrol. [Our woodcut, duced from an earlier number, gives an exc idea of the plant. EDS.] One of the chief actions of this flower is its "everlasting" qua It may be preserved for a very long time natural condition if care be taken when dryin preserve its form. I have seen very fine bunche which had been preserved for several years, a this may be attributed its popularity, for whi Rhododendrons and the Soldanellas that one in one's hat on a mountain excursion wither in hours, Edelweiss, on the other hand, retains its ness of appearance as the most pleasing souveni successful expedition. So popular is it that the establishments where this lovely ornament Alps is imitated in white cotton. In Tyrol an man Switzerland the flower is taken as the e of purity and virtue, and every young offers one to his sweetheart. In certain even a young couple cannot be married if the groom has not with his own hand gathered rocks the Edelweiss that his bride will wear dress on her wedding-day. The search for the weiss has assumed such proportions that seve our cantonal Governments have been obli institute measures to prevent its exterminatio must not, however, be thought that the plant or difficult to be got in Switzerland as it is i many. It is only met with on the hot and dry of the limestone mountains. It is found Jura. Moreover, it is not exclusively alpine, occurs in the Pyrenees, in the Altai Mountains, Siberia. I have had lately in my possessio specimens procured in China, where they were on mountains of low elevation by a missionary. only difference between the Chinese and the plant was that the former had a rather thicke ing of down, and which was, moreover, of a yel colour.

The culture of the Gnaphalium is very simp demands exposure to the sun and a soil of a calc character. It may indeed be said that it is a sp characteristic lime plant. M. Pictet, at Ambill Geneva, has a fine rockwork well stocked with plants. This year he has had magnificent tufts of weiss, one of which had eighteen flowers open time, each flower being as large and as fine finest specimens met with in the Engadin generally happens that the Edelweiss degenera cultivation, the flowers becoming blackish or gr and no longer preserving their natural form. theless, M. Pictet has grown them for a long and instead of degenerating they become finer year. It is the same in the fine collection Empeysaz, at La Servette, near Geneva. The adopted by these gentlemen is as follows: The cure a number of small pieces of calcareous which they wash in water, so as to prevent th pebbles becoming cemented together by means dust produced by breaking the stone. The fill the bottoms of the pockets in the rockwor this material. They mix then a certain quar calcareous gravel with the mixed soil whose c sition I have described in my previous articles, this the Edelweiss is planted. I also cultivate in the same way in pots. One of my frie member of the Alpine Club, plants them as in the open border, where they flower abun He takes care to place them in the sun and careous soil. He has this year gathered goo from plants thus cultivated. The plant is easil tiplied by seed, or by division of the tufts. T pagation in a greenhouse, as I have seen tried i places, is of no use whatever. *Henry Co Botanic Garden, Geneva.*

FRUIT NOTES.

White Grapes. — Although we have plenty of ts of Grapes, there are only two or three that are lly worth cultivating, the best of all being the iscat of Alexandria, which, when well-grown and ened, and finished up with the rich golden colour ought to have when fit for table, is of the most quisite flavour, and quite unsurpassed among apes. Unfortunately, however, it takes a long ne to get it to the desirable condition referred to, d its chief value, therefore, is for autumn and inter use; for if wanted before, the Vines must be t to work very early, and kept on without check l the fruit is ready to cut, but the longer it hangs e better it is. Unlike other Grapes, the Muscat of lexandria requires light and sun on the bunches to lour them properly, and it is only by exposure to ose combined influences that the berries acquire eir rich piquant flavour. Although sun and light e so necessary for the perfect finishing of Muscats, the bunches should not be exposed till the berries are quite full-grown, when the leaves may be gradually drawn aside; for if done before the sun is apt to scald and blister the skin. What is greatly wanted is a Grape of good quality that will ripen with the Black Hamburgh; and at one time I was very hopeful we should have such a one in Pearson's Golden Queen, but after growing it for several years I am very disappointed with it, as the skin of the berries is very thick and leathery, and the flavour flat and insipid, besides which they discolour after hanging awhile. This I find to be the case when the Vine is grafted or on its own roots; but it may do better forced, and I shall be glad to hear how it has turned out with others. Foster's Seedling is the best early, as it is not only very good, but it is a remarkably free bearing kind, forces well, and soon comes ready for use. Where plenty of heat can be given White Frontignan is a very desirable Grape to have, as it has a very rich musky flavour, and ripens early, but it is useless attempting it with others in the low temperature of an ordinary vinery, where I have found it never does well. Golden Champion and Duke of Bucclench are noble-looking Grapes, but both have the same fault of spotting in the skin of the berries, otherwise they would be the greatest acquisitions we have had for some time. *J. S.*

Apples not Shown at South Kensington.—Of good kinds of Apples I missed at South Kensington the other day, such old sorts as the Alfriston, which when well grown is the finest of all kitchen kinds, also the excellent Dutch Mignonne, which Mr. Dancer does so well at Chiswick, and which is good either for dessert or kitchen use. Lamb Abbey Pearmain is another capital kind that I did not notice, and is well described as one of the best dessert Apples, that keeps without shrivelling. The Nanny Apple is a very old kind, and one rarely grown, and yet of very delicious quality. This I have not seen shown yet. I have a small tree here, but as it has not fruited perhaps this is not its season. The old tree, of some

Fig. 98.—The Edelweiss. (see p. 528.)

fifty years of age, from which my graft was taken, used to produce wonderful crops, but that and the mansion and garden in which the tree grew have long since been converted into a desirable site for building. I have taken a good crop from the handsome Stamford Pippin, which I did not observe; neither did I note the pretty and delicious free bearing Wyken Pippin. One would like to see good samples of these and not a few other good though not common kinds. As it is not improbable that many gardeners may be tempted by the competition for the Messrs. Sutton & Sons' prizes to attend the meeting at South Kensington on November 8, perhaps some of those who have good samples of Apples may be induced to bring collections. Several such collections of from twelve to twenty kinds, grown in diverse parts of the kingdom, would possess more interest than one or two large collections grown in the same locality. In this way it is also just possible that more justice would be done to some good kinds than is done them at times by trade growers, who put up samples that derogate from the sorts' reputation, simply to make up a large collection: on the other hand, it is evident that many kinds are yet in cultivation which might well be dispensed with altogether. Probably fifty sorts would comprise a selection that would include all the best kinds, and which would suit all soils and situations. No matter in what part of the kingdom where Apples are shown, certain kinds are always to the front, and these must, of course, be universally good. Some samples of the Loddington Seedling or Stone's Pippin shown at the recent meeting were of unusual size, far exceeding the samples produced in the district from standard trees. Here the trees in habit of growth bear a close resemblance to the Quince, as also does the foliage; those who know the true Apple can tell, perhaps, whether that is its character. In this district the Apple has a very high reputation, and has proved to be thoroughly hardy. The Wellingtons, Kings, and Juliens, which were so severely punished by frost two years since, are now getting round somewhat, but many trees growing in cold clay soil were killed entirely, and have left sad gaps that it will take many years to fill. *A. D., Middlesex.*

Large Peaches.—With reference to a correspondence that has lately taken place on the subject of large Peaches, allow me to state that in the summer of 1880 I was present at the weighing of a Peach grown by Mr. A. T. Goodwin, which scaled between 18 and 19 oz.; that I saw the now somewhat celebrated one which was said to weigh 23¾ oz.; that this was placed in a shop window in King Street, Maidstone, where I saw it, and where it remained until it became rotten; and that this large Peach, although not weighed in my presence, was considerably larger than the one of 18 oz. that I did see weighed. I may also add that since reading Mr. Horsfield's communication I have been to look at the weights with which the weighing was performed, and can therefore assure him that they really are avoirdupois. Possibly, however, his throwing his doubts into this shape was merely a metaphorical form of expressing a general statement of disbelief. *Fred. F. Grensted, B.A., Senior Assistant Master to the Maidstone Grammar School.*

Windfalls.—One of the results of the terrific hurricane of the 14th was a tremendous downfall of Wellingtons in the orchard, literally stripping the trees, and many hundreds of bushels were gathered up late in the day that would have to be sold cheap as windfalls. Apples have been selling at moderate prices, good Wellingtons, for instance, going freely at 5*s.* per bushel, and growers therefore were not anxious to force these fine late Apples into the market, in the hope that in a week or two the price would be more remunerative. Instead of getting more, however, they have to submit to a heavy loss, as even these good windfalls will not obtain more than 2*s.* 6*d.* per bushel. *A. D.*

Pomona Russet Apple.—I found an Apple here under this name when I took charge of the gardens about nine years ago, and, like Mr. Carmichael, I have not been able to find it in any of the fruit manuals or nurserymen's catalogues, and the probability is I have it under a wrong name. It certainly is not the variety named by Mr. Carmichael Boston Russet. It is more in the way of Warner's King or Pott's Seedling, though quite distinct from either of these. The description given in Hogg's *Fruit Manual* of Apple Reinette du Canada is very similar to that I should give of Pomona Russet. It is a large showy Apple, conical in shape, deep green skin, speckled with light spots, slightly yellow and russety on the side next the sun; short stalk with deep eye; flesh white, firm, and juicy. It is an excellent culinary Apple, and is fit for use now and up to the month of February. I have had fruit of it this season which has weighed over three-quarters of a pound. *R. Greenfield, Warwick.* [A fruit sent by our correspondent as Pomona Russet bears a strong resemblance to Alfriston, but is quite distinct, very large and fine. EDS.].

Orchid Notes.

RENANTHERA COCCINEA.—Even under the best management this is a shy-flowering Orchid, but when it is successfully flowered it is both noble and interesting. When out of flower its quaint mode of growth, as well as its vertical habit, and waving, pendulous, corkscrew roots, render it a plant at all times both curious and attractive. One plant flowered here last year, and the spike had 106 fully developed flowers open at the same time. This spike was sent to Kew, and pronounced by the authorities there to be among the largest that has flowered in this country. A few details as to how this plant was grown may be useful. We prepared a long block of fresh cut birch-wood 9 feet long and about 4 inches in diameter at the base, slightly tapering to the top; this was securely placed in a 9-inch pot so that it would not move. The pot was then filled with sphagnum and rounded up to 4 inches above the rim of the pot. The plant at the same time was put in position, covering the bottom roots up in the pot with the sphagnum. The plant was tied in a few places to keep it in position until the roots fixed themselves to the block, which they readily did, the plant having a predilection for birch-wood, thriving on it better than on other kinds of wood. The plant will thrive in the moist, shady Orchid-house but seldom flowers, and it is better grown in a house that is never shaded; still it requires a stove temperature to make its growth in, and during this season it should be exposed to all the direct bright sunshine, which turns the leaves a yellow colour, and this thorough maturation of the growth induces the plant to flower. Another point of importance is that, like other Orchids, it requires a season of rest. When the plant is in flower it ought to be removed to a dry cool house, it will then keep nearly three months in perfect condition. To view the flowers to the best advantage the plant should be sloped at an angle towards the path, when it can be well scrutinised. Although it has not the beautiful marking of the Odontoglossum, or the delicate and exquisite colour of the Saccolabium, it has nevertheless its own characteristics, which are altogether quite unique. Some plants grown this season in the same way—with the exception that the blocks are covered to the top with sphagnum—are now 8 feet high, clothed with leaves to the bottom. They are now having a season of rest, after which flower-spikes may be expected. *E. Wilson, Castle Hill, Devon.*

THREE DESIRABLE ONCIDIUMS:

Oncidium varicosum, O. Marshallianum, and O. crispum. There is a very healthy lot of plants of these three desirable species in Mr. Bull's nursery, and last season's growth was, I think, the finest I have yet seen. We have grown our plants of these in the Cattleya-house; but in the nursery at Chelsea they are treated like cool Odontoglossums and Masdevallias, and this is evidently the right treatment for them. When well grown they are worthy associates for the noble Oncidium macranthum, which thrives well with them. As we gain more experience in Orchid culture it seems there are a goodly number of species adapted for cool-house treatment that we have been growing with the Cattleyas; and in some cases certain species may be placed in the cool-house to rest, and be moved to a warmer temperature to make their growth. *J. Douglas.*

"THE ORCHID ALBUM."

Another instance of the increasing popularity of Orchids is afforded by the appearance of this publication. It is of quarto size, each monthly part containing four coloured illustrations. The chief aim of the publication is to ensure accuracy of nomenclature, and to inculcate correct ideas as to the cultivation of the plants. The descriptions are entrusted to M Moore, and are in English; the cultural directio are supplied by Mr. Williams, which is tantamount saying that they are of a thoroughly practical ch racter. Incidental notes on Orchids in flower at t various exhibitions, or in private collections, a given, and add materially to the interest of the pub cation. As an illustration of the practical charact of the work we add the following quotation:—

"It must be borne in mind that the plants (Cattley are found growing naturally on the branches and ste of trees in the forests, where they get some shade and free circulation of air, which it is of great benefit secure, and which should be made a point of the utmo importance in the artificial cultivation of all Orchids, of most other plants. It would be a great boon to cul vators if our collectors would note down and supp fuller and more precise information on these points; although of course the natural conditions could not in cases be carried out to the full extent, yet we shou be then better able to imitate them, and thus supply t natural wants of the plants. In giving as much air a light as possible, however, cold draughts must avoided, which may be effected by fixing the ventilat near the hot-water pipes, and should a cold wind p vail, by giving air on the opposite side, always closi the house in good time. In summer water should freely sprinkled about the tables and paths twice a day viz., in the morning, and about 3 or 4 o'clock P. During the dull dark days of winter very little moisture required, but on warm days some water may be given the plants, especially in spring-time, when the da begin to lengthen. Syringing should be avoided duri the winter, except in the case of those on blocks, for little dewing with the syringe during the day will r hurt these, as the moisture quickly dries off. The wa should always be used in a tepid state. One of the m important items in Orchid culture is cleanliness. Ev plant should be cleansed as soon as any indications insect life are perceived upon it, since there are insec cides and other remedies sold to destroy all such pes Cockroaches, snails, and woodlice are very troubleson and should be well looked after at night, when they co out to feed on the young shoots and flowers. Woodl may be caught by laying down here and there traps c sisting of some moss, at night, or half Potatos, or T nips scooped out in the centre and placed about in qu nooks and corners, or on the pots. The woodlice w harbour under them, and may be caught and destroy in the morning."

LÆLIA AUTUMNALIS ATRO-RUBENS, AND ODONT GLOSSUM VEXILLARIUM RUBELLUM.

These two plants, shown by Mr. Bull, and certi cated, at the last meeting of the Royal Horticultu Society and noticed in the *Gardeners' Chronicle*, deser a word or two further. Those who have not made t acquaintance of this charming dark form of the o L. autumnalis will scarcely be able to realise h much handsomer it is than the ordinary variety. all its stages from first opening, when the deep rub purple is intense, to its further development, wh part of the deep shade gives place to white dash with claret, it is a lovely flower. It is to be hoped will not get destroyed by the mistaken over-war treatment which has caused the death of no sm number of the commoner form. In Odontoglossu vexillarium rubellum there seems to be much mo fixity in form than has hitherto been found to exist previous importations of this grand Orchid. In add tion to its late autumn habit of flowering, every pla appears to be an exact counterpart, in both form a colour, of the rest. The flowers are medium-size the white colour pure and clearly defined; the pi is of a medium shade. The habit of growth is suf ciently distinct to admit of the plants being readi picked out from amongst the ordinary varieties. T bulbs, in place of being elongated, are short a broad—almost as broad as long—the foliage also sho and broad. *T. B.*

Garden Operations.

HARDY FRUIT GARDEN.

The latest Pears and Apples should all now b gathered and stored thinly. Let the fruit-room b aired freely for a time to dispel moisture, and avoi as far as possible sudden fluctuations of temperatur which cause damp and decay more surely than eve an unsuitable temperature steadily maintained woul do. Quinces and Medlars may require to remain little longer on the trees, but should be secured befo severe frosts set in. The fruits of Pyrus japonica although not usually made use of, may be gathere for making marmalade. When the fruits (especiall of the light-flowered variety, which bears profusel are well ripened, the preserve made from them i much appreciated for its peculiarly rich aroma. Th newer P. Maulei is now much used, and may b recommended for planting in all collections of hard fruits to supply a pleasing and distinct conserv Forward all necessary operations in connection wi

y autumnal planting that requires doing, such as e removal of useless trees, preparation of soils and tions, &c. Proceed with planting as soon as pos- le in order to allow of renewed root-action taking ice before the ground becomes too cold to induce It is well in selecting varieties of Pears and Apples fully consider the nature of the subsoil, the aspect which they are intended, and the local position to elevation. In cold districts the later Pears and se of tender constitution should be planted only walls with a southern exposure, for if not given best position on walls, or if they be planted pyramids in the open quarters, they rarely ripen ll or become melting. Under favourable circum- nces most Pears that ripen before Christmas do not necessity require the assistance of a wall, but may ripened perfectly on espaliers and pyramids, hough, perhaps, sometimes lacking a little in earance. Where little wall space can be afforded is, therefore, advisable to plant a quarter with amidal and bush trees of the summer and autumn ts. They may be procured worked on the Quince hat stock be suitable to the soil of the garden, but some soils it is preferable to have them on the free ck. Space cannot, even in small gardens, be better upied than with a fruit which may be had in son for dessert from July to Christmas from espalier pyramidal trees, and the use of which will be ex- ded at least three months longer by the later varie- from walls. Of the small early sorts which keep a short time, one, Doyenné d'Eté, will be suffi- nt for small collections, and the following sorts of rs may be confidently recommended as giving a cession of good fruits, and as succeeding in most ations:—Jargonelle, Williams' Bon Chrétien, mish Beauty, Louise Bonne, Beurré d'Amanlis, rie Louise, and the rather earlier and distinct Marie ise d'Uccle, Baronne de Mello, Brown Beurré, rré Superfin, Beurré Diel, Doyenné du Comice, sel's Bergamot, Pitmaston Duchess, and Beurré helier. Later varieties, coming in after istmas, requiring the assistance of a wall and l deserving it, are Glou Morceau, Forelle, ter Beurré, Bergamotte d'Esperen, and Beurré Rance. A good supply of stewing Pears is st useful, and for this purpose Catillac, Uvedale's Germain, and Vicar of Winkfield, may be planted. preparation for the planting season being the st important operation in the hardy fruit depart- nt at this time, perhaps this Calendar can be best ised by also giving a list of some of the most ful dessert and culinary Apples. Irish Peach, eating, Devonshire Quarrenden, Kerry Pippin, chess of Oldenburg, King of Pippins, and Cox's nge may be recommended, followed by such late s as Ashmead's Kernel, Beachamwell, Court- du Plat, Old Nonpareil, and Sturmer Pippin. culinary Apples the free-bearing Manx and Kes- k Codlins, Tower of Glamis, Stirling Castle, re de Ménage, and Royal Russet, should be nted in all gardens of any extent; and such large l handsome fruits as Gloria Mundi, Emperor xander, Ecklinville, and Warner's King may also a place, followed by the late keeping Norfolk and iped Beefings, Rymer, Alfriston, and Dumelow's dling. Hawthornden and Lord Suffield are too ject to canker in some soils to be generally recom- nded, and the like remark applies, unfortunately, h equal force, in the dessert section, to Ribston pin, while the highly appreciated Blenheim is too certain a cropper. *Ralph Crossling, St. Fagan's tle.*

FRUIT HOUSES.

Vines.—The earliest vineries must be pruned at e, and the woodwork and glass be thoroughly shed. If the borders are in a bad state they may l be top-dressed, using the compost previously ommended, taking out all the old soil carefully hout breaking the roots, and laying them with equal e in the new soil, which must not be used too wet, so that it can be trodden firmly down when finished. the Vines in a horizontal position, and keep the ise cool until started. If Grapes are required very ly, close the house by the end of the month, and if menting materials are used inside the house no -heat will be necessary for some time. Before nmencing to force, water the border thoroughly h clear tepid water at a temperature of 85°; keep temperature at first 45° to 50° at night, according the state of the weather outside, with a rise of 10° day, damping the Vines whenever they become . Houses in which Hamburghs are hanging will w require great care and attention to keep them in d condition until the end of the year; look over bunches for bad berries several times weekly, and p the atmosphere dry. On dull, foggy days do open the front ventilators at all, and only admit little air at the back of the house, with ficient fire-heat to keep the air circulating; on bright sunny days a little extra fire l air will be of great benefit to them, closing house before the damp begins to rise, and turning extra heat off early in the afternoon. Muscats will now be all thoroughly ripe, and damping down must be discontinued, only sufficient moisture being given to the roots to keep the berries plump; if the borders are dry one watering, as recommended in last Calendar, will be sufficient for the winter. The temperature may now be kept lower, say 55° at night, with a rise by day; a little fire-heat is of advantage in keeping Muscats, but it requires using carefully, for the berries will shrivel if given in excess. The best plan is to use a little always, and if the nights are very cold a few degrees lower temperature will be better than too much fire. Late varieties of Grapes will now require looking over several times weekly for bad berries, and the outside borders covered to throw off the autumn rains. Keep the temperature for some time longer at 50° at night; but as the nights get colder the temperature can be lowered, keeping only a very little fire-heat on. Look over the corners once weekly with a hair-broom to get rid of the spiders, or they will disfigure the bunches, and ventilate as advised in my last Calendar. Newly-planted vineries, where the wood is strong and not well ripened, must have fire-heat in the daytime with abundance of air and a dry atmosphere until ripened; but where the wood is ripe, fire-heat can now be dispensed with, and the house left open night and day. The earliest pot-Vines can be started by the end of the month. Before placing them in position it is a good plan to examine the bottom of the pots, and to ensure good drainage make the hole larger at the bottom of the pots. If they stand on fermenting materials to assist them to break, tie them down in a horizontal position until they commence breaking; they can then, before being tied to the wire, be plunged in the material, standing them on a large flower-pot to prevent them sinking. When the material used for heat begins to decay, keep the rods well syringed several times daily and start them with a night temperature of 50° with a rise of 10° by day. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

Presuming that the directions given in former Calendars have been attended to with reference to the making up of the beds to stand the winter, little further trouble will be required before the spring. The same applies to the removal of all young and succession plants from dung-frames, or other temporary quarters, to more substantial places, such as houses or pits to winter them in. By those who have not such accommodation always at their disposal, and who are obliged to keep a portion of the young plants in frames all winter, great care, good method, and forethought are required. The cardinal points must be to keep a steady continuous heat both at the top and bottom. Too much rank steam in the frames is injurious. To secure this a heap of prepared fermenting material should be kept ready to hand; without this it is impossible to manage them properly. It is also a good plan to work the materials for linings in the same way: one heap will answer for both purposes. Commence at once to collect leaves—any will do for the first lot, but Chestnut leaves are preferable, and the best among the early falling leaves. A little later Oak leaves will be plentiful, and should then be used exclusively, as they are the most durable; about one-third of good long stable litter should be added to two-thirds of leaves and well mixed together, and turned over at least twice a-week. If the leaves are very dry, throw water over them, which will make them ferment better. The fermenting material should not be allowed at any time to become too soddened with water, as it then rapidly decomposes, and gives off heat only for a short time. A suitable place should be made to keep it in, such as an open shed, where it can be turned over at intervals. If sheds cannot be spared for this purpose, old doors or boards will keep off the heavy rains. Where bottom-heat has to be supplied by fermenting materials to pits or houses from the outside, vaults or recesses are made of brick to hold the same, and the foundation of these structures should be pigeon-holed, which allows the heat to ascend into the chambers below the plants, or into the beds where the pots are plunged. Fresh fermenting materials should be put in as soon as the old becomes spent, to keep up a regular supply of heat. These linings ought at all times to be covered over with doors to keep them dry, and prevent the heat from escaping. Although this may be a cumbrous way of growing Pines, and entails a deal of hand labour, still it is a practice extensively carried out, and good fruit can be so grown. Pines may be had in this way without a great outlay being in the first instance expended on structures to grow them in. *D. Wilson, Castle Hill, Devon.*

PLANT HOUSES.

Stoves.—Allamandas, Clerodendrons, and Bougainvilleas that have exhausted their blooming season may be partially pruned back and tied into somewhat closer compass; this will give more room for winter flowering plants now advancing. Withhold water gradually from the before-named till they are at rest, when only occasional doses will be requisite till the time for breaking forth afresh with new life and vigour. Allamanda grandiflora is liable to be attacked with white scale, and this will be a good time to endeavour to eradicate it. Any insecticide of known reputation will answer for this purpose, but in most cases it has to be used at a greater strength than recommended by the vendors. After a few trials the operator will soon find to what degree of strength he can safely venture with any given kind. I have found that white scale is more difficult to kill than any other insect, therefore all the more caution should be exercised. Well established plants of Eucharis amazonica that have been treated as previously recommended are now throwing up flower-spikes in various stages of growth; these will prove valuable for some time to come. Late flowering plants of Pancratium should be encouraged to make fresh growth at once. That singular but beautiful bulbous plant, Urceolina aurea, will now be advancing into flower. When the spikes are showing keep the plants well up to the light to prevent the stems from becoming too much elongated. Those who have not grown this pretty plant I would strongly recommend to give it a trial. Keep plants of Euphorbia jacquiniæflora as near the glass as possible. The more light and air this plant receives now the more durable will be the flowers. Give every encouragement to the stock of Poinsettias, Plumbago rosea, Eranthemum pulchellum (one of the best blue flowers at this season of the year), and any other stove plant that is grown for supplying and making gay this structure during the dull season. Give Eranthemum pulchellum abundance of water and moisture; with this treatment and the maximum of temperature this plant is far finer than generally seen. As any plants of Epiphyllum truncatum in its now numerous varieties advance into flower they should be kept in a somewhat cooler and drier atmosphere, to prolong their beauty. Small plants of Clerodendron fallax are still making a good display; this is a fine autumn kind. If any seed-pods are perfected the same should be secured; the seed may be sown at once, and small plants with nice heads of flower may be had another autumn. With colder nights and occasional frosts the temperature of the stove may be allowed to drop a few degrees, allowing 60° as a minimum, but slightly above will be better than below that point. Continue to close with a good brisk temperature on all bright sunny days. Keep all decaying flowers and foliage picked off, bearing in mind that cleanliness and tasteful arrangement should be aimed at, all the more now that the outdoor attractions of the garden are lessened.

Ferns.—See that Gymnogrammas, Cheilanthes, and Nothochlænas, have the driest position that can be given them with regard to atmospheric moisture, but do not suffer them to become too dry at the roots. Damp will soon play havoc among the foliage of these Ferns; it will be advisable therefore to well thin out all old and inferior growth. Where a good supply of the hardier kinds of exotic Ferns are required for conservatory decoration, see that the stock of the same does not decrease. Small seedlings of Pteris cretica and serrulata should be looked after, and an old frond or two of the Asplenium bulbiferum and A. flaccidum will yield a stock wherewith to make a good start for another season.

Greenhouse, Pits, &c.—All the stock of Chrysanthemums should now be under cover, the sharp frosts of the last few mornings being a warning not to risk them out any longer. When housed, give them all the light and air possible, and keep them well supplied with manure-water till the buds are expanding. If the plants have then to be placed in the conservatory it will be better to water with clear water only, for obvious reasons. Solanums that have been potted up from the open ground should be kept in a rather close pit for a few weeks, giving them a good moistening overhead once a day. Plants of Salvias that have grown vigorously should be well supplied with water. A vinery from which the Grapes have all been cut will suit them very well for a while. The earliest batch of Primulas now advancing into flower should have a light airy position; where they cannot otherwise be brought near the glass, a swing shelf will suit them very well. Later stock of these will be safe in a cold frame a little longer, provided they are well ventilated on all favourable opportunities and properly secured against frost at night. Cinerarias may remain out also under the same treatment, but watch them closely for any attacks of mildew or greenfly. Herbaceous Calceolarias should have attention given them; if any are still in the seed-pan, prick them out before they become drawn, and keep them still in a cool moist position. The earliest batches of Roman Hyacinths and Narcissus (Paper-white and Roman) may now be advanced gradually if they are become well rooted. Place them near the glass to keep them dwarf and stocky. Where a long succession of bulbs has to be kept up the latest stock should be potted up without further delay, or the bulbs will begin to suffer. *James Hudson, Gunnersbury House, Acton, W., Oct. 18.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 24	Sales of Dutch Bulbs at Stevens' Rooms; and at the Auction Mart, by Protheroe & Morris.
TUESDAY,	Oct. 25	Sale of Bulbs, Roses, Fruit Trees, &c., at the City Auction Rooms, by Protheroe & Morris. Clearance Sale at the Nursery, Canterbury, by Protheroe & Morris.
WEDNESDAY,	Oct. 26	Sale of Standard Roses, Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Oct. 27	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Oct. 28	Sale of Bulbs and Greenhouse Plants, at the Auction Mart, by Protheroe & Morris.
SATURDAY,	Oct. 29	Sale of Dutch Bulbs, at Stevens' Rooms

FEW are the schoolboys who have not had in their educational experience to learn that striking poem of COWPER'S, "The Negro's Complaint," wherein he depicts the fierce ills which fall upon the islands of the West Indies because of the institution of slavery, amongst which Divine vengeance was made to assume the form of the wild tornado—

> "Strewing yonder sea with wrecks,
> Wasting towns, plantations, meadows,"

or, said the poet—

> "He foreseeing what vexations
> Afric's sons should undergo,
> Fix'd their tyrants' habitations
> Where His whirlwinds answer—No."

Many years have passed since slavery in our colonies was abolished, and its once fearful associations are now almost forgotten there; but still the tornado sweeps over the devoted islands with all its wonted force, and still towns are wasted and plantations are sometimes devastated. Slavery and the fury of the elements are not now found, therefore, to have that intimate connection which COWPER ascribed to them.

If the poet were now alive, to what dread evil existent amongst us—

> "Portentous, unexampled, unexplained"—

would he have ascribed the tornado which visited us last week, and in its course left behind an impress such as shall not be forgotten by the present generation? We, perhaps, are more enlightened than COWPER was, or it may be that, having less fatalistic tendencies, we ascribe the visitation of the fierce and destructive air current rather to natural causes, the which, if not readily explained, are at least familiar to scientific enquirers. But we could well wish that these causes should be henceforth of somewhat milder operation, and that, if the wind cannot always comport itself as a gentle zephyr, wafting sweet perfumes and delightful sounds, yet that it may be less apt to assume the form of that terrible fury who left in his track only desolation and destruction. To gardeners and lovers of the beautiful in Nature the wind has come as a terrible and unwelcome visitant. Before its mighty force numbers of noble trees have bowed their heads and have escaped unscathed others, and these, too, numerous, have lost hug limbs, and have been robbed of their once fin proportions.

But to thousands of grand trees has come worse misfortune—one absolutely irreparable for these have fallen, like WOLSEY, "never rise again." The storm in its wild wilfulnes may lay low the largest buildings, and overthro the greatest works of man, but these can b rebuilt or reconstructed. In these things man' power seems almost unlimited. It is not s with the fallen giants of our woods, parks, an gardens; they lie prostrate, torn up by th roots, or perhaps broken off just above t ground, and no power of man can replace the We may plant again, and may water, but man many years alone will give the increas and not till our children's children have pe chance grown grey will they see in the saplin planted now the duplicates of the noble tre they are to replace.

Associations of the past cluster fondly rou our fallen friends, as we view their prostr forms with sentiments of deep regret. Fi old specimen trees that for ages have adorn the landscape will now be missed in all dire tions, and many wonted landmarks that ha been as familiar to the coasting seaman wh tempest-tossed as they were to the less co cerned landsman, will never more mark t

FIG. 99.—VIEW IN THE GROUNDS AT DUNORLAN. (SEE P. 526.)

looked-for spot. We take some comfort from the fact that if some are gone many are left yet to us and to our children, and may we turn the lesson to profit by remembering that such storms have their uses. Cowper tells us—

"E'en the Oak thrives by the rude concussion of the storm;"

and we know, now, that the wind does much good in various ways; and if it teach us how properly to stake newly planted trees, how to set up older ones overthrown, and how to prevent such disasters, in a measure, in the future, it will not have exerted its force in vain.

Fig. 100.—View in the Grounds at Dunorlan. (see p. 526.)

The storm of October 14 appears to have been felt not only in this country but throughout Northern and Central Europe. Many accounts of its destructiveness have reached us, some of which are given elsewhere.

— Hothouse Materials. — Before Sir Robert Peel let light full and unrestricted into the dwellings of the British householder, hothouses and greenhouses were looked upon as more expensive luxuries than they are now-a-days. So far as extent in the erection of glass structures for garden purposes, there has been progress such as few could have anticipated; many also have been the improvements that have taken place in the construction of glass erections for the various garden purposes; these now do duty in a like manner with the admission of light to our dwellings. The value of this all-essential element to plant-life is now to some extent better understood than it used to be. To some extent, we repeat, for the importance of light to plants is by no means so universally understood as it might be supposed to be; otherwise we should not still see so many plant-houses erected in positions that make it impossible for the occupants to receive nearly the amount of light necessary for their well-being. There is an absence of the heavy timber that used to be put in the roof in the shape of rafters double the strength requisite, and sash-bars at less than half the distance apart they now are; these, along with some improvements in ventilation, are usually met with in houses of modern construction. But there are some things—and these of no slight importance—wherein there is frequently to be seen in hot and greenhouse buildings of the present day an absolute retrogression; we allude to the bad bricks and mortar, and still worse wood, that is now more the rule than the exception. There are few people who have any knowledge of these matters, and are at all observant, who cannot bear testimony as to the poor, perishable, white and yellow deal that is now all but generally employed, as compared with the resinous, durable wood that in times back was used. There is no difficulty in finding plenty of houses which have stood half a century's wear and tear, that are sounder now than others, similarly employed, that have not been up a score of years. We have in our mind's eye a place wherein a little over twenty years ago a large number of houses was built with a view to illustrate the merits of a certain description of glass; no reasonable expense was spared; the workmanship was as good as it could be, but yellow deal was used; and at the present time the whole lot is in such a dilapidated condition that they cannot be further repaired, being held from falling by props and stays in every direction, despite which they are in danger of falling, and very soon will fall down altogether. There can be no greater mistake than the use of timber for garden structures that is deficient in resin, particularly when they are to be used for Orchids and other stove plants, where a moist atmosphere has to be all but continuously kept up. This is the more obvious from the fact that the most durable Pitch Pine costs little if anything more than the perishable wood we speak of, only that the labour in construction where the ormer is used may be a fraction more. None appear to be better alive to this important matter than the leading market growers, who now use Pitch Pine; but for structures wherein a good deal of heat and moisture are generated there is nothing to equal Mr. Beckwith's houses with concrete walls and stages and iron roofs. As fast as his first built houses get shaky he does not stop to patch them up, but down they come to make way for others built of the all but imperishable materials. A new double span, 112 feet long by 26 feet wide has just been finished, all concrete, iron, and glass. A propagating-house with these granite-like walls has also just been completed, of a size that will give some idea of the quantity of cuttings to be struck; it is 116 feet long by 12 wide. One portion of the striking-beds has a hot-water tank underneath. With such houses as these neither this nor the next generation will be troubled with repairs

resulting from soft bricks, mortar short of lime, or rotten rafters and sash-bars.

—— THE PHYLLOXERA LAWS.—We regret to learn that the recent Berne Convention, called, amongst other matters, to discuss the propriety of moderating some of the absurd restrictions on the transit of plants (other than Vines) in various countries, has decided not to make any alterations in the rule. It appears that while France and Switzerland, and Germany, were in favour of some relaxation, Austria-Hungary opposed it. France, as we learn from the *Revue Horticole*, was represented by MM. CORNU, ANDRÉ, and ANATOLE LEROY. There is one consolation, and that is, that whatever the letter of the law may be it is not so strictly acted upon as it once was.

—— FINSBURY PARK.—We are informed that the annual display of Chrysanthemums in this park promises to be equal to that of last year, and will be opened to the public on and after Saturday the 22d inst.

—— BIG POTATOS.—An old friend of the distressed journalist is in danger of losing its popularity: the big Gooseberry is being superseded by the bigger Potato. The PRIME MINISTER has done the Press many a good turn in its day, and from time to time has helped to fill its columns with readable matter when distracted sub-editors were at their wits'-end for a supply of acceptable copy. But at Leeds the other day Mr. GLADSTONE set a ball rolling that may in time and under the pressure of fertile imaginations develope into a newspaper spectre of the most gigantic proportions. The PREMIER had seen at Hawarden a huge Potato which weighed 21 oz., and at once this big product presented itself to his mind as illustrative of the capacities of our soil and clime in the production of food crops. Such a tuber would, under ordinary circumstances, have evoked only passing notice; but the PREMIER flung it at the heads of his Leeds auditors, and though it hurt none of them, it seems to have hit somewhat severely the eyes of an inhabitant of Sandy who at once wrote to the *Times* protesting that a bigger tuber, one indeed weighing 27 oz., had been dug in that district. Here was a splendid revenge, and the Hawarden tuber, Leeds magnified, henceforth sinks into insignificance, for Sandy has triumphed. But, alas! for the mutability of earthly honours and aspirations—even ere the PRIME MINISTER had so unexpectedly popularised the 21-oz. tuber, and whilst yet the Sandy monster was lying beneath the soil, little anticipating the honour in store for it, the Messrs. HOOPER, of Covent Garden, had exhibited at the Crystal Palace a regular whopper, against which even 27-oz. tubers became pigmies, for this huge specimen of the progeny of the Queen of the Valley weighed 2½ lb., or 40 oz. We mention this fact with some conscious pride, yet with bated breath and fear. What if Lord SALISBURY or Sir STAFFORD NORTHCOTE, or, still more, Lord RANDOLPH CHURCHILL, should get hold of this biggest of all tubers and some day launch it in speech at Mr. GLADSTONE'S devoted head, what would be the result?

—— CRYSTAL PALACE SCHOOL OF GARDENING.—The Rev. G. HENSLOW delivered the second lecture of his course on "The Practical Application of Vegetable Physiology to Methods of Propagation," on Wednesday, the 12th. He commenced by explaining the term histology as the study of the microscopical tissues of a plant, and described, with the aid of diagrams, an actively growing cell, which consists of the three parts—the living protoplasm, its nucleus, and the cell wall, which is secreted by the former, the nucleus being concerned in the process of multiplication of cells. He then described the changes which cells undergo to form the tissues of a woody stem, root, and leaf, the practical bearing of a knowledge of anatomy being in the importance of keeping the growing points of roots intact on transplanting, in the case of stems in keeping the two cambium layers of stock and graft in contact, showing that to keep the outsides of the two as one continuous surface was immaterial, provided those inner layers were in conjunction. The functions of the leaf were alluded to in connection with their superficial tissues, in order to prove the necessity of paying attention to the cleanlinesss of foliage, and the presenting their surface to light in order to enable their functions to be carried on satisfactorily. The contents of ferment cells were then described, such being materials laid up for future use—1, non-nitrogenous substances, as starch, oil, &c.; and, 2, nitrogenous matters, as aleurone—the former being required for cell-wall, the latter for nourishing protoplasm. He concluded by remarking upon the dietetic value of these substances, which man takes advantage of for his own purpose, though Nature intended them primarily for the nourishment of the embryo and other parts of the plant.—The third lecture of the course was delivered on Wednesday last, the subject being "Germination.' Mr. HENSLOW first described the anatomy of seeds, explaining the difference between those which are "albuminous" and those which are "exalbuminous," as well as the difference between Monocotyledonous and Dicotyledonous embryos. He then proceeded to give an account of the external conditions necessary for germination, viz., proper temperature, moisture, and oxygen. Hence arises the importance in sowing seeds in such a manner as to secure those requisite conditions, without which seeds will not germinate; hence, too, arises the practical importance of guarding against sowing too deeply, &c., as well as of an absence of injurious gases, such as carbonic, so invaluable to the foliage of plants, but which is fatal to the germination of seeds. He then described the internal changes in the seed—how important a part digestion plays in converting the solid starch and nitrogenous aleurone into soluble substances, as sugar and peptone, for assimilation by the growing embryo. He concluded the lecture by describing the first stages of development in the protrusion of the radicle, with or without the elevation of the cotyledon.

—— THE LATE MR. W. EDGCUMBE RENDLE.—The will of Mr. W. E. RENDLE, late of 3, Westminster Chambers, Victoria Street, S.W., was proved on September 29, the personal estate amounting to upwards of £55,000.

—— POLYGONUM VACCINIFOLIUM.—When this was figured in the *Botanical Magazine*, thirty years ago, the following remarks were made:—"We are much mistaken if this will not become a great favourite in our gardens as a bedding-out plant, especially where autumn flowers are desirable." This prediction has hardly been fulfilled, and yet under favourable conditions there are few more lovely border plants. It has slender stems which root at the joints, and the small neat foliage is sometimes almost hidden by the fine spikes of bright rose coloured flowers. As a pot plant for the cool conservatory it makes a fine object, and seems to do best if stood in a saucer kept filled with water. It is rather widely distributed in the Himalayas, where it is found at elevations of from 11,000 to 13,000 feet above sea level. Now in flower at Kew.

—— VALLOTA PURPUREA.—There is a great deal of truth in the remark once made, that "this beautiful Cape bulbous plant is with difficulty surpassed during the autumn months." A remarkable illustration of the correctness of this remark was seen recently at Rugby on the occasion of a horticultural exhibition in connection with the Warwickshire Agricultural Association. A number of plants of Vallota purpurea were shown by Mr. A. PARKES, of The Gardens, Bosworth Hall, Rugby, and for beauty of development they exceeded anything of the kind we have seen for a long period. The specimens varied in size from those in the largest sized pots, carrying two dozen or so trusses of bloom, to smaller specimens with two and three or more trusses. The size of the individual trusses, as well as of the flowers, was very remarkable, the fine development of the foliage being scarcely less conspicuous. Mr. PARKES' course of treatment may be briefly set forth. With the exception of the time when the plants are in flower, they stand on the front stage of a cool-house, close to the ventilators, all the year round. The house has a south-west aspect. The plants are regularly watered all the year round, and when growing they are treated to an occasional dose of weak manure-water. Mr. PARKES states that for one year he tried the plants in a cold frame, for one period of the year taking off the lights altogether, but the plants did not succeed nearly so well as when grown in the cool-house. As far as culture is concerned the main requisite is a good loam in which to pot the plants, an abundance of drainage, never allowing the plants to dry off (as is the custom of some cultivators), and giving them plenty of air and light. All through the summer and autumn months the Vallota is a conspicuous feature at Bosworth Hall, and its great value as a decorative plant is demonstrated in the most effectual manner.

—— AMERICAN POMOLOGICAL SOCIETY.—The eighteenth session was held at Boston, Mass., on September 14, and following days. The show was a very fine one, and the meeting derived special interest from the address of the venerable President, Col. WILDER; neither his recent severe accident nor his prolonged age have sufficed to quench his zeal or check his eloquence. Full of thankfulness for the past, and full of hope for the future, the President surveys with pride what has been done, and looks with just confidence on the immense future in store for American pomology. Progress is the key-note of the President's address, as vigorously sounded now as it was nearly half a century ago, and his advice is summed up thus:—"Plant the most mature and perfect seeds of the most hardy, vigorous, and valuable varieties, and as a shorter process, insuring more certain and happy results, cross or hybridise your best fruit." If we might venture to add to this, we should add, experiment with various stocks, to ascertain which is the best for each particular variety in each particular district.

—— THE PHYLLOXERA CONGRESS AT BORDEAUX.—This was, as we learn, of a thoroughly business character, the discussions being, not only lengthy, but to the point. The principal points of discussion were the several means of prevention or cure—such as the grafting on American Vines, submersion where practicable, the use of sulphide of carbon, &c.

—— THE ROYAL HORTICULTURAL SOCIETY.—We regret to hear that, on account of ill health, Mr. HENRY WEBB has resigned his offices as Treasurer of the Society, and as Chairman of the Fruit Committee, in order to go abroad for the winter. Mr. WEBB, by his genial manners, has endeared himself to all associated with him, while his services to the Society, though unostentatious, have been of the most valuable character. He is succeeded as Treasurer by Mr. W. HAUGHTON.

—— THE CONTINENTAL HORTICULTURAL COMPANY.—Under the title of "Compagnie Continentale d'Horticulture," the establishment heretofore conducted by M. LINDEN, of Ghent, will in future be known. No change will be made in the management, M. LINDEN and M. LUCIEN LINDEN taking, as before, the chief direction of the business.

—— "COUNTRY PLEASURES."—Mr. MILNER, the author of this book, recently reviewed in our columns, writes to assure us that he never saw Mr. BRIGHT'S articles on a Lancashire Garden in the *Gardeners' Chronicle*, nor the completed work, so that any resemblance in treatment between the two works, in a measure dealing with the same subject, is a mere coincidence, and that Mr. MILNER'S book "could not have been, either consciously or unconsciously, an imitation of what I had never seen." Of course, we accept Mr. MILNER'S assurance, but every one who reads the two works will admit that the coincidence is very remarkable.

—— AMERICAN TUBEROSES.—It would appear that the drought which prevailed in the United States of America has affected the crop of Tuberoses, and owing to the excessively dry summer there will be only two-thirds of the usual yield, and it is not to be wondered at that importers are asking for early orders. There is generally a scarcity of American Tuberoses, and especially of the Pearl—a pure white variety that is particularly recommended for forcing, as it has a short robust flower-stem, large flowers, said to be nearly twice as large as in the old form, and more prolific of bloom.

—— MESSRS. J. & R. THYNE.—A meeting of this firm's creditors was held at Glasgow on the 13th inst., and was well attended, the principal London creditors being represented by Mr. COOKMAN, of the Nursery and Seed Trade Association. The statement of affairs showed, secured creditors £3552 15*s.* 5*d.*, and unsecured liabilities £10,282 18*s.* 4*d.*, against assets estimated at £3448 16*s.* 11*d.* Mr. DAVID SYME, Mr. LAIRD, Mr. M. SIMONS, and Mr. STEEL were appointed a committee to examine the assets and report thereon to an adjourned meeting to

e held on the 24th inst., when it is expected that an ffer of composition will be made.

—— National Rose Society.—A meeting of the General Committee of this Society will be held at 7, Arundel Street, Stand, on Monday next, at 3 'clock, to decide on a proposal made by the Royal Horticultural Society; to fix the dates for the exhibitions of 1882; and to decide on the schedule for the Metropolitan exhibition.

—— What is the Gender of Euonymus or vonymus?—Karl Koch, in his *Dendrologie*, writes e name Evonymus, and makes it feminine. Linneus the first edition of the *Species Plantarum*, wrote vonymus, and made it masculine. Most authors ave followed Linneus in the gender, and most odern authors have adopted the usual transliteration the Greek *υ* by *u*. Our Greek Dictionary indicates at the word was used both as a masculine and a minine noun. Some discussion has arisen on this oint in a German contemporary, in consequence of contributor designating the employment of the asculine termination in this association as enough make one's hair stand on end. Perhaps, if he ade it neuter—*ευ, ὄνομα*—his hair would lie down gain!

—— The Weather.—General remarks on the mperature, rainfall, and duration of bright sunshine, r agricultural and sanitary purposes, during the week ding October 17, issued by the Meteorological Office, ondon:—The weather has been very changeable. uring the first part of the period it was very unttled, with heavy rain or showers of hail, and on the th exceedingly rough and boisterous. Towards the ose, however, it became generally quieter, brighter, d drier. Temperature has been below the mean in l districts, as much as 5° or 6° over the greater part England. The maxima were registered on the 11th, d varied in most districts from 60° to 63°, while the inima, which occurred either on the 16th or 17th, were low as 23° at Strathfield Turgiss, 24° at Rothamsted, d 25° at Markree. Rainfall has been rather less an the mean on the south and south-west of Eng nd and south of Ireland, but more elsewhere; in e north-west and extreme north-east the excess was ry marked. Bright sunshine has been more prelent than last week, the percentages ranging from in "England, N.E.," to 36 in "Ireland, N.," and in "England, S.W." Depressions observed: -During this period two deep depressions have ssed across our islands from the westward. he first was shown off the north of Scotland on the th, and travelling north eastwards, passed away ver Scandinavia on the 13th. During its progress gave us strong westerly, veering to north-west, winds gales on nearly all our coasts. The second, and ore serious one, gave signs of its approach during the th, and at 8 A.M. on the 14th lay over the north England and south of Scotland; it moved very uickly in an E.N.E. direction and disappeared over e Baltic on the 17th. This depression caused ceedingly violent gales on the 14th in all parts of e kingdom—from N.E. in Scotland, from N.W. in eland, and from S.W. to N.W. in England. On e following day the wind had shifted to N.W. verywhere, and, though less strong in most places, ill blew a gale in Scotland. At the close of the eriod the barometer was again falling along our estern coasts, with strong southerly and south-easterly inds or fresh gales.

—— Gardening Appointments. — Mr. T. Votton, late Gardener to N. C. Curzon, Esq., ockington Hall, has been appointed Gardener to Major Robertson, Widmerpool Hall, Notts.—Mr. ames Cameron for several years Foreman to Mr. Whitton, at Methven Castle, Perth, has been ppointed Gardener to Major Hunter, of Auchterder, Perthshire.—Mr. Wm. Martin, from Rathore, Belfast, has been engaged as Gardener to rchibald Coats, Esq., Woodside, Paisley.—Mr. . Bradshaw, Calwich Abbey Gardens, Ashbourn, Derby, has been appointed Gardener to the Countess f Shrewsbury, Hagley Hall, Rugeley, Staffordshire, nd is succeeded at Calwich Abbey by Mr. J. Allen, Crook House, Marchington, Uttoxeter. — Mr. Walter Powell, late Gardener to Major Smythe, Elkington Hall, Louth, Lincolnshire, has been ppointed Gardener to Lady Hawke, Womersley Park, Pontefract.—Mr. Wm. Heath, for the last hree years Foreman in the gardens at Heckfield, has een appointed Gardener to the Right Hon. Sir Frederick Peel, Bart., Hampton Manor, Hampton-in-Arden.

THE GALE OF OCTOBER 14.

Many of your readers will regret to hear of the accident which befell Queen Elizabeth's Lime tree during the late violent gale. The trunk was divided into four parts about 7 feet from the ground, each one as large as an ordinary tree; three of these were blown off, taking part of the trunk with them, leaving only the smallest one and a few small branches remaining. The tree is well shown on p. 405 of your issue for September 24. The trunk measured 22 feet 6 inches in circumference at 3 feet from the ground; it is much decayed in some places, and has been well supported by props and chains for several years. It was planted by "Good Queen Bess" during one of her visits to Burghley, and is, therefore, nearly 300 years old. Since the gale we have had a much lower temperature, and on the 15th we had the first frost of any consequence, the thermometer reaching 31°. The damage done among the other trees in the park is enormous, and has not been equalled for the last twenty years. *W. H. Divers, Burghley, near Stamford.*

—— The late storm has done considerable damage to the trees here. There are over thirty down in the pleasure-grounds and park, and as many more are injured; but fortunately they are nearly all common trees, such as Elms, Limes, Beeches, and Poplars. All our choice trees, such as deciduous Cypresses, Cedars, Liquidambars, Planeras, Sophoras, Gleditschias, Tulip-trees, and choice Oaks have escaped with the loss of a few branches. One large Beech tree in falling lifted with its roots a mass of earth 20 feet by 16 feet. *J. Woodbridge, The Gardens, Syon House, Brentford.*

—— The disastrous effect of the gale of wind on the night preceding and during the day of October 14 is seen in the overthrow of a magnificent Elm tree in a field adjoining the garden of this house. It was blown completely over about 10 o'clock without any warning, for it nearly fell on a boy collecting sticks below it. The circumference of the roots and earth torn up is about 16 feet; while some idea of the dimensions of this fine tree will be gathered from the fact that it was 16 feet in circumference at the base, and 14 feet at a height of 5 feet from the ground. The height of the tree, as it now lies prostrate, was 60 feet, and the circumference of its foliage by calculation about 180 feet. The comparative ease with which this fine tree was overturned is evidently due to the shallowness of the soil through which the roots penetrated, as well as the incoherence of the gravel upon which its roots were lying, a foot or so below the soil. Large boughs have been broken off from another fine Elm in the same field, as well as from a Walnut tree near the house. *George Henslow, Drayton House, Ealing.*

—— The fearful gale on the 14th culminated here about mid-day, when trees were uprooted and branches torn off till the park and estate became strewn from one end to the other. The havoc and destruction wrought is pitiable to see, but it is even more distressing to witness the Holly bushes and Thorns, which were so beautiful a few days ago, now stripped of their berries, or with the same bruised and blackened and disfigured by the lashing of the furious wind. Fortunate are they who had their fruit gathered, as nothing could stand such an ordeal: not only have Pears and Apples fallen, but the trees have been stripped of their leaves. As the buds are now plump and far advanced, it is to be hoped that they will not suffer, and that next year may be as fruitful as this. *J. S., Woolverstone.*

—— A gale of unusual intensity passed over Warwick and neighbourhood on Thursday night and during Friday the 13th and 14th, doing considerable damage to the large timber trees with which this part of Warwickshire is so well stocked. Indeed, I believe that not in the memory of man has the road between Warwick and Coventry been so blocked up. Large Elm, Oak, Ash, Beech, and Poplar—nothing seemed to be able to stand against it. Gangs of men were at work clearing away, and watch-fires burning the whole of the night. One large Beech on the Guy's Cliffe estate was torn up, with five large limbs to it, each one limb in itself a large tree, and took a large stone wall down with it for a distance of 20 feet. On the same estate, on a small field, I counted eighteen large Elms, some of them from 16 to 18 feet in circumference, and 80 to 90 feet high. A row of splendid Lombardy Poplars in one of our meadows was not only blown down, but took a very large Thorn hedge along with them; it is indeed a sorry sight to see eleven of them stretched side by side, like giants; the least of them is 96 feet long. We had a very large rainfall on Thursday night, and the ground being very wet and loose supplied, I think, one of the causes for their blowing down. *Joseph Murdoch, The Leys, Leek Wooton, Warwick.*

—— A gale of unusual violence broke over this neighbourhood on Friday, the 14th inst, the oldest inhabitant failing to remember such a hurricane, which continued with unabated fury for twenty-four hours. Such was the severity of the gale that irreparable loss is sustained by trees of gigantic dimensions that have stood the test of a century or more being uprooted with tons of massive earth attached, whilst branches were hurled about in all directions, presenting a scene of the most devastating nature. Chimney-stacks and roofs of all descriptions likewise succumbed to its destroying influences. Fortunate were those who had taken time by the forelock and had their Apples gathered, as I hear from some quarters the destruction was very great in this respect. Fortunately no loss of life is recorded in this locality. *E. Morgan, Harrow-on-the-Hill.*

—— On Friday the 14th inst. a terrific gale from the W.N.W. blew most of the day, doing great damage. Hundreds of trees on this estate are blown down, and hundreds more are terribly mutilated. Huge Elms are blown down, their roots lifting up great mounds of earth, as well as Poplars, Firs, Willows, Thorn, Acacias, Beeches, and Ash trees, all of which are blown up at their roots. Oaks, whose trunks have withstood the blast best, are nevertheless severely damaged, huge branches being wrenched off them. Trees that have been the ornaments of the park for a generation or more are completely spoilt. The roads and approaches to the mansion are blocked up, and the regular staff of woodmen have got their winter's work laid out for them in the clearing and tying up of the fallen mass of green wood. It is lamentable to see the wreck that has been made. Great Walnut trees that have stood so many storms are rent in pieces. Such a gale has not been experienced here since the May gale of 1860. *J. Wynne, The Gardens, Wroxham Hall, Norfolk.*

—— It is hardly too much to say that the gale of the 14th found a paradise and left a wilderness. The wind blew so long and with such force, that it either whipped all beauty out of shrub and flower, dashed them to the ground, or tore them up by the roots. Such useful late flowers as the Dahlias, single and double, were simply broken up into useless fragments or battered into shapeless, colourless masses. Roses on their own roots were driven against the ground and each other, and some of them torn right up by the roots. Late growths, many of them tempted to flower by the copious rains, look as if they had passed through fire or boiling water. Not a few of the fresh leaves have been torn off, and the branches are bruised as if they had been trod upon. The ground under Yews, Thorns, Hollies, is thickly coralled over with the berries torn off by the wind. Not a few of the green as well as all the semi-ripe leaves of coniferous plants are torn off, and under such Pinuses as Sabiniana, macrocarpa, excelsa, and insignis, there are barrowloads of needles lying about, or carried away to great distances. Cedars of Lebanon have also suffered severely and have lost a good many branchlets. No serious damage has been done here, however, to the Cedars in the pleasure grounds though, a few trees have been wrecked in the park or surrounding woods. The Conifers have also escaped with the loss of a few boughs and branchlets. Several fine trees of Abies Douglasii were sorely tried by the gale, and at times bent during its prevalence, till the major portion of their trunks appeared to form almost a parallel with the earth; but they instantly rebounded again, and the rebound seemed to me, as I watched them, to give them fresh power to resist the force of the wind. The conduct, shall I call it, of trees in a storm, their various motions and infinitely varied ways of righting themselves after each blow delivered by the wind, is a subject that possibly only the patience and the genius of a Darwin could do justice to. After a time the trees seem to get wild with passion, and bend, shake, and quiver as if labouring under an excitement in which life or death might be involved; and doubtless it is so, though we can hardly believe the trees are conscious of the issue at stake. But after observing their vibratory gyrations, twistings, and bendings, one can but marvel, not at the numbers wrecked and laid prostrate, but that any should have escaped. On

this occasion the full force of the storm seemed concentrated on the Oaks and other deciduous trees, many of which were still covered with green leaves. Thus Poplars and Elms seemed to have suffered most, and in the case of the last so many of them are mere shells that it needs little force to dash them into fragments, tear them up by the roots, or snap them off at the ground line. But Poplars work prodigiously though not very deeply, and many of those laid prostrate with the wind must have lifted from 2 to 6 tons of earth with them. Not a few Poplar trees of at least sixty years' growth are also broken right off across the solid, at distances varying from 6 to 12 feet from the ground, by the sheer force of the gale. The Oaks offer greater resistance, alike in their gnarled tissues and tougher branches; but the gale bent, twisted and broke the boughs of these in the most erratic manner, and to a very great extent: it was, however, unable either to uproot them or to break the trunks. Old Sycamores and Ash have also suffered much. Had the rate or force of the wind been much greater, nothing could have stood against it. The strongest trees must have gone down before it, and most houses and chimneys. Some of the latter bent more than 6 inches out of the perpendicular when the storm was at its height. It was also very difficult to withstand its fury or make any progress against it. The rain fell heavily at times, and the air was full of *débris* and dust that came with such force against the face as almost to cut it. I never remember such a severe gale to last so long. That in last December had less force, though, being accompanied with snow, whipped into white snowdust, and mixed with dry soil, it was equally or more dangerous to stand against. The weight of the snow on the trees likewise formed a lever, that helped them to fall before the fury of the gale. Hence, probably, more trees fell then than now, though that is uncertain; for in all directions round here, parks, fields, hedgerows, plantations, lanes, and roadsides, are strewn with fallen trees, and a great wreckage of branches and leaves. *D. T. Fish, Bury St. Edmund's.*

—— In common with all places along the east coast of Scotland, the woods at The Hirsel, near Coldstream, have suffered most disastrously, thousands of trees being laid low, and that in a limited area. As showing the severity of the gale, several fine old trees, notably Elms, that no one knew the age of, were torn up. A very fine Tulip-tree in the middle of the garden is much disfigured, having lost several large limbs. It is among Oaks that the loss will be most felt. In the Dunglas Wood many acres of as fine young thriving hard-wood (principally Oak) as could be seen are completely gone. The desolation is absolute, and, as showing the severity of the gale here, many large and aged Beeches were blown down or torn and broken, and many trees, though not down, are destroyed, their branches being literally torn off. In all the woods many trees have fallen, but in certain places the blow went clean through, the mark being as clearly defined as with a line. No doubt the reason why so many Oaks suffered was their wealth of foliage at the time, yet both Spruce and Silver Fir have also equally suffered. On the evening of the 13th there was a heavy rainfall, and on the morning of the 14th the barometer had gone down like a shot, yet it was calm and promising a fine day. A little before noon the storm came on almost momentarily, the worst being past about 2 o'clock. *Cor.*

—— The gale broke over the metropolis with great severity, and great damage has been done to house property. In the parks the damage done to trees is very great. In Kensington Gardens the old Elms suffered terribly, and the fine avenue of young Planes near Speke's monument was completely spoilt by the trees being blown over. In Hyde Park, Regent's Park, and Kensington Gardens trees were torn up by the roots, and on the Victoria Embankment many of the trees were much damaged, as were those on the Chelsea side. At Kew the effects of the gale were severely felt. The fine row of Elms in front of the Herbarium is almost entirely destroyed, and much damage done in the grounds. In sweeping over Muswell Hill the wind tore up some magnificent trees in the Alexandra Palace grounds, and at Greenwich twenty-three large trees, principally Elms, were blown down, and about the same number of small trees, including several fine red Thorns. In the Green Walk, a little to the east of the Royal Observatory, within a space 200 yards in circumference, not a tree was left standing, there lying almost in a heap six Elms, and one large Chestnut, the girth of the trunk of which was not less than 20 feet at the base. Several trees were blown down at the backs of the colleges at Cambridge; the three known as Sisters' trees, which had for many years stood in the grounds of St. John's College, had to succumb to the hurricane, and the Mulberry tree planted by Milton in Christ's College garden had a very narrow escape. At Banbury, the Midland Horticultural Buildings Works, near the London and North-Western Station, were blown down, and nearly 1000 large timber trees have been uprooted in Warwickshire alone. The uprooting of trees throughout Worcestershire district is one of the most extensive known for years. In Lord Lyttelton's park at Hagley, much havoc has been wrought among the trees. Around Chelmsford hundreds of fine old trees were blown down, and fruit trees were entirely stripped. In Berwickshire thousands of trees were uprooted, and many of them were smashed to pieces. In Selkirkshire they were torn up in tens and twenties at one place, and many great Oaks and Beeches were broken through the trunk. At Tynninghame about 1000 trees were blown down, including many of the magnificent specimens near the mansion-house. The same story comes from all parts of the country. In Banff great lanes are said to have been opened through the woods. Many of the roads in the south-eastern counties were rendered impassable by fallen trees and branches.

THE WHEAT CROP OF 1881.

MR. LAWES sends us the following important note on this subject:—

"The seven seasons ending with 1881 have been more disastrous to British agriculture than any seven consecutive years of which we have a record. Those who hold the opinion that the fluctuations of the weather occur in definite cycles will have some difficulty in finding a parallel to the period of the last seven years, without going back to very remote records. The change in the relative proportions of home-produced and imported Wheat which has taken place during the last few years has entirely altered the character of the trade. In 1868-9, two-thirds of the total bread consumed was the produce of home-grown Wheat. A few years later the requirements of the country were met by one-half of home-grown and one-half of foreign Wheat. But the harvest of 1879 scarcely supplied one loaf in four required, that of 1880 only one in three, and that of 1881 will also supply only about one loaf in three required. We cannot ignore the fact that in consequence of these great changes the question of a good or a bad Wheat crop, however important it may be to the landowner or the cultivator, is no longer of the same importance to the nation at large as it was formerly. Another point worthy of notice is that, although our requirements for foreign Wheat are becoming larger and larger, the fluctuations in the amounts required from year to year are becoming much less. Thus, after the bad season of 1860, the nett imports of Wheat increased from 4½ to 10 million quarters, or by more than 100 per cent. In 1872-3 the imports were 3,000,000 quarters more than in the previous year, corresponding to an increase of about 33 per cent. But after the harvest of 1879, the worst on record, when the nett imports of Wheat increased from 14.1 to 16.4 million quarters, the increase only amounted to about 16 per cent. During the year ending August 31, 1881, the amount of foreign Wheat retained for home consumption was more than sixteen million quarters. As the area under Wheat in the United Kingdom was last year rather less than 3,000,000 acres, a deficiency of half a quarter per acre in the yield of the crop, although a very serious matter so far as the interests of the cultivator are concerned, has comparatively little influence on the requirements of the country at large for foreign Wheat. I have no doubt that my estimate of the home Wheat crop of 1880 was considerably too high. The average of the usually selected plots in my experimental Wheat field showed a produce of 27 bushels, reckoned at 61 lb. per bushel. There was at that time sufficient evidence to show how exceedingly bad was the yield of the crop upon the lighter soils; nor can I now account for the fact that in that year Wheat grown continuously was so much better than Wheat grown in rotation. For example: in the experimental field of light soil at Woburn the land growing Wheat every year showed but little difference between the crops in 1879 and 1880; but where, in the same field, Wheat was grown in an ordinary four-course rotation, after Clover fed off by stock with cake or corn, or without cake or corn but with an application of artificial manures, the produce of 1880 was from 11 to 16 bushels per acre less than under the same treatment in the very bad season of 1879! In the following table is given the produce in 1881, upon the same selected plots as usual, in the field at Rothamsted, which has now grown Wheat for thirty-eight years in succession. There is also given for comparison the average produce on the same selected plots—over the last ten years, 1871-1880, over the preceding nineteen years, 1852-1870, and over the total period of twenty-nine years, 1852-80, during which time the same manures have, in every case, been annually applied to the same plots.

Harvests.	Unmanured. Plot 3.	Farmyard Manure. Plot 2.	Artificial Manures. Plot 7.	Plot 8.	Plot 9.	Means of Plots 7, 8, 9.	Means of Plots 3, 2, and 7, 8, 9.
Bushels of Dressed Corn Per Acre.							
1881	13¾	30¼	26⅝	30⅝	35½	30⅞	25*
Average 10 years, 1871-80	9¾	29¾	26½	30⅞	34⅝	30¾	23⅜†
Average 19 years, 1852-70	14¾	35¾	36	38¾	37	37¼	29¼‡
Average 29 years, 1852-80	13⅛	33⅝	32¾	36⅛	36¼	35	27¼§
Weight per Bushel of Dressed Corn in Pounds.							
1881	58.0	58.9	58.8	59.1	58.4	58.8	58 6
Average 10 years, 1871-80	57 5	59.9	59.3	59.1	58.8	59.0	58.8
Average 19 years, 1852-70	58.2	60.0	59 4	59.1	58.4	59.0	59.1
Average 29 years, 1852-80	58.0	60.0	59.4	59.1	58.5	59.0	59.0
Total Straw, Chaff, &c., per Acre in Cwts.							
1881	10¼	21⅛	19⅝	26	32½	26	19⅛
Average 10 years, 1871-80	8½	29⅞	29⅛	37½	41⅞	36¼	24⅞
Average 19 years, 1852-70	13⅜	33⅝	35¾	41⅝	41⅝	39⅝	28⅝
Average 29 years, 1852-80	11½	32¼	33½	40¼	41½	38⅜	27⅜

These figures do not show much prospect of an abundant harvest. The yield per acre is low and the quality indifferent. In no case among the nearly forty plots in the experimental field does the weight per bushel reach 60 lb.; and the produce of straw is at the same time exceedingly low. In an adjoining field twenty-one varieties of Wheat were grown side byside; not long before harvest the crops presented an exceedingly luxuriant appearance, and it was considered that the yield would be from 50 to 60 bushels per acre. The result of the threshing is, however, disappointing. The highest produce in the field is only 54 bushels per acre, with a weight per bushel of 57½ lb.; and the lowest produce is, in two cases, 39½ bushels—in one with a weight of 61 lb. and in the other of scarcely 59 lb. per bushel. It is, I think, quite evident that the yield of the Wheat crop will vary very much, not only in different districts, but in the same district, and even in different fields on the same farm. The produce in my experimental field, taking the mean of the same selected plots as for many years past, shows an average of 24 bushels per acre, reckoned at 61 lb. per bush.; and assuming an average crop of Wheat to be 28 bush., the crop is 14 per cent. below the average.

According to the returns of the Registrar-General, the population of the United Kingdom was a little below 35,000,000 on June 30, 1881. Making due allowance for the natural increase, the mean population to be fed during the year commencing September 1, 1881, and ending August 31, 1882, will be 35,280,000. Estimating the consumption at 5⅔ bushels of Wheat per head, the quantity required to feed the population will be a little under 25,000,000 quarters. The area under Wheat in the United Kingdom was, during the past harvest year, slightly under 3,000,000 acres. If the yield in my experimental field be taken as a guide, the total Wheat crop of the country would not amount to 9,000,000 quarters; and deducting from this the amount required for seed, the quantity of home-pro-

* Equal to 24 bushels, at 61 lb. per bushel.
† Equal to 22½ bushels, at 61 lb. per bushel.
‡ Equal to 28⅜ bushels, at 61 lb. per bushel.
§ Equal to 26⅜ bushels, at 61 lb. per bushel.

duced Wheat left available for consumption would be only about 8,000,000 quarters, and we should thus have to depend upon foreign supplies for nearly 17,000,000 quarters. As, however, Wheat has risen considerably in price, and the Potato crop is likely to be abundant, it is probable that our requirements for foreign Wheat may be satisfied by an import equal to that which we have received during the last two years, namely, from 16,000,000 to 16,500,000 quarters. With a stationary or decreasing area under Wheat and a rapidly increasing population, it is probable that, before many years are past, the home produce of Wheat will not furnish more than one-fourth of the total amount required. *J. B. Lawes, Rothamsted, October* 10."

CHRYSANTHEMUM INSECTS.

I regret to find that a very large proportion of my Chrysanthemum plants (on which I have for some months past been bestowing a large share of attention) have come blind, the tops of many of the shoots having shown a strong and vigorous foliage—too vigorous, in fact, for the development of flower-buds, whilst many have produced imperfect one-sided buds, instead of the fine round ones which should produce the perfect flowers. How far the peculiar weather of the last six months has caused such effects I cannot determine, but I do know that, notwithstanding all my care, insects have abounded on my plants, and I have no doubt that in many instances it is to their agency that my failures are to be attributed. Throughout the early summer months I found the perfect cuckoo-spit insect or frog-hopper very commonly on the young plants, it having been developed earlier in the year from the patches of froth, vulgarly called cuckoo-spit, to be found on many plants, in the midst of which the immature frog-hopper is to be found. The perfect insect is extremely active, springing off the plant on the slightest motion, so that it is very difficult to be captured. Taking its place on the tenderest part of the plant it inserts its delicate sucker into the young shoots and arrests their growth.

Later in the summer the earwigs make their appearance, feeding by night on the tender foliage, and concealing themselves on the return of daylight within the buds, their heads being invariably turned towards the innermost part of the buds, and their tails towards the extremity of the curled up leaves. This affords an easy mode of catching and destroying them. On taking hold of the folded leaf and the tail of the insect between the forefinger and thumb of the right, the alarmed insect immediately raises its head, which may be seized by the nails of the thumb and forefinger of the left hand, and the insect decapitated. I observed the curious fact that it is almost always the case that the depredators are females (easily distinguished by the much smaller size of the forceps at the extremity of the body): with these females were sometimes associated the immature earwigs, and I have taken as many as seven of these insects in the head of a single shoot, their presence being indicated by the minute black granules of their excrement on the surface of the leaves.

In the *Gardeners' Chronicle*, November 17, 1855, the writer of this article published the description and figure of a species of field or plant bug (Phytocoris campestris, fig. 102), which constantly causes much mischief in the autumn to the Chrysanthemum buds by inserting the extremity of its delicate rostrum (including four very fine bristles) into the buds, and thereby injuring such of the petals as are in the part attacked by preventing them from expanding properly and preventing the so-much-desired regularity in the bloom.

This species has been unusually abundant on my plants this year, and with it have been associated several other kinds of plant-bugs having precisely similar habits, and being equally injurious to the plants. One of these, nearly as large as the preceding, is of a delicate pale green colour, which causes it to be observed on the plant with much difficulty. This species was named Cimex nassatus by Fabricius. Another species, of smaller size, is the Cimex (Anthocoris) nemorum of Linnæus, about 1¾ line long, of a black colour and shining, the wing covers of pale whitish-yellow spotted with black or pitchy colour; the apical membrane yellowish-white, with the middle and end brownish-black, and the legs yellow. It is common on trees and bushes from June to October, and hybernates among dry leaves. A greater amount of mischief is committed, however, by a much smaller insect, the Cimex minutus of Linnæus, belonging to the genus Anthocoris and subgenus Triphleps. This little insect insinuates itself quite into the centre of the bud, its minute size rendering it difficult to be perceived, although the black colour of its body and the black triangular patch in the middle of its wing-covers render it quite conspicuous when exposed, or when the bud is gently opened. In its preparatory state it

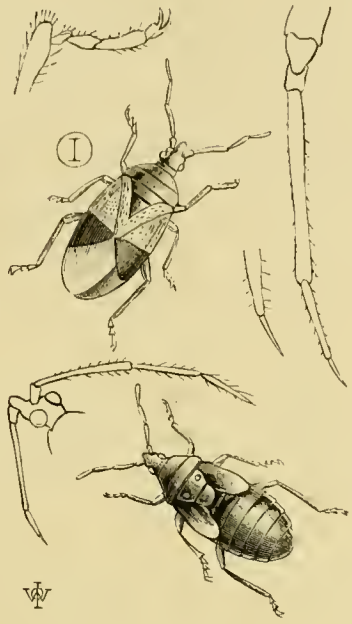


Fig. 101.—ANTHOCORIS MINUTUS.

is also equally injurious, and is easily distinguished by a large white patch at the extremity of its rudimentary wing-covers. We believe the same insect occurs in North America, where, from its habits, it has been named Anthocoris insidiatus.

Besides the foregoing insects I have noticed several others on the buds of my Chrysanthemum plants, although of comparative rarity. The common 7-spotted ladybird is one of these, but as this insect is known

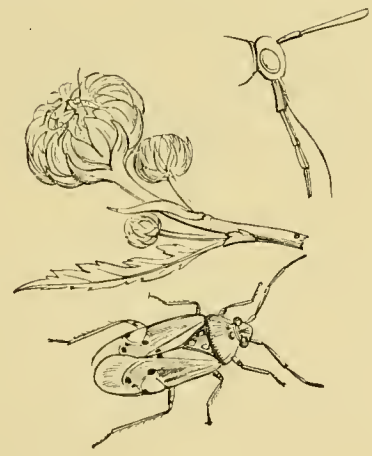


Fig. 102.—PHYTOCORIS CAMPESTRIS.

to be insectivorous, feeding both in the larva and perfect state on plant lice, it may possibly have taken its place on the plant in hopes of finding its usual prey (which has, however, not made its appearance this year on my plants), in the absence of which, I suppose, it would attack the plant-bugs above described. The common long-legged harvest spider (Phalangium sp.) has also often been found on the heads of my plants, most probably having got there in search of insects on which it feeds. The caterpillar of the dot moth (Noctua persicariæ) also has been occasionally met with, and must be looked after sharply as its delicate green colour with the dark lines on its back render it difficult to be easily detected from its similarity to the folded young leaves of the bud.

The woodcut, fig. 101, represents the Anthocoris minutus and its imperfect state, highly magnified, together with a still more magnified view of its head and rostrum. Fig. 102 shows the Phytocoris campestris. *J. O. Westwood.*

SINGAPORE BOTANICAL GARDENS.

These gardens were very gay indeed on the occasion of my last visit (August 24), which is to be attributed principally to the success which has attended the acting Superintendent's efforts to create an effect by ornamental planting and flower gardening. The prevailing grievance with lovers of plants in the tropics is the evanescent character of their flowers; and sincere and fervent are the prayers for the reproduction in the tropics of something like the fine effects of a Gorse common or woodland glade of wild Hyacinths in bloom, as seen in the old country.

It may be all very well for our friends at home to tell us that we have gorgeous Crotons and Dracænas—that flowers assume more intense hues under a tropical sun than they ever put on in the stoves and Orchid-houses at home—that the foliage plants with us form large trees, while those who stay at home have to be content with the same plants in 6-inch pots, and study their diversity of form and variegation in miniature; but they have no idea of the monotonous sameness of form and contour that every plant almost assumes in the tropics. Those who stay at home at ease can form no idea of the longing their brethren under a tropical sun feel for the summer magnificence of gardens at home—the gorgeous colours of the zonal Pelargonium, the Verbena, &c., and the harmonious contrasts of colour exhibited in judiciously arranged carpet bedding. Thus a good bit of tropical flower gardening is all the more appreciated when it is seen, and as what is now on view in the Singapore gardens is the best that I have ever seen either in Ceylon or the Straits, a few notes as to the arrangement and effect may not be unacceptable to some of your tropical readers who have to cater for the public taste in the way of ornamental planting. I shall be gratified if they serve to elicit from them the causes and effects of their work in this line, as no one who has not been obliged to contend with the numerous obstacles and difficulties which beset this kind of work in the tropics, can imagine how welcome a few hints or directions about it are.

The beds devoted to this kind of planting in the Singapore gardens are nearly all grouped together on a turfed terrace about 40 feet wide, about 12 feet below, and half surrounding the elliptical drive which surrounds the band-stand which crowns the top of the hill, on the sides of which the gardens are laid out. By far the most striking effect here is made by the arrangement of a large diamond-shaped bed, the centre one of three of the same shape and size. This bed has a magnificent plant of Musa superba in the centre, with handsome entire leaves upwards of 30 feet high, having the under-side of the midribs finely tinged with red, surrounded at the base by a rather thickly-planted mass of the dark-leaved Excæcaria bicolor, followed by two rows of Croton angustifolius, the inner row about 6 or 8 inches taller than the outer one, each plant having sufficient space to display its drooping habit without crowding, each densely clothed to the ground, and beautifully coloured. The whole is surrounded by a broad band of Alternanthera versicolor (?), which is pinched to slope from behind, a perfect blaze of colour. The effect of this arrangement must be seen to be realised; and Mr. Fox, who considers it his greatest success in this line, may well be proud of it.

The similarly shaped beds on each side have each a large Musa in the centre, surrounded in turn by Tabernæmontana coronaria fl.-pl., Meyenia erecta, and a dark-leaved Coleus; and though the arrangement looks fairly well it is completely eclipsed by that of the centre bed, besides which the Coleuses are extremely difficult to keep in order, as unless they are constantly pinched they "bolt" into flower and become leggy. Some smaller beds in this group have centres of Excæcaria bicolor surrounded either with Plumbago capensis and a yellow-foliaged Coleus, or Eranthemum elegans fol. var. and a dark Coleus, both arrangements being very pretty. By the way, writing of Plumbago capensis, how is it that this

plant never (so far as I have seen) assumes a climbing habit here, but developes into a free-flowering dense dwarf bush? A fine effect is caused by some small beds having two or three plants of Panax fruticosum surrounded by Crossandra infundibuliformis, followed by Alternanthera. In some other beds, where Hamelia patens is substituted for the Panax, the effect is not nearly so good, as the Crossandras are so completely smothered with short dense spikes of beautiful salmon-orange coloured flowers, surpassing even the bedding Pelargoniums at home, that something green, like the Panax, is necessary to tone it down. Undoubtedly the colour of the Crossandra in masses completely kills everything else near it. There are one or two nice beds filled with Eranthemum Andersoni or E. aspersum surrounded with Crossandra and Alternanthera at some distance from the foregoing group. This Crossandra is certainly the most profuse as well as perpetual flowering dwarf shrub that I have met with, and no plant that I have had to deal with is easier managed or propagated.

What a pity it is that its godfather did not give it a shorter name, as it reminds one very much of "Peter Piper picked a peck of pickled pepper," &c., when one has to repeat it often for the information of admiring visitors. Phyllanthus pallidifolius (the Reidia glaucescens of gardens) is also much used here, and a small bed of this surrounded with a light Coleus is very pretty, as is another in which it is surrounded by the yellow-flowered Hibiscus Manihot, and a pink-flowered species or variety, called H. immutabilis here. Rhinacanthus communis encircled with either Acalypha tricolor or A. torta, and edged with a yellow Coleus (I think C. laciniatus), is a good arrangement.

The dark and yellow varieties of Graptophyllum are sparingly used, as their sticky habit unfits them for this kind of work. Some specimens of Pandanus utilis are finely set off by various small Crotons, &c., and some narrow beds where the centre is occupied by a free-flowering trailing Honeysuckle, and the margins planted with Alternanthera are well worth copying.

Here and there are some good (for Singapore) beds of red and white Roses, and the effect of the whole arrangement, viewed from the drive above the terrace, is striking and effective, and has been so for months past, and promises to last for many, many more yet. The whole arrangements reflect great credit on Mr. Fox. In another part of the gardens is a large bed which was planted about four years ago with two large plants of Tillandsia angustifolia surrounded by Sanseviera guineensis and Æchmea fulgens; the latter had to be removed, as the Sanseviera was fast crowding it out, but the others make up a very effective bed, which will not want meddling with for years to come. A grand mass of Grammatophyllum speciosum, with twenty-seven spikes and 612 flowers, is a fine sight just now. This clump was established in the ground on one of the lawns nearly twenty years ago in stiff yellow loam, and for the past fifteen years has annually been one of the sights of the gardens.

Vanda Hookeri, grown on stakes, as described in your columns some time ago by Mr. Burbidge, is flowering freely, and with Arundina chinensis planted to cover the stakes a pretty effect is produced. Faradaya papuana is beautifully in bloom on the old Orchid-house, but I fear it is rather too rampant a climber for cultivation under glass, except in structures like Kew Palm-house. This, however, cannot be said of the beautiful little Mucuna ocellata, a slender-stemmed and small-foliaged climber, which bears quite a profusion of red flowers all the year round here, and although they are rather small when compared with some of its allies, the Passion-flowers, their profusion make it a very showy plant. It is an American plant, but has been cultivated at Buitenzorg for many years past, whence it was received here in 1879. Is it grown in England? [In botanic gardens.] Antigonon leptopus and Beaumontia multiflora are also finely in bloom. Erythrina crista-galli is very showy just now, and seems to do very fairly, although it grows very slowly; and some of the new Ixoras, as I. Fraseri, I. Duffii, and others, are flowering freely in the gardens, but I. Griffithii on the borders of the jungle, surpasses them all for size of corymb and colour. Eranthemum hypocrateriforme, which was figured some time ago in the *Botanical Magazine*, is a very weedy, straggling plant here, but some of the variegated varieties of E. macrophyllum are beautifully coloured. Eranthemum atropurpureum is a grand plant for tropical work; in the Singapore gardens it produces enormous leaves, which are very finely coloured—a dark chocolate-brown. The parent plant of the Singapore stock was brought out from Kew by Mr. Fox in 1879. A few plants of Aerides virens and A. suavissimum are blooming on some of the trees in the gardens, but the majority of this class of plants are now making their growth.

M. van Volxem (see *Gardeners' Chronicle*, June 22, 1878) will be glad to learn that the Straits Government have taken in hand the work of planting the denuded Crown Lands in Singapore with timber trees, and large nurseries are being prepared at the Botanical Gardens. About 14,000 young Teak trees are ready for removing, and on my last visit to the gardens a pottery, on the system recommended by the late Mr. M'Ivor, of Cinchona culture fame, was in full working order. These sun-dried pots are much superior to Bamboo-joints for the purpose, as the former become manure for the young plant as soon as they are saturated, owing to the large proportion of thoroughly rotten cow-shed manure in the composition; while the latter, if split and buried with the young plants, often attract white ants; moreover, the former are easier made and consequently cheaper. *H. J. M., Singapore, Aug.* 30.

Some Correspondence.

Vitis striata: Is it New?—Fifteen years ago I received from one of our large horticultural establishments a plant under the name of Cissus Roylei, said to come from the Himalaya. This plant, grown in the open air, was not very vigorous; its branches crept along the ground. Ultimately, however, it mounted the trunk of a strong plant of Libocedrus decurrens, which it covered with its pretty leaves. In course of time, however, it was cut to the ground by frost. This spring I expected to find it quite dead, since we experienced a frost of no less than —15° C. last winter; nevertheless, the plant was not destroyed, but has produced during the summer several shoots of 2—3 feet in length. This spring I bought a plant of "Vitis striata;" great was my surprise to receive the same plant that I had bought fifteen years previously under the name of Cissus Roylei! It frequently happens that a purchaser receives old plants under new names. A French nurseryman sells our old and valued Arundinaria falcata as Thamnocalamus Falconeri, and cites it as a new species. I wrote to him on the subject, and his reply was that his plant did not resemble an Arundinaria—that it was different. I bought a plant, but it is nothing more than Arundinaria falcata with a new name. Here is another illustration:—I procured from a garden in Naples, twenty years ago, an Opuntia labelled O. italica, which is the same as the plant sent into commerce a few years since as O. Rafinesquiana. *P. Joseph Lafosse, Saint Comé du Mont, France.* [The specimens sent are apparently both Vitis striata. Cissus Roylei is a different plant, very like the Ampelopsis tricuspidata (Veitchii of gardens). As to the Bamboo, the nurseryman was probably right in his name, for the plant commonly grown as Arundinaria falcata in gardens is, as was pointed out by General Munro, Thamnocalamus Falconeri. Still it has no claim to be considered a new plant. Eds.]

Fair Trade: Nurserymen, Gentlemen, and their Gardeners.—Having travelled over a very considerable portion of England since midsummer last, and called at a large number of gentlemen's seats, I find that a great proportion of the good places are now in plain words nothing but nurseries in disguise. In many cases the gardens are let to the gardener at a low rent per annum; he sets well to work, propagating all the cuttings he can get of everything, and supplies the whole neighbourhood round at a price which it is impossible for the heavily taxed, rented, and rated nurserymen to compete with, whilst he never gets a call from Mr. Income-tax Collector. Is this fair trading? Should not these good people pay taxes as well as nurserymen? This thought, perhaps, has not yet occurred to Mr. Gladstone. *Viator.*

Wintering Pot Strawberries.—Seven and nine degrees of frost on the nights of the 15th and 16th will have had the effect of directing attention to the carrying out of this necessary operation forthwith. Perhaps the most effectual, and at the same time most simple, way of procedure, is to plunge the pots to the rims in coal-ashes in a sunny and dry situation, where water is not likely to collect. For this purpose it will be necessary to make an improvised frame to keep the coal-ashes up round the pots: the former should be worked well in between each succeeding row of the latter. This done, there need be no apprehension of the pots or plants becoming damaged through the influence of frost. However, in the event of its being severe, it will be advisable to cover them with dry Fern, which, when the nature of the weather permits and necessitates its being done, should be taken off in the morning, and put over the plants again in the afternoon. *H. W. Ward, Longford Castle, Wilts.*

Autumnal Bulbs at Drayton-Beauchamp Rectory. — Galanthus nivalis var. Octobrensis: This pretty variety of the common Snowdrop is now in full bloom with me. I have had it some six years, and it has always bloomed in October or the beginning of November. It was found (a single bulb) near the Albanian coast by my friend, Lord Walsingham. It has a robust constitution, promises to increase freely, and I have great hopes that I may live to distribute it amongst most of the leading lovers of hardy bulbs. As soon as it goes out of bloom it is succeeded by the Corfu form of G. nivalis. Mr. Melville's little late-flowering variety from Dunrobin, which I call serotinus, and G. macrophyllus, erroneously sold as G. Redoutii, often do not bloom till April; so that with judicious management it will soon be quite possible to have Snowdrops from October to May. Sternbergia sicula: Under this name some four years ago I received a bulb from Mr. Max Leichtlin, of Baden-Baden. It is now in bloom for the first time, and is very pretty. The leaves are short and narrow; the flowers erect, on very short stalks, large for the size of the plant, golden-yellow, veined on the inside with a darker shade.

Crocus zonatus	Crocus asturicus
,, Boryi	,, nudiflorus
,, medius	,, serotinus
,, pulchellus	,, Cartwrightianus
,, ,, albus	,, Elwesii
,, byzantinus	,, Tournefortii
,, cancellatus	,, Clusii
,, ,, cilicicus	,, Cambessedesii
,, ,, albus	,, hadriaticus
,, tingitanus	,, Pallasii
,, ochroleucus	,, longiflorus

All these Croci are more or less in bloom. They require the protection of a hand-glass to show them off in their true beauty. A gale like that of last Friday is fatal to these frail beauties. *H. Harpur-Crewe, The Rectory, Drayton-Beauchamp, Tring, Oct.* 17.

Succulents for Winter Flowering.—In addition to Echeveria retusa, mentioned at p. 508, and which well deserves all that is there said in its favour, E. secunda and E. s. glauca deserve extensive cultivation for that purpose. I have found them extremely useful for indoor decoration. Strong plants should be well established, in small pots, by the middle of August, and placed in a dry, sunny position until the frosts commence, when they may be removed to a cool and light house until required for use. The blooms retain their beauty for a long time, and are not so impatient of cold as many winter-flowering plants. *W. H. Divers, Burghley.*

Grapes in the Open Air.—It is supposed by many that Grapes cannot be profitably grown in the open air in this country. I can hardly think that this is the case, as the enclosed bunches will, I think, go far to show, although the present season can hardly be regarded as a favourable one. The Esperione was cut from a somewhat neglected Vine growing upon a high wall facing the south, in Northgate Street of this town. The Muscadine is from a wall 5 feet high, with south-east aspect, in another part of the town, and from which the owner has just cut some twelve or more stones of fruit, and from such he has been for years in the habit of making wine of excellent quality. The Black Hamburgh bunch is from under a glass roof or shed, and quite open in front, facing nearly due west. *P. Grieve, 4, Orchard Street, Bury St. Edmunds.*

A Large Holly.—Can any of your readers inform me if the "variegated Holly," blown down here on Friday, November 26, can be classed amongst the largest specimens? Root measurement, 8 feet; from the root to first branch, 5 feet; girth at first branch, 7 feet 6 inches; height, 50 feet. *W. H. S., Cavers Carre, St. Boswell's.*

Vine Fruiting the First Season.—We have considered it no great achievement to plant Vines the one season and have good crops of fine fruit the next, and the same Vines do well for a number of years; but the prudent cultivator would adopt such a practice with supernumeraries only, and arrange to discard them when the permanent Vines were established, after being treated in the usual rational manner as practised by sensible men. But to plant young canes, fruit them the same year, and expect them to become first-rate fruiting Vines in time to come, would appear more as a burlesque than a system which emanated from common sense. Too often one is compelled to fall out of the usual rut to meet a demand or to tide over a difficulty, and though success may in some cases

attend well directed efforts, it is neither worth risk or trouble to tax the strength of young Vines by gaining the small advantage of having a crop of fruit the same year in which they were planted. Some reference has been made to Vines here which have had to endure a severe task in this way. We offer a brief outline of the course pursued and the results realised. Five years ago last spring new houses were being erected here for Vines and Peaches, and we were told that the same season they must give a good return in the shape of crops. With a number of fruiting Vines in pots the task would have been a simple one, or with Peaches established in pots there need be no difficulty whatever; but Vines had been ordered some time previous for planting only, and no more than about one to a rafter; Peaches had also been ordered one-year trained, so there was little which could be expected from them. A large quantity of soil which had been removed from a space intended for a lake was ready stacked for a season or two previous, and though I was told that it had been covered with excellent mushrooms the year before, my faith in it for fruit growing was weak in the extreme; it afterwards proved not only to be useless for Vines, but plants of any kind in it refused to grow in anything like healthy condition. The borders were formed with this—no other could be had; Vines arrived and were planted with due care, the tops were taken off to raise stock, no further purchases being allowed. All seemed to go on well for some time—the eyes all started, and showed fruit in abundance, and not bad bunches either; five to seven were left to each rod, and all the usual care adopted to make the best of untoward circumstances. In due time the roots began to move, which is generally the case after foliage and wood have developed to some extent. It then appeared that my fears of the muddy soil being inferior were realised in the worst form—foliage became light in colour, soft and flabby in texture, the wood was spindly, but the fruit seemed to make fair progress; roots seemed to form and run freely, but evidently did not perform their functions. Young Vines from the eyes were planted through the border vineyard fashion; tepid guano-water, alternated with soot-water, was applied liberally to the roots, and the house well sprinkled with the same once or twice daily. In September there was a quantity of tolerable Grapes ripened, which gave a supply to the end of the year. Hamburghs were in use first, Muscats, black and white, next; and, lastly, the usual late favourites, three or four kinds. The following season had to be met, and success must be a reality; other soil had to be forthcoming, there being nothing to be found but what the tenant farmer who previously rented the land considered worthless, it not having for generations either produced pasture or anything else worthy of notice. The first lot of soil was well cleared from the roots, and other soil substituted, which evidently was quite as bad as the tenant described. When the sun of summer had full play on the Vines they showed signs of distress, plenty of fruit showed, and a comparatively good crop was left. At the end of June it was found necessary to remove the second lot of soil, as far as could be done, from the roots; a small quantity was purchased to place next the roots, and the remainder of the border was made up with road parings, ditch trimmings, and any come-at-able stuff we could find; guano-water was employed at each watering, and by the end of August most of the Vines had grown to the top of the house, each carrying eight or nine good bunches of as good Grapes as could be wished. Success then seemed certain, but about the end of September some alterations in the fronts of the houses were carried out, where tiles were placed over the bricks for ornament. Protesting against this was of no use. The surface roots outside were destroyed, the border puddled by the feet of tradesmen, and the hopes we had entertained of success were in a great measure damped. The following season all the Vines which had their roots mutilated broke weakly in the extreme—nearly all showed three to four bunches to each shoot, which were reduced to a reasonable quantity; as the season went on the wood and foliage increased in size rapidly, and the fruit (which gave a good supply from the end of July to the following April) was as good as I could have wished from Vines treated under the most favourable circumstances; the berries being of excellent size and well coloured. They have continued to do well, and judging from the foliage and hard brown wood, they show no bad effects from their severe treatment—root mutilation has certainly been carried out with a vengeance. Peaches were treated more favourably. The structures were not ready for planting them at the same time as the Vines. The trees were potted in large pots, kept growing till the last week in August, and planted against back walls and in front to wire trellises: they had no "cutting back." The following season they showed and set fruit all over, and these were thinned to 1 foot apart, and finished capitally. The walls and trellises were soon covered, and to modify the luxuriant growth heavy cropping has been practised. The fruit has for the last three years begun to ripen in June (it might be earlier if wanted), but no harm has accrued from cropping within the first year of planting, and those who have objections to the "cutting-back" system of the wood have been supported by our practice both in Vine and Peach growing, but what one is obliged to do, and what one would like to practise, are often based on principles of a very opposite character. *M. Temple, Impney Park.*

Lapageria rosea.—We have a plant of this in our little conservatory, and as usual it is flowering very freely, but instead of the blooms being continuous along the branches, they are generally produced in bunches of from two to six, eight, or ten, and this year the clusters are larger than I remember having seen them before. I counted twenty-one blooms, some open and some in bud, on one bunch to-day, all from one eye, and hanging like a bunch of Grapes. I also counted twelve very fine blooms and buds, all of the latter just opening, on another bunch from one eye. Will Mr. Chapman, of Westonbirt, or any of your other correspondents, kindly say if this is a general feature, or if our plant is a different variety? All our blooms are very fine, and of a deep rich colour. *N. Blandford, The Gardens, Moorhill, Westend, Southampton.*

How to Kill Cockroaches. — If Mr. Orpet would procure some powdered hellebore and sprinkle some of it on pieces of paper, placing them about his stokehole and plant-stove, and follow the practice up for a few nights, I feel sure he would be able to get rid of his cockroaches, even by wholesale—at least such has been my experience. *Thos. Newton, The Gardens, Campsall Hall, Doncaster.*

—— If Mr. Orpet will spread phosphorus paste on bread and butter, and place it in small pieces on the staging, he will find their numbers diminish quickly. I have also used honey mixed with arsenic, placed on small pieces of glazed ware, which proved very effectual. *T. Pope, Holmewood.*

Abutilon Golden Gem.—The original plant of this, one of the latest and best of recent additions to this recent class of plants, is at present a sight worth seeing. Grafted as this plant was from a seedling some years ago on to a strong plant of an old sort well established, it has grown vigorously, and now covers the whole of a bay in the conservatory, a space about 25 feet by 10. Here I saw it just recently, and found it literally covered with flowers and buds, and it had been so for many weeks past. The flowers, which are of large size, good form, and bright yellow, are very acceptable at any time to use for cut flower work. Messrs. Osborn, of Fulham, have, I believe, the stock of this in hand. It certainly is a very desirable acquisition. Just one remark: let it grow freely; fasten it to a wall or pillar, and it will soon make itself known. *W. Swan, Fallowfield.*

Campanula Vidalii.—In a notice of Campanula Vidalii in the *Gardeners' Chronicle* of July 2 there is an extract from Sir Joseph Hooker's Nottingham lecture on "Insular Floras," in which it is stated that this plant "is, so far as is known, confined to a single sea-girt rock off the east coast of Flores (one of the Azores). This plant was gathered but once, by Captain Vidal during his survey of the island some twenty years ago. Captain Vidal's survey was most fortunately accompanied by a scientific botanist, who both named this remarkable plant and sent seeds of it to Kew. From these seeds the plant has been propagated." This was no doubt all the information as to the habitat of the plant accessible at the time of the lecture in August, 1866, but in 1870 Mr. F. Du Cane Godman published a work on the *Natural History of the Azores*, and to that work the late Mr. H. C. Watson contributed a considerable number of pages on botany. He there makes the following statements respecting this Campanula:—"It was the only plant in my own collection which was not found by myself. Some few fragments of it were brought to me by Captain Vidal, picked on an insulated rock off the coast of Flores. My own subsequent search for it on the mainland of Flores was not successful. Afterwards Mr. Hunt (then British Consul there) looked for the plant with better success, finding it very locally on the coasts of Santa Maria and San Miguel. Its introduction into British gardens was not from the originally discovered habitat of Flores, but from one or both of the other islands named. I have since cultivated it in my garden for a series of years. It succeeds in a frame without artificial heat, but must be completely protected from frost and from over damp at the root. One of my first young plants, in the second year in its growth, and not yet come to flowering, was carried to Kew. A distinguished professor of botany was walking in the gardens with Sir William Hooker. I challenged him to name the genus or order of my plant. He guessed it to belong to the order Proteaceæ! This anecdote is mentioned by way of showing that the Campanula is one of very peculiar growth, such as may warrant a full account and description of it here." Mr. Watson then gave a minute account of the plant and its growth. As bearing on the question of plant distribution, it may be well to remark that while Flores lies at the north-west end of the group, Santa Maria and San Miguel are at the south-east extremity of the archipelago. It may, therefore, be reasonably concluded that if the intermediate islands were carefully searched the Campanula would be found upon some or all of them. *J. V. J., Madeira.*

Violas.—How well these hardy and easily cultivated plants have flowered this season! In the flower garden at Broadlands a couple of weeks ago we noticed a few beds rendered highly attractive by the use of Violas Admiration, a deep clear violet with yellow eye, and Golden Gem, as the name implies, a deep yellow—two very free flowering varieties, which made a pleasing contrast to the surrounding beds of crimson, pink, salmon, and white flowered Pelargoniums—colours with which the violet and golden-yellow blended in pleasing harmony. Cuttings of the above and kindred varieties, if put in now in a cold frame in a couple of inches of good soil, with a little short dung underneath on a hard bottom, and a surfacing of sand, will root readily, and make nice plants—flowering plants—fit for planting out next March or April. They should be kept somewhat close for a few weeks until the cuttings have rooted, after which they can be ventilated freely, and subsequently, as they become established, have the sashes drawn off on fine days for a few hours. Considering the dwarf and accommodating habit of the Violas, together with the variety of colours which they supply, combined with their free-flowering propensities, not only as summer but also as spring bedding plants, the wonder is that they are not more frequently met with and more extensively used in large flower gardens; this not only on account of their being hardy (which is no small point in their favour) and continuing to flower late in the autumn, and long after the beauty of the ordinary summer and autumn flowering plants has vanished, but also on account of their being early spring-flowering plants too. This circumstance greatly enhances their value, since they come at a time when the trees are destitute of leaves and the surrounding landscape is bleak and dreary, and the flower garden is made cheerful by the different shades of colour supplied by the judicious use of Violas, Wallflowers, Primroses, Myosotis dissitiflora, Daffodils, Crocuses, &c. *H. W. W.*

Dahlia Stella Bianca.—Having noticed some interesting correspondence in your columns lately respecting the very beautiful single Dahlias, of which many varieties are again cultivated and well-nigh universally admired by all who delight in garden flowers, we are drawn to send you a line respecting the fine white variety called Stella Bianca, of which several plants were sent us by Mr. Pearson, of Chilwell. Some of the notices which have appeared seem to us scarcely to do justice to this variety, which with us has grown and flowered well. It has made a plant of about 3 feet in height, of compact habit, and very full of its pure white flowers, with golden "centres," and has kept blooming in succession until cut down with the rest of the family by the sharp frost of 9° which we experienced here on the morning of the 17th. As a decorative plant or for supplying cut flowers no variety has stood us in better stead. *James Backhouse & Son, York Nurseries.*

Town Trees for Manchester.—I read with great interest Mr. Forsyth's remarks (p. 410) under the above heading, and, like him, think that it is a pious duty to plant trees and otherwise to ornament the resting-places of those who have gone before us. I only wish it were possible for me to agree with every other sentence in his note on the subject, or to have such an amount of confidence as to enable me to write in such sanguine terms as he does. Incontrovertible facts, however, preclude me from doing so, and I should be glad, if only for the sake of hearing both sides of the question, if you would allow me a brief space in your columns to ventilate what is now becoming a most important and pressing grievance with the great majority of the population of Lancashire. Perhaps it would be as well before proceeding any further to say that I myself hail from the neighbourhood of Manchester; I am therefore well acquainted with the climate and other particulars of the case. Mr. Forsyth gives one solitary instance of healthy trees—viz., a clump of twenty or thirty Poplars. Well, on the other hand, I am only too sorry to say that I can point to hundreds—ay, thousands—of a reverse character, within a radius of 20 miles of the city in question, and in that same radius it is no exaggeration to say that there are scores—it may be hundreds—of acres of forest trees which at one time were in a healthy growing state, but which are now only too surely fast dying a premature death. For a number of years I have not resided

permanently in the locality; nevertheless, it has been my custom to go there every two or three years for a few days' holiday, and this much I am in a position to state, viz., that the general appearance of outdoor vegetation was always worst at the last visit than it was at the one immediately preceding it; or, to make myself more clearly understood, it has been gradually going from bad to worse. During my last visit, which was only a few weeks ago, I was more deeply impressed with its deplorable appearance than ever I was before. To test the accuracy of this state of things, one has only to go to the out-skirts of the city. Take a walk through Heaton Park, the seat of the Earl of Wilton, and in which there are many venerable trees; go through Prestwich Clough, and other adjacent woods and plantations; there you will see thousands of trees, some dead, and the rest in anything but a healthy and flourishing condition. Those in which there is the least semblance of life have evidently not long to live, judging by their present woebegone appearance. Again, ask the gardeners and working-men botanists, of whom there are many in the district, if they can grow their pet florist flowers as they could twenty or thirty years ago? The answer will be: "No, you must grow a great many of them in frames now, and some things we cannot grow at all, *i.e.*, as we used to do." Well, now what is the cause of all this? Not the severity of the past two or three winters certainly. No; most assuredly it is something else, and that I will endeavour to explain. It is nothing more nor less than the smoky and poisonous state of the atmosphere. Reduce to a minimum, or clear away altogether this smoke and the chemical elements which emanate from the alkaline and other works; and when this is done, you may expect to see a healthy state of vegetation as in days of yore; but to plant trees under the present state of things, in the district alluded to, is like throwing money and time away. You have a Smoke Nuisance Act, some will say! Yes, granted; but what is more, in this locality, where the majority of magistrates and other local magnates have pecuniary interests in the factories and works which surround them, it is almost a dead letter; it ought to be overhauled and made more stringent to be effectual in such places. A Noxious Vapours Act is also needed, and indeed is absolutely necessary to prolong the lives of thousands of trees which are now on the brink of death; in fact, it is greatly to be feared that most of them are already beyond recovery, let the Act come when it may. The question is without doubt a very difficult and complicated one to deal with; it is, however, a most important and pressing one with the people of Lancashire, and great pressure will have to be brought to bear on the legislature. Deputations introduced by influential Members of Parliament have before now waited on Ministers and put this case before them; and, I say, let this be done again and again, for sooner or later the question must be grappled with, and the sooner it is so the better it will be for the vegetation of the districts in which chemical works and factories exist. *J. Horsefield, The Gardens, Heytesbury, Wilts.*

Germination of Old Clover Seeds.—A remarkable illustration of this has just been brought under my notice, and the facts appear to be so well authenticated as to leave little room for doubt on the matter. But to lead up to the main point, something akin to a preliminary historical account is necessary. During the second half of the last century there existed in the Borough a firm of Clover seed dealers doing business under the title of Messrs. J. & G. Ellis. They were succeeded by a Mr. Peckham, and the latter by Messrs. White & Lucas, who were Hop factors also. A dissolution of partnership having occurred, Mr. White, one of the partners, carried on the Hop trade exclusively at Ellis' old place of business, while Mr. Lucas carried the seed trade to 40, High Street, Borough. About nine years ago Messrs. Tabrum & Sons became the successors of H. Lucas, but gave up the seed trade, and dealt exclusively with Hops. It would appear that when Lucas established himself at 40, Borough, he brought with him the seed drawers used by J. & G. Ellis, and when they passed into the hands of Tabrum & Sons they found in them certain samples of Clover seeds dating back as far as 1791. It would appear that one of the brothers Ellis made a practice every year from the earlier date of putting by a sample each of the best stocks of red and white Clovers and Trefoil that came into the house, and this practice was followed up to and including 1827. The *bona fides* of the samples are vouched for by a Mr. Parkes, who can attest to the handwriting on the packets as being that of one of the brothers Ellis. The samples of 1793 were placed in the hands of Mr. Parkes, who, having been many years in business in the Borough, had a personal knowledge of the brothers Ellis, and who took the samples to his residence at Streatham, and gave a portion of them to his gardener, who sowed them both in a Melon frame and in the conservatory, but they did not germinate. The remainder Mr. Parkes sowed with his own hands in his kitchen garden, and, singular to state, the samples germinated, and Mr. Parkes took to London specimens of the germinating Clover when 8 inches or so in height to show to his friends. The actual germination of the samples taken in 1793 appears to be placed beyond doubt. When the facts came to the attention of Messrs. Tabrum & Son, a communication was made to Sir Joseph Hooker, and samples were placed in Sir Joseph's hands to experiment with. The result of these experiments has not as yet been made known. Portions of the original samples of 1793 are still in the hands of Mr. Parkes. We have seen portions of the samples of 1791, and can bear testimony to their bright and well preserved condition. So far as we have been able to investigate the case it appears as if the facts were thoroughly reliable throughout. Unfortunately the samples taken subsequently to 1793 and 1827 were mixed together in consequence of being deemed unworthy of preservation, but the samples of 1793 were fortunately preserved intact, with the results set forth above. *R. D.*

The Dahlia.—We observe at p. 509 of your last week's issue a note from Mr. Smith in reference to reviving the spirit of competition in connection with our autumn flowers, similar to that which prevailed some fifteen years ago. We are prepared to offer £2 for the best single flower of a Dahlia (double) in the show, and £2 for the best stand of six bunches of single Dahlias; and we have no doubt others would also offer prizes to further the object in view. Many who noted the enthusiasm manifested in these flowers by the thousands of visitors who thronged the cut-flower tent at the late Manchester autumn show would, I am sure, admit that with our 4,000,000 residents in London a splendid and successful exhibition would be the result if a liberal schedule was put forward. *H. Cannell & Sons, Swanley.*

Violets at Wilton House.—A few days ago we saw a large and finely flowered batch of Violets, both growing in pots and planted out near the glass in frames, as also on shelves near the glass in some of the plant stoves in the above extensive and well kept gardens, the odour of which agreeably pervaded their immediate surroundings. Mr. Challis grows Violets on a large scale, and right well he does them too. As a proof of this statement we need only state that five large three-light frames are devoted to their growth, and at the time of our visit (the 15th inst.) he could, as he had done frequently during the preceding fortnight, have picked a gallon measure full of large, well developed blooms, which, both in a cut and growing state, are in great request at Wilton House. The sorts which Mr. Challis grows are principally the Neapolitan, Marie Louise, and the double and single Russian. *H. W. W.*

Reports of Societies.

Woolhope Club Fungus Foray.—In accordance with time-honoured custom the first week in October witnessed the gathering together of a large number of the infatuated fungus hunters of England to the venerable cathedral city of Hereford, for the purpose of indulging in a week's study of fungi in the woods and fields of that neighbourhood. For many years it has been the ill fortune of those enthusiasts to pursue their investigations more or less beneath a cloudy sky, and often amidst the pouring rain. This year, however, the weather was more propitious. Indeed it was all that could have been desired, except for the bleak cold wind, which shrivelled up the fungi, and almost crumpled up some of the hunters, who were hardly prepared for the bleak sequel which many of the evenings furnished to a bright and sunny day. A fortnight before the meeting commenced we had seen some of the localities, and noted with pleasure the prospect of a rare harvest, for the fungi were appearing in great numbers, and the Hereford forays of 1881 were anticipated as probably the most productive for many years. Then came cold nights and east winds, before which fungi vanished, and with them the dreams which had been so fondly cherished. To say the least, the result was a disappointment, because so much had been expected. Blessed are they who never build their hopes on fungi, for they are the most uncertain and erratic of created things.

On Monday, October 3, the company began to collect as usual. The "guiding spirit" stood smiling on the platform of the railway station to welcome the "coming men." But they came slowly, and not very cheerfully, for they had forebodings of what was in store for them. Yet ultimately they did come, and entered with spirit upon the occupation of the week. Amongst the number were Messrs. Bicknell, Bucknall, Cooke, Howse, Mott, Phillips, Plowright, and Wharton, and the Revs. Du Port, Eyre, and Vize. A reception at Dr. Bull's, and a discussion of the plans and arrangements for the week closed the day.

Tuesday, October 4, an excursion to Moccas Park, the residence of Sir George Cornewall, inaugurated the practical work. The day was fine, but cold, and spirits ran high. The large and beautiful domain was scoured in all directions, but the fungi were few and far between. Baskets remained empty, or with a few well-known specimens sprinkled over the bottom. A splendid ring of Agaricus arvensis was appropriated with avidity, and served to fill baskets which otherwise would have remained unfurnished. Even Polyporus dryadeus was welcome, for it helped to fill up. There was no alternative but to take what could be got, and the homeward ride was enlivened by an animated discussion over a few common species, the determination of which was challenged, rather for the sake of stimulating the interest of the party than as the result of actual scepticism. This process being repeated in after days led to the application of certain well-known lines, thus modified—

> "'Tis the voice of the canon, I heard him complain,
> 'That can't be the species, compare it again.'"

Of a certainty the unanimous thanks of the company were due to those enterprising individuals who carried several of Fries' octavo volumes about with them in order to improve the occasion by voluntary "readings" in Latin. The true meaning of such words as luridus, gilvus, and candicans had never been submitted to such keen criticism before, and the conclusions appeared to be completely satisfactory, for they were carried *nem. con.*

In the evening a second reception was held at Dr. Bull's, when Mr. C. B. Plowright read his paper on "The Relationship of Æcidium berberidis to Puccinia graminis," in which he described the numerous experiments conducted by him during the past year, the results of which did not by any means confirm the theory that the Æcidium is the cause of the Wheat mildew. In thirteen experiments seventy-eight Wheat plants were infected by spores of Æcidium berberidis, and ninety-eight Wheat plants kept as check plants against them. Of the infected plants 76 per cent. developed Uredo on an average in 24.4 days, while in the same period 70 per cent. of the uninfected plants became spontaneously attacked by the Uredo. Such results could not be considered as confirming the relationship of Æcidium Berberidis to Puccinia graminis. Some discussion followed the reading of this paper, during which Dr. Cooke repudiated the assertion which had been made, that he was an advocate of the theory, which, in fact, he had always asserted was "not proven." Mr. Bicknell also related his experience of having seen Æcidium in Switzerland such a common hedge plant that if the theory were true, the Wheat plant would have been extirpated in the "struggle for existence." The Rev. J. E. Vize also read his paper on "Protococcus."

On Wednesday morning, October 5, the excursion was made to Haywood Forest, one of the earliest spots, if not the very first, on which the Woolhope Club commenced the study of fungi. Many species which a fortnight before might have been collected by the basketful could not be seen at all, and all were comparatively scarce. At the evening reception, Mr. Howse read his paper on "The Fungi of the Dolomites," and subsequently Mr. Phillips essayed a classification of the abnormal conditions of fungi called "monstrosities," and made useful suggestions as to the observation and record of such conditions as likely to throw some light on the structure and development of the higher fungi. Mr. Plowright also read his communication on the Germination of Uredo Spores.

Thursday, October 6, being the Club day, the excursion was a short one, to Stoke Edith Park, but the dearth of fungi was as conspicuous, if not more so, than at Moccas. It was considered noteworthy that some half-dozen specimens of Cynophallus caninus were found, and about twice as many of Lycoperdon Hoyleri B. and Br., which appears to be the same as Lycoperdon echinatum of Persoon. It was intended in the first instance to have made the Russulæ the special subject for investigation during the week, but the great dearth of these soon led to the abandonment of such hope.

After the dinner, which, as usual, was laid at the "Green Dragon," the Rev. J. de la Touche complained that such an enormous number of new species of fungi were being found and described that the ultimate prospect was fearful to contemplate. Dr. Bull read also a note valuable communication on "The Progress of Mycology, chiefly with reference to the minute forms and their connection with disease. Subsequently the members and visitors adjourned to a reception at Mr. Cam's, when the remainder of the papers which had been promised were read. The President, the Rev. Augustus Ley, illustrated an elaborate and critical enumeration of "The Carices of Herefordshire" with a large collection of dried specimens, which were examined with great interest. Mr. W. Phillips read a communication on Peziza of doubtful affinity, from Mr. Renny.

The last day, Friday, October 7, was devoted to an excursion in the neighbourhood of Ludlow. Wych Wood and Mary Knoll furnished a larger variety of species than had been found anywhere during the week, and it was universally admitted that this was the most interesting and successful of the week's excursions, even exclusive of the practical *finale* at Mr. Fortey's, which was always the welcome conclusion to the Club's visits to Ludlow.

We have not mentioned the new and rare species which each of these excursions furnished, because, being so few, they might find a more fitting place at the end. The show in the Free Library was much below the average, and the finest exhibit was a portion only of Mr. Worthington Smith's gigantic specimen of Sparassis crispa, 4 feet in diameter when entire, which had undergone its journey from Epping uninjured.

Perhaps the most noteworthy of species new to Britain was Lactarius flexuosus, of which three or four specimens were found. An Agaric, with the margin of the gills tinted with rose colour, of which only one specimen was

found, appeared to be the Agaricus (Tricholoma) rubens, Quelet. Agaricus (Clitocybe) tumulosus, Kalch., was again found, as it had been in a former year, but not recorded.

Of the rarer species the number was also small, including Agaricus (Collybia) rancidus, Fr.; a splendid Cortinarius, which did not appear to be specifically distinct from Cortinarius fulgens, Fr.; the delicate white Russula lactea, Fr.; Agaricus (Hypholoma) udus, P., and Agaricus (Hypholoma) storea, Fr., both new to Herefordshire. Agaricus (Lepiota) ermineus, Fr., was brought from Malvern; and Agaricus (Lepiota) gracilentus, Fr., was not uncommon near Hayward Forest. The yellow variety of Russula fragilis (Fries, *Syst. Myc.*) having been recently constituted a distinct species under the name of Russula citrina, Gillet, appeared under its new name, but seems to be very common everywhere in England.

Thus ends our record of the Woolhope meeting of 1881. There was a dearth of nothing but fungi. Hearty welcome to strangers, cheerful companionship, free and profitable interchange of opinions, zeal, energy, and a hopeful anticipation of a better future, were all as strong as ever. New faces appeared, old faces were absent, and yet the last line of the programme was reached—

"Saturday, October 8—Departure of Visitors."

M. C. C.

Dundee Horticultural Association: *Oct.* 7.—The ordinary monthly meeting of this Association was held in the Templar Hall, Dundee, on the above date; Mr. J. D. Ker, Douglasfield, in the absence of the President, presiding. Mr. Robert Clark, Scotscraig Gardens, read a paper on "The Rhododendron." He opened his subject by giving some details of the rise and progress of the Rhododendron since it was first introduced into this country in the year 1656, and spoke at some length on its native haunts. With a few exceptions, they were clearly plants that loved the mountain air, being found in far the greater variety, beauty, and profusion in high altitudes throughout Europe, Asia, and North and South America. Phyto-geographical investigation had shown that an altitude giving a mean temperature of 41° to 45° Fahr. might be considered the Rhododendron region. In the equatorial zone they were found most abundantly at an elevation of 11,400 feet; in the tropical zone at 9500 feet; and thus gradually descending till, in the sub-arctic zone, they were seldom found about 1900 feet. That the Rhododendron was naturally a moisture-loving plant the lecturer then went on to show. In the damp rocky defiles of the mountains it grew in great luxuriance; or, if its position was less favourable for root-moisture, the atmosphere was generally found to be damp, and the climate generally more humid. As regards soil, Mr. Clark said peat seemed to meet the natural requirements of the plant better than any other kind of soil, and this he thought showed the Rhododendron to be a "vegetarian," delighting in a vegetable diet. Almost any soil, however, granted it contained a fair proportion of vegetable matter, will grow Rhododendrons successfully—sufficient moisture at the roots being the one essential, without which no success need be looked for. A few concluding remarks on the general treatment of the Rhododendron brought Mr. Clark's most interesting paper to a close.

Mr. James Laird, Monifieth Nurseries, followed with a paper on "Transplanting," in which he rapidly glanced at Nature's mode of increasing and distributing plants by means of seeds, some germinating in the immediate vicinity of the parent plants, others being carried to great distances by the wind, their special formation in many cases being evidently designed for this purpose, while in yet other cases birds and animals were the means of distribution. Much of their food consisting of fruits and seeds, and the latter, escaping injury in the process of mastication and digestion, were often deposited in districts far remote from the trees and plants that had borne them. He then entered upon the more practical part of the subject, showing the importance of preparing the soil to which the plant has to be removed, by the addition of proper manure or compost where necessary, thoroughly mixing and stirring it, and seeing to its being in proper condition to receive plants—a condition which may be described as neither wet nor dry. Plants are injured by being committed to the ground when it is in a sour or wet, or in a dry parched state—it is therefore a mistake to plant on a retentive soil in the time of rain, while on a dry, absorbent soil it may be proper to plant in showery weather, or immediately after heavy rain. He then spoke of the careful attention that ought to be given to the removal of the plant, and here entered minutely into the *modus operandi* of lifting and transplanting large specimens, affirming that if the details given were carefully carried out in all points, a successful removal was almost certain. Mr. Laird then entered at length upon the much debated question as to the best season of the year for transplanting, setting forth some of the arguments *pro* and *con*. His own opinion was that deciduous plants were best planted in autumn and winter, and evergreens in spring, but that no hard and fast line could be drawn. After some further remarks Mr. Laird mentioned the following general principles, which applied to either system:—The wants of a plant should be carefully studied by acquainting one's-self with its native country and natural habitat, the nature and consistency of the soil in which it thrives best naturally; and looking to its habit and structure, an intelligent and discriminating attention to these points, and due care in manipulation, should enable the operator to deal successfully with the process of transplanting in all its different phases.

An interesting discussion followed the reading of these papers, and hearty votes of thanks were awarded the speakers.

Birmingham Natural History Society Fungus Foray.—Inspired by the success which attended the organisation of special excursions for the collection and study of fungi, this Society has followed the example of the Essex Club and achieved its first fungus foray. On Saturday, October 8, the members met in force at the New Street Station and proceeded to Sutton Park under the guidance of Dr. M. C. Cooke, and the secretaries, Messrs. Morley and Grove, to collect fungi. The meeting did not take place until nearly 2 o'clock, and even then the dull morning had shown no signs of improvement. Notwithstanding the damp atmosphere and drizzling rain there was more enthusiasm than fungi, for the latter consisted of only a few of the smaller and commoner species. For three hours the Park was scoured, and all that could be found were collected, but the only species worthy of note were Agaricus (Pholiota) heteroclitus; a singular variety of Agaricus (Pluteus) phlebophorus with yellow stem and gills, the latter becoming pink when dry; two specimens of Agaricus (Psalliota) echinatus, Roth, with blood-coloured stem and gills; also Agaricus (Pleurotus) septicus, Fr.; Agaricus (Flammula) conissans; some small tufts of Tremella foliacea, and a few immature Myxomycetes. The residue consisted of such common species as Agaricus melleus, laccatus, fascicularis, sublateritius, and a few others. The subgenus Tricholoma was represented by A. saponaceus and A. nudus; and Amanita by a single specimen of A. rubescens and A. phalloides.

At the close of the excursion the party adjourned to a neighbouring establishment for tea, after which Dr. Cooke gave some brief instructions on the collection, determination, and preservation of species, and before eight o'clock the foray had come to a close, and the members were on their way back to Birmingham by train.

The place selected would, probably, at a more favourable season, have given every satisfaction; but certainly it presented on this occasion the greatest deficiency of fungi which we had observed during the whole of the preceding week. It is to be hoped that the Society will not be discouraged, and that, if repeated another year, the results will prove more satisfactory. *M. C. C.*

Notices of Books.

Semis et Mise à Fruit des Arbres Fruitiers. Par E. Carrière. Paris: Rue Jacob, 26.

This is a little treatise on raising and cultivating fruit trees. The cultivated varieties have, says the author, originated as seedling variations or as bud variations (sports). As life is short, it is a matter of importance to induce early fruitfulness, which is accomplished by pricking out of seedlings, transplantation of trees, root-pruning, twisting the branches or bending them down, pinching or removal of buds, grafting, and other well-known practices, based, says the author, on the principle of organic balance or compensation—*balancement organique*—by virtue of which all the parts of a tree are modified in proportion, so that if there is excess in one place it is compensated for by defect elsewhere—action induces reaction, and so forth. The art of cultivating fruit trees consists in such operations as ensure a due proportion between all the parts and all processes of the plant, such proportion, of course, being regulated not so much by the requirements of the plant itself as by the purposes for which the tree is cultivated. Starting with these principles of action, M. Carrière proceeds to describe the nature of the several operations and the method of carrying them out. M. Carrière describes a process of "martelage," which we have never seen adopted, and which seems too barbarous to be generally recommended. It consists in striking with a mallet (*marteau*) the bark all round the base of the tree. The object is to set up such a disturbance in the vegetative organs that the flowers may set more freely. The process is also stated to hasten the maturity of the fruit when applied to the branches. A similar process, called "gaulage," consists in threshing with a long pole (*gaule*) the young sterile branches. Alluding to the importance of careful selection M. Carrière adverts to the fact that the Roses of fifty years ago took six or eight years to produce their flowers, while now it is not unusual to see them flower the first year, so there is great variation in this respect between seedlings derived even from the same fruit, some seedlings requiring four, others eight to twenty years to fruit. The first Duchesse d'Angoulême Pear only began to produce fruit at thirty years of age. The author cites other examples in the case of Almonds.

A Pocket Guide to British Ferns. By Marian S. Ridley. (London: Bogue.)

Miss Ridley's book on the British Ferns is distinguished from other publications on the same subject, chiefly by the form in which its matter is arranged. It treats of the species of British Ferns only, here set down as fifty-four in number, and does not enter on the more difficult task of discriminating the varieties. The plan adopted is that of "tabulating by words without figures such of the features as alone are absolutely necessary to identify a Fern even if never previously seen," and this is claimed as the sole merit of this little guide-book. In carrying out this plan a page is devoted to each species, and an abbreviated description of all the parts is presented in a tabulated form under corresponding heads. This may be more comprehensible to some persons, but we confess it does not seem so easy to us, nor indeed so simple a plan of identifying a particular plant, as the old one of indicating the characters which distinguish first the genus and then the species, which is adopted in all text-books. However, the plan adopted is very well carried out, the first portion, extending to p. 40, being occupied by definitions and explanations of structure, terms, classification, &c., while most of the remainder is occupied by the tabular descriptions. The definitions are mostly accurate, but we notice an occasional slip, as where "quadripinnatifid" is made synonymous with "quadrifid," and both defined as being "cut into four lobes or segments"—a description which, of course, applies only to the latter word, while quadripinnatifid means four times cut, that is, cut into lobes of the fourth order. The author frankly states that she has "of necessity" been much indebted to previous writers, and this indeed is evident. The arrangement adopted is not the alphabetical but the structural, the sequence of genera being "according to the relations or points of resemblance with one another." The tables comprise sixteen heads, namely, the scientific title, generic character, specific character, caudex, stipes, scales, frond as to shape, texture, duration, venation, receptacle, sori as to shape and position, indusium, locality, and general remarks, brief definite particulars being stated under each head. Altogether, if not actually wanted, the little book may be usefully consulted "to lead on the uninitiated," as its object is described to be in the prefatory remarks.

Obituary.

With deep regret we record the death, on Sunday last, of Mr. James Craig Niven, for many years Curator of the Hull Botanic Gardens, who expired at his residence in the Gardens, after a long illness, aged fifty-three. Mr. Niven was born in 1828, of Scotch parents, in Dublin. His father, Mr. Ninian Niven, held for many years the position of Curator of the Royal Dublin Society's Botanic Gardens at Glasnevin. Mr. J. C. Niven was educated in Dublin with a view to entering the medical profession, disliking which he commenced his career in his father's profession, at the Royal Botanic Gardens, Belfast, in 1843, where he passed through the initiatory stages of his training. After two years' residence he went to the Duke of Buccleuch's extensive establishment at Dalkeith Palace, and in 1847 he had moved to the Royal Gardens at Kew. Before he was twenty years of age he obtained an appointment in one of the most important botanical departments of the establishment, which he held till 1852, when a special position as Assistant-Curator of the Royal Gardens was assigned to him. At the close of the year 1852 an application was made to Sir William Hooker, Director of the Royal Gardens, by Mr. Spence, the great entomologist, for a Curator for the Botanic Gardens at Hull. This appointment was offered, and indeed urged upon Mr. Niven by Sir William Hooker, and he entered upon his duties in January, 1853. Owing to the industry and energy he brought to bear on his work, Mr. Niven succeeded within twelvemonths in remodelling the garden, and after the first two or three years, during which time the Curator had to contend with a deep-rooted spirit of exclusiveness on the part of the Committee of Management, a thorough reorganisation of the institution took place, resulting in a steady increase of its popularity, and in the subscription list being nearly trebled. The collection of plants also rapidly increased, till in 1866 the catalogue of hardy herbaceous and alpine plants then in cultivation numbered upwards of 6000 species, and took rank as one of the most extensive in the country. During his career in Hull Mr. Niven delivered upwards of thirty-eight courses of botanical lectures in connection with the Hull School of Medicine, the Chemists' Association, the Art and Science Department, the Philosophical Society, &c. In the formation of the new company, and in the arrangement of the present new Botanic

Gardens, Mr. Niven took a very prominent part; and in carrying on the duties of this wider sphere of labour with much success, he has literally "died in harness." Mr. Niven was a frequent contributor to the literature of horticulture—to our own columns amongst others; and he was very fitly selected to edit the reissue of *Maund's Botanic Garden*, a work largely occupied by illustrations of hardy plants, of which Mr. Niven was an experienced cultivator, and of which he possessed an extensive and sound critical knowledge. As a landscape gardener he has made his mark, having shown good taste and judgment in the laying-out of parks and gardens, public and private, in Hull and its neighbourhood.

—— It is with great regret we have to record the death of Provost Russel, of Mayfield, Falkirk, N.B., a gentleman well known to the readers of this paper as a most enthusiastic Orchidophilist. For twenty years the late Provost owned, and his excellent gardener, Mr. Sorley, maintained in good condition, a very valuable collection of Orchids. A slight break in the time given occurred in 1875, when the greater part of the collection was sold by auction by Mr. Stevens. Taking these plants all round, and considering their number, they were without doubt the best lot ever sold by auction. Not only were they splendidly grown, but the many forms and varieties were excellent. Especial mention may be made of Vanda tricolor Russeliana, Lælia purpurata Russeliana, Cattleya Trianæ Russeliana, and Saccolabium Blumei Russelianum. Among especially well-grown plants then sold must be mentioned the fine specimens of Cattleya Trianæ, C. Warneri, C. labiata, C. Dowiana, Zygopetalum maxillare, Colax jugosus, Chysis bractescens, and Saccolabium præmorsum. After the sale, the Provost started immediately to form the now existing good collection. No one will miss the late Provost more than our occasional correspondent, Dr. Paterson, of the Bridge of Allan, who was his class fellow at college, the first to turn his love and attention towards Orchids, and his life-long friend. The learned Doctor is firmly of opinion that the greatest act of kindness he ever did for Provost Russel was that of inducing him to turn from less worthy subjects to the practical study of horticulture. Provost Russel expired in his own residence on Monday afternoon last, but one hour intervening between Dr. Paterson's last visit and the sad event.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, October 19, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
13	29.57	−0.12	54.0	44.0	10.0	49.7	− 1.0	48.2	95	W. : W.S.W	0.35
14	29.15	−0.54	58.5	44.5	14.0	50.5	+ 0.1	45.6	84	W.S.W : W.N.W	0.09
15	29.88	+0.18	48.5	38.5	10.0	42.7	− 7.5	40.1	90	W. : W.NW	0.00
16	30.18	+0.48	46.0	32.5	13.5	38.0	−11.1	33.0	80	W.	0.00
17	30.20	+0.50	53.0	28.5	24.5	40.0	− 9.8	34.2	80	S.W.	0.04
18	30.09	+0.39	52.5	33.0	19.5	42.8	− 6.9	36.5	79	S.E. : E.S.E.	0.00
19	29.90	+0.20	50.5	36.5	14.0	43.6	− 5.9	38.6	82	E. : E.N.E.	0.00
Mean	29.85	+0.15	51.0	36.8	15.1	44.0	− 6.0	39.3	85	W:S.E.	0.48

Oct. 13.—A fine morning, partially cloudy; overcast from noon. Heavy rain at night.
— 14.—Fine morning. A very heavy gale of wind; many trees blowo down.
— 15.—Fine and bright morning. Great darkness about noon, with rain for a short time. Cloudless at night.
— 16.—A fine, clear, cold day. Clear, calm night.
— 17.—A thin fog in the morning. A fine and clear day and night; very cold.
— 18.—A fine bright day and night.
— 19.—A very fine and almost cloudless day and night.

London: *Atmospheric Pressure.*—During the week ending October 15, the reading of the barometer at the level of the sea decreased from 29.90 inches at the beginning of the week to 29.78 inches by 3 P.M. on the 9th, increased to 30.06 inches by 9 A.M. on the 10th, decreased to 29.75 inches by 9 A.M. on the 11th, increased to 29.86 inches by 9 A.M. on the 12th, decreased to 29.77 inches by midnight of the same day; increased to 29.91 inches by 3 P.M. on the 13th; decreased to 29.08 inches by 9 A.M. on the 14th, and was 30.21 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.80 inches, being 0.41 inch lower than last week, and 0.08 inch below the average for the week.

Temperature.—The highest reading in the shade during the week was 61°, on the 11th. On the 15th the temperature did not rise above 48°.5. The mean of the seven high day temperatures was 54°.9.

The lowest temperature in the week was 38°.5, on the 15th; on the 11th the lowest temperature was 50°. The mean of the seven lowest temperatures was 44°.2.

The greatest range of temperature in one day was 14° on the 14th; the least was 6°.8 on the 9th. The mean of the seven daily ranges was 10°.7.

The mean daily temperatures were, on the 9th, 46°.6; on the 10th, 54°.3; on the 11th, 54°.8; on the 12th, 52°.5; on the 13th, 49°.7; on the 14th, 50°.5; and on the 15th, 42°.7. On the 10th, 11th, 12th, and 14th, the temperature was above its average by 2°.7, 3°.5, 1°.5, and 0°.1 respectively; while on the 9th, 13th, and 15th it was respectively 5°.3, 1°, and 7°.5 below the average. The mean temperature for the week was 52°.2, being 2°.2 warmer than last week, and 0°.9 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 107° on the 14th; the highest, on the 9th, was 65°. The mean of the seven readings was 84°.9.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 36°, on the 15th. The mean of the seven readings was 40°.4.

Rain.—Some fell on five days, to the amount of 0.49 inch.

England: *Temperature.*—During the week ending October 15 the highest temperatures were 66° at Sunderland, 64°.6 at Cambridge, and 63° at Truro. The highest temperature at Bradford was 57°.1, at Wolverhampton 57°.8, and at Sheffield 58°. The mean from all stations was 60°.6.

The lowest temperatures in the week were 31°.8 at Wolverhampton, 33°.7 at Nottingham, and 34° at Hull. The lowest temperatures were 38°.8 at Plymouth, and 38°.5 at Blackheath and Brighton. The mean from all stations was 36°.4.

The greatest ranges of temperature in the week were 31° at Sunderland, 27°.5 at Cambridge, and 26°.3 at Nottingham. The least ranges were 20°.3 at Bristol, 21°.6 at Liverpool, and 22° at Brighton and Leeds. The mean from all stations was 24°.2.

The mean of the seven high day temperatures was or exceeded 58°.6 at Truro, Sunderland, and Plymouth, and was less than 54° at Sheffield and Hull. The mean from all stations was 55°.6.

The mean of the seven low temperatures was 49°.4 at Truro and 45°.2 at Bristol, and was less than 41° at Nottingham, Wolverhampton, and Hull. The mean from all stations was 42°.9.

The mean daily range was 16°.9 at Sunderland, 15°.8 at Cambridge, and 15°.2 at Nottingham, and was 9°.6 at Truro, 10°.3 at Liverpool, and 10°.7 at Blackheath.

The mean temperature for the week was 53°.2 at Truro, 50°.2 at Blackheath, and 50°.1 at Plymouth, and was 44°.9 at Hull, 46°.1 at Wolverhampton, and 46°.8 at Leicester. The mean from all stations was 49°.

Rain.—The greatest falls were 2.05 inch at Bradford, 2.01 inch at Sheffield, and 1.22 inch at Wolverhampton. The least falls were 0.22 inch at Brighton, 0.40 inch at Plymouth, and 0.45 inch at Truro. The mean from all stations was 1.04 inch.

Scotland: *Temperature.*—During the week ending October 15 the highest temperature was 60°.9 at Aberdeen. At Paisley the highest in the week was 56°. The general mean of the highest temperatures was 57°.5.

The lowest temperature was 32°.2, at Edinburgh; at Glasgow and at Paisley the lowest temperature in the week was 34°. The general mean was 33°.3.

The mean temperature for the week was highest at Paisley, 49°.5, and lowest at Edinburgh, 44°.7. The general mean was 45°.9.

Rain.—The largest falls were 2.35 inch at Aberdeen, 2.29 inch at Paisley, and 2.25 inch at Glasgow; the smallest falls were 1.11 inch at Edinburgh, and 1.38 inch at Leith. The average fall was 2.07 inches.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Artocarpus integrifolia.—Can any of your correspondents give me any hints with regard to the treatment for the fruiting of this plant? Here we have a fine old healthy specimen, which my employer is very anxious to see in fruit. We have tried every possible means that we could think of, but all without success. Annually it makes growths from 1 foot to 2 feet long. As a foliage plant it is very handsome; but as the fruit is what we are in trouble to see, any information will greatly oblige. *Morgan.*

Sequoia (Wellingtonia) gigantea. — To what height has this tree reached in this country? Are there any to be seen over 50 feet high, and, if so, where? *E. W. G.*

Answers to Correspondents.

Fungus: *P. G.* Your fungus is not a Truffle, neither is it edible to ordinary human beings. It is the curious, small, uncommon, almost smooth variety of Scleroderma vulgare, a sort of half subterranean corky Puff-ball. It belongs to a different family of fungi from the Tuber albidum mentioned by you. This is a synonym for T. æstivum, the common edible Truffle of this country. *W. G. S.*

Grapes: *Old Subscriber.* The Muscat Grapes you send are affected by a spot of decay, which appears to spread over the berry, and render it useless. Without further information we are unable to suggest what is the cause of the damage. The berries do not appear to have been punctured by birds or insects. Have they been scalded by drops of water on the berries or on the glass?

Heating: *Economy.* We can advise you to do nothing but change your stoker. You cannot expect any boy to stoke so carefully as such an apparatus requires unless he is looked after, and the maintenance of a slow steady fire firmly insisted upon. There is nothing the matter with the boiler, and the waste of fuel should be trifling in competent hands.

Insects: *A. H. W.* We regret that, with utmost care and the aid of the microscope, we could detect no insect or "worm" on the leaves or in the smashed Grape sent. We think it doubtful whether the enemy was introduced with the Azaleas, but an inspection of the insect will alone permit us to solve this question. *W.—E. C.* Your Cattleya buds have small holes gnawed into them, in several of which we found a few black four-winged flies, being a species of the genus Eurotoma, which (although belonging to a family of parasitic insects, Chalcididæ) we believe were the real depredators whilst in their larvæ state. As males and females were found associated, it will be well to examine the plants very carefully, and burn every bud which is injured, thus preventing future mischief from their progeny. *W.*

Lælia pumila: *E. C.* Both flowers appear to be the same species, so far as we can judge from the materials sent, though the one erroneously marked L. præstans is the finest variety of the two. L. pumila and L. præstans, however, bear a very close resemblance to each other. The flowers sent have the lobed auricles at the top of the column, with an intermediate process, and the three ridges on the disc of the lip, characteristic of L. pumila. The other has from four to seven ridges on the disc of the lip, and the columnar auricles are acute.

Lapageria rosea: *J. S. Mitchell.* See p. 207 of our number for August 12, 1876.

Laying Turf: *Athletic.* We do not know, such work being usually done by day labour. It depends in a measure upon the amount of levelling required whether the job can be done cheaply or not.

Names of Fruits: *R. F. L.* You must send better specimens. We cannot attempt to name Pears from the poorest fruits that can be found; it is difficult enough even with good examples.—*T. P.* 1, Cellini (small specimens); 2, Golden Noble; 3, French Codlin; 4, Dr. Harvey; 6, Ne plus Meuris; 7, Glou Morçeau; 5 and 8, not recognised.—*T. H.* 2, Althorp Crassane; 3, Swan's Egg; 1 and 4, not known.—*J. B. T.* 1, Gilogil, probably; 2, Dumelow's Seedling; 3, Dutch Mignonne; 7, 8, Pitmaston Duchess; 9, Beurré Bosc; 10, Beurré Diel; 11, Glou Morçeau; 12, Cox's Pomona; 4, 5, 6, not recognised.—*G. T. R.* 1, 2, not recognised; 3, Golden Noble; 4, Old Nonpareil; 5, Hampshire Nonsuch.—*A. B. P. Apple:* Devonshire Buckland.—*T. W. O.* 1, Nonsuch; 2, Manx Codlin; 4, Cox's Orange Pippin; 5, Cellini. *Pears:* 2, Beurré Sterckmans; 4, Catillac; 5, Beurré Diel; 6, Knight's Monarch; 10, Duchesse d'Angoulême; 11, Hacon's Incomparable; 12, Glou Morçeau; others not recognised.—*Metcalf & Son.* We believe it to be the Golden Crab.—*C. H. Clissold. Apples:* 1, Beauty of Kent; 2, may probably be Golden Noble, but not sure. *Pears:* 1, Jersey Gratioli; 2, Josephiné de Malines.

Names of Plants: *T. G.* Staphylea pinnata.—*W. B.* The Douglas Fir (Abies Douglasii).—*W. S. R.* 1, Retinospora pisifera aurea; 2, Pteris serrulata; 3, P. longifolia; 4, P. serrulata augustata; 5, P. hastata macrophylla; 6, Asplenium Hemionitis.—*F. H. B.* Both are varieties of the Oriental Plane (Platanus orientalis), but No. 2 is nearest to the type.—*Cryptos.* We do not recognise the plant.—*J. E. F.* 1, Hedychium coronarium; 2, Phyllanthus nicosus; 3, Adi-

antum Sancta Catherinæ; 4, a Siphoeampylus, not recognised; 5, Salpiglossis sinuata; 6, Melianthus major.—*R. Middleton.* 1, Oncidium incurvum; 2, Maxillaria nigrescens. — *T. Imrie & Sons.* 1 and 2, crested seedlings of Pteris serrulata. Individually they are pretty plants, but there are many forms of this type, from which these do not appear sufficiently distinct to make it desirable that they should be named or distributed.—*T. P.* We do not recognise your herb in the absence of flowers.—*A Subscriber.* Eugenia myrtifolia.—*A Nurseryman.* Lonicera macrophylla.

Potato Disease: *Greenhorn.* The resting-spores do germinate upon, or in the ground, or in decaying refuse, in the following summer. In this position they produce their first few ordinary spores, and then perish. Mr. Smith sent germinating resting-spores to Mr. Berkeley and others, who confirmed the truth of his observations. The Potatos are commonly first attacked on the leaves because the ordinary spores are blown off the ground, and the leaves are easiest assailed. If Potato tubers are near they get attacked; therefore alternation of crops is desirable. The fungus undoubtedly causes the disease, though no doubt ill-grown plants take the disease most readily. Mr. W. G. Smith did discover the true nature of the Potato fungus, but he did not give it its universal name of Peronospora infestans. For a complete and concise account of Potato disease from Mr. Smith's pen, see *Science for All.* (Cassell. Vol. iii., part 31.)

Strawberries and Slugs: *F. S.* We cannot advise you to try the experiment with the corrosive sublimate. Use well diluted carbolic acid instead, and ascertain by direct experiment on a few plants in what proportions it can be used safely before applying the mixture to the whole bed.

Tacsonias.—A correspondent whose letter we have mislaid sends us two specimens. The one with a flower is T. Van Volxemi; the other, without flowers, we cannot name.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors*," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.

Charles Turner, Slough—Roses, Fruit Trees, &c.
Thos. S. Ware, Tottenham—Hardy Florists' Flowers, and General Nursery Stock.
J. M. Thorburn & Co., 15, John Street, New York—American Seeds for European Wholesale Trade.
Eugene Verdier, 37, Rue Clisson, Paris—Gladioli, Roses, &c.

Communications Received—One of the Juniors.—J. D., Jun.—H. J. C.—C. A.—I. O. W.—W.—D. T. F.—G. R.—W.—R. I.—T. P.—E. M.—R. D.—R. C.—J. A.—J. M.—F. M. (with thanks).—J. L.—S. P. O.—J. S.—A. D.—C. W. D.—G. H.—H. W. W.—N. L.—J. D. H.—G. S.—H. H. D.—M. F.—C. G.—Max Leitchtlio.—H.—A. G.—E. A.—Prof. Kicks.—G. N.—R. T. C.

Markets.

COVENT GARDEN, *October* 20.

Large quantities of rough Apples are now reaching us, and prices keep low. The rise in Kent Cobs has been well maintained, the crop coming down shorter than was expected. Trade quiet. *James Webber, Wholesale Apple Market.*

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 4	Lilac (Fr.), p. bunch	8 0–10 0
Asters, 12 bunches	6 0–15 0	Marguerites, 12 bun.	4 0– 6 0
Bouvardias, per bun.	0 9– 1 0	Mignonette, 12 bun.	3 0– 6 0
Camellias, 12 blooms	6 0– 9 0	Pelargoniums, 12 sprays	1 0– 1 6
Carnations, 12 blms.	1 0– 2 0	— zonal, 12 sprays	3 0– 6 0
Chrysanth., 12 bun.	6 0–12 0	Primula, double, per bunch	1 0– 1 6
— 12 blooms	3 0– 6 0	Roses (indoor), doz.	1 0– 3 0
Cornflower, 12 bun.	3 0	— (outdoor), 12 bun.	6 0–12 0
Eucharis, per doz.	6 0– 9 0	Stephanotis, 12 spr.	6 0– 9 0
Gardenias, 12 blms.	4 0– 9 0	Tropæolum, 12 bun.	1 0– 3 0
Gladioli, 12 sprays	1 0– 2 0	Tuberoses, per dozen	2 0– 3 0
Heliotropes, 12 sp.	0 6– 1 0	Violets, 12 bunches	1 0– 1 6
Hyacinths (Roman), 12 sprays	4 0– 6 0	— (French), p. bun.	1 0– 1 3
Lapageria, white, 12 blooms	2 0– 4 0	— (Fr. Parme), bun.	3 6– 4 0
— red, 12 blooms	1 0– 3 0		

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Evergreens, in var., per dozen	6 0–24 0
Asters, per dozen	4 0– 6 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 6
Begonias, per doz.	4 0–12 0	Fuchsias, per dozen	6 0–12 0
Chrysanthemums, per dozen	6 0–12 0	Lilium auratum, per dozen	24 0–60 0
Cissus discolor, doz.	18 0–24 0	Myrtles, per doz.	6 0–12 0
Cyperus, per dozen	6 0–12 0	Palms in variety, each	2 6–21 0
Dracæna terminalis	30 0–60 0	Pelargoniums, scarlet, per dozen	3 0– 6 0
— viridis, per doz.	12 0–24 0	Solanums, per dozen	9 0–12 0
Euonymus, various, per dozen	6 0–18 0		

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 4 6	Peaches, per dozen	6 0–12 0
Figs, per dozen	0 6– 1 0	Pears, Eng., ½-sieve	2 6– 5 6
Grapes, per lb.	0 6– 2 6	— French, per doz.	1 6– 2 6
Kent Cobs, per lb.	0 9– 10	Pine-apples Eng., lb.	3 0– 5 0
Lemons, per 100	4 0– 6 0	Plums, per ½-sieve	4 0– 6 0
Melons, each	2 0– 3 6		

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Lettuces, Cabbage, per doz.	0 6– 1 6
Beans, French, p. lb.	0 4– ..	— Engl. Cos, score	1 6– ..
Beet, per doz.	1 6– 2 6	Mint, green, bunch	0 4– 0 6
Cabbages, per doz.	1 0– 2 0	Mushrooms, p. baskt.	1 6– 2 0
Carrots, per bunch	0 4– 0 6	Onions, per bushel	5 0– ..
Cauliflowers, English, dozen	2 0– 4 0	— Spring, per bun.	0 6– ..
Celery, per bundle	1 6– 2 0	Parsley, per bunch	0 4– ..
Cucumbers, each	0 6– 1 0	Peas, per bushel	5 0– 8 0
Endive, per doz.	1 0– 1 6	Radishes, per bun.	0 2– 0 6
Garlic, per lb.	1 0– ..	Small salading, pun.	0 4– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bushel	2 6– ..
Horse Radish, p. bun.	4 0– ..	Tomatos, per lb.	0 9– 1 0
		Vegt. Marrows, doz.	2 0– ..

Kent Regents, 100*s.* to 110*s.*; Roses, 80*s.* to 90*s.*; Myatt's, 100*s.* to 120*s.*; Magnum Bonums, 90*s.* to 110*s.*

SEEDS.

London: *October* 19.—An extremely quiet feeling now characterises the trade for farm seeds. The autumn sowing demand is now about over, and no speculative inquiry of any importance, with regard to the needs of next spring, has yet sprung up. American Clover seed is quite neglected. A few small transactions have been passing in new French red. Canary seed is steady at the late decline. French white Millet for birds is now both good and cheap. Linseed is firmer. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

On Monday at Mark Lane rather a firmer tone was apparent in the Wheat trade than on the previous Friday, but without any appreciable change in the rates obtained on the spot, and which, as compared with Monday se'nnight, showed a decline of 1*s.* per quarter. Coast cargos met slightly better bids over Friday week. Flour on the week was 6*d.* to 1*s.* lower. Barley was the turn easier. Beans and Peas were without material change. Oats met only a slow sale, but were firmly held; and Maize was weaker.—The Wheat supplies on Wednesday were fairly liberal, the attendance small, and the market opened dull. Eventually an average Wednesday's business was concluded, and at Monday's prices for all good qualities. Flour was quiet and unchanged; Barley dull, and barely supported; Canadian new Peas rather easier on large arrivals; Beans unchanged; Maize very dull; and Oats were held for late value, but met a slow sale. Average prices of corn for the week ending Oct. 15:—Wheat, 47*s.* 1*d.*; Barley, 34*s.* 9*d.*; Oats, 19*s.* 7*d.* For the corresponding period last year:—Wheat, 41*s.* 5*d.*; Barley, 35*s.* 2*d.*; Oats, 20*s.* 6*d.*

CATTLE.

At Copenhagen Fields on Monday a firm tone prevailed in the beast market, the weather being cold, and supplies at Deptford delayed on passage. Prime conditioned stock was very scarce, and what offered was cleared without difficulty. Good useful descriptions brought rather higher rates in some cases; plain sorts were abundant. But a limited number of sheep came to hand, and prices tended against buyers. Calves met a dull sale. Quotations:—Beasts, 4*s.* to 4*s.* 8*d.*, and 5*s.* to 5*s.* 10*d.*; calves, 4*s.* 8*d.* to 5*s.* 6*d.*; sheep, 5*s.* to 5*s.* 8*d.*, and 6*s.* 4*d.* to 7*s.*—Thursday's trade was firm at Monday's prices. Beasts realised full quotations. Fine English sheep were quite as dear, but foreign difficult to move. Calves made quite as much money as on Monday, and pigs were steady.

HAY.

Tuesday's Whitechapel Market report states that shorter supplies have been taken off more freely at the following quotations:—Prime old Clover, 100*s.* to 136*s.*; new, 100*s.* to 128*s.*; inferior, 75*s.* to 90*s.*; prime old meadow hay, 100*s.* to 134*s.*; new, 100*s.* to 126*s.*; inferior, 60*s.* to 85*s.*; and straw, 30*s.* to 52*s.* per load. — On Thursday there was a short supply on offer. The trade was better for Clover, prices for which were dearer. Quotations: — Superior meadow hay, 100*s.* to 134*s.*; inferior, 50*s.* to 90*s.*; superior Clover, 100*s.* to 140*s.*; inferior, 60*s.* to 95*s.*; and straw, 30*s.* to 54*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 120*s.* to 132*s.*; inferior, 90*s.* to 105*s.*; superior Clover, 130*s.* to 140*s.*; inferior, 90*s.* to 108*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies are not heavy, but fully adequate to the demand. Kent and Essex Regents, 70*s.* to 90*s.*; Essex Champions, 55*s.* to 60*s.*; Magnum Bonums, 80*s.* to 90*s.* per ton; German blues, 4*s.* per bag.—The imports into London last week were as follows:—400 bags from Harlingen, 231 tons from Rostoff, 13,904 bags from Hamburgh, 200 bags from Rotterdam, 1000 bags from Bremen, and 38 tons from Barfleur.

COALS.

The following are the prices current at market during the week:—East Wylam, 17*s.*; Ravensworth West Hartley, 15*s.* 9*d.*; Walls End—Hetton, 19*s.*; Hetton Lyons, 17*s.* 6*d.*; Hawthorns, 17*s.* 9*d.*; Lambton, 18*s.* 6*d.*; Ryhope, 18*s.* 6*d.*; Wear, 17*s.* 6*d.*; Tunstall, 17*s.* 6*d.*; South Kelloe, 18*s.* 3*d.*; Original Hartlepool, 19*s.*; South Hetton, 19*s.*; Tees, 18*s.* 9*d.*; Harris Deep Navigation, 18*s.*

JOHN EDMONDS & CO.,

HORTICULTURAL BUILDERS, &c.

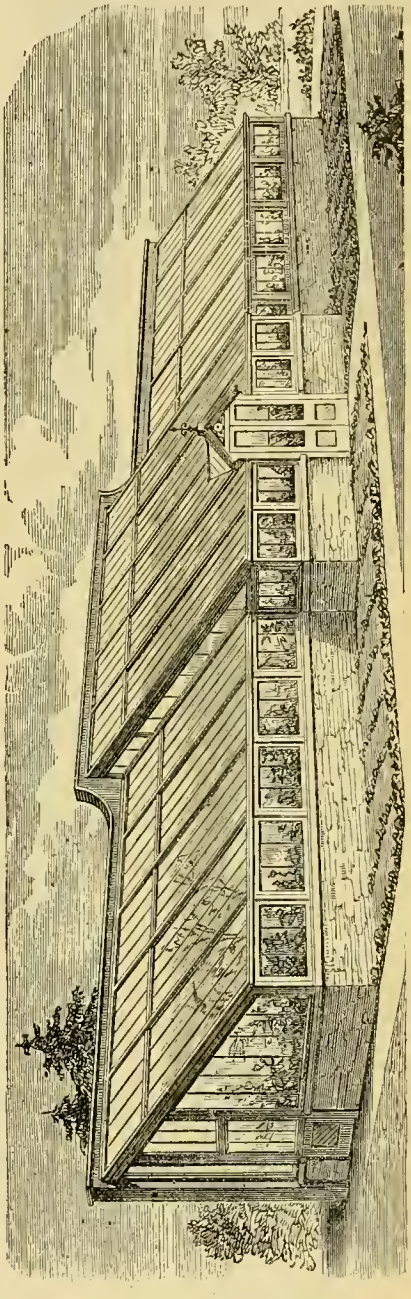
CONSERVATORIES, GREENHOUSES,

AND EVERY DESCRIPTION OF

HORTICULTURAL BUILDINGS

Manufactured by Steam-Power Machinery, and of the Best Materials and Workmanship.

Designs and Estimates Gratis on Application.



ARCHITECTS' AND LANDSCAPE GARDENERS' DESIGNS CARRIED OUT.

HOT-WATER APPARATUS ENGINEERS.

Manufacturers of Wrought-Iron, Welded, and Rivetted Boilers of all descriptions.

Patentees of the Cast-Iron Tubular Saddle Boiler.

LILLIE BRIDGE, LONDON, S.W.

☞ *Adjoining West Brompton Station, Metropolitan and District Railway.*

REIGATE SILVER SAND.—Owing to the original caves having been closed for many years, Earl Somers has been induced to break into the same fine vein on another part of his estate, and can now offer Silver Sand of the best quality at 7s. 6d. per Ton, on Rail at Reigate Station. Apply to H. SIMS, The Priory, Reigate, Surrey.

TRANSPLANTING TREES.—A Patent, Expeditious, Economical, Labour-saving, Powerful Implement, £2 2s., removes large trees in a few minutes, with large section of earth and roots uninjured. Extract sent from *Gardeners' Chronicle*, March 5; *Chambers' Journal*, May 2; *Field*, June 2; *Design and Work*, Aug. 20, 1881.—Agent, Mr I. CHARLTON, Landscape Gardener, Tunbridge Wells.

Price 14s.

Petroleum Greenhouse Stove.

26 in. high, portable, and requiring no flue; will burn 24 Hours without attention.

No Smoke, no Smell, no Injury to the most delicate Plants.

Packed in case, for sending by rail, 1s. extra. *Oil, 1s. per Gallon, supplied by Deane & Co.*

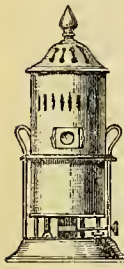
DEANE & Co. provide and fix Hot-water Apparatus for all Horticultural purposes.

Factory, 21, Jacob Street, Dockhead.

Illustrated Horticultural Catalogue Post-free.

DEANE & CO.,
46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

RIPPINGILLE'S PATENT
WARMING STOVES.



The only perfect Oil Stoves made to burn absolutely without Smoke or Smell, Trouble or Dirt. Unequalled for Warming

Greenhouses, Vineries, Shops, Bedrooms, Halls, Offices, Damp Rooms, &c.

Perfectly safe, require no pipes or fittings, will burn from twelve to twenty hours without attention, give off no injurious vapour, and are the best Stoves ever invented to save plants from frost, keep out the damp, &c.

PRICE FROM A FEW SHILLINGS.

Write for Illustrated List of Warming Stoves to

The Holborn Lamp and Stove Co.,
118, HOLBORN, LONDON, E.C.,
And say where you saw this Advertisement.

ECONOMY IN FUEL.

Toope's Asbetos Covering Company
(LIMITED)

Manufacture an easily fitted and removable Patent Covering for Hot-water Pipes of any diameter, which effectually prevents any loss of heat in pipes passing from the boiler to the Glass-houses, no matter what the distance.

It will be found invaluable where used.

Price 10d. per superficial foot.

NUMEROUS TESTIMONIALS.

Send circumference of pipe, and length required, to the Factory,

BEN JONSON'S ROAD, STEPNEY, LONDON, E.

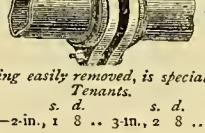
THOS. W. ROBINSON,
DENNIS PARK IRONWORKS, STOURBRIDGE,
MANUFACTURER OF
HOT-WATER PIPES,
IMPROVED "EXPANSION JOINT" PIPES,
BOILERS,
SPOUTING, PUMPS, TANKS, WROUGHT-IRON TUBING,
And every description of Ironwork for Horticultural and Building Purposes.

SOCKET HOT-WATER PIPES.

	s. d.		s. d.		s. d.
Pipes (6 ft. long)—2-in.,	1 9 ..	3-in.,	3 0 ..	4-in.,	3 10 each.
,, (9 ft. long)— ,,	— ..	,,	4 3 ..	,,	5 3 ,,
Elbows (No. 12)— ,,	1 1 ..	,,	1 8 ..	,,	2 0 ,,
Tees (No. 33)— ,,	1 5 ..	,,	2 4 ..	,,	3 3 ,,
Syphons (No. 23)— ,,	1 3 ..	,,	2 0 ..	,,	3 0 ,,

"Expansion Joint" Hot-water Pipes.

The "Expansion Joint."



The Best and Quickest Made.

This Joint, being easily removed, is specially adapted for Tenants.

	s. d.		s. d.		s. d.
Pipes (6 ft. long)—2-in.,	1 8 ..	3-in.,	2 8 ..	4-in.,	3 4 each.
,, (9 ft. long)— ,,	— ..	,,	4 0 ..	,,	5 0 ,,
Elbows (No. 3)— ,,	0 8 ..	,,	0 10 ..	,,	1 0 ,,
Tees (No. 13)— ,,	0 11 ..	,,	1 2 ..	,,	1 4 ,,
Syphons (No. 16)— ,,	1 0 ..	,,	1 4 ..	,,	1 6 ,,

Joint complete, with Rubbers and Pins, 2-in., 1s. each; 3-in., 1s. 3d.; 4-in., 1s. 6d.

Delivered into Trucks or Boats. Illustrations and Price Lists free.

Terms—Cash against Invoice less 2½ per Cent. Discount.

Estimates for Heating given from Plans.

ALL CASTINGS SUPPLIED OF FIRST QUALITY ONLY.

STOVES.

Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Healthy Heat twenty-four hours or longer for about 1d., without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,

112, Victoria Street, Westminster, S.W.

PIPES and FITTINGS,
FOR HEATING APPARATUSES.
The largest stock in the Kingdom. 4-inch pipes, 1s. 6d. per yard.
SILVESTER & SAINSBURY,
Castle Hill Foundry, Newcastle, Staffordshire.

The Best System of Heating is by Hot Water.
The Best Hot-Water Joint is Jones' Expansion Joint.

JONES & ATTWOOD.

ENGINEERS & IRONFOUNDERS,
STOURBRIDGE.

THE BEST

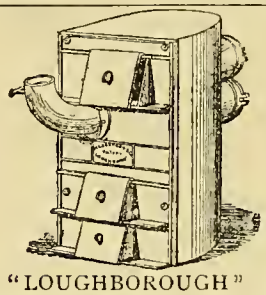
HOT-WATER JOINT.

Medal Awarded, Horticultural Show, Aston, 1875.

SIMPLE, DURABLE, NEAT, CHEAP.

Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c.

Illustrated CATALOGUE; also Estimates for Heating with the most improved BOILERS, EXPANSION JOINT PIPES, or COILS, on application.



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Price with fittings, £2 2s.

The apparatus for a Greenhouse, 20 feet by 12 feet, complete, for £6 8s. Prices and full particulars on application.

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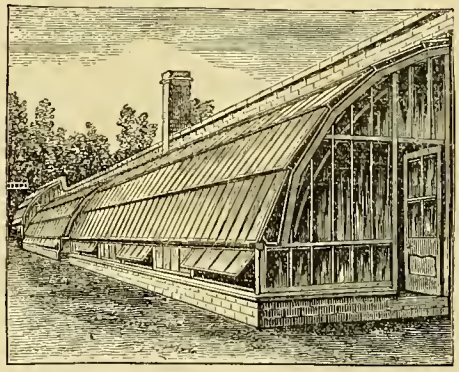
HORTICULTURAL BUILDERS and HOT-WATER APPARATUS ENGINEERS.



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GREENHOUSE SASHES,
6 feet by 3 feet,
BEST PINE,
Primed and Glazed.
15-oz., 9s.,
21-ounce, 10s. 6d. each.

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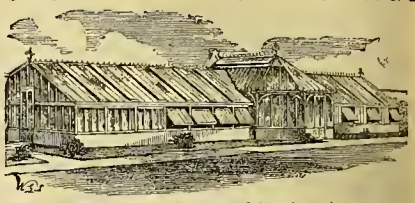

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Hot-Water Apparatus fixed in any part of the Kingdom, and guaranteed.

FIRST PRIZE MEDAL
At Grand International Horticultural Exhibition, Manchester.

Send for particulars to

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Horticultural Builders & Hot-Water Engineers,
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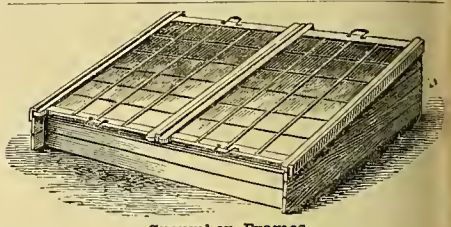

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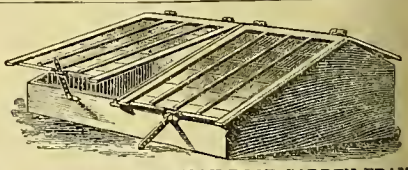
R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England, also Dublin and Belfast:—

	£ s. d.
2-light frame, 8 feet by 6 feet	3 10 0
3-light frame, 12 feet by 6 feet	5 5 0
6-light frame, 24 feet by 6 feet	10 0 0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

R. HALLIDAY AND CO., Hothouse Builders and Engineers
Royal Horticultural Works, Middleton, Manchester.



No. 74. Three-quarter SPAN-ROOF GARDEN FRAME
CASH PRICES—Carriage Paid.

No 2 size ..	8 ft. long ..	6 ft. wide ..	£4 15
No. 3 size ..	12 ft. long ..	6 ft. wide ..	6 10
No. 4 size ..	16 ft. long ..	6 ft wide ..	8 5

These Frames give greater height in the centre. They are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Set-opes are provided for ventilating. Are made of the best hard red deal all painted four coats of best oil colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue free on application. Carriage paid to any Railway Station in England and Wales, also to Edinburgh and Dublin.

Estimates for Garden Frames, Pit Lights, Sashes, &c.

"Mr. HENRY MCCOMAS, having had 6 ft. of the No. 74 Frame he considers it very satisfactory."—*Homestead, Dundrum.*

BOULTON & PAUL, NORWICH.

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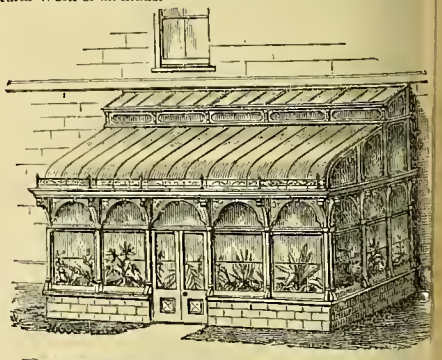
HORTICULTURAL BUILDER,
121, BUNHILL ROW, LONDON, E.C.

Special DESIGNS and ESTIMATES given for Ornamental CONSERVATORIES, without charge, and for all Horticultural Work of all kinds.



GARDEN BOXES and LIGHTS are generally kept in Stock, and WOODEN HOUSES suitable for Store-houses, Tool-houses, &c.

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T. MILLINGTON AND CO.,
43, Commercial Street, E.
PLATE, SHEET, CROWN GLASS.
SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz.,	300 feet,	35s. 0d.,	if 21-oz., 200 feet,	35s. 0d.
Fourths ..	,,	,,	37s. 6d.	,, ,,	37s. 6d.
Thirds ..	,,	,,	41s. 0d.	,, ,,	41s. 0d.
Seconds ..	,,	200 feet,	40s. 0d.	,, ,,	47s. 9d.
Best ..	,,	,,	50s. 0d.	,, ,,	60s. 0d.

Also 26-oz., 28-oz., and 32-oz. Glass.

SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½	× 5½	.. 9s. 6d.,	10s. 6d.,	11s. 6d.,	12s. 6d.
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21-oz., 15s., 16s. 6d., 18s. 6d., 20s.
SHEET LEAD, WHITE LEAD, OILS, TURPENTINE, and COLOURS.

HORTICULTURAL WINDOW GLASS,
15-oz. and 21-oz., in Boxes containing 200 feet.
Carriage Paid to any Railway Station in England.
Price Lists on application.
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BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities of
BETHAM & SON,
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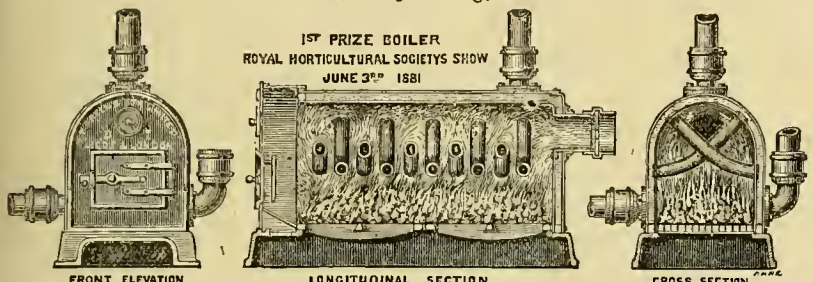
B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

GREEN'S PATENT TUBULAR SADDLE BOILER
Had the First and Highest Prize, a Silver Medal,
Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.



The "Journal of Horticulture" of June 9 says:—
"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The "Garden" of June 11 says:—
"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

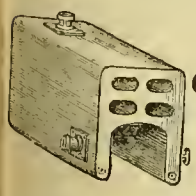
Descriptive Illustrated Price LIST free on application to
THOMAS GREEN AND SON (LIMITED),
SMITHFIELD IRONWORKS, LEEDS,
And 54 and 55, BLACKFRIARS ROAD, LONDON, S.E.

THE THAMES BANK IRON COMPANY

UPPER GROUND STREET,
LONDON, S.E.,
Have the largest and most complete stock in the Trade to choose from.

HOT-WATER BOILERS, PIPES, AND CONNECTIONS,
AND all CASTINGS for HORTICULTURAL PURPOSES.
Their New Illustrated Catalogue, 12th Edition, now ready
(price One Shilling).
Hot-water and Hot-air Apparatus erected complete, or the Materials supplied.
Price List on application free.

GRAND INTERNATIONAL HORTICULTURAL EXHIBITION, MANCHESTER,
AUGUST 24 to 27, 1881.



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Class 216.—The Best Boiler, practically and scientifically considered.
THE SOCIETY'S MEDAL
WAS AWARDED TO
JOSEPH BRAMHAM, 104, DALE STREET, LIVERPOOL,
FOR HIS
ALLERTON PRIORY BOILER.
The SADDLE BOILER with Waterway Back is also still being fixed.
SEND FOR BOOK OF TESTIMONIALS.

To the Seed Trade.
CORRY, SOPER, FOWLER AND CO. (Limited) are now prepared to offer their New Stock of Hyacinth, Specimen, and other GLASSES, in every variety and quality. Price Lists on application to
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Geometrical Mosaic and Encaustic
TILE PAVEMENTS, for Conservatories, Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.
MAW AND CO., Benthall Works, Broseley, Shropshire.

Rosher's Garden Edging Tiles.

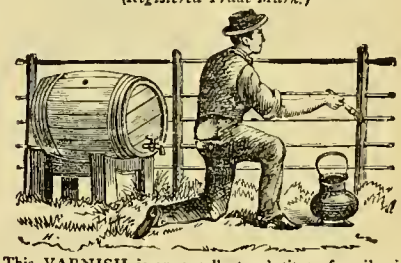
THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Oil Paint No Longer Necessary.
HILL AND SMITH'S BLACK VARNISH
for Preserving Ironwork, Wood, or Stone.
(Registered Trade Mark.)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.
Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.
UNSOLICITED TESTIMONIAL.
"*Piercefield Park, June* 21, 1876.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."
CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.
H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.
Large Illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c., sent free on application to
HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 180, Buchanan Street, Glasgow.

ADIE'S PATENT LAWN EDGER.

THIS Machine constantly employed will pay itself in two days. Dr. Hogg, in the *Journal of Horticulture*, says—"This Edge Clipper we have tried, and know not which to admire most—its simplicity or efficiency." Mr. Moore, in the *Florist*—"This new machine does its work rapidly and admirably, the grass being cut with precision, and" he further adds, "the use of it will, we have no doubt, become general." Prices 27s. and 30s.
LAWN EDGER CO., 15, Pall Mall, London, W.

THE GARDENERS' CHRONICLE

SCALE OF CHARGES FOR ADVERTISING.

Head Line charged as two.

4 Lines	..	£0 3 0		15 Lines	..	£0 8 6	
5 „	..	0 3 6		16 „	..	0 9 0	
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7 „	..	0 4 6		18 „	..	0 10 0	
8 „	..	0 5 0		19 „	..	0 10 6	
9 „	..	0 5 6		20 „	..	0 11 0	
10 „	..	0 6 0		21 „	..	0 11 6	
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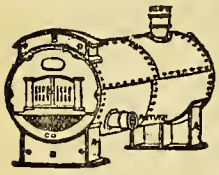

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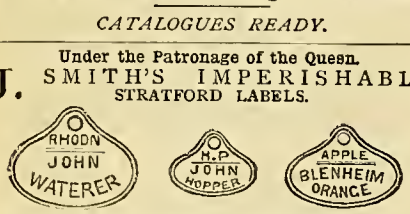

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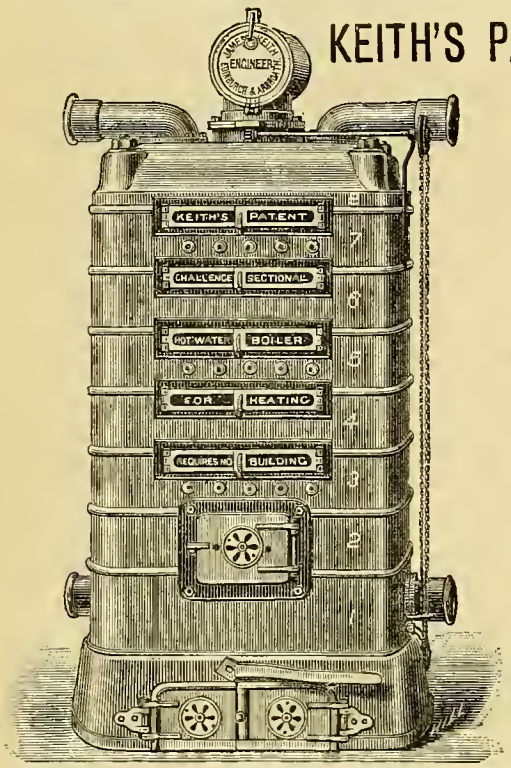

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These PATENT "CHALLENGE" BOILERS have about ten times the heating surface of the ordinary Saddle Boilers, and are certainly THE BEST, MOST POWERFUL, and MOST ECONOMICAL Hot-water Boilers in use.

See Prospectuses, References, &c.

One of these Boilers has been over a year in use, heating 7500 feet of 4-inch pipe (or nearly 1½ mile of pipe), at the Winter Gardens of Isaac Holden, Esq., Oakworth, Keighley. This Boiler has only a 30-inch square fire-grate surface, and has 306 square feet of effective heating surface directly over the fire.

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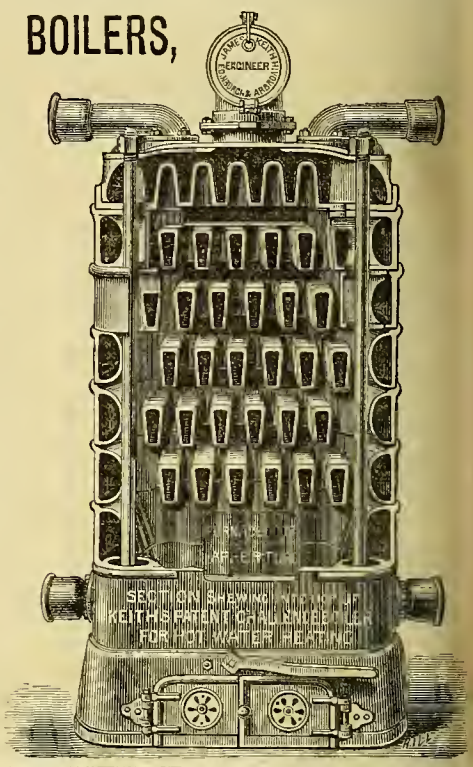

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HYDRAULIC ENGINEERS,

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THE IMPROVED SELF-ACTING HYDRAULIC RAM.

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No. 39*b*. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose Garden use.

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ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

Editorial Communications should be addressed to "The Editors;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, October 22, 1881.
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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $6.35 for Twelve Months.
Agent for America:—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—The ANNUAL EXHIBITION of this Society will be held in the Assembly Rooms, Stoke Newington, on Nov. 14 and 15. Particulars on application to
WM. GOLDSMITH, Hon. Sec.
1, Stafford's Place, Grove Road, Stamford Hill, N.

WESTMINSTER AQUARIUM.—CHRYSANTHEMUM, FRUIT and VEGETABLE SHOW, NOVEMBER 17 and 18. Liberal scale of Money Prizes, Silver Cups, Medals, &c. Schedules on application to
WILLIAM HOLMES,
Frampton Park Nursery, Hackney, London, E.

ALEXANDRA PALACE, N.
CHRYSANTHEMUM SHOW,
From December 9 to 13.

ALEXANDRA PALACE, N.
CHRISTMAS FRUIT SHOW
AND HARDY EVERGREEN PLANTS,
from December 24, 1881, to January 7, 1882.
J. FORSYTH JOHNSON, Horticultural Director.

CLIVIA (HIMANTOPHYLLUM).—Fresh Seeds, carefully fertilised from the finest large-flowered varieties, such as Van Houttei, maxima, robusta, splendens, superba, &c., are to be had of M. PYNAERT VAN GEERT, Ghent, Belgium, and will be sent, free by post, in exchange for cash or Post-office Order.
Price—Twelve seeds, 5s.; 100 seeds, 32s.
Guaranteed good seed.

DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., and 12s. 6d. per 100; 30s., 42s., 63s., 84s., and 105s. per 1000. Descriptive LIST on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Vines.—Vines.—Vines.
B. S. WILLIAMS has much pleasure in intimating that his stock of VINES is unusually fine this year, the Canes being very strong and well ripened. For List of Prices see B. S. W.'s BULB CATALOGUE for 1881.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

APPLE TREES with MISTLETO growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

ARAUCARIA IMBRICATA.—A large Stock of fine Specimens of the above, from 6 to 9 feet high. Price on application to
T. JACKSON AND SON, Nurseries, Kingston-on-Thames.

To the Trade.
ELSTER AND KOLLMANN, Lübeck, near Hamburgh, Germany, beg to offer LILY of the VALLEY for forcing, single crowns, 3-yr. old, extra fine roots, 32s. per 1000.

AURICULA PLANTS, of the best Show varieties, to dispose of from the surplus stock of
EDW. POHLMAN, Parkinson Lane, Halifax.

To the Trade.
CAPE FLOWERS.—A large Consignment just received in first-class condition. Prices and sample sent on application to the importers.
CORRY, SOPER, FOWLER AND CO. (Limited), 18, Finsbury Street, London, E.C.

HELLEBORUS NIGER—the CHRISTMAS ROSE.
Nice, fresh imported plants of this valuable and beautiful Winter Flower now ready for delivery. Prices, 25 roots, 6s.; 50, 10s. 6d.; 100, 15s.; 500, 60s.; 1000, 100s.; 5000, £20.
HOOPER AND CO., Covent Garden, London, W.C.

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Handsome plants, well-rooted:—
3 to 4 feet .. .. 26s. per dozen, 200s. per 100.
4 to 5 feet .. .. 36s. per dozen, 250s. per 100.
Trade price on application.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application.
Lion Walk, Colchester.

HARDY and COOL CONSERVATORY CLIMBERS.—A most Complete LIST of above, including grand Specimen Magnolias, &c., will be posted gratis to all applicants.
THOMAS S. WARE, Hale Farm Nurseries, Totteham, London.

Hyacinths, Tulips, &c.
BUDDENBORG BROTHERS, BULB GROWERS, House Bloemswaard, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.
B. B. have an immense stock of CHRISTMAS ROSES, which they can strongly recommend. Prices on application.

OUR NEW CATALOGUE of SPRING FLOWERING PLANTS of all kinds is now issued, and will be sent post-free to all applicants.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

Floral Commission Agency.
WANTED, all kinds of CHOICE WHITE FLOWERS.—Nurserymen and others having the above will please communicate with W. CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.
WANTED, BEST WHITE ORCHIDS.

WANTED, strong Plants of Maréchal Niel and Gloire de Dijon ROSES, 10 to 12 feet growth. Price per dozen.
GEO. W. JUBB, Florist, College Road, Leeds.

WANTED, Consignments of STEPHANOTIS, Maréchal Niel ROSES, EUCHARIS, CAMELLIAS, and other CHOICE FLOWERS; also PINES, MELONS, Marie Louise PEARS, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, 1000 THUYA OCCIDENTALIS, 5 to 6 feet. Must be cheap, and well rooted.
H. MARSHALL, Barnham, Arundel.

Lilium auratum.
WANTED, a quantity of ENGLISH-GROWN ROOTS: must be good large sound Bulbs. State price per 100.
DICKSON, BROWN AND TAIT, Seed Merchants, Manchester.

Wanted, English Oaks.
WANTED, about 200 well-grown English OAKS, 5 to 6 feet, and 6 to 8 feet. State price per 100 to
JNO. JEFFERIES AND SONS, Cirencester.

WANTED, 2000 Lancashire Lad and White Eagle GOOSEBERRIES, 2 or 3-yr. old. Must be true to name. Apply, with lowest price, to
CLARK BROTHERS AND CO., Nurserymen, Carlisle.

To the Trade.
LILIUM AURATUM DIRECT FROM JAPAN.
JAMES CARTER AND CO. are just receiving their First Consignment of this beautiful Lily, and are prepared to offer them in Cases, as imported, and unopened, at very reasonable rates. All orders executed in strict rotation.
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ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.—Dwarf Roses.
GEO. COOLING AND SON have a large stock to offer, extra fine Plants, and all leading varieties, also TEA-SCENTED, in pots. Prices on application.
The Nurseries, Bath.

ROSES.—Fine Plants, equal to any in the Trade, at 7s. to 9s. per dozen, from 45s. per 100. Strong QUICK, 2½ to 5 feet. LARCH, ASH, OAK, SPRUCE, Scotch and Silver FIR, &c.
W. GROVE, Hereford.

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TEA ROSES, on the Seedling Brier. Splendid plants of all the leading sorts, 15s., 18s. and 24s. per dozen. 18 H.P. and 6 Tea Roses package free for £1 1s. Trade supplied.
JOHN MATTOCK, New Headington Nursery, Oxford.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4½ in. pots, £2 per 100, for cash. Now ready, many thousands of Isabella Sprunt, Gloire de Dijon, &c.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

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JULES DE COCK, NURSERYMAN, Ghent, Belgium. Prices on application.

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ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

FIR, Scotch, 2-yr. 2-yr.; LARCH, 2-yr. 2-yr.; THORN QUICK, 2-yr. 2-yr. Prices on application to
JOSEPH TREMBLE AND SONS, Penrith.

English Yews.
SANDY AND SON have a very fine stock of all sizes of the above. Price per dozen or 100 on application. The Nurseries, Stafford.

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WATKINS AND SIMPSON, Seed and Bulb Merchants, 1, Savoy Hill, Strand, W.C.

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FOR SALE, Maiden PEACHES, NECTARINES, PLUMS, and PEARS. For LIST of sorts and prices, apply to
CRANSTON'S NURSERY AND SEED CO. (Limited), King's Acre, Hereford.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1d. stamp. R. S. & Co.'s selection of 100 good showy varieties for 25s.
RICHARD SMITH AND CO., Nurserymen, Worcester.

CALCEOLARIAS, CYCLAMEN, and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS, 1s. 4d. per dozen, 8s. per 100.
CYCLAMEN, 1s. 6d. per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

CALCEOLARIA CUTTINGS.—Kaye's Yellow and Golden Gem, two best bedding varieties. Price per 100, 2s. 3d.; per 1000, 18s.; per 5000, 50s. Carriage free.
WILLIAM ETHERINGTON, The Gardens, Hanor House, Swanscombe, Kent.

To the Trade.—Strawberries.
H. CANNELL AND SONS offer all the best Market kinds in any quantity, during October, at a low price. Good plants, and all warranted true to name. Special prices for large quantities.
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MULBERRIES, LIMES, &c., by the dozen or 100. Prices on application to
PONSFORD AND SONS, Nurseries, Brixton, Surrey, and Bromley, Kent. Also GENERAL NURSERY STOCK.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

GARDEN POTS — GARDEN POTS. — From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

SALES BY AUCTION.

Monday Next.
GREAT TRADE SALE of DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, at half-past 11 o'Clock precisely, an extensive consignment of the finest named HYACINTHS and TULIPS, CROCUS, NARCISSUS, JONQUILS, SNOWDROPS, and other ROOTS from Holland, lotted principally to suit the Trade and large buyers.
Catalogues at the Mart, and 8, New Broad Street, E.C.

Important Sale of a First-class Collection of Dutch BULBS, a superb assortment of about 300 Standard and other ROSES, Selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS and AMERICAN PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, the above, at the City Auction Rooms, 38, Gracechurch Street, E.C., on TUESDAY, November 1, at 12 o'Clock precisely.
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Wandsworth Common, S.W.
GREAT UNRESERVED FOUR DAYS' CLEARANCE SALE, the Land having to be cleared immediately for Building.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. R. & G. Neal, to SELL by AUCTION, on the Premises, the Nurseries, Wandsworth Common, S.W., close to the station, on TUESDAY, November 1, and three following days, at 12 o'Clock precisely each day, several acres of valuable NURSERY STOCK, in good condition for removal, including 20,000 Deciduous Shrubs, 3 to 6 feet, in great variety; 2000 Standard Weeping Trees, 10,000 Poplars, of sorts, 10 to 12 feet; 10,000 Limes and other Ornamental Trees, 4000 fine trained and other Fruit Trees, 10,000 Ivies in pots, 5000 Green Hollies, 2 to 6 feet; 20,000 bushy oval-leaved Privet, 3 feet; 2000 Aucubas, 2000 Rhododendrons, 5000 Virginian Creepers in pots, 5000 Climbing Plants, thousands of Coniferæ and Evergreen Shrubs, 10,000 Herbs, of sorts; 50,000 Asparagus, and large quantities of other Stock too numerous to mention.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

South Acton, W.
CLEARANCE SALE.—EXPIRATION of LEASE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Market Garden, South Acton, W., on WEDNESDAY NEXT, November 2, at 1 o'Clock, by order of Mr. J. Day, 40,000 RHUBARB ROOTS, one, two, and three years planted; three useful CART-HORSES, HARNESS, and WAGGONS; nearly new RICK-CLOTH, 1-horse power CHAFF-CUTTING MACHINE, and other IMPLEMENTS; 38 Glazed LIGHTS, and Sundry Effects.
May be viewed. Catalogues of Mr. SOUTH, the Foreman, on the Premises; and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Fulham, S.W.
CLEARANCE SALE, in consequence of the expiration of the Lease of a Portion of the Land.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Osborn & Sons to SELL by AUCTION on the Premises, The Nurseries, Fulham, close to Putney Bridge Station, on TUESDAY and WEDNESDAY, November 8 and 9, at 12 o'Clock precisely each day, a large portion of the well grown NURSERY STOCK, which has been carefully prepared for removal, including Coniferæ and Evergreen Shrubs, in variety for effective planting; Ornamental and Fruit Trees, Hardy American Plants, Climbing Herbaceous and Alpine Plants, and a choice assortment of Greenhouse Plants.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 8, New Broad Street, E.C., and Leytonstone.

Important Sale of Valuable Nursery Stock.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The American and Fillebrook Nurseries, Leytonstone, adjoining the Railway Station, on THURSDAY and FRIDAY, November 10 and 11, at 12 o'Clock, a large and varied assortment of GENERAL NURSERY STOCK, comprising some fine Specimen Evergreen and Coniferæ Shrubs and thousands of smaller Plants, Ornamental and Forest Trees, selected Fruit Trees, a superb collection of Standard and Dwarf Roses, choice Hardy American Plants, with some Winter-blooming Plants, Shrubs, &c., in pots.
May be viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.
On view the mornings of Sale, and Catalogues had.

Plants and Bulbs from Holland.—(Sale No. 5976.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 2, at half-past 12 o'Clock precisely, 2000 first-class STANDARD and DWARF ROSES, including most of the leading varieties, from well known English and Dutch Nurseries; HARDY HERBACEOUS PLANTS; also an Importation of choice named Double and Single HYACINTHS of different sorts and colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, RANUNCULI, and other Bulbs just arrived from Holland, in lots to suit all buyers.
On view morning of Sale, and Catalogues had.

Sale on Thursday, November 10.
LÆLIA PURPURATA and CATTLEYA AUREA.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 10, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, St. Alban's, a splendid lot of LÆLIA PURPURATA, the finest Lælia, and one of the grandest Orchids grown. The importation is a very large one, and consists mostly of splendid masses; some of them are of unusual size, and the whole in extra fine condition. The Sale will also contain an extra fine lot of CATTLEYA AUREA; this species has now flowered in two collections, proved itself distinct, and very magnificent.
May be viewed the morning of Sale, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 3, at half-past 12 o'Clock precisely, several small collections of ESTABLISHED ORCHIDS, comprising many rare and valuable sorts. Good plants of Thrixspermum muriculatum forty Oncidium pubes, and Cyrtopodium punctatissimum. IMPORTED ORCHIDS from Mexico, including Lælia autumnalis, L. albida, Epidendrum aurantiacum, Cattleya citrina, Oncidium reflexum, Odontoglossum Insleayi, and others. Imported plants of RARE ORCHIDS from New Grenada, eight cases of ODONTOGLOSSUM ROEZLII, received direct, and various other Orchids and rare plants.
On view the morning of Sale, and Catalogues had.

Friday Next.
4000 LILIUM AURATUM, in fine condition.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY NEXT, November 4, at half-past 12 o'Clock precisely, an importation of 4000 Bulbs of LILIUM AURATUM, in fine condition; also rare English grown LILIES, including Lilium Humboldti, L. Batemannæ, L. pardalinum, L. pulchellum, &c.; some fine Bulbs of the lovely CHIONODOXA LUCILLÆ (The Glory of Snow); a consignment of plants from America, 500 good flowering Bulbs of EUCHARIS CANDIDA, and an importation of first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other BULBS, just received from well known farms in Holland.
May be viewed the morning of Sale, and Catalogues had.

To Noblemen, Gentlemen, and Others intending TO PLANT.
EXTENSIVE SALE of VALUABLE NURSERY STOCK.

MR. DAVID MITCHELL, HORTICULTURAL AUCTIONEER and VALUER, has received instructions from Messrs. Peter S. Robertson & Co., to DISPOSE OF, by PUBLIC AUCTION, at their Nurseries, Inverleith, Edinburgh, on THURSDAY, November 3, at 11 o'Clock, many millions of SEEDLING and TRANSPLANTED FOREST TREES, composed of Native Larch, true Native Scotch Fir, Black, White, and Norway Spruce, in various sizes; Austrian, Cembra, and Laricio Pines; Silver Fir, Privet, Thorns, Beech, Birch, Poplars of sorts, Ash, Elm, Sycamore, Oak, Maple, Alder, Hazel, Hornbeam, Laburnum, Spanish and Horse Chestnut, Scarlet and common Elder, &c.; all in the finest possible condition for removal. There will also be exposed for sale some thousands of well-grown SHRUBS and ORNAMENTAL DECIDUOUS TREES for immediate effect, comprising Bay and Portugal Laurels, Hollies, Junipers, and other choice Shrubs.
Catalogues now ready. Note.—All the lots purchased will be carefully lifted and put on rails in bulk, free of cost, by P. S. R. AND CO.; four months, or up till March 1, 1882, being allowed for removal, thus giving purchasers ample time to choose their own planting season.
N.B.—Mr. MITCHELL would beg to draw the attention of Planters to this IMPORTANT ANNUAL SALE. He also takes this opportunity to intimate to intending purchasers that, from his long experience and knowledge of Trees and Shrubs, he is enabled to give practical advice as to kinds suitable for different districts.
6, Comely Bank, Edinburgh, October 1, 1881.

Preliminary Notice.

MESSRS. G. AND W. STEELL, Richmond, Surrey, beg to inform Gentlemen and the Trade they intend clearing the portion of the Gas Field Nursery not already raised from its original level, and in order to raise the other part will offer, without reserve, the stock on it for PUBLIC COMPETITION, about the MIDDLE of NOVEMBER, consisting of many thousands of Standard and Pyramid Variegated and Green HOLLIES, AUCUBAS, RHODODENDRONS, large CUPRESSUS, POPLARS, LIMES, THUYAS, and other Ornamental Deciduous and Evergreen SHRUBS, also Standard and Dwarf ROSE TREES, Standard and Dwarf-trained PEACHES, NECTARINES and APRICOTS.
Can be viewed from the present time until the Sale takes place.

To Market Gardeners, Dairymen, &c.

FOR SALE, Three or Four SMALL FREEHOLDS—One Tithe-free—admirably adapted for above purposes and Fruit Growing, especially Strawberries, for which the locality is famous, and one leading Covent Garden salesman has recently taken, and is now planting the adjoining land. Will be sold with immediate possession, and a large portion of the Purchase Money can be arranged for. Station about ¾ mile. Letters delivered 7.30 A.M.
For particulars apply to Mr. EDWARDS, Park House, Bishops Waltham.

TO BE DISPOSED OF, the Old-established NURSERY and SEED TRADE of the late Mr. Henry Baker, Atherstone. The Nursery (about 8 Acres) is in an excellent neighbourhood, and close to a Market Town, in full working order, and every facility for doing a large trade. For particulars apply to
Mrs. BAKER, The Nurseries, Atherstone.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

CHRYSANTHEMUM.—Speciality.—300 best and newest varieties only, flowered under glass and kept true to name. Purchaser's selection, well-rooted plants, 2s. 6d. per dozen, 14s. per 100; cuttings, 2s. per dozen, 10s. per 100. W. E.'s selected plants, 2s. per dozen, 10s. per 100; cuttings, 1s. 6d. per dozen, 8s. per 100, distinct varieties, post-free. Send one stamp for LIST and compare with others.
W. ETHERINGTON, The Gardens, Manor House, Swanscombe, Kent.

FERNS from Devonshire, Cornwall, and Somerset.—(Best time to plant). Instruction Book for making Rockery, Planting Ferns, &c., with each 5s. order. 14 named varieties, 7s. per 100; small (post), 30 for 2s. Fine ASPLENIUM FONTANUM, SEPTENTRIONALE, and HOLLY FERNS, 1s. each; the three, 2s. 6d. 1000 varieties, British and Exotic. CATALOGUE 2d. Established 25 years.
E. GILL, Lodging-house Keeper, Lynton, Devonshire.

SEAKALE and ASPARAGUS for FORCING.—Extra strong SEAKALE; fine ASPARAGUS, nine years—excellent stuff. Land must be cleared. Also one, two, and three years transplanted.
FREEMAN AND FREEMAN, Seed Growers, Norwich.

ANTHONY WATERER respectfully invites the attention of intending Planters to the following List of desirable and in every way first class Nursery Stock:—
BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
YEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
" Golden, many thousands, 3, 4, 5, to 10 feet high.
The Golden Yews in this Nursery are quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
" Irish, hundreds of fine specimens, 6, 7, and 8 feet high.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10 and 12 feet high.
" LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS', and other fine varieties, a very large number 5, 6, 7, 8, and 10 feet high.
" Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high.
" Golden Queen, many handsome specimens, 4, 5, 6, to 12 feet high.
" Silver, in variety, 4, 5, 6, to 10 feet high.
" Waterer's, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 feet high; hundreds.
PICEA PINSAPO, 6, 7, 8, to 10 feet high; hundreds.
" NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds.
CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choice to be met with in no other Nursery.
" " GRACILIS, 4 and 5 feet high.
" " ARGENTEA, 4 and 5 feet high.
" " LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIBOCEDRUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6, and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine plants, 3, 4, and 5 feet high.
THUYOPSIS BOREALIS, 4, 5, and 6 feet high.
" DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high splendid specimens.
THUYA WEAREANA, an immense quantity of fine specimens up to 10 feet.
" AUREA, 2, 3, and 4 feet high.
" SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
" Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.
The Plants referred to in this Advertisement have all been recently transplanted.
Knap Hill Nursery, Woking, Surrey.

ABIES PARRYANA.—A most beautiful Spruce Fir, combining the extreme hardiness and silvery hue of the White Spruce with denser and longer foliage, and a more robust growth. As an ornamental tree this is specially handsome, and will certainly take first-rank position both for Parks and Forests. Fine healthy plants from Seed—

9 to 12 inches,	12s.	per dozen,	80s.	per 100.
12 " 15	" 15s.	"	100s.	"
15 " 18	" 18s.	"	130s.	"

JAS. BACKHOUSE AND SON, York Nurseries.

5000 Border Carnations. 5000

TWELVE good, distinct, named varieties, 6s. twelve ditto, newer, 9s.; twelve ditto, best new, 12s. Old Crimson Clove (guaranteed the true variety), 1s. each 7s. 6d. per dozen. Forcing PINKS, in six best named sorts 7s. per dozen. All strong, sturdy stuff, in 60-pots. Plant can also be packed out of pots by rail or by post. Special price by the 100. Carriage free to London.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

CARNATIONS, PICOTEES, and PINKS—We beg to offer strong, healthy, well rooted stuff of the above (our selection of varieties)—CARNATIONS, 18s per dozen pairs; PICOTEES, 15. per dozen pairs; PINKS 6s. per dozen pairs; True Old Crimson CLOVE CARNATIONS, 3s. per dozen plants; Prince of Scarlets CLOVE, 4s per dozen plants. LIST of varieties on application.
Carriage free for cash with order on 20s. value and upwards.
ISAAC BRUNNING AND CO., Great Yarmouth Nurseries

The Golden Fritillary.

FRITILLARIA MOGGRIDGEI.—Large deep golden-yellow flowers, netted with crimson; perfectly hardy, easy of culture in common borders. 1s. 6d. each 15s. per dozen.

FRITILLARIA BURNATI.—Similar in size and form, equally hardy and easy to cultivate. Flowers deep brownish-purple, netted with darker veins. 1s. each, 10s. 6d. per dozen.
Strong roots of both the above scarce and handsome Perennials can now be supplied by
JAS. BACKHOUSE AND SON, York Nurseries.

WINTER BLOOMING and DECORATIVE PLANTS.
CALCEOLARIA BURBIDGEII—This most distinct and valuable winter-blooming variety can now be supplied in strong flowering plants, at 18s. and 24s. per dozen.
CHAMÆROPS EXCELSA—Fine plants, with from six to eight leaves, 21s. per dozen.
CORYPHA AUSTRALIS—Fine plants, six to eight leaves 24s. per dozen.
DRACÆNA AUSTRALIS—Fine plants, ten to twenty leaves 12s. per dozen.
" CONGESTA and RUBRA—Fine plants, twenty to thirty leaves, 18s. per dozen.
EUPATORIUM GRANDIFLORUM—This is the finest of all—a strong growing plant with immense heads a foot or more across, of pure white flowers, which are produced in winter and early spring. Very strong plants in 6 and 8-inch pots, 18s., 21s., and 30s. per dozen.
GREVILLEA ROBUSTA—Fine plants, 9s. per dozen.
PITTOSPORUM EUGENOIDES—A most distinct Myrtle like shrub, admirably suited for window decoration, bushy plants, 9s. and 12s. per dozen.
SEAFORTHIA ELEGANS—Fine plants, 12s. and 18s. per doz.
PALMS—Large plants of various species, extra well grown, 60s. to 84s. per dozen.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

PICKED *Carters* BULBS,

THE BEST IN THE TRADE.

CARTERS' POPULAR BOXES of BULBS

Comprise liberal Assortments, and consist of fresh-imported Roots of the most showy and easily cultivated varieties.

The total cost includes free delivery to nearest Railway Station in England or Wales, or nearest Irish or Scotch Port (unless under 21*s.* value); packing also free.

For CONSERVATORY or WINDOW DECORATION.	No. 1—Carters' Complete Box of	700	Flowering Bulbs, price 84s.
	No. 2—Carters' Complete Box of	575	Flowering Bulbs, price 63s.
	No. 3—Carters' Complete Box of	400	Flowering Bulbs, price 42s.
	No. 4—Carters' Complete Box of	250	Flowering Bulbs, price 21s.
	No. 5—Carters' Complete Box of	125	Flowering Bulbs, price 10/6
For INDOOR and OUTDOOR CULTIVATION.	No. 6—Carters' Complete Box of	2000	Flowering Bulbs, price 84s
	No. 7—Carters' Complete Box of	1500	Flowering Bulbs, price 63s.
	No. 8—Carters' Complete Box of	1000	Flowering Bulbs, price 42s.
	No. 9—Carters' Complete Box of	700	Flowering Bulbs, price 30s.
	No. 10—Carters' Complete Box of	350	Flowering Bulbs, price 15s.
For PLANTING in the OPEN GROUND.	No. 11—Carters' Complete Box of	2200	Flowering Bulbs, price 84s.
	No. 12—Carters' Complete Box of	1800	Flowering Bulbs, price 63s.
	No. 13—Carters' Complete Box of	1250	Flowering Bulbs, price 42s.
	No. 14—Carters' Complete Box of	650	Flowering Bulbs, price 21s.
	No. 15—Carters' Complete Box of	300	Flowering Bulbs, price 10/6

No Charge for Packing. All above 21s. value delivered Carriage Free.

For further particulars see

CARTERS' ILLUSTRATED CATALOGUE,

THE HANDSOMEST AND MOST USEFUL CATALOGUE PUBLISHED.

Gratis and Post-free on application.

THE QUEEN'S SEEDSMEN, and by Royal Warrant to H.R.H. THE PRINCE OF WALES,

237, 238, HIGH HOLBORN, LONDON, W.C.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz., 1*s.* and 15*s.*; extra selected, for potting (specimens), 18*s.* per doz. ODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

APPLE—LANE'S PRINCE ALBERT—18*s.* per dozen. A large fine Cooking Apple, keeping until March, an abundant bearer and moderate grower, should be extensively planted.
CATALOGUE on application.
H. LANE AND SON, The Nurseries, Berkhamsted, Herts.

Snowdrops.—To the Trade.
BROWN AND CO., SEEDSMEN, 42, Baldwin Street, Bristol, can offer Double and Single SNOWDROPS, in quantity. Samples and price on application.

J. S. KNOX, NURSERYMAN, Alcester, offers MAHONIA AQUIFOLIA, 1-yr. seedlings; LABURNUM, 1-yr. seedlings; and AUCUBA JAPONICA, 2-yr. cuttings. Prices on application.

Seakale—Seakale—Seakale.
To NURSERYMEN and OTHERS.
FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,
Mr. WILLIAM BAILEY, Millshot Farm, Fulham, S.W.

LARCH.—Over Half-a-Million, twice transplanted, various sizes, from 2 to 4 feet.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple.

VINES.—For Sale, five Smooth Cayennes and eleven Ripley Queens, fruiting and succession. For price apply to BELL AND SON, Nurserymen, Norwich.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to
CHAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

RHODODENDRONS, with bloom-buds; fine plants for immediate effect, 2 to 5 feet high. Also EVERGREENS, FRUIT TREES, ROSES, and VINES.
Apply for CATALOGUE.
LANE AND SON, The Nurseries, Berkhamstead, Herts.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities STRAWBERRIES also, in pots, to offer. Prices, &c., on application to
CHAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

Raspberry Canes.
MR. R. BATH has now a quantity of his noted FASTOLF for disposal, 7*s.* per 100, packed and put on rail. P.O.O. or cheque with order.
Crayford, Kent.

CONTINENTAL SEEDS.—O. KNOPFF & Co., Erfurt (Established 1832), offer their well known FLOWER SEEDS to the Trade. For CATALOGUES, &c., apply, BECK & POLLITZER, 211, Upper Thames Street, E.C.

JULES DE COCK'S SPECIALITIES.—AZALEA, indica, mollis, and pontica; CAMELLIAS, DEUTZIA GRACILIS, HELLEBORUS NIGER; SPIRÆA, japonica, variegata, and palmata. Many thousands are for disposal at
JULES DE COCK'S Nurseries, Ghent, Belgium.

KENTISH FRUIT TREES.—One of the largest and best stocks of every description, in 300 Varieties, including the most profitable kinds for Market Growers, at 25 to 50 per cent. under usual prices. Immense stock of AUCUBAS, 1 to 5 feet, very cheap.
T. EVES, Gravesend Nurseries.—Established 1810.

To the Trade.
LA GRIFFERAIE STOCKS, all disbudded before planting, 45*s.* per 1000; Standard American Weeping WILLOWS, 15*s.* per dozen fine heads; Weeping ASH, 24*s.* per dozen; and ELMS, 18*s.* per dozen. ARBOR-VITÆ, American, 5 to 6 feet, 12*s.* per dozen; ARBOR-VITÆ, Siberian, 2½ to 3 feet, 8*s.* per dozen; FORSYTHIA VIRIDISSIMA, 2½ to 3½ feet, 3*s.* per dozen; MEZEREON, Red, 2 to 2½ feet, 7*s.* 6*d.* per dozen; LABURNUM, English and Scotch, 8 to 10 feet, 12*s.* per dozen; Strong Fruiting PEAR TREES, Standards, Pyramids, and Bushes. LIST on application.
STRAWBERRY RUNNERS, President, Filbert Pine, La Constant, and Wizard of the North, 2*s.* 6*d.* per 100.
R. W. PROCTOR, Nurseryman, Seedsman, and Florist, Ashgate Road, Chesterfield.

To the Trade and Others.
HENRY MAY begs to offer the undermentioned, well-grown TREES, with splendid roots, straight stems, good heads, and frequently transplanted:—LIMES, 6 to 9 feet, 40*s.*; 9 to 12 feet, 50*s.*; 12 to 14 feet, 90*s.* per 100. BEECH, 3 to 4 feet, 30*s.* per 1000; 6 to 8 feet, 30*s.* per 100. CHESTNUTS, 6 to 8 feet, 30*s.*; 8 to 10 feet, 40*s.*; CURRANTS, Red and White, 6*s.*; GOOSEBERRIES, Red and White, 6*s.* per 100.
WANTED, 10,000 MANETTI STOCKS.
The Hope Nurseries, Bedale.

Fruit Trees—Fruit Trees.—To the Trade.
B. HURST has to offer extra fine transplanted trees of the following:—
PLUMS, dwarf-trained, in variety.
PEARS, dwarf-trained, in variety.
,, pyramid fruiting, in variety.
APPLES, pyramid fruiting, in variety.
GOOSEBERRIES, Warrington Red.
GRAPE RED CURRANTS.
Also fine-coloured plants of JUNIPERUS ALBUS VARIEGATA, 3 to 4 feet.
Samples and Special Prices on application.
Market Place, Hinckley.

FROM

J. C. WHEELER & SON,

KINGSHOLM NURSERY, GLOUCESTER.

A walk round our Nursery Grounds shows that whilst we have a good stock of every variety of Tree and Shrub quoted in our Catalogue (which we will send gratis and post-free on application), we have a superabundance of some excellent sorts which we are anxious to sell, and with this view we quote the following Special List, giving names, heights, prices, and all other particulars. Some of them, such as Limes, Yews, Cypress, Firs, Chestnuts, Flowering Thorns, and other Spring-flowering Plants are remarkably strong and healthy, and are such that we feel sure will give entire satisfaction. We are overdone with some of the most delicious sorts of Pears, both standards and pyramids, and these we are disposed to sell very cheaply. For £5 we will supply 100 choice and nicely-grown Pyramids, well selected for the fruit to ripen during the autumn, winter, and spring months, affording a good succession of fine ripe Pears. These may be planted anywhere, either in a kitchen garden or orchard. They take up but little room, and are very productive and profitable.

Our Kingsholm Nursery is at all times open to inspection, and we shall much esteem the honour of a visit.

SPECIAL OFFER, AUTUMN, 1881.

AUCUBA JAPONICA, 1 to 2 feet, 6*s.* per dozen, 40*s.* per 100.
,, ,, in sorts, 1 to 2 feet, 9*s.* per dozen.
BERBERIS DARWINII, 2 feet, 4*s.* per dozen.
EUONYMUS RADICANS VARIEGATA, very pretty variegated plant for banks, edging, or rockwork, 4*s.* per doz.
GREEN BOX, 3 feet, 6*s.* per dozen; 4 to 5 feet, 9*s.* per dozen.
ARBOR-VITÆ, American, 6 to 8 feet, 12*s.* per dozen. Suitable for forming hedges or screens.
,, Siberian, 4 to 6 feet, 9*s.* per dozen. Suitable for forming hedges or screens.
,, chinensis, 6 to 7 feet, 18*s.* per dozen. Suitable for forming hedges or screens.
CRYPTOMERIA ELEGANS, 2 feet, beautiful hardy Japanese trees, 6*s.* per dozen.
ENGLISH YEWS, 4 to 5 feet, extra fine plants, 24*s.* per dozen.
PICEA NORDMANNIANA, very handsome, 3 feet, 2*s.* each; 18*s.* per dozen.
SPRUCE FIR, well grown, 2 to 3 feet, 20*s.* per 100; 4 to 5 feet, 60*s.* per 100.
PINUS AUSTRIACA, 8 feet, 24*s.* per dozen. Excellent for producing immediate effect.
CUPRESSUS LAWSONIANA, 8 feet, 30*s.* per dozen. Excellent for immediate effect.
PINUS STROBUS, Lord Weymouth's Pine, 3 to 4 feet, 9*s.* per dozen.
ARIES MENZIESII, 4 to 5 feet, 9*s.* per dozen.
THUYA COMPACTA, 4 to 5 feet (3 feet through), 3*s.* 6*d.* each.
LIMES, 5 to 6 feet, 20*s.* per 100; 8 to 10 feet, 24*s.* per dozen.
ELMS, well grown, 8 to 10 feet, 12*s.* per dozen.
POPLARS, Black Italian, Balsam, &c., 8 feet, 4*s.* per dozen, 25*s.* per 100.
SYCAMORE, fine, 8 to 10 feet, 9*s.* per dozen.
CHESTNUTS, scarlet and white, 5 to 6 feet, 9*s.* per dozen 10 to 12 feet, 24*s.* per dozen.
FLOWERING THORNS, red, white, and pink, fine standards, 12*s.* per dozen.
,, ,, red, white, and pink, fine pyramids, 9*s.* per dozen.
LABURNUMS, 10 feet, 12*s.* per dozen.
MOUNTAIN ASH, handsome trees, 10 to 12 feet, 24*s.* per doz.
BEECH, 6 to 8 feet, 12*s.* per dozen.
HORNBEAM, 5 to 6 feet, 4*s.* per dozen.
SILVER WEEPING BIRCH, 10 to 12 feet, 24*s.* per dozen.
WILLOWS, in great variety, 5 to 6 feet, 10*s.* per 100.
DECIDUOUS FLOWERING SHRUBS, such as Ribes, Spiræas, Weigelas, Deutzia, Lonicera, Amorpha, Lilacs, Philadelphus, &c., 20*s.* per 100, our selection.
SCARLET DOGWOOD, 4 to 5 feet, 4*s.* der dozen.
CORNUS MAS VARIEGATA, 3 to 4 feet, 9*s.* per dozen.
HIBISCUS SYRIACUS, very handsome flowering shrub, 6*s.* per dozen
AMPELOPSIS HEDERACEA (Virginian Creeper), 6*s.* per doz.
,, VEITCHII, 9*s.* per dozen.

FRUIT TREES.

		Per 100.
PEARS, fine Standards, choice sorts, our selection	..	£7 10 0
,, ,, Pyramids ,, ,,	..	5 0 0
APPLES ,, ,, ,,	..	5 0 0

J. C. WHEELER & SON,

KINGSHOLM NURSERY, GLOUCESTER.

PRIMULA. **CINERARIA.** **CALCEOLARIA.**

Wm. Cutbush & Son's Strain of these cannot be surpassed. They are sold in Packets, 2*s.* 6*d.*, 3*s.* 6*d.* and 5*s.* each; but quality is the same.
HIGHGATE, LONDON, N. and BARNET, HERTS.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

CRANSTON'S NURSERIES

(ESTABLISHED 1785.)

NEW CATALOGUES

OF ROSES AND FRUIT TREES

Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED), King's Acre, Hereford.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 15s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.

BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

TO BE SOLD, about 780 Yards of HORNBEAM HEDGE, 7 to 8 feet high, in splendid condition, and particularly well suited for Nurserymen or Horticulturists; also about 30 yards of PRIVET, and a small quantity of HORNBEAM and THORN mixed; now growing on the grounds of the Preston Nursery Company. Tickets to view may be had from, and offers must be made in writing to W. F. MOORE AND SONS, Chartered Accountants, 9, Chapel Street, Preston.

3000 Camellias, Azaleas, and Heaths. 3000

AZALEAS in all the best varieties for Forcing and Greenhouse, bushy plants, well set with flower-buds, 18s., 24s., 30s., and 40s. per dozen; AZALEA MOLLIS and GHENT AZALEAS, extra strong plants, well set with flower-buds, 2s. and 2s. 6d. each, 20s. and 25s. per dozen. CAMELLIAS, well set with flower-buds, all distinct varieties, 21s., 25s., and 35s. per dozen. ERICAS and EPACRISES, 18s. and 25s. per dozen. Carriage free to London.

CATALOGUE on application.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

Dutch Bulbs.

TO SUPPLY THE TRADE.

SEGERS AND CO., BULB GROWERS, Lisse, near Haarlem, Holland, are now booking Orders for LILY of the VALLEY, very strong clumps; also SPIRÆA JAPONICA, DIELYTRA SPECTABILIS, &c.

Their WHOLESALE CATALOGUE and PRICE LIST is sent to any part of the United Kingdom, and may be had free on application.

☞ Please observe Name and Address.

CARNATION, GLOIRE DE NANCY.—The largest White Carnation. First-class Certificate this year. For full description and price, see New List of Hardy Florist's Flowers for immediate Planting, containing also Single and Double Pyrethrums, Pansies, Pæonies, Pinks, Yellow and Border Carnations, &c., free on application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

Hardy Rhododendrons and Azaleas.

ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.

Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.

AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.

Knap Hill Nursery, Woking, Surrey.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.

Royal Nurseries, Ascot, Berks.

Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.

The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.

PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

RHUBARB, Victoria and Albert, strong, per 100, 16s.; cask and packing included.

T. EVES, Gravesend Nurseries.—Established 1810.

TREES for AVENUES and STREET PLANTING.—The trees here mentioned have all stout stems, and handsomely furnished well balanced heads, and are splendidly rooted. They have always had ample room and thorough exposure, and are without doubt the finest stock of Avenue Trees to be met with in any Nursery in Europe. The girt of the stems is taken at 4 feet from the ground, and not at the base, which is often deceptive:—

ACER DASYCARPUM, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 8 to 9 inches.
,, PLATANOIDES (Norway Maple), 12, 14 to 16 feet, girting 5 to 8 inches.
ACACIA BESSONIANA, 10 to 12 feet, and 12 to 14 feet.
BEECH, Common, 10 to 12 feet.
,, Purple or Copper, 10 to 11 feet.
CHESTNUT, Horse, 10 to 12 feet; 14 to 16 feet, girting 7 to 10 inches.
,, Scarlet, 10 to 14 feet, girting 8 to 10 inches.
LIMES, 12 to 14 feet, girting 5 to 6 inches; 15 to 18 feet, girting 9 to 11 inches.
OAKS, Scarlet American, 12 to 14 feet, girting 5 to 6 inches.
PLANES, Occidental, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 7 to 10 inches.
POPLAR, CANADENSIS NOVA, 12 to 14 feet; 14 to 18 feet, girting 8 to 10 inches.
SYCAMORE, 12 to 16 feet.
,, Purple, 14 to 15 feet.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

ROSES.

WM. PAUL & SON

Have to offer 500,000 ROSES, of all sorts and sizes, from 30s. per 100 to 42s. each. The largest and best stock in Europe.

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Several Acres of Standards, Pyramids, Dwarfs, Fan-trained and Horizontal-trained Trees; FILBERTS, GOOSEBERRIES and CURRANT BUSHES, by the thousand; GRAPE VINES, Fruiting and Planting Canes, RASPBERRIES, STRAWBERRIES, &c.

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Several Acres in the finest possible condition for removal, having been frequently transplanted, and having passed through the recent severe winter uninjured by frost.

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Of the best quality, both for Greenhouse and Outdoor Culture.

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WALTHAM CROSS, HERTS.

Roses! Roses! Roses!

The Finest Lot of Plants in England,

STANDARDS and DWARFS.

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ROSE GROWER, COLCHESTER,

The holder of the Champion Cup of the National Rose Society.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

CRANSTON'S NURSERY and SEED CO. (Limited),
KING'S ACRE, near HEREFORD.

STRONG HEALTHY PLANTS.

	Per doz. s. d.	Per 100. s. d.
PRIMULAS, finest strain, fringed	1 0 ..	7 6
AQUILEGIA albo-cœrulea	0 9 ..	5 0
POTENTILLA atrosanguinea	0 9 ..	5 0
CANTERBURY BELLS, fine mixed ..	0 9 ..	5 0
MIMULUS, large flowered, splendidly marked	0 9 ..	5 0
CAMPANULA pyramidalis	0 9 ..	5 0
SWEET WILLIAMS, finest strain	0 9 ..	5 0

Post-free, or extra plants for carriage.

H. J. HARDY, F.R.H.S.,
Stour Valley Seed Grounds, Bures, Suffolk.

Spotted Calceolarias.

H. CANNELL AND SONS now supply these, the best strain in London, pricked out Seedlings, 1s. 6d. per dozen, 10s. per 100, post-free; established in small pots, 2s. 6d. per dozen, 20s. per 100.

Special prices per 1000. These are properly grown, and will be sure to give satisfaction.

Single Dahlias.

H. CANNELL AND SONS have immense quantities of the following splendid kinds, in strong pot roots, nearly all carrying flower-buds:—

	Each. s. d.	Per doz. s. d.
PARAGON, splendid	2 0 ..	—
LUTEA, yellow	1 0 ..	10 0
COCCINEA, scarlet	1 0 ..	8 0
CRIMSON MEXICANA	1 0 ..	10 0
SCARLET CERVANTESII..	1 0 ..	10 0
,, DWARF	1 6 ..	10 0
,, GEM	1 6 ..	12 0
YELLOW DWARF	1 6 ..	12 0
,, GEM	1 6 ..	15 0
JUAREZII, grand	2 6 ..	—
MORNING STAR, new colour	2 0 ..	—
IMPERIALIS (bloom at Christmas).. ..	2 0 ..	20 0
,, ROSEA ,, ,, ...	2 6 ..	24 0
ARGENTEA, variegated	1 0 ..	—
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See H. C. & SONS' CATALOGUE.

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HARDY BEDDING PLANTS, would make Flower Beds gay three months before Summer Plants can be used:—

VIOLA—DUCHESS OF SUTHERLAND, light mauve; GOLDEN PERPETUAL, yellow; ADMIRATION, purple; PURITY, white; in very strong plants of last year, at 12s. 6d. per 100.

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CHARLES TURNER'S Select LIST of the above is also ready.

Ornamental Trees, Shrubs, &c.

CHARLES TURNER'S CATALOGUE may be had on application.

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SPIRÆA PALMATA, the largest stock of Forcing Plants in Europe.

SPIRÆA JAPONICA fine forcing plants.

RHODODENDRONS, covered with buds, for forcing.

STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.

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Our immense Stock is offered at one reduced uniform price 1s. per dozen, in consequence of our Nursery Ground being sold to the London and North-Western Railway Company. OUR GUINEA COLLECTION will be increased to thirty dozen really worth £5, and sufficient to stock a Garden forever. Everything transplanted, not rooted offshoots. Baskets grat. CATALOGUES free.

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CEDRUS DEODARA var. BREVIFOLIUS.—This is the rare variety from Cyprus. A few only to offer, at 10s. 6d. each.

ARALIA QUINQUEFOLIA var. GRACILIS, a very elegant form of this handsome and nearly hardy species. The leaflets are only about one-third the width of the type; it will bear 10° or 12° of frost without injury; it is a first-class plant for table or ordinary room decoration, not requiring more than a cool greenhouse temperature at any time. Good plants, each, 7s. 6d. and 10s. 6d.

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5000 Cyclamen persicum. 50

ALL FROM THE VERY BEST Covent Garden strains, dwarf, free bloomers, fine flowers, varied colours. Fine plants, to flower this autumn, in 54's and 48's, 7s. 6d. and 10s. per dozen; 55s. and 75s. per 100. Exceptionally fine plants, in 48's, now showing bloom, which will average over fifty flowers each, 25s. per dozen. Carriage free to London.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

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R. AND G. NEAL, having to give up portion of their Nursery for building purposes, beg to inform the Trade, and others engaged in planting, that they have a large and varied Stock that they can offer at a great reduction in prices to effect a clearance. An early inspection invited.

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CABBAGE PLANTS, LETTUCE PLANTS from selected seed stocks.—Fine autumn-sown Early Enfield Market, Early Rainham, Shilling's Queen, Sugarloaf, Nonpareil, Drumhead, Thousand-headed, Drumhead SAVOY, Green Curled SCOTCH KALE and ASPARAGUS KALE, 4d. per 100, 2s. 6d. per 1000. Bath Cos, White Cos and Commense Hardy Green LETTUCE, 6d. per 100, 4s. per 1000. BRUSSELS SPROUTS, CAULIFLOWER, Early and Late BROCCOLI, Red Pickling, &c. Send for LIST.

N.B. Plants guaranteed free from club. Well packed. Delivered on to rail.

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TO SELL, from HAND to HAND, an extraordinary beautiful collection of very strong ANANAS PLANTS, 2-yr. and 3-yr. old (plus-minus 400 to 500 pieces), in the most pretty and finest sorts and varieties. Must be had also in smaller quantity. For further particulars concerning prices, &c., apply to

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STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.

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RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

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	Per dozen.	Per 50.	Per 100.
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The Finest Sorts	6 0	21 0	35 0
Good Sorts	3 6	13 0	25 0
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Spring Flowering PERENNIALS (not Violas or Pansies), the brightest, the finest, the hardiest—colours White, Yellow, Red, or Purple—including DAISIES, 5s. per 100, excluding Daisies and the red colour, 8s. per 100.

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		From stores.	In 5-inch pots.
CINERARIAS	per doz.,	1s. 3d.	good plants: 5s.
PRIMULAS	,,	—	,, 5s.
RHODANTHE, coming in bloom	,,	—	,, 5s.
Herbaceous CALCEOLARIAS	,,	2s.;	in 3-inch pots, 4s.

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3000 Tree or Perpetual-flowering Carnations. 3000

ALEGATIÈRE, bright scarlet; La Belle, white; Le Favori, carmine-pink; Garibaldi, rosy-scarlet; L'Hermine, white; Irma, mottled pink; Vulcan, mottled red; Lucifer, scarlet; Miss Jolliffe, blush-pink, &c., 1s 6d. and 2s. each, 15s. and 21s. per dozen; Souvenir de la Malmaison, 2s each, 21s. per dozen. Fine, healthy stuff, in 48-pots, for early flowering. Carriage free to London. Full LIST on application

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		s.	d.
12	ACACIAS, 4 choice sorts	6	0
12	ABUTILONS, 12 choice sorts	6	0
12	FLOWERING GREENHOUSE PLANTS	6	0
12	FERNS, for Greenhouse	4	0
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12	,, Maidenhair, 6 sorts	9	0
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12	,, Japanese, 12 sorts	9	0
12	ORNAMENTAL FOLIAGE PLANTS 6s. and	12	0
12	ALOCASIAS, 6 sorts	12	0
12	MARANTAS, 12 sorts	12	0
12	DRACÆNAS, 12 sorts	12	0
12	IXORAS	12	0
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12	CLEMATIS, Strong, 12 sorts	12	0
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12	CAMELLIAS, with Buds	21	0
12	PALMS, 6 sorts	6	0
12	GREENHOUSE PLANTS, for Rockwork	6	0
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12	CHOICE ORCHIDS, Cool-house	21	0
12	CRESTED ATHYRIUMS, Hardy	4	0
12	GRACEFUL PLANTS, for Table	12	0
12	AZALEA INDICA	21	0
12	,, PONTICA	12	0
12	,, MOLLIS	21	0
12	GLOXIANAS, very fine 6s. and	12	0
12	BEGONIAS, Ornamental Foliage 6s. and	12	0
12	,, Tuberous	6	0
12	CROTON'S, Splendid Colour	12	0
12	CREEPING STOVE PLANTS, FITTONIAS, &c.	6	0
12	PASSION-FLOWERS, 6 rare sorts	6	0
12	CLIMBERS, Greenhouse, all distinct	6	0
12	SPIRÆAS, for Forcing	4	0
12	TREE FERNS, Strong	12	0
12	CLEMATIS, all distinct, Hardy	12	0
12	Roses, Dwarf, H.P., finest sorts	9	0

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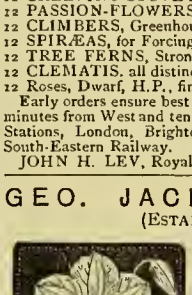

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ANGRÆCUM CITRATUM,
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MARECHAL NIEL, NIPHETOS, and GLOIRE de DIJON,

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SEVERAL THOUSAND BOUVARDIAS

still on hand, in 4½-inch pots, 9s. per dozen.

Also ADIANTUM CUNEATUM,

from 25s. to 40s. per 100.

Plants given over to compensate for Carriage.

VIOLA ADMIRATION and PANSY EMPEROR WILLIAM.—Fine 2-yr. old Plants of the above, full of Cuttings. In EXCHANGE for HARDY BIENNIALS or PERENNIALS.

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RICHARD WALKER can supply Red Dutch CABBAGE PLANTS for Pickling, 5s. per 1000; Green Plants, East Ham and Enfield Market, 3s per 1000. Connover's Colossal ASPARAGUS PLANTS, 2-yr. old, £1 per 1000. Best Sovereign RHUBARB ROOTS in cultivation, no other can touch it for earliness: good roots for planting out, 2s. per dozen. LEMON THYME and PENNYROYAL, 8s. per 100. SAGE and Black THYME, 5s per 100. Splendid SEAKALE for Forcing, 10s. per 100. Good QUICK, 2-yr. old, 12s. per 1000; and 1-yr. old, 8s. per 1000. Terms cash.—Market Gardens, Biggleswade.

TWELVE AZALEA INDICA, Newest Sorts, for 21s. All most beautiful plants, in 5-inch pots, large heads crowded with buds. These do best in a cold frame, with no artificial heat, and make a grand show in early spring months. Packages gratis for Cash with order only.

A. MOLLIS and A. PONTICA at same price and same size, full of Buds.

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STRONG RHUBARB for FORCING, &c.—Early Prince Albert, Linnæus, Scarlet Defiance, Johnston's St. Martin, Stott's Monarch, and Ruby. Large quantity, Land must be cleared.

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SHALLOTS FOR SALE. Splendid sample. Price on application to S., *Gardeners' Chronicle* Office, W.C.

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3000 Rooted Cuttings for Sale, all best market sorts, such as Digby Grand, Kingston Beauty, Mermerus, &c. Price 4s. per dozen, 30s. per 100.

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Come and See.

OUR PRIMULAS, ZONAL PELARGONIUMS, SALVIAS, and CHRYSANTHEMUMS. The two former are now a grand sight, probably such as never before seen.

Six blooms of our wonderfully highly coloured Primulas sent for six stamps.

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CHOICE NAMED CARNATIONS and PICOTEES, strong plants, including all the finest varieties, 40s. per 100; TREE CARNATIONS, for winter flowering, good stuff, in 60-pots, 45s. per 100; BOUVARDIAS, VREELANDII and HOGARTH, good plants, 40s. per 100; CAMELLIAS, good bushes, well set, 2 to 2½ feet high, 24s. per dozen.

W. JACKSON, Blakedown, near Kidderminster.

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COCOA-NUT FIBRE REFUSE,

3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.

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Special Offer.—Trade Only.—Cash.

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Excellent Peat for Rhododendrons and common purposes, £3 per truck of 4 tons, on rail here, Cash.

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12-oz. Sample Packets, free by post, 12 stamps.

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SILVER SAND, Coarse or Fine, 52s. per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 toos, GRAVEL, good colour, 25s. per truck of 6 tons.

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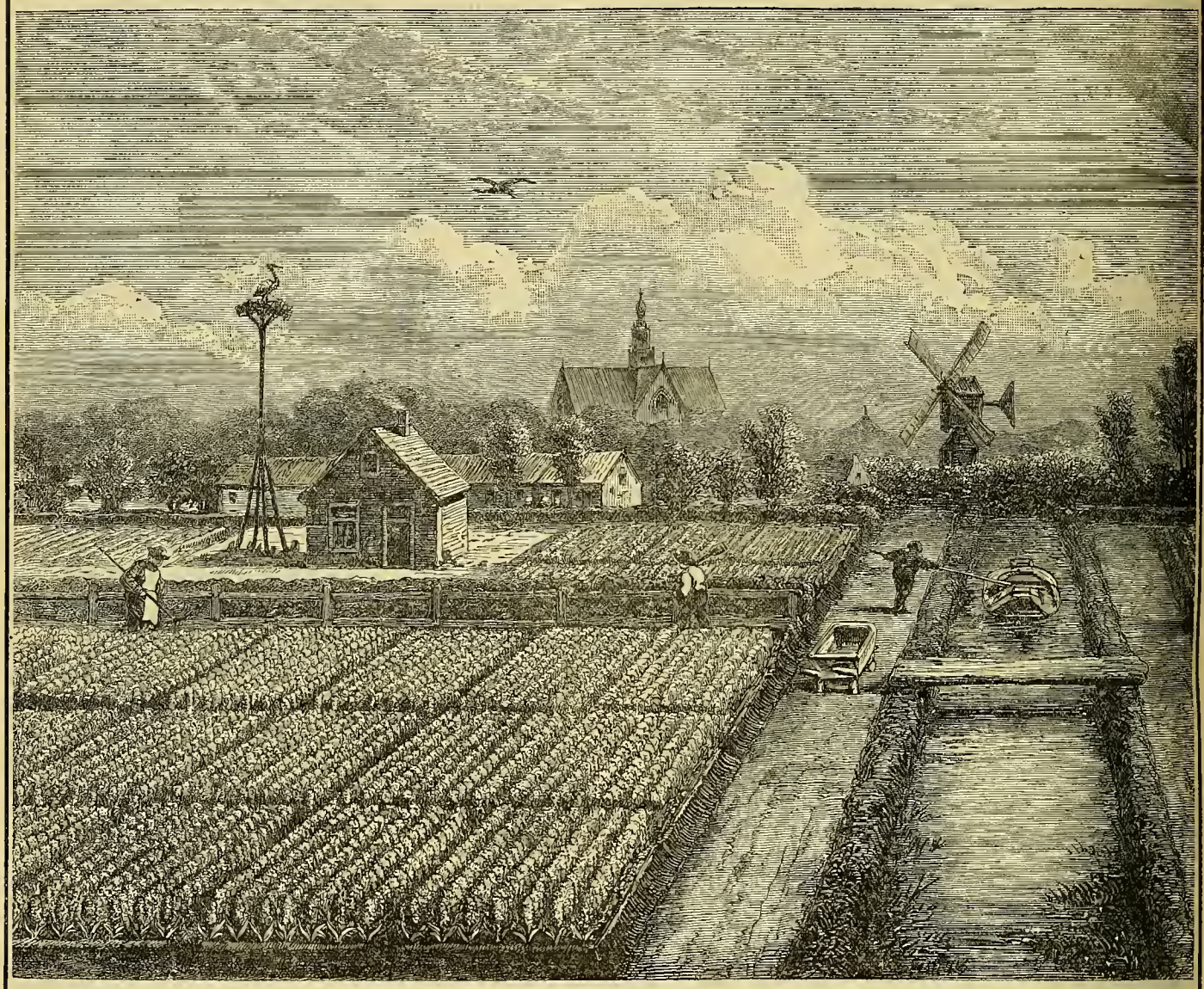

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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 29, 1881.

CHESTNUTS, HORSE AND SWEET:

A CHAPTER OF FACTS AND INFERENCES.

THE inconvenience and positive mischief that popular names and superficial observation occasion are well illustrated in the case of the Sweet Chestnut and of the Horse Chestnut respectively. Popularly they are both Chestnuts, though one is sweet and the other is coarse and "horsey." The one is a real Chestnut (Castanea), the other (Æsculus) has little more actual relationship to a Chestnut than it has to a horse, so that when once its real nature is understood it seems but little less ridiculous to call it a Chestnut than it would do to call it a horse. Nevertheless, so ingrained by constant usage has this popular name Horse Chestnut become, that it would be like fighting a windmill to endeavour to displace it. We have neither the power nor the will to attempt such a task. It is more within the range of possibilities to point out how and why it is that a Horse Chestnut is no Chestnut at all; it may be taken for granted that it is not necessary to show that it is not a horse! Now that the ground is strewn with the spiny husks and the rich brown "nuts" which our boys collect and bring in by handfuls, pocketfuls, basketfuls, we have a good opportunity of ascertaining what these things really are. To the boys they are all Chestnuts, and they point triumphantly to the spiny husks of both the Sweet and the Horse Chestnut and to the "nuts" of the two trees, which, indeed, are very much alike, as proofs beyond dispute as to the close relationship of the Sweet and the Horse Chestnut. Boys have short memories, or they might perchance remember that the flowers of the Horse Chestnut and those of the Sweet are about as different as things can well be, but at this season of the year flowers are not forthcoming, and it is not every one who has a herbarium to refer to, and so we have to deal with things as we find them, and to show that in spite of some very striking superficial resemblance the real affinity is not much greater than that which exists between butter and eggs.

There is one M in Macedon, and another in Monmouth, and there are other resemblances, as Shakespeare tells us, between the two towns, but for all that there is little real relationship between them. So there is a husk in the Horse Chestnut which splits into three pieces (fig. 103) there is a husk in the Sweet Chestnut (fig. 105) which splits into four pieces. The husk of the Horse Chestnut has stout, thick, conical spines, and the husk of the Sweet Chestnut bristles with slender spines; but between stout spines and slender spines there is not so very great a difference. Granted. The purpose of these spines is also probably the same in both instances—to deter marauding birds, squirrels, and suchlike depredators from preying on the fat nuts within, but still the husk of the Sweet Chestnut is one thing—the husk of the Horse Chestnut something quite different. "Assertion this—not proof." Quite true. To prove it we must ask the reader to look at, and not merely look at, but to examine the contents of the two husks.

In the Horse Chestnut there are one, two, or three perfect seeds, and often traces of other smaller ones which have never advanced beyond the baby stage, but which, starved and jostled by their more fortunate companions, have remained stationary instead of growing, or, indeed, have collapsed, altogether worsted in the energetic competition or struggle for existence. "Seeds! More assertion." Well, they are seeds because they have the structure of seeds and packed within that glossy rind is a fat young plant coiled up like a dormouse in winter, with two great thick fleshy seed-leaves, distinct below, blended into one above, and folded on to the back of these is a conical nail-like process, which there is no difficulty in recognising as the root. Moreover, with a little patient careful use of the penknife or dissecting needle, which, in spite of its imposing name, is nothing more than a stout needle fixed in a handle, it is quite possible to remove from its concealment into the full light of day the first tiny pair of fan-shaped leaves. All that it is necessary to do is to remove the glossy rind (fig. 104, T) carefully from that part of the seed near to the broad greyish scar by which it is fixed to the husk, and where the position of the underlying root (fig. 104, R) may generally be ascertained by a slight prominence or bulging of the rind. The rind removed, a little manipulation, requiring nothing but a little patience — and which manipulation the reader must teach himself, or get some one more skilled than himself to show him — will speedily reveal the big seed-leaves (fig. 104, C), so unlike ordinary leaves, and the tiny fans (fig. 104, L) which would have waved as foliage-leaves next spring, if their destiny had not been cut short by the operator. By this time it must be evident that these really are seeds, for they have all the characteristics of seeds, and there is nothing else that they can be. This being granted, as it must be of necessity, then equally of necessity it must be granted that the husk which contains the seeds must be the seed-vessel, the pod, the capsule, the fruit, whichever term you prefer. If so, this husk, seed-vessel, pod, capsule, or fruit, can be nothing more than the pistil or ovary of the flower, ripened and transformed in the ripening from a small, soft, succulent body, such as it is in June when the Chestnuts are in bloom, to the leathery three-valved spiny pod we now see it to be. If we had cut across such an ovary in June we might have seen the three cavities, and with the aid of a magnifying glass we might have descried six tiny ovules, two in each cavity. As ovary has ripened into pod, all but three, or even all but one of the ovules, have shrivelled up, and one or at most three seeds have arrived at maturity. The threefold nature of the original ovary is still manifest in the three "valves," or pieces into which the fruit splits.

If the reader has had patience to follow us so far, we claim to have proved that the husk of the Horse Chestnut is the fruit, and that the "nuts" are the seeds. "Well, who doubted that?" we seem to hear. A little more patience. It was absolutely necessary to prove so much before passing on to the spiny husk of the real Chestnut and to its contents.

We have already hinted that the husk of a Sweet Chestnut is a different thing altogether from that of a Horse Chestnut, and that the contents are different also. Now we have to prove our assertions. It would be easy enough to do this had we the flowers of the Chestnut before us—but we have not; but we do not despair on that account, if we can induce the reader to bear in mind what has been said about the Horse Chestnut, and to compare carefully the one with the other.

The husk of the Sweet Chestnut is a leathery cup, densely spiny outside, soft and velvety within, and split half-way down into four spear-shaped pieces (fig. 105). Before we can decide on its nature, we must, in the absence of other evidence such as the young flowers would have given us, seek information from its contents. It contains three "nuts," but these three are ranged in one line, not at the angles of a triangle, as in the case of the Horse Chestnut. They are not exactly of the same nature as the seeds of the Horse

Fig. 103 — Husk or capsule of horse chestnut and seed.

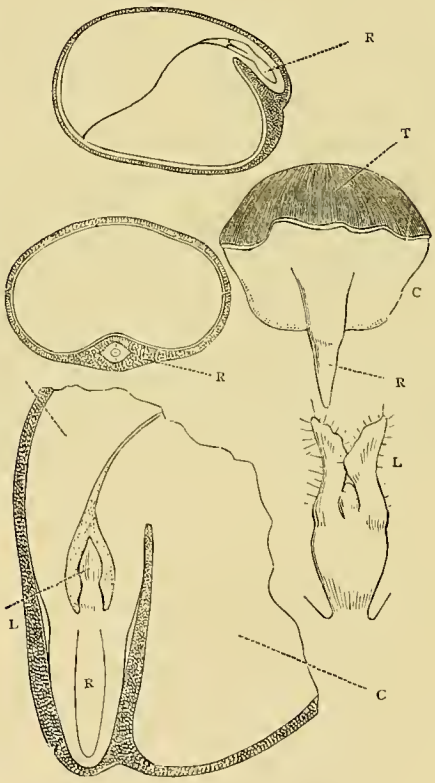

Fig 104 — Horse chestnut seed.

At the top a seed cut through, showing the two seed-leaves and the radicle, R, bent over on to the outer side of one of the seed-leaves. In the middle to the left a cut across the seed in another direction, showing the relation of the radicle, R, to the cotyledons; to the right seed with the rind, T, partially removed, showing the outside of the seed-leaf, C, and the young root, R, unfolded. At the bottom, section through the radicle, R, showing the first leaves, L, and a portion of the cotyledon, C; to the right the plumule and first leaves removed. The two last figures magnified, the others natural size. In L the leaves should have been drawn as more deeply lobed and fan-like than here represented.

Chestnut, and in order to prove this we must ask the reader to examine the nuts for himself. The three "nuts," placed side by side, show, in their forms, the effect of pressure, the central one being usually flattened on both sides, the side ones being rounded on one side, flattened on the other. In the Horse Chestnut the nuts are not so flattened. Both are marked by a large scar, indicating the place of their attachment to the husk. The Sweet Chestnut has what the Horse Chestnut has not, a narrow neck at the end opposite the scar (fig. 106). This narrow neck is obvious enough in the Sweet Chestnuts that we may pick up now in our parks; but in the fully developed nuts, as they come to us from Italy and Spain, the neck is often not so apparent; its slimness has given place to a matronly fulness of outline, still a pointed end is always discernible. At the extremity of this neck, at this pointed end, are six small lobes somewhat withered in their present condition but still perceptible and forming a sort of reflected collar to the neck. Projecting beyond this 6-lobed collar are six fine threads. If now the rind be picked off carefully, or a cut be made straight down through the centre of the Chestnut, the neck will be seen to be a tube through which the six threads pass (fig. 106); and if these latter be traced down, they will be seen to come apparently from the top of the seed. It is evident, then, at the very first that we have to do with a more complex structure than in the case of the "nut" of the Horse Chestnut. There we had no difficulty in proving the spiny husk to be the real seed-vessel or fruit, and its contents to be seeds. At first sight we suppose most persons would call Sweet Chestnuts seeds too; but what seed is there that has a long, tubular neck with a six-lobed collar, through which pass six threads? That is not the structure of a seed. It is rather the structure of a flower—and so in truth it is. The lower part of the flower forming the rind of the Chestnut is adherent to—that is to say, inseparable from—the contents; the upper part forms, as we have seen, a tube with a six-lobed limb. The rind of the Sweet Chestnut is, therefore, a perianth or a calyx, and not a seed-coat, as it was in the Horse Chestnut. Now, the contents of a calyx must be either corolla, stamens, or pistil, or one or more of these. In the present case there is certainly no trace of corolla—that is quite clear; the six threads might be taken for stamens, but they do not come from the sides of the tube, neither have they any anthers. There remains, then, only the pistil, and if this be the pistil then these six threads must be so many styles or style-branches. If the threads be traced down to their starting point and if cuts be made down through the centre, and again across the nut, no difficulty will be experienced in seeing that this is the correct explanation. The pistil, then, has here six free styles, but it is adherent below to the flower—or calyx-tube. The contents of the pistil or ovary must, of course, be the seed. In the ripe state there is usually but one, but had we been able to examine the young flower we should have seen a three-celled ovary and two ovules in each cell. Two of the three cavities of the ovary have disappeared, and five of the six ovules. This must be taken to have been so: the Chestnuts in their present state do not afford such indications of these facts as would be likely to be convincing to an untrained observer. To see what is inside the ripe pistil—to see the ripe seed, in fact, of the sweet Chestnut — we must avail ourselves of the greengrocer's supply, for it is rarely that the seed is ripened sufficiently in this country. Suffice it to say that on picking off the rind which here, as we have seen, consists of flower-tube and pistil inseparably combined, we come to a large embryo plant wrapped up in a silky brownish coat, the remains of the seed coat, and a very little care will suffice to show that the embryo here consists of two thick fleshy seed-

leaves, variously contorted and lobed, at one end of which near the tapering end of the "nut" may be seen the young rootlet or radicle (fig. 106). It will be remembered that in the Horse Chestnut the young root was not straight, but was folded over upon the outside of the cotyledon, and that its point was directed towards the great scar at the base of the seed. The Sweet Chestnut, then, as we see it, is a combination of flower, fruit, and seed, and there are three such in the spiny husk. We now see that the spiny husk is an "involucre," that being the name given to the ring of bracts of whatever shape which encircle a number of flowers—thus, the small bracts outside the head of flowers of a Daisy or a Sunflower is an involucre; the cup of the acorn, the husk of a filbert and of a beech-mast, which three latter are precisely analogous to the husk of the Sweet Chestnut, are involucres.

To sum up, then, we claim to have shown that the Chestnuts and their husks, which lie scattered on the ground and offer such fascination for schoolboys, are of very different nature, so widely different that it is a grievous pity that the same name should have been given to both sorts. We cannot help this now, but must take things as we find them; meantime, we may summarise their differences as follows:—

In the Horse Chestnut the husk is the seed-vessel belonging to a single flower, and nothing else.

The contents of the husk, the "nuts," are seeds, and nothing but seeds.

The rind of the nut is the seed-coat, and nothing but the seed-coat.

In the Sweet Chestnut the husk is an "involucre" common to several flowers.

The contents of the husk are "nuts," which combine within themselves the organisation of the tube of the calyx or flower, of the pistil, and of the seed.

The rind of the nut is, therefore, a blending of flower-tube, pistil, and seed-coat.

We have confined ourselves as nearly as possible to what may be seen at this season, but if we press other evidence from the flower into the service, we should find that the Horse Chestnut is a near ally of the Sapindus, and not far off from the Maples, while the kinship of the Sweet Chestnut is with the Oaks, Beeches, and Hazels, and very widely remote from the Horse Chestnut.

One object in drawing up these notes has been to induce beginners to examine carefully, step by step, the points of structure presented by Horse Chestnuts and Sweet Chestnuts, to compare them in the two cases, and then to draw correct inferences from them—good practice it must surely be admitted. One matter, however, we have only incidentally referred to, and that is the fact that while the Horse Chestnut ripens its seeds perfectly in this country in most seasons, it rarely happens that the Sweet Chestnut produces anything more than miserable abortions as compared with those ripened under the sunny skies of Southern Europe. It is well known that neither tree is native to Great Britain, and it may be inferred from what has been just said that the Horse Chestnut is a native of a colder climate than is the Sweet Chestnut, and this in spite of its somewhat tropical appearance. Till the last few years the native country of the Horse Chestnut was not known, but it is now ascertained that it is a native of the mountains in the interior of Greece at considerable elevations—so that our inference is correct.

Straw Hats.—Under the above heading the British Consul at Ningpo reports that this business has been overdone, and yielded in 1880 but a scant profit to those engaged in it. The labour which it took for a time from cotton spinning has reverted to that employment, and the sedges grown for it and mat weaving have been more utilised for the latter industry. An improved kind of matting is now being made at Ningpo, similar to the Canton matting, but the sedges being finer it cannot be produced so cheaply. It is, however, found to wear better.

MY GARDEN.

(*Concluded from p. 524.*)

"I began at once (it was September) the reclamation of the garden. With the aid of two handy labourers and the village carpenter—all of whom, by the way, were strangely reticent about the Manor House and its former occupants—we felled the useless trees in the front garden. The sale of the Walnut brought me sufficient to purchase glass for the proposed long lean-to, and the Elm enough to furnish rafters, and so the front was cleared and levelled and laid out—oblong beds on each side of the central walk and under the bay windows, and also two large ovals before the said windows. On the west was a herbaceous border, 10 feet wide, of which more anon. The borders and grounds were full of rare and interesting

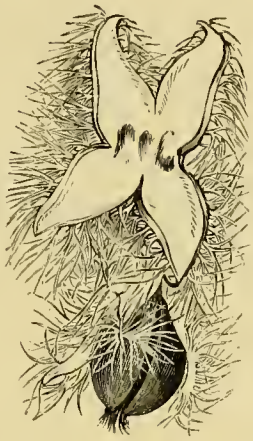

Fig. 105.

Husk of the Sweet Chestnut, showing the scars left by the falling away of the nuts.

shrubs and flowers. It was seldom that I walked round without making a fresh discovery. After pruning and nailing-in the wall trees I commenced the planting of my spring garden. We had begged, borrowed, and bought sufficient Wallflowers, Myosotis, Daisies, and other spring flowers from friends and others, and it had been my custom for years to raise hundreds of seedling Polyanthus, Pansies, Sweet Williams, and other perennials. Village children were set to gather tufts of Primroses from the hedgerows (no other flower affords this charming colour), and a friend in London purchased for me at an auction sale bulbs of Crocus, Tulips, Narcissus, and

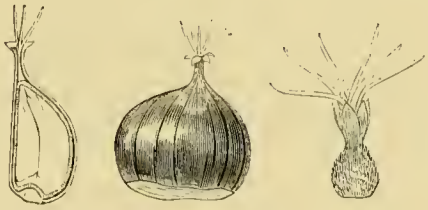

Fig. 106.

To the right a flower of the Sweet Chestnut, showing the 6-lobed tubular perianth and the styles; in the middle a ripe nut; to the left a section across the centre of the nut.

Hyacinth. There were already well-established clumps of Anemone fulgens, and Hepaticas, and splendid bushes of Pyrus japonica; and when we had let in air and light they flourished amazingly in the rich friable loam of the garden at Appleton Lodge. We had masses of Myosotis, blue as Italian skies; sheets of Arabis, white as the clouds that chequer them; crimson and orange Wallflowers, scarlet and blue and white Hyacinths, Tulips, and Narcissus, Polyanthus, Violas, and Daisies, and Aubrietia. Nothing in the fulness of summer sunlight could vie with my spring garden, bright and sweet and pleasant as the face of a laughing child.

"My pride and glory, however, was a herbaceous border under the aforesaid buttressed wall. It was a very old stone wall, and in the crevices and on top were fine tufts of Polypody nigrum, Ceterach, and the pretty little Spleenwort, while Wallflowers and Snapdragon, white Arabis, Valerian, and Ivy-leaved Toadflax all found footing and were welcome. The buttresses divided this front portion of the wall into six parts each, 4 yards long. A grand old Wistaria stretched along the top for a third of the entire length; a large Exmouth Magnolia occupied one panel, a pink Camellia another, a Myrtle a third, then there were Tea Roses, Clematis flammula and Scarlet Trumpet Honeysuckle. To these I added Maréchal Niel, Solfaterre, Rubens, Souvenir d'un Ami, and Niphetos, and Clematises Jackmanni, rubella, montana, and uliginosa.

"The border itself contained, at equal distances apart, half-a-dozen immense Hydrangeas, and between them were five strong tufts of Agapanthus. Then we had Pæonia Moutan, Delphiniums and Lupins, Triteleias and Tritomas; clumps of Lilies—L. auratum, L. speciosum, and L. tigrinum; Salvia patens, Everlasting Peas, white and pink; huge Fuchsias, Anemone alba, Phloxes, Campanulas, Carnations, and a collection of choice things which I had got together at Greenhill, and read of in the gardening papers. A few of the choicer Pelargoniums, Pentstemons, Heliotropes, and other bedding plants, were used to fill up occasional blanks, with plenty of patches of Mignonette and Stocks for the immediate foreground. The wall plants were allowed a certain freedom of growth and naturalness, and these were much admired by visitors—for visitors I had in scores, both poor and well-to-do. There is a freemasonry about gardening that brings into concord and harmony all phases of opinion, political or otherwise. Visitors of the poorer kind — pardon these egotisms — were never allowed to depart empty-handed. One is apt in this matter of gardening to lose sight of the luxury of doing good. There are hundreds of tons of wholesome green vegetables and acres of flowers in our large gardens consigned to the dung-heap, for which working people and the poor in manufacturing towns and rural districts would beg and pray, and be thankful. In the case of flowers, more especially in spring, when the meadows are covered with Cowslips, the shady banks with Primroses, and the hedgerows with Hawthorn (than which nothing is more beautiful), the children of country schools might be encouraged to send hamperfuls to the Board and other schools in the low and crowded neighbourhoods of London.

"I will not take up your time further than to say, of the back garden and the long lean-to, that we gathered enormous crops of Peaches and Nectarines and Grapes, which I sold. Nor will I say more of the hamperfuls of fruit despatched through the generosity of good people to the houses of the poor in the neighbouring towns, with no word or sign from those who sent them. Nor need I stay to tell how the stream was utilised, little pools for Water Lilies and Flags and Bulrush; tiny forelands with Willow-herb and Mallow, May-blobs and Meadow-sweet, with Osmunda and Lady Fern and Hart's-tongue drooping over the stream.

"A word as to the furtive glances, however, and how I got the place so cheap. My informant was the old lady who handed me the keys, and who was for some years the tenant's housekeeper, and formerly his daughter's nurse. The place, it seems, had been occupied by a gloomy and eccentric individual, a Dr. Knight, who entirely shunned society, and whose only solace, beyond the companionship of his daughter, was his garden.

"For years he had beautified and enriched this garden, until every nook and corner was the shrine of some charming flower. (It was seldom that I walked round without making some fresh discovery.) But at last, the joy and solace of the old man's heart, the sunlight of his garden, the fragrance of his Roses, departed. A sweet girl, his only one, was in love with a young farmer. The stern old man, proud of his connections and historic name, refused his consent. His daughter did not dare to disobey his command, and, after a few months' illness, one June night, was found sitting in her favourite spot—that rustic seat—with hands clasped, and head bent forward, dead. He never spoke to human being again—only to birds and flowers—nor ever put a foot beyond his garden gate, nor ever touched with spade, or hoe, or knife, the garden where she died. Only two years passed away before he also died, with his bed opposite to the open window that looked on the rustic seat. And so these simple country people call

this the 'Haunted Garden,' and say that in the time of Roses she still sits awhile on the rustic seat. I am not superstitious, but as I rest awhile on summer nights on that same seat where she sat with the fragrance of Roses and Honeysuckle, and Meadow-sweet and new-mown hay filling the air around me, I think of the pure young soul that took her flight from thence after she had hallowed my garden at Appleton Lodge with her saintly presence."

With a long-drawn sigh, as if he had scarcely yet even got rid of the cares of office, my informant rose, stretched out his hand, and, with a grave smile, said, "Good night, sir; pray call and look round." Poor fellow! his castle and garden were in the air; he had only been trying to picture the pleasures of hope! *T. W., Harrow.*

HAGLEY PARK,

The beautiful seat of Lord Lyttleton, is situated in one of the most picturesque districts in Worcestershire, and is distant from Stourbridge about 4 miles, and but a short walk from Hagley Station on the main line from Paddington *viâ* Oxford and Worcester.

The present house, built by the first Lord Lyttleton, near the site of the old mansion, is a quadrangular building flanked at each end with a square tower. It stands on a slope of the park, and overlooks a large tract of country. The hall, 30 feet square, contains a well-executed white marble chimney-piece, and various interesting statuary. The library, in addition to its valuable collection of books, is ornamented with busts of Shakespeare, Milton, Spenser, and Dryden, by Schumaker, bequeathed to George Lord Lyttleton by Alexander Pope, whose portrait is also in this apartment. The gallery, 85 feet by 22 feet, contains a large collection of paintings by Vandyck and others, and also a numerous collection of family portraits.

But the great feature at Hagley is its grand park, which is described by Horace Walpole as a hill of 3 miles, but broke into all manner of beauty—such lawns, such woods, rills, cascades, and a thickness of verdure quite to the summit of the hill, and commanding such a view of towns, and meadows and woods, extending quite to the Black Mountains in Wales! Here a ruined castle, built by Nillar—has the true rust of the Barons' wars; a small lake, with cascades falling down; such a Parnassus, with a circular temple on the distant eminence; a fairy dale, with cascades gushing out of rocks; a pretty well under a wood, like the Samaritan woman's in a picture of Nicolo Poussin. The church near the mansion has been enlarged and restored from Street's designs, and its situation and architecture are very pleasing, and conspicuous from many parts of the park.

The distant landscape from the west side is of the most pleasing description when viewed from the balcony on a clear day. The peaks of the Habbley hills, the charming hills in Shropshire, the peeps of the Malvern hills through vistas of trees about 30 miles distant, and the undulating surfaces of the district generally, so richly varied with hill and dale, are all sights which will bear comparison with the finest landscape views in the country. At the south-east side of the mansion an immense slope rises in the distance, having a fine background of trees, and a herd of fallow deer skipping about playfully at its base—a sight one always enjoys in an English park.

Looking eastward upon the summit of a hill which commands a view of a great range of country, is Hagley monument, which is a kind of landmark for the inhabitants of the district. The cricket ground, as might be expected, is kept in the best style, and is detached from the pleasure grounds proper, as all such places should be. Leaving the church upon the right the shrubbery walk is entered, which leads from the mansion to the garden. I noticed an old-fashioned summer house on the left, and several strips of pleasure ground upon the right having some good trees and shrubs dotted about—not too thickly, as is often the case at places like Hagley. One of the finest specimens of the true Service tree that I have seen is at Hagley, perhaps unknown and unnoticed in an age when the history of such a tree would be read with interest.

On the east side of the garden there is a mixed border of herbaceous plants and Roses, chiefly standards, which seem to have escaped the past severe winter in a wonderful manner. There are some good beds of American plants, with Wellingtonias planted as a break between, and the wall dividing the garden from the pleasure grounds is draped with Ivies in variety, which is more in character with dressed grounds than if fruit trees had been planted. Probably, too, the nature of the situation would not admit of fruit growing worth the labour. Approaching the garden from the south side the flower garden runs parallel with the north wall, an oblong figure running to an acute angle at one end and enclosed by a massive Holly hedge upon the opposite side. The wall is draped with creepers, and a very pretty sight they are, the plants—all of them—in rude health, and the flowering section producing flowers in abundance. The creepers consist of Berberis Darwinii, Escallonias, Banksian Roses, Cloth of Gold Rose, Tropæolum canariense travelling among the rich green leaves of the Escallonia, Clematis in full blow, Magnolias (sorts), and Sweet Peas intermixed with other climbers. At the base of the wall Anemone japonica seemed quite at home, and where the flowers of the Anemone come in contact with the purple-coloured flowers of the Sweet Peas the effect was charming. The leaves of this Anemone also make a rich cover for the naked base of a wall where the creepers do not cover the lower portion. The flower garden is divided in two by a walk through the centre. About the middle of the walk there is a large stone bed which was once a fountain, but which is now the most delightful bed in the garden. It is planted with Clematis trained upon hoops, and is the centre of attraction from all points of the garden. The bed is edged with a band of Tropæolums, a free-flowering variety seemingly of good habit, and well adapted to the purpose for which it is used.

There are two large ovals upon either side the central walk, which, of course, are the main objects in the garden, because of their size, position, and, I am pleased to add, because of the mode o planting. The centres are filled with Anemone fulgens, not a puny group, but a massive collection of healthy plants in full flower—an effect that I have not seen equalled with herbaceous plants elsewhere. The Anemones are edged with Pelargoniums of suitable colour and habit. I noticed other beds had centres of the old hardy Fuchsia Riccartoni, their associates comprising Zinnias, Balsams, Gladioli, Asters, and other plants—a very pleasing way of forming mixed beds.

The garden is laid out partly promiscuously and partly geometrically; the geometrical groups of beds are planted representatively with Ageratums, Pelargoniums, Heliotropes, Verbenas, &c., while the promiscuous beds are planted in a free and easy style, affording pleasant variety and change, which is always enjoyed in a large garden. The finest tricolor Pelargonium in the garden is the old Prince Silverwings, which was much in vogue a dozen or more years ago.

There is a herbaceous border introduced at one end of the garden, in the direction of the angle point alluded to elsewhere. The collection—a moderate-sized one—is a very happy idea, the tall Phloxes, Delphiniums, Hemerocallis, &c., looking well by the side of the evergreen hedge. Several dots, or rather single plants of Polygonum cuspidatum are employed with good effect in this garden, and are plants that might be more extensively used than they are. The dial garden is next entered by a door opening from the central walk of the flower garden. This garden is chiefly used for cultivating hardy fruits and the choicer kinds of vegetables. The crops of hardy fruits generally, and especially Apples, Pears, and Plums, are both abundant and of good quality. Two narrow herbaceous borders flank the central walk, which makes the garden rather more interesting than if it were exclusively devoted to the culture of fruits. An old conservatory at the bottom of the garden contains well grown samples of Camellias and other half-hardy plants, which supply an abundance of cut flowers in their season.

Garden No. 2 is devoted chiefly to the cultivation of vegetables, which have done fairly well after such a dry spell of weather as was experienced in the early part of the summer, which had such a baneful influence upon all kinds of garden crops. I noticed in one of the borders near to the ranges of forcing-houses a group of variegated seedling Poppies which would compare very favourably in point of beauty with many expensive sub-tropicals, and would not be out of place in a plain collection for people of moderate means.

The glass-houses are in this garden, occupying the usual situation, viz., the south wall, and there are several plant-houses running north and south and east and west in front of them, divided only by a border and walk. In a moderate-sized span-roofed plant-house are some good pots of tuberous Begonias, Achimenes, and Pelargoniums. Of the latter, a variety named Edward Sutton (deep crimson) struck me as being a very showy thing for conservatory decoration. The roof of the structure is clothed with Plumbagos, Habrothamnus elegans, Lapagerias, and Bougainvillea glabra. Ranges of pits for bedding plaots are situated between this house and a second block running east and west, which are utilised for growing Ferns, Orchids, and a general collection of other plants. The roof of this house is covered with Passiflora quadrangularis, and the pillars are neatly clothed with Cissus discolor, which seems to be a favourite stove climber in this district.

In a cool, shady nook not far from the house noticed a healthy plant of Tropæolum speciosum trained, or rather growing naturally, over a clump o sticks, in which situation the plant succeeds well but would be more effectively trained upon a ground work of green. The range of forcing-houses, though not what would be called extensive, contain some excellent samples of Peach and Grape growing. The first house is a mixed vinery of Hamburghs, Mrs Pince's Muscat, finely coloured; Foster's Seedling &c.; and the next division, 30 to 40 feet long, and 1[illegible] feet wide, is filled from end to end with a single tree of Grosse Mignonne Peach in grand health—a capital example of the extension system, and a proof that the extension system of training was in vogue before the present generation of gardeners was born. The branches of this fine old tree are as thick as many a bole of what is considered a fair-sized tree. The fruit in the early vinery had been cleared off for some time, and there was just sufficient left in the second house to enable me to state that the quality was good, and the crop rather above the average.

In addition to the two gardens already mentioned there is an orchard of Pears, Apples and other fruits which is also used for growing rough vegetables. There is the usual accommodation in the shape of offices, and the frame-ground is in good order, which is the healthiest and most thriving sign about a garden. There were several samples of the golden and silver Euonymus in pots, grandly coloured, in the Melon ground, in which place there are low pits and frames for forcing Cucumbers and other vegetables out of season. Mr. Palmer is Lord Lyttleton's head gardener, and the general condition of the place is the best evidence of his skill and ability. *W. H.*

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

Nudiflori.—Reticulati.—Vernal: *continued* (*from p.* 528).

ϕ Flowers white or lilac.

40. ‡ϕ*C. Gaillardotii*; C. hyemalis var. Gaillardotii, Boiss. and Blanche, and Baker; C. aleppicus, Baker; C. intromissus, Herbert?—Corm from ½—¾ inch broad, and about ¾ inch high; the tunic of fine reticulated fibre, the cap produced into ligulate, fibro-membranous prolongations, rising 2 inches above the corm. Sheathing leaves short, and falling short of proper spathe; including two or three scapes. Proper leaves exceeding the flowers at the flowering time, glabrous, $\frac{1}{20}$ inch wide, five or six to a corm, lateral channels unribbed. Proper spathe diphyllous, the valves about 1 inch long, reaching the throat. Perianth: tube about 1 inch long; throat unbearded (?); segments very small, about ⅜ inch long and ⅛ inch broad, externally suffused with pale lilac. Anthers white, about ¼ inch long, a little exceeding the yellow filament; style dividing towards the base of the anthers, and produced into a bunch of capillary orange stigmata, which fall short of the level of the summit of the anthers.

I have no hesitation in separating C. Gaillardotii from C. hyemalis as a well marked species, or in identifying with it the plant from Aleppo, described by Baker as C. aleppicus. It appears to be an abundant plant in Northern Palestine and Syria, flowering in January. It is so common on the limestone plateaux north of Damascus that the corms are dug up, with those of C. edulis (C. cancellatus var.

lamascenus), and sold as an article of food in Damascus.

41. ‡ϕ *C. carpetanus*, Boiss. and Reuter; C. lusitanicus, Brotero (?). — Corm from ½—¾ inch wide and high; the tunic a dense mass of soft, reticulated fibres resembling tow, in which the intervals of reticulation are much larger than in any other species, often from ⅛—¼ inch across, produced into a close bunch of silky fibres, reaching from 1—1½ inch above the summit of the corm. Sheathing leaves falling short of the proper spathe. Proper leaves reaching to the flowers, glabrous, semi-cylindrical, without keel or lateral channels, but furrowed on the back with about sixteen channels, alternating with low ribs. Proper spathe diphyllous. Perianth: throat unbearded, white; segments varying from delicate vinous-lilac, darker on the margins, to white, and diffused externally towards the base with bluish veins, from 1—1½ inch long, and ⅜ inch broad. Anthers orange, twice the length of the white filament; style dividing at the level of the base of the anthers, and shortly produced into pale lilac stigmata, the short divisions of which are suddenly reflexed, and generally fall short of the anthers. Seed glabrous, pale reddish brown, with a prominent caruncle.

C. carpetanus is limited to the mountains of Central Spain (Sierra de Guadarrama) and Portugal (Sierra de Estrella), at an altitude of from 4000—5000 feet, flowering in April. The peculiar leaf structure, the corm-tunic, and the stigmata widely separate it from any other species, except the South Spanish and Algerian C. nevadensis, to which it is allied.

Section II.—*Fibro-membranacei.*—Vernal.

Flowers lilac or white.

42. ‡ϕ*C. nevadensis*, Amo and Campo; C. atlanticus, Jamel; C. algeriensis, Baker.—Corm pyriform, about ⅞ inch broad, and ½—¾ inch high; the tunic of strong, parallel, closely set fibres. Sheathing leaves falling short of the proper spathe. Proper leaves reaching to the level of the flower, and produced at maturity to a length of about 1 foot; about ⅛ inch broad, glabrous, keel prominent, bearing six ribs: resembling the leaves of C. carpetanus, but having lateral channels. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat white, bearded; segments 1—1½ inch long, and from ¼—⅓ inch broad, acute, and closely investing the anthers, rarely opening from their bud-like disposition. Anthers orange, about twice the length of the white filament; the style dividing at the level of the base of the anthers, and shortly produced into a compact mass of white, spreading stigmata, ths short divisions of which are reflexed. Seed dark buff, glabrous, with very prominent chalaza, raphe, and caruncle, which are cream-coloured.

I have no hesitation in identifying C. atlanticus of Jamel and C. algeriensis of Baker with the Sierra Nevada plant, which had been previously described by Amo and Campo as C. nevadensis. It occurs in the Sierra Nevada, at an altitude of about 6000 feet, also in some of the neighbouring South Spanish Sierras. It has been recorded from a number of habitats in Pine forests on the Tell and Hautes Plateaux in the southern parts of the province of Oran, in Algeria, where it flowers from the middle of January to the end of February.

43. ‡ϕ*C. hyemalis*, Boiss. and Blanche.—Corm from ⅔ inch high and broad; corm-tunic of fine silky membrane, splitting up at the base into narrow fibre-like subdivisions, which are not true fibres, produced at the top of the corm into a few very short points. Sheathing leaves falling short of proper spathes, and including several scapes. Proper leaves glabrous, reaching to the level of the flower, ⅛ inch wide, produced at maturity to a length of half a yard. Proper spathe diphyllous. Perianth: throat yellow, unbearded; segments about 1¼ inch long and ¼ inch broad, white, with a central purple line reaching towards the summit, and three or four shorter lines at the throat, which are continued down the tube. Anthers dull orange, about twice as long as the orange filament; the style dividing near the throat, and produced into a bunch of finely divided stellary stigmata, which are on a level with the summit of the anthers.

The Crocus hyemalis is a common species in Southern Palestine and is abundant about Jerusalem, and said to extend as far north as Damascus, though many of the records of its occurrence in Northern Palestine refer to C. Gaillardotii. It flowers in December and January, and extends further south than any other species of Crocus.

44. *C. hermoneus*, Kotschy: new species.—Corm pro-, pyriform, barely ½ inch broad and ¾ inch deep, flower in proportion to its height than the corm of other species. Corm tunic of thin membrane combined with fine parallel fibres, tending to a reticulated arrangement; the cap produced into a bunch of fibro-membranous points about ¼ inch long. Basal tunic of radiating, flattened fibres. Sheathing leaves falling short of proper spathe. Proper leaves glabrous, from 7—9 inches long at the fruiting time, ⅛—⅙ inch broad, edge of blade revolute, keel one-fourth the width of the blade, the lateral channels containing three or four low ribs. Proper spathe diphyllous, from 2—2½ inches in length. Scape at fruiting time from 2½—3½ inches in length. Capsule nearly 1 inch in length.

C. hermoneus was discovered by Kotschy near the summit of Mount Hermon, at an altitude, near the snow, of 9000 feet. It may be allied to C. hyemalis, which the corm, though much more elongated, somewhat resembles. I only know the plant from a sheet of fruiting specimens in the Vienna herbarium; I have not found it in any other herbarium.

45. ‡ϕ*C. alatavicus*, Regel and Semenow.—Corm oblate, from ½—¾ inch broad, and about ½ inch high; corm tunic of parallel fibre combined with thin membrane. Sheathing leaves falling short of proper spathes, and enclosing several scapes. Proper leaves from six to nine to a corm, just appearing with the flowers, and produced to 1 foot in length at maturity, $\frac{1}{100}$ inch broad, slightly ciliated on the margins of keel and blade, keel broad, two-thirds the width of the blade. Proper spathe diphyllous, reaching within 1½ inch of the throat. Perianth: throat glabrous, yellow; segments about 1½ inch long by ½ inch broad, white, the outside of the three outer segments obscurely feathered and freckled with purple, varying with white flowers, in which the outer face of the outer segments are coated with pale buff. Anthers orange, exceeding the orange filament; the orange style dividing at the level of the base or the middle of the anthers, and shortly produced into a compact mass of entire orange stigmata, which are generally below the level of the summit of the anthers. Seed oblong, glabrous, bright buff ripening to dark green at the apex.

The discovery of C. alatavicus in the Ala Tau Mountains of Central Asia, long. 80° east, and lat. 54° north, extended the range of the genus 30° to the east, and 5° to the north of any species previously known, and with the exception of the recently discovered C. Korolkowi from the neighbourhood of Samarkand, it is the only species occurring to the east of the Caspian Sea. It flowers during the latter half of February in cultivation.

Section II.—*Fibro-membranacei.*—Autumnal.

Flowers lilac or white.

The four following autumnal species have pale anthers and capillary stigmata, and form a natural group, to which there are no other species nearly allied.

46. ‡*C. caspius*, Fischer and Meyer.—Corm ovoid, ½—¾ inch broad, and ¾ inch high. Corm tunic a rich brown membrane, fibrous towards the base; basal tunic of short radiating fibres. Sheathing leaves falling short of proper spathes, scarcely exceeding the ovary. Proper leaves four or five to a corm, glabrous, very narrow, $\frac{1}{50}$ inch broad, reaching to the level of the flowers in the autumn. Proper spathe diphyllous. Perianth: throat orange, glabrous (according to Baker, slightly pubescent;) segments white, yellowish towards the throat, 1—1½ inch in length, and ⅛ inch broad. Anthers pale yellow or cream-coloured, about twice the length of the filament; the style dividing above the summit of the anthers, and shortly produced into very narrow, entire, spreading, yellow stigmata, which much exceed the anthers.

C. caspius was discovered by Hohenacker in 1838 in several localities on the west coast of the Caspian Sea. Its affinity is evidently with Boryi, but its entire, spreading, yellow stigmata easily distinguishes it from that species.

47. ‡*C. *Tournefortii*, Gay; C. Tournefortianus, Herbert; C. Orphanidis, Hooker; C. Pholegandrus, Orphanides; C. Boryi var. Tourneforti, Baker.—Corm about ¾ inch wide and high. Tunic of brown soft membrane combined with fibre, splitting up towards the base. Sheathing leaves reaching to the level of the ovary, and falling short of the proper spathes. Proper leaves preceding the flowers, and reaching well above the flowers at the flowering time, glabrous, $\frac{1}{10}$ inch wide, produced in the spring to a length of 14 or 15 inches. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat orange, glabrous; segments about 1½ inch long, and barely ½ inch broad, uniform bright lilac with a few purple veins towards the base, or delicately feathered with purple veins, but never marked with the heavy purple featherings of C. lævigatus. Anthers small, white, a little longer than the orange filament. The style dividing near the base of the anthers, and produced into lax, spreading, finely divided, scarlet stigmata, which much exceed the anthers. Seed dark red, papillous.

A native of the Cyclades and the Morea. I am unable to separate from this species the plant figured in the *Botanical Magazine* (tab. 5776) as C. Orphanidis, and described by Professor Orphanides as C. Pholegandrus. I have some hesitation in separating C. Tournefortii from C. Boryi, as I can find no single character, except the colour of the flower, by which they can be distinguished.

47*b*. ‡*C. *Boryi*, Gay; C. Boryanus, Herbert; C. Boryi, Bory and Chaub.

Var. *C. marathoniscus*, Heldr.—Marathon.

Corm from ½—¾ inch broad and high. Tunic of thin soft brown membrane, combined with fibre, splitting up towards the base. Sheathing leaves reaching to the level of the ovary, and falling short of the proper spathes. Proper leaves preceding the flowers, and overtopping the flowers at the flowering time, glabrous, $\frac{1}{10}$ inch broad, produced in the spring to 1 foot in length. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat glabrous, bright orange; segments from 1¼—1½ inch long, and barely ½ inch broad, white, with occasionally a few purple lines towards the base. Anthers small, white, a little longer than the orange filaments. The style dividing near the base of the anthers, and produced into lax, spreading, finely divided, scarlet stigmata, which much exceed the anthers. Seed dark red, papillous.

A native of the Ionian Islands, the Cyclades, and the Morea; flowering through November and December. In Crocus marathoniseus of Heldreich I can find no departure from C. Boryi, except in the stigmata, which are less branching, and so short that they only just reach to the level of the summit of the anthers.

48. ‡*. *C. veneris*, Tappeiner; C. cretensis, Kornicke. — Corm pyriform, ⅝ inch broad, and ¾ inch high; tunic of thin membrane combined with parallel fibres, splitting up towards the base. Sheathing leaves reaching to the ovary, and falling short of proper spathes, enclosing two or more scapes. Proper leaves from five to seven to a corm, glabrous, from 2—3 inches long at the flowering time, and reaching to the level of the flowers, $\frac{1}{20}$ inch broad, keel narrow, the lateral channels unribbed. Proper spathe diphyllous, about 1¼ inch long, reaching nearly to the throat. Perianth: throat yellow, unbearded; segments white, or occasionally feathered with purple on the outer surface of outer segments, but generally marked with two or three fine lines at the base, very small, about ¾ inch long and ⅛ inch broad. Anthers white, ⅓ inch long, about twice as long as the pale yellow filament; the style dividing at the level of the middle of the anthers, and produced into ten or twelve capillary divisions of the orange stigmata, which exceed the anthers.

C. veneris is a native of Cyprus and Crete; flowering in November. It is closely allied to C. Boryi, but is a much smaller species in all its parts.

49. ‡*C. *lævigatus*, Bory and Chaub.; C. Boryi var. lævigatus, Baker.—Corm pyriform, about ¾ inch broad and high. Tunic strongly coriaceous, dark brown, splitting up at the base into a superimposed series of vandyke divisions; the basal tunic a small irregular coriaceous disc. Sheathing leaves reaching a little above the ovary, and falling short of the proper spathe. Proper leaves glabrous, appearing early in the autumn, and reaching to the flowers, produced at maturity to a length of 9 or 10 inches, from $\frac{1}{10}$—⅛ inch wide. Proper spathe diphyllous, exceptionally short, about 1¼ inch in length. Perianth: throat yellow, glabrous; segments varying from white to lilac, the outer surface of the outer segments coated with buff, and variously feathered with purple, or evenly suffused with rich purple, about 1¼—1½ inch long, and ½ inch broad. Anthers white, about equalling the yellow papillous filaments. The style dividing at the level of the middle of the anthers, and produced into an erect bunch of the capillary divisions of the stigmata, which vary in colour from yellow to orange, and much exceed the anthers. The stigmata of C. lævigatus are always erect, and never lax and drooping, as in C. Tourneforti and C. Boryi.

C. lævigatus is a native of the Cyclades and the Greek mountains, ranging from the sea level to an altitude of 2500 feet. Its usual flowering time is from the end of October to Christmas, and it is in cultivation up to March. I can find no record of its occurrence in Asia Minor. Much confusion exists in herbaria with reference to C. lævigatus, C. Tourneforti, and C. Boryi. C. lævigatus frequently occurs in herbaria and in botanical gardens under the name of Boryi, and it does not appear that either Gay or

Herbert in their published descriptions recognised C. lævigatus as distinct from the other two species. Herbert, however, made drawings distinguishing all three species, and says the herbarium at Kew includes C. lævigatus.

(*To be continued.*)

INTERNATIONAL POTATO EXHIBITION.

Report on Seedlings, 1881.—The whole of the seedlings that were entered for competition at the exhibition, held on September 20 and 21, have been carefully examined, and their merits decided on, so far as they can be judged by the samples sent, and irrespective of cropping and keeping qualities. It will be seen that very few have been selected as possessing high quality, but it is proper to remark that with very few exceptions fair average quality prevailed amongst the samples, some two or three only of the whole number proving decidedly objectionable, and these may prove good in another season. A considerable proportion of the sorts submitted were neither named nor described. The regulations require "origin and parentage to be fully stated if possible." In many cases no doubt the origin and parentage of genuine seedlings may be quite unknown to the raisers, but the judges are bound to consider this point, and they will of necessity hesitate to give certificates to sorts that strongly resemble known varieties, and that are sent without any particulars whatever. It must be understood that none are disqualified, and none are condemned. Those not now deemed worthy of a certificate may prove so hereafter, for sorts vary with seasons, and several that have been passed by were nearly good enough for a first place.

Class Q.—Seedling White Kidney not in Commerce.

Ross' Magnet, W.K.—Raised by Mr. Ross, of Newbury, from American Excelsior. In size medium to large; oval or elliptical and flattish. Skin a little rough, brownish-white, with suffusion of pale purple, which deepens at the heel end. Flesh yellowish, of the finest quality, and most elegant appearance. First prize and First-class Certificate.

Kentish Invicta, W.K.—From Messrs. Lott & Hart, of Faversham. It is of Magnum Bonum type, but more handsome and of higher quality in every way. Medium to large, oval or elliptic, rounded at the ends. Eyes with broad arches, and clustered, with a stain of purple at the nose end. The origin of this variety cannot be definitely stated, as it was selected from a number of self-sown seedlings on ground that had carried crops of Snowflake and Beauty of Hebron. It is believed to be the result of a natural cross of these two varieties, but in its more characteristic features it comes nearest to Mammoth Pearl. Flesh white, very mealy, and of the finest texture and flavour. First-class Certificate.

Myatt's Seedling from Prolific Ashleaf, W.K.—Raised by Messrs. F. & C. Myatt, Offenham, Evesham. Very neat, flattish celt-shaped; sometimes with sharp nose. Skin smooth, tawny, with purple stains, which at the heel end darken into slaty-purple. Flesh yellowish, dry, mealy, elegant, and of the finest flavour. First-class Certificate.

Class R.—Seedling Coloured Kidney not in Commerce.

No award.

Class S.—Seedling White Round not in Commerce.

Fenn's No. 3, W.R.—Medium to large, roundish or pebble-shaped, very neat. Skin tawny, smooth; eyes few and quite level with the surface. Flesh white, in texture and flavour extra good. First prize and First-class Certificate.

Fenn's Lady Truscott, W.R.—Medium or smallish, very neat, spherical, much netted, tawny white; eyes few and inconspicuous. Flesh white, fine in texture, firm, flavour delicate. A very fine table Potato. First-class Certificate.

Fenn's No. 1 × 3, W.R.—Described as a late main crop variety, raised from Snowflake crossed with an unnamed seedling. It is of medium size, round, a little flattened and angular. Skin tawny-white and rough. Flesh white, very fine in texture and flavour. An elegant and acceptable table variety. First-class Certificate.

The foregoing three varieties were raised by Mr. Robert Fenn, of Sulhamstead, near Reading.

Myatt's Seedling from Fluke, W.R.—Raised by Messrs. F. & C. Myatt, Offenham, Evesham. It may be likened to King of Potatos in general form, and probably will supply long and short tubers. It is of medium size, flattish, a little rough, tawny, with faint wash of red; eyes few and inconspicuous. Flesh yellowish, soft, mealy, of the finest flavour. First-class Certificate.

Class T.—Seedling Coloured Round not in Commerce.

No award. *Shirley Hibberd.*

Foreign Correspondence.

The Resting of Roses by Drought and Heat on the Genoese Riviera. — In a recent number of the *Gardeners' Chronicle* Mr. Fish, in giving an account of the floral exhibition at Manchester, spoke in glowing terms of Mr. George Paul's Tea Roses in pots. It appears that they were in vigorous health, covered with bloom; and Mr. Fish states that Mr. Paul's great success in thus blooming Tea Roses in the autumn constitutes quite a new era in Rose culture. Mr. Paul says that this result has been obtained by applying practically the facts which I brought forward in the *Rosarian* of 1879 respecting the culture of Roses on the Riviera. My friend Mr. Honywood D'Ombrain, the Editor of the *Rosarian*, put my name down among the contributors to his annual for 1879, and pledged me to write an article on Roses on the Riviera—much to my alarm, I must confess. I felt very nervous at having to appear among such distinguished company as a writer on the queen of flowers. However, I set myself manfully to work, and it appears that by merely stating what I saw around me at my Mentone garden I have furnished to Mr. Paul, one of our most distinguished and practical horticulturists, a hint which has fructified in his mind, and has enabled him to make a step in advance in Rose culture, at which I am much delighted.

In this article I drew attention to the fact that the Rose is really a cosmopolitan plant, for it grows, thrives, and blooms both in northern and in southern countries, from Aberdeen to Calcutta. The most remarkable fact, however, connected with this cosmopolitan character of the Rose is that it takes the rest which it requires in common with most plants either by cold and frost in the North, or by drought and heat in the South. In northern climates under, the influence of cold, it loses its leaves and goes to sleep, as it were, only awakening to growth under the influence of the balmy breath of spring. In warm and dry climates, such as that of the Genoese Riviera, it loses all but a few terminal leaves when the dry heat of summer begins, remains alive but dormant, and only awakens to life and to growth when the autumn rains reach the roots; instantly the leaves and buds burst forth, and in about six weeks it flowers freely, although not as freely as in spring.

It is this fact that forcibly struck Mr. Paul, and with a perspicacity that honours him he saw at once that the Mentone climate could be imitated, and he has succeeded, it appears, in producing identical results. After the spring flowering he put a lot of Tea Roses in a stove, leaving them all but without water for two months, in gentle heat, thereby securing the Mentone rest; he then watered them in a cooler temperature, with the result Mr. Fish describes.

I have reminded your readers of these details because I wish to acquaint them with an identical experiment performed by Nature this summer at Mentone, which I reached on the 12th inst. The morning after my arrival I rushed off anxiously to my mountain garden to see what had occurred during my five months' absence. I was surprised and overjoyed to find my Roses in full flower, a month at least earlier than usual. It appears that on the 23d and 24th of August, after three months of the usual drought, rain fell, but not very abundantly—just enough to moisten the ground; on the 31st there was heavy rain, which lasted twenty-four hours, soaking the ground to a depth of many feet. This heavy rain in August was a most unusual occurrence, as such rain only takes place, and is only expected, at the autumnal equinox towards the end of September. Instantly all Nature started into life—everything began to grow, the Roses along with the rest. Thus it is that they are in flower so early—only a month behind those of Mr. Paul. The principal Roses in flower are the Gloire de Dijon, Safrano, Madame Falcot, Chromatella (sparsely), Sylphide, Paul Neron, Count Browbos, and the Bengals in general, but more especially the rubra vera. It is clear that we might grow all flower many more varieties than we do; but here I must appeal to Mr. Paul's special knowledge, and shall try to walk in his footsteps. I hope that he will tell us himself all about his new system of Rose culture.

Among the plants which I find the most flourishing in my garden just now is the Brugmansia, or Datura arborea. In this climate it grows luxuriantly, wild, forming a thick bush 10 or 12 feet high, and covered with large white sweet-smelling pendent flowers. It grows without care, and can stand any amount of baking and roasting in summer for months together without water, remaining green and flowering, but not so abundantly as when watered naturally in winter; only it cannot stand the slightest frost. Even at Mentone, in regions less sheltered than my garden, it is occasionally killed to the ground by a frost of 1° or 2°.

In a French book of travels which I have been reading recently it is stated that in the vicinity of the town of St. Louis, in Senegal, on the outskirts of the Desert of Sahara, in the most arid and burnt up spots near the shore, the Datura blooms and flowers, scenting the air in April and May. This is the dry time of the year, it is stated, when there is any rain, and the only time when the few deciduous trees there have leaves—a few Acacias, the singular Adansonia, or Baobab, and this Datura. For the remaining months they are leafless, but not dead—only asleep. Our soil at Mentone is calcareous; a hint to those who cultivate Brugmansias.

I have been trying to rest Fuchsias on this plan during the summer, in order to have them in flower during the winter, their natural time of flowering (Chili), and thought I had succeeded. Last winter I had a goodly show of young plants thus treated, which flowered, as I hoped and expected they would, all winter in a cool-house, and in an open kiosque. This summer they have nearly all died, and I must begin again. I believe the drought plan was carried too far. My gardener says that he waited to water until the stems began to wrinkle: this was probably carrying the thirst system too far. In this part of the world the Fuchsia is treated as a summer plant cut back in spring, encouraged to flower all summer, and put aside in the cool in winter, as with us. It cannot be expected to flower freely in winter when it has been flowering freely all summer—it must have rest. I believe still that I shall succeed if I can hit the happy medium.

From the window of an old tower—the Torre di Grimaldi, my study—where I am writing, I look down on a large Olive tree completely covered, taken possession of by a Tacsonia manicata, which is beginning to flower. In a few days I expect the tree will be a mass of crimson. The lovely Tacsonia evidently thinks itself at home in its own country. I had some trouble to get it to run up the tree-trunk, but now it has reached the ether at the top it appears to revel in its position, and reminds me, in a small way, of what tropical forests must be when seen from above on high.

I am trying to attain the same results at home with Virginian Creepers, Boursault Roses, Honeysuckle, &c. In the native forests of Sardinia wild Vines, Clematis, common Blackberries, Ivy, wreathe the trees in truly tropical fashion, producing lovely sylvan effects. In my Surrey shrubbery I have hit upon a plan which seems to succeed. I cut a cask in two—a sugar cask answers best because it is largest—make a hole a foot or two from the tree large enough to carry the cask; fill it with good soil, attending to drainage, and plant the creeper inside. The latter is thus protected in the early stages of growth from the devouring roots of the trees, and rapidly goes ahead. The tree itself suffers, no doubt, from the amputation, say of one-fifth of its roots, which must check its growth a little; but having four-fifths left it does not perceptibly suffer, and no doubt soon recovers the injury received. *Henry Bennet, M.D., Mentone, October* 20.

The Gale of October 14.—Mr. Crump informs us that the gale was severely felt at Blenheim. Many fine old trees were uprooted, tearing up banks of earth 12 feet high and more. Elm and Beech trees suffered most, and one of the former now lying in the pleasure-grounds measures 369 feet of timber, while the park presented sad wreckage, and the roads were in many instances rendered impassable.

Orchid Notes.

Work in the Houses.—Though destitute of pseudobulbs—those storehouses of sap and moisture—the plants we usually speak of as East Indian plants are capable of bearing a moderate degree of dryness both in the atmosphere and at the roots. The leaves of the Aerides, Saccolabiums, and some of the Vandas and Angræcums, are of a stout, leathery texture, and when once thoroughly formed will long retain their freshness and colour with but a small quantity of water at their roots. The long white roots of all the species are also for a good space of time independent of moisture, and where they are pushed out high up on the stem, and are verily aërial roots, they would seem to subsist and remain plump with but a small share of atmospheric moisture. Let these plants, therefore, now have less water at the roots: in fact, if they become rather dry at the top of the moss before they are watered it will be the better, for it will be found on examination that the compost is not so dry below as it appears to be. Phalænopsids, however, must not be treated so severely; many of these are still growing and pushing up their flower-spikes; they must be kept moist, but do not allow water to remain continually on the leaves. As young plants of P. Lüddemanniana are formed at the tip of the old spikes peg them down round the old plant, and when sufficiently rooted cut them off and tie up the spikes again. If it is desirable to increase the number of plants take them carefully out and pot them singly; if, however, a mass or specimen plant is wanted let them remain, and it will be worth the while to let them do so. Vanda teres should now be stood out in a cooler division, so that in a short time it may be placed for a while in one even cooler still, for this is one that almost invariably requires a cool rest as well as a dry one. Sixty-five degrees at night is the temperature for this house at present; if, however, we have sharp frosts, and therefore much fire-heat, 2° or 3° lower will be better than the risk of a higher reading. In the Cattleya-house Lælia purpurata is still growing; sheaths, however, are pushing up, thus showing that the growth is approaching completeness. All Cattleyas and Lælias must now be watered with care, so that damp and rot do not settle on any part of the new shoots. In this house Cymbidium Parishii, C. Mastersii, and C. eburneum should be grown. The latter will have progressed very freely all the season and will soon show spikes of flower; for a short time, therefore, keep this somewhat drier, which will cause the spikes to be more certain in coming. C. Parishii will not show for a while, it must not, therefore, be checked in any way. If Masdevallia tovarensis has up to this time been in the warm end of the Odontoglossum-house, now that it is showing flower on old and new spikes, it will be better if it is placed in the Cattleya-house; here the flowers will open better and be larger than in the cool-house, and will last longer because they will be free from spotting caused by damp. Dendrobium bigibbum, D. Goldieanum, and D. superbiens, are all very similar in growth, habit, and manner of flowering; these succeed well in the Dendrobium-house, enjoying all through the summer a good share of heat and moisture. The spikes will now be showing on the new growths whilst the leaves are still upon them, as well, too, on some of the old bulbs. They should now be taken into the East India-house; the spikes will push away more rapidly, and the flowers expand ere the foggy days are upon us; and once the blooms are open they will remain fresh and bright for a period of from six to ten weeks. *W. Swan, Fallowfield.*

Cœlogyne cristata.

As it may not be generally known, permit me to say that this beautiful Orchid is a splendid plant for the drawing-room while in bloom. I had a fine piece under my charge, grown on a charred block of wood, that we used to stand in the drawing-room year after year during its blooming season, which lasted quite two months, as the dry atmosphere of the drawing-room suited it. There were no spots on the flowers, as is sometimes the case when standing in the plant-house, where the atmosphere cannot always be kept sufficiently dry to preserve the blossom from damp, its greatest enemy. It would be difficult to find anything more lovely for a sitting or drawing-room than the above-named Orchid, with its snowy-white flowers blotched on the lip with yellow. The plant must not on any account be allowed to get dry at the root. *H. Henderson, The Gardens, Hall Place, Cranleigh.*

Stanhopea florida, *Rchb. f.*

This very rare species has just appeared for the second time, so far as I know—namely, at Sudbury House, Hammersmith, London, in Mr. J. T. Peacock's collection. It agrees very well with Sir Trevor Lawrence's plant, only the column has small purple dots in the present flower where there were none in the original plant. When fading the whole flower takes on a reddish hue, excepting the column and epichile. If Mr. Peacock could give us some information about the real origin of the species it would be very gratifying. Sir Trevor Lawrence,

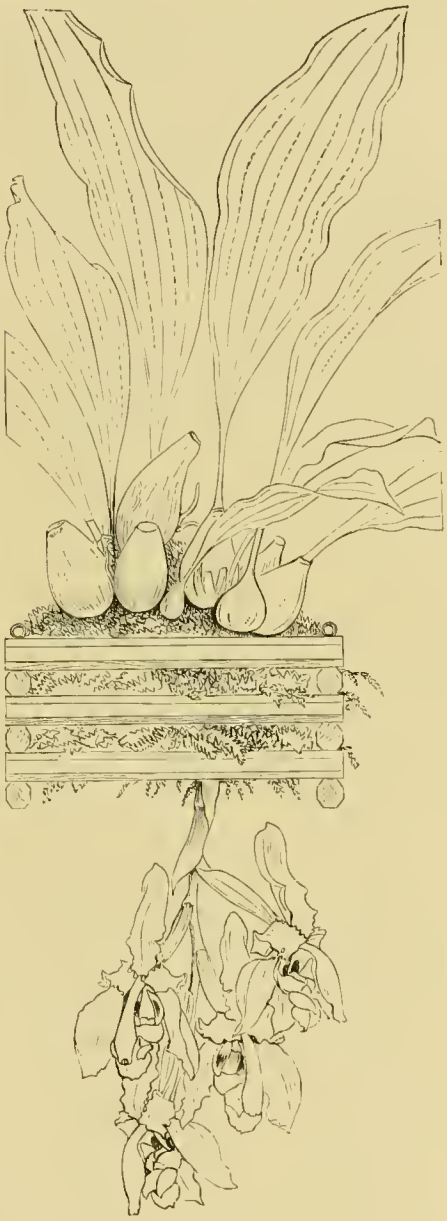

Fig. 107.—Stanhopea florida. (see fig. 108, p. 565.)

Bart., M.P., only knew one locality for this plant, at King Street—Mr. Stevens' big room. *H. G. Rchb. f.*

Chysis Limminghei.

Chysis is a small genus of Orchids with which many growers are not intimately acquainted. Most of the species form stout pseudobulbs 1 foot long, and the flower-spikes are developed with the young growths. C. Limminghei is a very beautiful species, flowering in May. C. bractescens is also very desirable; and C. Chelsoni—raised by Mr. Seden, I think, in Messrs. Veitch's nursery, Chelsea, by crossing C. lævis and C. Limminghei—is a valuable addition to the genus. These Orchids are usually grown in the warmest house, but it is a question whether we have not been giving them too much heat, and an over-moist close atmosphere. When looking through Mr. Bull's collection of Orchids the other day I was much struck by a healthy lot of plants placed on a shelf quite close to the glass in a house with a temperature suitable for Cattleyas, and they were so close to the ventilators that the leaves were frequently swaying in the wind while they were making their growth. This, I think, is worth making a note of. *J. Douglas.*

Cypripedium Irapeanum.

Does any one know how to grow and flower this splendid species? It has been recently introduced to this country, and in quantity. By the appearance of the plants that come over here it is a terrestrial species, which grows freely enough in moist peaty soil. I have tried to grow it from imported crowns several times, but have failed to establish it. Could not those who send it over here tell us something about the conditions under which it flourishes in its native habitat? It was Mr. Sander who brought the very fine roots (a portion of which I purchased) under Mr. Stevens' hammer. The roots and crowns were healthy and sound, but they did not start freely, and ultimately dwindled away. *J. Douglas.*

Dendrobium Jamesianum and D. infundibulum.

D. formosum has been flowering very freely during the last few months in many collections, and is well known as a choice and beautiful species. The two named at the head of this note are much like it in habit of plant and also in the form of the flowers, but it ought to be noted that they succeed best in a cool-house temperature. They make good growth potted in turfy peat and sphagnum, and treated much like Odontoglossums when making their growth, but they be kept dry when growth is completed. Both of them ought to be grown in every collection of cool Orchids. They are natives of Moulmein. *J. Douglas.*

Lælia autumnalis.

All admirers of beautiful flowers, which are far from plentiful at this dull season of the year, would, I feel sure, be delighted to see the fine batch of the above-named Orchid now in bloom at the nursery of the Messrs. Backhouse, York. The plants in question are growing in a span-roofed house, glazed with rough plate-glass, and did not have any fire-heat for the five months commencing with May last. The night temperature during the rest of the year is kept at about 50°, with a rise of some 10° by fire-heat during the day. They have never been shaded during the summer more than that caused by the glass with which the house is glazed, which, as is well known, does to some extent intercept the powerful rays of the sun. While making their growth the house was freely ventilated on hot days, the object being to create a moderately dry bracing temperature, something similar to a Mexican summer, of which country the plant is, as is known to all Orchid growers, a native. This treatment, doubtless, has something to do with the free blooming of the plants, the growths getting well consolidated, and as a consequence they are sure to bloom. I counted six spikes on one not over large plant; some of them had twelve blooms on a spike. In all there are nearly 200 spikes open and to open, some of them being beautiful varieties. I enclose you a bloom, which I asked for as a fair sample of the lot. [Very good.] *H. J. C.*

Vanda cœrulea.

In the same nursery there is also a small batch of the above-named Vanda in bloom, one or two of which are very fine varieties, being of a much deeper shade of blue than the general run of plants usually met with. They are growing in a small lean-to house facing east, kept at a night temperature of from 65° to 70°; in fact, there are some nice healthy plants of Phalænopsis of sorts in the same house, and a batch of small Palms of tropical varieties. The Vandas are simply fixed to small blocks or branches of Elder wood and Thorns, and have not any of the usual material to root in. The roots are quite 2 feet in length, and look very healthy. Some of the spikes have 12 flowers on, the plants are comparatively speaking small ones, yet every plant in the batch was either in bloom or was showing for bloom. In making these notes I am not presuming to teach your Orchid-growing readers, many of whom have doubtless forgotten more about Orchids generally than I ever knew; I simply wish to record facts as I saw them, and what I learned from those who are entrusted with the care of the plants. *H. J. C.*

Mr. Hill's Orchids at Arnold.

The following Orchids were in flower on Oct. 21 in the beautiful collection formed during the last few years by C. Hill, Esq., at Arnold, near Nottingham: —Burlingtonia decora, Cattleya bicolor, C. maxima, C. Loddigesii, C. marginata; Cypripedium Sedeni ×, C. concolor, C. Roezlii, C. insigne, C. insigne Maulei, C. Harrisianum ×; Lycaste Skinneri alba, just opening; Mesospinidium vulcanicum, very fine variety; Masdevallia Estradæ, M. macrura (very fine variety), M. chimæra, M. Davisii, M. Veitchii, M. Harryana; Maxillaria nigrescens, Odontoglossum Alexandræ, O. Pescatorei — many dozen spikes of both these charming Orchids, amongst which are very many fine and distinct varieties—a glorious display; Odontoglossum triumphans, O. gloriosum, O. Rossii majus—one of the very best varieties I have seen, O. maxillare or madrense (beautifully scented), O. Andersoni, O. grande, O. cirrosum, O. Dawsonianum, O. Roezlii; Oncidium verrucosum (several), O. ornithorhyncum, O. tigrinum, O. macranthum, O. crispum, O. marginatum, O. Forbesii, O. prætextum, O. incurvum, just opening; Pleione lagenaria, several nice pans well flowered. There are several spikes and varieties of some of those enumerated, and in addition there are many more showing flower, which will make a grand succession of flowers for some time to come. *A. O.*

Masdevallia tovarensis.

Quite recently this pretty pure white, winter-flowering species was very expensive, the ordinary trade price two years ago being a guinea per leaf: now nice healthy plants of it can be purchased for a few shillings each. I was delighted the other day to see thousands of it in Mr. Low's nursery at Upper Clapton, some of them just showing flower. It is one of the easiest grown and propagated of Masdevallias, and should be in every garden. *J. Douglas.*

Masdevallia Wagneri.

The pretty M. Wagneri is also flowering freely suspended near the glass in one of the cool-houses in Mr. Low's nursery. This species would not be a universal favourite, but when closely inspected the flowers are remarkably interesting and pretty. The sepals and petals are transparent creamy-yellow, attached to which are greenish-yellow tails: the sepal appendage curves backward. In company with this tufted Masdevallia are a number of plants of Restrepia leopardina. It may not be quite such an elegant plant as R. antennifera; but it is a pretty little thing in its way. The flowers are reddish-brown, very densely dotted over with maroon. These small Orchids must not be passed over just because they are not large and showy. We grow the Rose in our gardens, and we also find a suitable corner for the Forget-me-Not. *J. Douglas.*

The Phalænopsids at Clapton.

As stated at p. 498 the Phalænopsis-house in the Clapton Nurseries is now a grand sight, and will be glorious two months hence or less. There are some very distinct varieties amongst the importation of Phalænopsis Schilleriana, and Mr. Low has also selected from a recent batch some plants of the very rare and beautiful P. Portei. This is thought to be a natural hybrid, and is a very handsome plant. There is in this house the most remarkable plant of P. amabilis I have yet seen; it has been recently imported, and is now starting freely into growth. The remains of old spikes show that there were seventeen spikes on the plant, on which the collector counted 322 flowers. *J. Douglas.*

FRUIT NOTES.

Pears.—It is a well known fact that no fruit varies so greatly through differing soils and climatal influences as do Pears, and yet from the notes at p. 495, the one from Essex and the other from Suffolk, I have been struck with the similarity of the kinds of Pears that are here (North Hants) as good as they are noted to be in those districts. The conjecture has therefore arisen in my mind whether that there may be some kinds of Pears that are not—or at least, not to any appreciable extent—so influenced. At any rate, I have carefully noted all the varieties mentioned as being good in those localities, and without exception they are the same here. I would add to the list the following, all worthy of being classed in the front rank both as to bearing and quality:—Thompson's, Durondeau, British Queen, Vineuse, Beurré Hardy, Winter Nelis, and Passe Colmar. These, with us, are among the best of the many fine samples of Pears that the present season is noted for. *W.*

Quality of Pears.—This season all kinds of Pears that up to the present have ripened with us, are much above the average in quality. I am somewhat puzzled to account for this, for surely it cannot have been the hot weather of July, as then the fruit was not half grown; and it cannot have been the sun we have had, for since the end of the first week in August there has really been as little sunshine as there was either in 1879 or 1880. Who will tell us to what source we may attribute their general high quality? Marie Louise, Seckle, and Doyenné du Comice, are just now something superb. *W. W.*

Canadian Apples.—Whilst it seemed a moral certainty that the Canadian striped Apples shown by Mr. Wills at South Kensington at the last meeting were Hoary Morning, I had my opinion shaken when I got home and took note of the few fruits of Northern Spy I have here. Except that the stripe was not so prominent, they seemed to me to more nearly resemble Mr. Wills' Apples than Hoary Morning. Perhaps Mr. Wills will tell us what they were. With reference to the mode of packing adopted—stout cardboard compartments in tiers with a perforated cardboard layer between each, the fruit being selected to exactly fit the compartment—it was not possible to find fault. The Apples were in first-rate condition, and that was enough. But with Apples so comparatively plentiful and cheap with us we can but wonder that it should pay to import fruit from so distant a place. Either they must be sold inordinately dear here, or package and all must be bought in Canada absurdly cheap. The mode of packing I thought, as far as the Tomatos were concerned, a great failure. Three-fourths of the fruit were half-rotten from rough usage, but a wrapping of tissue-paper might have kept them quite sound. After all a little soft dry moss would probably be far cheaper and give better results. *A. D.*

Winter Nelis and Beurré Diel Pears.—That these are two Pears worthy the attention of all fruit growers there cannot be any doubt; the former I consider one of the best in its season (January), the latter is not only an excellent table Pear (in season from November to January) but is also a good exhibition Pear. But how often one comes across instances where injudicious planting with regard to position and aspect greatly deteriorates from the real value of fruit, and this applies more particularly to Pears. In the kitchen garden here are two of the above, planted on a wall facing north, neither of which produces fruit characteristic of its name, in fact it was not until I had twice obtained the opinion of your authority upon fruit that I could recognise the one—Beurré Diel—for, instead of being the rich melting fruit characteristic of this variety, it invariably refuses to ripen. I have kept fruit from the tree in question as late as the month of April, after which they have necessarily been consigned to the stewing pan (I enclose a specimen). The other tree in question—a Winter Nelis—on the same wall invariably refuses to bear, except here and there a few small deformed fruit, and but for the accommodation afforded it by being trained over the other side of the wall upon the slated roof of a shed would long since have been cut down as a cumberer of the ground. This latter position, however, is evidently suited to its well-being, as it not only bears good and finely flavoured fruit, but, as the accompanying rough sketch will show, bears an extraordinary crop, which is a fair representation of what the crop has been this year, and also in previous years; thus it will be seen that situation has much to do with bringing out the respective merits of Pears, as well as other circumstances and conditions so often referred to. *E. Morgan, The Butts, Harrow-on-the-Hill.* [The sketch showed a branch with Pears as thick as Onions on a rope.]

Warner's King Apple.—As a successional Apple to such fine early sorts as Lord Suffield and Ecklinville Seedling, Warner's King holds a high place, and probably will not in its season soon be excelled. It is not merely a large and handsome Apple, but it is a free bearer, and a constant one. I think the trees, once they have begun to bear, are henceforth never without fruit, and if the crop be thin, assuredly the fruit will be extra large. The huge fruits sometimes got from young trees on the Paradise stock, or from cordon or espalier trees, are almost marvellous, and astonish those who are not familiar with the kind. A few weeks since I saw growing on young trees at Syon some enormous fruit, but there were not more than three or four on each tree, and in such rich garden soil size would be inevitable. But the best crop, because most naturally grown, was that gathered last week from some standard trees growing in very ordinary market-garden soil, and cultivated about only roughly with the plough. The trees are practically unpruned, and as the huge fruit hanging on the extremities of the branches brought them down in pendent fashion, I was strongly reminded of the pulley training once advocated. Six of these fruits, a fair sample of the whole, weighed 5 lb. 12 oz, and three weighed 1 lb. each, and 13½ inches in circumference, showing great size for so light an Apple. It well illustrates the need for some more practical pomological knowledge than is now generally possessed, that of many market growers and gardeners who saw the fruit not one knew its name; and yet such grand a kind ought to be both universally known and widely cultivated. Of course we do not want all big Apples, and with so many good kinds it is difficult sometimes to make a limited selection; but certainly these large sorts stand out as remarkably good, and of undoubted merit. *A. D.*

Pearson's Golden Queen Grape.—Like your correspondent, "J. S.," I have been greatly disappointed with this Grape, and I find forcing does not improve it. An early vinery was planted here four years since with Black Hamburghs, one Vine of Golden Queen, and one of Buckland Sweetwater. After three years' trial I have taken the Golden Queen out, for, besides its inferior quality, it takes too long to ripen. After the Black Hamburghs and Buckland Sweetwaters were all cut—which would be about the beginning of July—we had to let the Golden Queen hang quite six weeks longer before it was fully coloured, and then, though handsome in appearance, it was quite third-rate in quality. *A. Barker, Hindlip.*

Garden Operations.

KITCHEN GARDEN.

Broccolis and other winter plants of the Brassica tribe which have been loosened about the collars by the force of the gale which we experienced on the night of the 13th inst. and following day, should, if not already attended to, be made firm again; and bearing in mind the havoc which the severe frosts of the last two winters wrought among the plants—especially the Broccolis—it will be advisable, where the plants have made an over-luxuriant growth, to heel them over with their heads inclining towards the north. This may be easily done by removing a couple of spadefuls of soil from the end of the row on the north side of the plants, and putting it into a kind of ridge sloping towards the plant—say, with an angle of 30° or thereabouts, so that the base of the head may rest against the top edge of the ridge. The spade should then be thrust to its full depth about a foot in front of the plant, and the latter with the assistance of the spade inclined forward, and the stem, which when fully exposed to severe frost suffers from its effects, should then be covered with a couple of spadefuls of soil taken from the front of the next plant, thus forming a kind of bolster for the latter. Should the winter be of an ordinary character the produce of the plants thus treated, owing to the check which they receive in the process of heeling will not be equal to that of plants which have not been interfered with. Nevertheless, upon the principle that "half a loaf is better than no bread," it will, as already advised, be well to "heel-over," if not all, at least a portion of the plants. However, where the plants have been treated since they appeared through the soil in the seed-beds as from time to time recommended in these pages, they will have made a short consolidated growth with leaves close to the ground—circumstances which are likely to prevent their being injured by the effects of frost. Indeed dwarf sturdily-grown Broccoli plants which have been finally transplanted in firm soil are almost, if not quite, proof against the effects of frost. Remove all useless Cauliflower and Lettuce stumps, &c., to the rubbish-heap, and keep weeds down by hand-weeding and Dutch-hoeing between crops of Spinach, Endive, Cabbage, Onions, &c., and otherwise maintain the gardens and walks in this department in good condition.

Forcing Department.—No time should now be lost in getting a few roots of Rhubarb and Seakale into the Mushroom-house. When preparing the roots of the latter for the forcing-pots, save all thongs or extremities of the roots by cutting them into lengths of about 4 inches, and placing them in a box intermixed with sand till the time for planting arrives. When we put our pots of Seakale into the Mushroom-

house we place an inverted flower-pot on the top of each of those containing the Seakale roots, and then cover them over with sifted leaf-soil, which not only effectually excludes light and air from the crowns, but also maintains them in a more equable condition—circumstances which conduce to the production of good Seakale. Where Asparagus is sought after early in the season, a batch of roots should be put in to force forthwith. For the forcing of Asparagus and Potatos we use pigeon-holed pits, upon which are placed several three-light frames. These pits—of which each compartment is filled with leaves (Chestnut and Oak are the best) to within 12 or 15 inches of the top, and these well trodden, as required for use—have an outer space for linings 3 feet wide and 4 or 5 feet deep, enclosed by a 4½-inch brick wall, which is covered with shutters made of Oak, having a little incline outwards to throw off the rain-water. A couple of inches of short dung are put over the leaves, which supplies and maintains a gentle and steady bottom-heat, thereby causing every "crown" to push forth its "grass;" then comes an inch or two of soil, upon which the roots are placed closely together, and covered with a couple of inches of soil, and then 3 or 4 inches of sifted leaf-mould are put over all; and when the stems have grown a couple of inches through the mould they are cut, nicely blanched "grass" with green tops. Bottom and top heat from 60° to 70°. In the absence of such accommodation an ordinary hotbed may be used; this should be made up of one part leaves and one of long stable dung (including the horse-droppings), which should have been mixed and turned over once or twice a fortnight before being used, and of which a sufficient quantity should be kept in reserve for making up the linings of the hotbeds, when the heat in the latter has declined to a lower temperature than that necessary for the proper development of the "grass." French Beans.—Where proper accommodation for the forcing of Beans is not provided in establishments where they are in demand—which is the rule rather than the exception—it will be difficult to keep up a good supply. However much may be done, and is done, with a view to maintaining a tolerably good supply of French Beans by contriving positions for and fixing shelves in Pine-stoves, Cucumber-houses, early vineries, &c., another sowing should now be made in 8-inch pots a little more than half-filled with rich soil—eight or nine seeds in each pot will be ample—and the pots placed anywhere in heat until the plants come through the soil, when they should be placed near the light, and when sufficiently grown earthed up. The points of the shoots must be pinched out to make them branch. Syringe frequently where the permanent occupants of the house will not be injured by so doing, to prevent the attacks of red-spider, bearing in mind, however, that the syringing of the plants is more or less frequent, according to the high or low temperature of the house, of which 55° to 60° will be high enough at night. Sow Mustard and Cress at short intervals, in order to keep up a good succession of them for salading. If Chicory is used for salading, the roots should be put in pots and placed in the Mushroom-house, and treated in the same way as those of Seakale. *H. W. Ward, Longford Castle.*

FLOWER GARDEN.

Clearing and Replanting of Beds.—The heavy gale that swept over the country on the night of the 13th and morning of the 14th, must have completely wrecked all summer bedding plants, and the wreckage should ere this have been cleared off, and the beds put in order for the winter. As mentioned in former notes, we like to see them as well filled in winter as they are in summer; but all may not have the shrubs, &c., wherewith to furnish them entirely; in that case, let all the shrubs at command be used, for even if there be but one plant for each bed, these put in central positions will to some extent help to relieve the desolate appearance that a number of bare beds present. Where there are plenty of shrubs that need pruning, such as Yews, Junipers, Hollies, Aucubas, and the like, the beds might be entirely filled with cuttings of these, in various designs. We have before now filled many beds in this way, and they have stood well till about the end of February, but there is a certain amount of what may be called "sham gardening" about this mode of furnishing the beds, and I would not recommend it except in those instances wherein the beds must be furnished, and shrubs or money to buy the same is not forthcoming.

Spring Bedding.—Bulbs and other spring flowering plants should now be planted, Daisies, Primroses, Wallflowers, Silenes, and Myosotis being the principal plants used. These are generally so small that they have little effect—from a furnishing point of view—till late in the spring; to obviate this a few of the more compact growing shrubs, such as Retinosporas and Thuyas, should be dotted about the beds. Winter cheerfulness will thereby be imparted, and certainly a heightening of spring beauty, the masses of flowers being all the more effective through being broken up by the shrubs. The same remarks are applicable to beds that are planted with bulbs. Rats and mice sometimes make serious havoc among bulbs, and therefore on the first indication of the presence of these pests, traps should be set for them.

Storing away Plants, &c.—Dahlias, being quite cut down by the frost, should now be lifted on the morning of the first drying day, and be left on the ground till evening to dry, and then should be stored in any cellar or shed where frost is not likely to penetrate. If the atmosphere of the place selected be dry, the roots should be laid in dry soil, or cocoa-fibre refuse, but if damp the roots will need only to be hung up or laid on the shelves. Gladiolus will winter under exactly the same conditions, Cannas nearly so: these should be closely bedded in soil which should be kept moderately moist. The roots of Marvel of Peru and Salvia patens may be planted thickly in boxes and will do in any position, light or dark, so long as they are kept clear of frost. Herbaceous Lobelias are best in the light; a good way of wintering these is to plant them thickly in a cold frame and cover up well in severe weather. All other bedding plants should now be in winter quarters, but should have full ventilation on all favourable occasions.

General Work.—Sweeping and raking up of leaves, turf levelling and rolling, edging of walks and shrubbery borders, planting and renovating Box edgings, tree and shrub planting, grubbing up of old tree stems, and indeed all kinds of alterations and improvements, should now be commenced. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Orchard-house.—A week or two ago we managed to repot all the trees that required repotting, others were top-dressed, as advised at p. 403. We kept them in the house as long as we could, to allow of the roots forming before they were removed to the open air. They have now all been plunged in cocoa-nut fibre, where they will remain until the house is cleared of the winter-flowering plants, principally Chrysanthemums. It is rather difficult to keep the trees quite free from brown-scale, and if this pest is amongst them it should be washed off before they are plunged out-of-doors. If the trees are dry and have not lost all their leaves it is as well to give them a good watering before they are plunged in the fibre. Out-of-doors they are not at all likely to suffer for want of water, although they not infrequently do this when they are kept in the house. I fancy many more trees are injured from over-dryness at the roots than from over-much moisture; much more is this the case with trees in pots than with those planted out, although when the roots of the latter are inside they are also likely to suffer. It takes more water to saturate an inside border than many people are aware off. If the small rootlets are injured from drought many of the buds may drop off at the time of opening, and more when the fruit is setting. The roots do not seem to be inactive even at mid-winter when the weather is suitable. They will grow freely in the cocoa-nut fibre between the end of October and second week in January, but they will not grow if the roots are very dry. The maiden trees intended to be potted should now be purchased, and it is as well to pot them immediately they are received. Preparations should be made for this beforehand, that is, the soil ought to be prepared, and the pots ready. The compost should wait upon the trees rather than the trees wait on the compost. Our Strawberry plants are still out-of-doors, but they will be brought in as soon as we can get at them; if we had frames convenient they would be placed in these until the Chrysanthemums were over, as the watering which the Strawberry plants require adds to the dampness of the atmosphere, and produces decay on the flowers. We do not allow the Strawberry plants to become very dry at the roots any more than we do the other fruit trees. If the glass and woodwork is dirty do not let it remain so, but have it thoroughly clean, so that all the effects of sun and light may be full on the plants. *J. Douglas, Loxford.*

Orange Trees.

Full directions as to their cultural requirements were given at p. 403; it may further be stated that any trees requiring potting or surface-dressing may be treated now. We have oft-times much improved the condition of the trees by surface-dressing when the drainage was in good condition; on this latter much of the success of securing healthy trees, and consequently good fruit, depends. The trees soon show a lack of nourishment by the leaves becoming yellow, and if a surface-dressing of loam and rotten manure in about equal parts with a little bone-dust and broken charcoal is applied, the improving effect is very rapid. Large trees may be repotted at intervals of three or four years by reducing the roots a little, and repotting in a compost of turfy yellow loam, a fourth part of rotten stable manure, and as much leaf-mould. Peat is sometimes used in the compost for these trees, but I do not think it is desirable to do so when the main object is to obtain fruit. Where fruit is not yet ripe keep up a temperature of 65° at night, and let the trees be well exposed to the sun; it is better, too, to err on the side of dryness, both as regards water at the roots and in the atmosphere, at this time of the year. The cause of fruit cracking may be traced to too much water at the roots, and too much moisture in the atmosphere. *J. Douglas, Loxford Hall, Ilford.*

Peaches and Nectarines.

The sashes that were removed from early houses should now be put on at once, and the earliest house, which it is desirable should be started about the middle or end of next month, may be cleansed and got ready; untie the trees from the trellis, which should be thoroughly cleaned and painted if required. Any trees that are infested with brown-scale should be gone over with a small brush, and every scale rubbed off that can be seen, and the trees well washed with a solution of Gishurst Compound, 10 oz. to a gallon of soft water. When all is cleaned and the trees trained remove all exhausted mulching and soil from the surface of the roots, and give a liberal dressing of fresh turf, lime-rubble, and wood-ashes, with a few half-inch raw bones added for any trees that may be weak from over-cropping or other causes. Trees in succession-houses are now well ripened, also those in late houses that have had the advantage of a little fire-heat. Any trees in these houses that it is desirable to move or that may require root-pruning may be attended to, when convenient, on wet days, or when the weather is unfavourable for outdoor work. *J. Wallis, Keele Gardens.*

Melons.

A time is now approaching when ripe Melons will be a great acquisition to the dessert. In proper season good fruits of any kind are never so much thought of as a moderate quantity well grown and coming in for use a week or two earlier or later than the general crops. It is therefore worth an effort to sustain late bearing plants in health and vigour until the crops are at least in the last stages of ripening. Every fine day, indeed every blink of sunshine, should be taken advantage of to forward crops that are still swelling off. Much atmospheric moisture would be inimical to the welfare of plants at this season, at the same time a moderate degree of moisture is beneficial to them. The time that moisture should be supplied depends entirely upon the state of the atmosphere out-of-doors, and the amount of sunshine that the plants enjoy daily. Given a few hours' sunshine the skilled cultivator will adjust the ventilating machinery so that there is a slight circulation of fresh healthy air moving about in the house, at the same time sprinkling all surfaces that absorb moisture rapidly, such as brick walls, or paths under which the hot-water mains run to warm the houses. Anything, however, like a steaming atmosphere must be strictly avoided at this season. The point is to create a growing temperature when there are periods of sunshine, and to see that the genial warmth of the sun is not lost through negligence by keeping open ventilators too late in the day. Every leaf that abstracts sun or light from the fruits should be carefully set aside, and if the surface of the borders is mulched as recommended some time ago, a very limited supply of water at the roots will be sufficient for the plants at this season. *W. Hinds.*

Cucumbers.

While the wind rages with violence and there are whole days without an hour's sunshine, the prospect of keeping vigorous Cucumber plants in good health grows less favourable. Those who look for advice from these Calendars will have been prepared for the emergency, the moderate system of cultivating Cucumbers in autumn and winter being decidedly the safest. The large soft leaves produced by plants of extreme vigour are difficult to keep intact during spells of unfavourable weather. The first danger is to be dreaded from overheated pipes, and not a few crops have been altogether destroyed to my knowledge through a foolish use of steaming troughs, which are not at all necessary at this season. The action of the hot steam generated by keeping water in these troughs is to damage or destroy the leaves. Under such conditions the crop is so bad in quality that the labour of the cultivator can only be regarded as a failure. Not so, however, are plants grown moderately, with no excess of shoots trained-in nor subjected to a close, overheated atmosphere. Plants absorb moisture through their leaves, so that in the case of Cucumbers, which are naturally soft and tender, a superabundance of moisture given for any lengthened period is calculated to produce an enfeebled system, especially if the moisture is accompanied by a high temperature. It is therefore best, indeed imperative, to keep a mean temperature of 70° by day and 65° by night during dull periods, when, either through the unhealthy state of the atmosphere out-of-doors or the violence of the weather, sufficient ventilation cannot be given to keep the tissues of the leaves firm and hardy. *W. Hinds.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 31	Sales of Dutch Bulbs at Stevens' Rooms, and at the Auction Mart, by Protheroe & Morris.
Tuesday,	Nov. 1	Sale of Bulbs, Fruit Trees, &c., at the City Auction Rooms, by Protheroe & Morris. Clearance Sale of Nursery Stock, at Neal's Nursery, Wandsworth, by Protheroe & Morris.
Wednesday,	Nov. 2	Sale of Standard and Dwarf Roses, at Stevens' Rooms. Clearance Sale of Market Garden Produce, at South Acton, by Protheroe & Morris.
Thursday,	Nov. 3	Sale of Imported and Established Orchids, at Stevens' Rooms.
Friday,	Nov. 4	Sale of Lilium auratum Bulbs, at Stevens' Rooms.
Saturday,	Nov. 5	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

THERE was a time when even our greatest observers and most patient microscopists felt it incumbent on them to adopt an apologetic tone in speaking of their work. Harmless amusement and laborious trifling—such were the verdicts passed by men of the world on the patient labours of the microscopists. Now-a-days things have assumed quite a different aspect, and we look to such continuous observations as we have alluded to, to furnish the clue to the nature of the fermentation of alcoholic liquors, to the mode of operation of diseases in plants and animals, and to their prevention, if not cure. We even look to them as much as to the labours of the chemist for the explanation of how a soil becomes fertile, and how a plant becomes nourished by it.

We are all of us concerned in the processes of life and disease, and as gardeners we are also specially concerned with those which pertain to the soil, and to the plants growing in it. Now it has been proved that very many of these life-processes are directly connected with the presence of "GERMS"—very minute living bodies of different sizes and shapes, assuming now one form, now another, according to circumstances. If circumstances are favourable, these germs grow, set up fermentation and other changes, sometimes harmless, or even beneficial—as when a sterile soil is converted into a fruitful one by their agency; sometimes fearfully virulent, as in the case of the germs which are the cause of hydrophobia. Researches into the nature and action of these germs have been numerous of late, and of importance in their practical results almost beyond calculation. Briefly it may be stated that it has been proved in many cases that where these germs exist diseases and other changes take place; where they are excluded no such diseases occur. The inoculation of a healthy animal with certain germs has been proved to occasion certain diseases; the injection of substances known to kill germs has been proved to cure them; and, more singular than all, the activity of the germ can be so reduced by appropriate measures that it ceases to be dangerous. More than that, these "attenuated" germs introduced into the body render it henceforth proof against attacks of similar nature. It is in this way that vaccination properly carried out all but annihilates small pox—it is in this way that we may look with some confidence for the virtual extinction of diphtheria, ague, hydrophobia, yellow fever, and a number of very fatal diseases, not even excepting consumption. Now these things are not assumptions or dreams, they are capable of proof—they have already, to some extent, been verified, and already they have proved of great practical value. All that is required is that the public should encourage the necessary researches, give moral support and tangible aid to those engaged in such beneficent work, and turn a deaf ear to the perversities of anti-vaccinators and the misplaced sentimentality of anti-vivisectionists. On the one side we have actually proved results already of incalculable value, and opening up no shadowy prospect of exterminating a number of diseases in animals and in mankind now of a most disastrous character. On the other side we have the perpetuation of disease and misery, bad enough in all conscience to contemplate when we cannot prevent it and cannot cope with it, but appalling indeed to think of when we know that but for the ignorance, or the perversity, or the negligence, or all three combined, such things need not exist. As we have said, we are all of us interested in such matters, and gardeners and farmers, and poultry and bee-keepers in particular, because of the losses to which they are subjected from the action of these germs. Moreover, the researches by means of which these discoveries are made are in many respects singularly like the processes adopted by practical cultivators, though of course far more delicate and precise. To give our readers a general idea of the present state of knowledge on these points we now cite a few condensed extracts from an address lately delivered in Dublin by Dr. CAMERON. He spoke from the point of view of a physician and officer of health, but much of what he said of course applies also to the community at large:—

"It is only recently that the organisms themselves have been identified; and it is only within a period to be reckoned by months, rather than by years, that their habits have been so exposed to us that it is already in our power in many cases to isolate them from the living body, and cultivate them in artificial soils—to multiply, destroy, modify, weaken, or intensify them at pleasure.

"We know that the air is full of floating living particles, ready to spring into activity whenever they may light upon a congenial soil. We know that in such numbers do they in many cases exist, that, present but the proper soil, and the appropriate germ inevitably finds its way to it. We know, on the other hand, that, but filter the air, purify it from such germs, and, without their intervention, no form of life can arise. It has long been suspected that the same was the case with certain specific diseases, especially with what are known as zymotic diseases. It has long been considered probable that the symptoms which constitute each particular malady in that class were due to the invasion of the system by some microscopic organism, which, multiplying itself within the living body, gave rise to the phenomena and constitutional disturbance which physicians described as the disease. It has now been proved that this is so in a number of diseases where such an origin was never suspected.

"Now, it is a remarkable illustration of the impossibility of foreseeing to what results any scientific investigation or discovery may lead, that the great advance recently made in our knowledge as to the causation of disease is to be traced to a very large extent to certain investigations made by a French chemist, M. PASTEUR, with regard to fermentation. In the first place, it was through facts elicited in the course of these investigations that LISTER first entertained the theory on which his system is based. At that time—now about fifteen years ago—it was known to the surgeon that the gravest laceration of tissue might occur under an unbroken skin without any danger of suppuration; but that, if the skin were broken and the lacerated tissues brought into contact with the air, suppurative action, attended with great constitutional disturbance, was the dangerous and, it was believed, the inevitable consequence. The same difference was recognised with regard to wounds made in surgical operations, which were known to be almost certainly followed by suppuration if they were external, while the reverse was the case when it could be so contrived that the air should not reach them. Taking PASTEUR's researches regarding fermentation and the allied subject of spontaneous generation in connection with these facts, LISTER asked himself whether this difference might not be due to the disturbing fermentative action of invisible organisms borne to the surface of the wound by the atmosphere. If so, if these could be destroyed, suppuration would be averted, and the fracture where the bone had pierced the skin might be repaired as easily as that where the skin remained intact; the incision made in amputating a limb would give rise to as little constitutional disturbance, and would heal as readily, as the internal cut which had been so contrived by the surgeon that no air could find access to it. The experiment was made. By careful use of carbolic acid the air-borne germs were destroyed, and the results followed for which LISTER had ventured to hope.

"Again, it was the remarkable practical results which had attended his researches on fermentation that induced the French Minister of Agriculture, in 1865, to select M. PASTEUR to investigate the causes of the silkworm disease, which at that juncture threatened to extinguish one of the most important industries of France. For M. PASTEUR knew nothing about the silkworm. The result was, as he had shown the wine-grower how noxious fermentation might be guarded against, so now he showed the silk-producer how the silkworm could be regenerated and the disease stamped out. Previous observers had noticed, in the juices of diseased silk worms, tiny microscopic corpuscles, but of their nature or the *rôle* which they played in the disease, nothing definite was known. To these M. PASTEUR directed his attention. He soon ascertained that they were living organisms which could be introduced into the insect's system through its skin, or in its food, and which, multiplying themselves in the silkworm's body, constituted the real cause of the malady. By watching their development M. PASTEUR made this important discovery, that they take a considerable time to spread within the insect's tissues to such an extent as to do very much mischief. If a larva was not infected until it had completed a portion of its existence, the ravages of the disease had made comparatively little progress when it entered into the chrysalis stage. It spun an excellent cocoon, and for the purposes of the silk-spinner was as valuable as a healthy neighbour. If, however, it were reserved for the production of eggs, the corpuscle had, by the time it became a butterfly, made such progress within its body that it had penetrated even into the eggs it produced, and a greater or smaller proportion of these contained corpuscles. The silkworm which issued from an infected egg inevitably died before it could produce silk. But M. PASTEUR observed that, even among the eggs produced by the most infected butterfly, a certain proportion were sound. Availing himself, then, of this fact, M. PASTEUR devised a system whereby each silkworm was reared by itself under careful observation, and in conditions which would ensure the healthy insects against infection. The eggs of those that retained their health to the last—insects which, after they had laid their eggs, the microscope showed to be free from the disease—were found to produce a perfectly healthy race. By breeding only from such stock, by avoiding conditions favourable to the production of the disease from germs which might find their way from without, M. PASTEUR showed that in a short time it would be possible to regenerate the race and entirely to stamp out the disease. He showed, too, how when circumstances did not admit of such elaborate precautions, a seed might be secured which, if not absolutely free from the disease, would still afford a very satisfactory crop.

"It is thirty years since Dr. DAVAINE discovered that in the splenic fever of sheep and cattle—a terribly fatal disease, which Continental writers identify as the plague sent upon the cattle of Egypt—a tiny microscopic organism, measuring the fraction of a thousandth part of an inch, was to be found in the blood; and subsequent researches induced him to believe that this was the true cause of that disease. Subsequent experience has shown that the most deadly may be undistinguishable from the most harmless by any detectable physical peculiarity. Like many of the lowest forms of vegetation, they exhibit movements, when viewed under the microscope, and multiply themselves with extraordinary rapidity, in certain circumstances by budding or subdivision like the yeast plant, and in others by the production of germs or spores. In 1876, Dr. KOCH, a German physician, succeeded in isolating the little rod-like organism or bacterium which gave rise to the splenic fever of which I have spoken, and in cultivating it outside the animal body, and proved that this organism was really the cause of this or that malady. Dr. KOCH's discovery was rapidly followed up by that of Dr. KLEIN, who showed, by methods similar to those adopted by KOCH, that the disease known as pig-typhoid or pig-plague was also the result of a microscopic organism which he succeeded in cultivating; and, about two years ago, M. TOUSSAINT, a veterinary surgeon of Toulouse, achieved a like success with the bacterium of fowl cholera.

"If the point of a needle be dipped in the blood of a fowl suffering from chicken-cholera, and then placed in a vessel containing pure chicken-soup, from which care has been taken to exclude all contamination by air-borne germs, and a suitable temperature be maintained, the bacterium or microbe—as M. PASTEUR terms it and cognate organisms—multiplies itself exceedingly, rendering the liquid turbid by its presence. If, after this process has gone on for some days, a drop of the contents of this vessel be transferred to another portion of similar chicken-soup, it, too, speedily becomes permeated with the organism. The process may be repeated a hundred times, and the result inoculated upon fowls, or given them in their food, will produce the same fatal effect. But if, instead of carrying on these fresh cultivations at intervals of a few days, you allow the infected chicken soup to lie over for a few weeks or months, PASTEUR discovered that an extraordinary change occurs. The malignant powers of the bacterium diminish; it becomes, so to speak, tamed, or, as he terms it, 'attenuated.' A given quantity of infected chicken-broth, even at the hundredth rapid cultivation, inoculated upon twenty chickens, would, let us say, prove fatal to eighteen of them. If the same infusion were allowed to remain exposed to the oxygen of the air for a month, it would be so far attenuated that it would only prove fatal, say, to ten. Exposure for another month would render it still less virulent, so that it would only prove fatal to two

three; while, after exposure for six or eight months, it would not prove fatal in a single instance. But does it still retain any active power? and, if so, what relation does it manifest to the original disease? In its most attenuated form the bacterium gives rise only to trifling local symptoms, not at first recognisable as bearing any affinity to the deadly fowl-cholera, and consisting of a small local slough. But the extraordinary and valuable fact discovered by M. Pasteur is, that the tamed and attenuated organism works upon the system a change protective against subsequent attacks of fowl-cholera, exactly similar to that which had been remarked to be enjoyed by fowl that had recovered from the virulent form of the disease.

"What is the theory of the protection which this new vaccination affords? I will not enter into the details of the theories which have been advanced; suffice it to say, that the world has long been familiar with the fact that one occurrence of a certain disease—such as small-pox, measles, scarlatina, typhus, &c.—in an individual, effects a change in the constitution which, except in very rare instances, is protective against any recurrence of the same complaint. Recent discoveries prove that in certain instances a similar change is effected by diseases not identical with those against which they protect. Thus, Pasteur has found that inoculation with fowl-cholera renders at least one class of animals refractory against subsequent inoculation with splenic fever, although the organisms which give rise to the two diseases are entirely distinct.

"Here is a curious fact bearing on the point. In Senegal, the natives are subject to a terrible disease known among them as *nelavan*. The disease takes eighteen months or two years to run its course. It is attended with acute pain, stiffness of the limbs, glandular abscesses, and notably with constant drowsiness, the sleep being heavy, and accompanied with terrible dreams. The patient preserves his appetite to the last, but often loses his reason, and invariably dies. A French missionary in Senegal addressed a communication on the subject to M. Déclat, a French physician, and an ardent disciple of Pasteur's, who, suspecting in the disease a parasitic origin, recommeded the missionary to try a treatment having for its object the destruction of the organism—its probable cause—by the injection into the circulation of phenic acid. The experiment was made in several cases, notably in one where the patient was in so advanced a stage of the disease that the missionary was only induced to try the treatment by reflecting that if it did no good it could do no possible harm; and in every instance the result was success. The organism was killed, and the patient recovered.

"Turning now to the Bacillus anthracis, the organism gives rise to splenic fever in cattle. M. Pasteur found that it too could be cultivated in chicken-broth. In its case, however, a preliminary difficulty was experienced. The class of organisms to which the bacillus belongs multiply themselves in two ways—by subdivision of their cells into other cells, which rapidly attain the dimensions of the standard cells, and, secondly, by a process analogous to flowering in the higher classes of plants, resulting in the production of spores or seeds. So tenacious of life are these spores in the case of the bacillus of splenic fever that M. Pasteur has found them in full vitality in pits in which oxen and sheep that had died of the disease had been buried for ten years. He has proved, too, that when thus buried, swallowed by earth-worms in the soil from which these derive their nourishment, they are brought by them to the surface, and may thus give rise to fresh outbreaks of the disease. He found that this was the case in an instance where a bullock had been buried in a pit over 6 feet deep. His proofs were absolutely conclusive. He placed sheep on the ground, and they took the disease. He separated the bacillus-germs from the earth by washing it, and, multiplying them by cultivation, found that by inoculation they produced the disease. He found them especially in the casts brought to the surface by earth-worms, and in the contents of their digestive organs; and he found, further, that in districts where the soil was of such a nature that earth-worms

Fig. 108.—Stanhopea florida. (see p. 561.)

were rare, the disease, when accidentally imported, was not found to spread. Baron Serbach narrates various circumstances which had induced him to think that the enormous losses from splenic fever on his estate were due to the propagation of the disease from the graves of dead animals. But what confirmed him in his suspicions was this: a sheep that had died of the disease had been buried in the corner of a field on which a crop of corn had subsequently been grown, and which the following year was sown with Clover. The attention of the Baron had been accidentally directed to the place at the time; and one day, in passing, he remarked that the Clover had grown with exceptional luxuriance over the spot. A few days later he noticed that some one had stolen the Clover which grew at that corner of the field. The next day, a woman on his property came to him weeping, to tell him that her goat had just died, and her cow was very ill. The disease was found to be splenic fever; and the woman confessed it was she who had stolen the Clover, and given it to the unfortunate goat and cow.

"But to return to M. Pasteur and his experiments in cultivating the bacillus of this disease. He was not the man to allow himself to be foiled by the perversity with which this organism insisted, when artificially cultivated, on running to spores. He found that, by maintaining his chicken-broth at a temperature of about 110° Fahr., he could prevent spores from being developed, and induce the organism to multiply itself by subdivison like its congener in fowl-cholera. He found that, when this was accomplished, precisely the same results followed exposure to the atmosphere as had followed in the other case, but with much greater rapidity; that the organism could be tamed; that a virus could be produced of any desired degree of attenuation; and that, when it was sufficiently attenuated, inoculated upon sheep or cattle, it gave rise only to trifling constitutional results, but at the same time wrought such a change in the system of the animal as protected it against subsequent attacks of splenic fever just as effectually as was known to be the case when an animal recovered from the natural disease.

"The annual loss to France from splenic fever being close on a million sterling, the commercial value of this discovery was too great to allow it long to remain without a public test. In May last, at Melun, before a number of scientific authorities, fifty sheep were taken, twenty-five inoculated with the attenuated or tamed organism, and ear-marked, and the others left untouched. A fortnight afterwards the whole number were inoculated with splenic fever. On the twenty-five previously inoculated with the attenuated bacillus no result followed; as to the others, within fifty hours the whole number were dead of splenic fever. A similar public test undertaken in July exhibited precisely similar consequences. Since then many thousands of animals have been inoculated with the attenuated virus, and the commercial results of the experiment will soon speak for themselves.

"But M. Pasteur has discovered that not only can this bacillus be attenuated, but that by a converse process it can be restored to its original virulence and ferocity."

Space will not allow to give more illustrations of the very remarkable results which have already arisen from the investigation of these minute organisms; enough has been said to show their extreme importance. Again, the facts already proved must surely lead to inquiry as to the possible effect of the application of farmyard and sewage manures, and may in the end revolutionise our present practices.

—— The Phylloxera Congress at Bordeaux.—A writer in the *Saturday Review* comments on the proceedings of this meeting. Though terribly in earnest and devoid of the junketting and feasting that forms so prominent a part in most congresses, it yet brought to light nothing that has not been pretty well known in this country for some time past, and did not touch on the question of most interest to English nurserymen—the restrictions on the transit of plants. "A very slight study," says the writer in the *Saturday Review*, "of the conditions of Vine culture in the more valuable vineyards is sufficient to reveal the fact that the growth of what may be termed high-bred Vines is a singularly artificial matter, the conditions of which are most delicately balanced. One of the greatest difficulties of Vine growing is to determine the particular kind out of the immense number known which is suited to the soil and physical conditions of a particular locality, and it is not unusual to find in the same vineyard a Vine which bears abundantly on one side of a road, unproductive and all but sterile on the other. Quite apart from the Phylloxera much money has been lost by planting Vines without previously ascertaining the kinds which are likely to succeed." It is not to be wondered that in making choice of the remedies to be applied the cultivator should wish to do anything rather than interfere with the Vines themselves when their produce is a valuable wine. The culture of the Vine is possible even in presence of the Phylloxera where the soil is of a sandy character, and this may lead to the extension of the cultivation in the Landes. The American Vines are but little affected by the Phylloxera, that is to say, they have greater powers of resistance than the European Vines, and hence their value as stocks whereon to engraft the finer kinds. The produce of American Vines excites dismay in the minds of those who have tasted it, else it might seem feasible to raise hybrids between the American and the European Grapes, which should possess the resisting powers of the former. The probable or certain deterioration of the flavour would be of the less consequence, inasmuch as the great loss at present is not in the higher class wines—the luxuries of the wealthy—but in the *vin du pays* of the peasantry, in which the question of flavour is not so important. Besides, in course of time by repeated experiments the evil flavour might be eliminated. All this, however requires lengthened time, while immediate action is requisite to save the Vines, for as the writer we have already cited remarks, "The Vines of Europe have been the insensible growth of centuries of development, they are as much products of art as a violin. American Vines in the nature of things are nearer to their uncivilised state, and one might as well place a tom-tom in the hands of a Joachim as offer American Vines to the wine-growers of the Medoc to replace those they now cultivate."

—— Accommodation for Gardeners.—A sad case has occurred at Harefield, Middlesex. Three men, it appears, slept in a "bothy," the end of which abuts on the boiler-shed. The shed had been used for some time as a sleeping-room, but some alterations had recently been made in the brickwork, allowing the escape of fumes from the furnace into the room. One man was found dying in the morning of the 7th inst., the other two were in scarcely better plight. An inquest was held, when the medical man stated positively that there was no doubt that the cause of death was brought about by the fumes of the gas-coke. While others had deposed that there was no leakage the doctor, who investigated the matter for himself, declared that on removal of the boards "the smell was enough to knock a person down." The coroner is reported to have said that there was no felonious negligence on the part of any one. If he meant that no one wished to commit murder, he was doubtless right; but, that under the circumstances narrated, the verdict of "accidental suffocation" was not altogether an appropriate one, is evident from the statements made at the inquest, and that the jury were really of this opinion is obvious from the addition they made to the verdict, to the effect "that the place in its present state was not fit for human beings to sleep in." To talk of accidental suffocation after this merely means, we take it, that wilful murder was not committed. The sense of responsibility of the proprietor and of his head gardener, who must have been cognisant of the condition of the bothy, will, it is to be hoped, be quickened by this lamentable occurrence, which will also serve to warn thoughtless or reckless persons of the danger they incur in sleeping in such places.

—— Herr Wendland. — This gentleman, so widely known for his knowledge of Palms, has, we learn, removed from Herrenhausen, where he and his father before him achieved their reputation, and has accepted the post of Garden Inspector of the Botanic Garden at Carlsruhe.

Asparagus decumbens. — The graceful Fern-like sprays of many of the species of this genus render them very desirable plants for decorative purposes, and some of them, such as A. plumosus and A. consanguineus, are beginning to be duly appreciated by growers. The present plant, with its delicately beautiful branches beset with little white blossoms, with recurved perianth segments and orange-red anthers, deserves to be more generally met with. Nice examples are now blooming at Kew.

—— Fungus Foray at Coed Coch.—The experience in Wales was not the same as at Hereford, though carried on in the same week. Fungi were abundant and many interesting species detected. Amongst the most interesting were Hygrophorus fusco-albus, with its mucedinous veil; A. senescens, Batsch.; A. lenticularis, of great size; and on the Morfa of Conway, A. vinosus, Bulliard, which seems to be entirely unknown to mycologists. In the great storm A. pantoleucus was blown from a tree; Hygrophorus fœtens, Phillips, occurs abundantly, as at Hereford. *M. J. B.*

—— Presentation to Mr. William Frost.—On the occasion of the meeting of the Maidstone Gardeners' Mutual Improvement Society at Maidstone, on the 19th inst., a handsome marble timepiece was presented to Mr. William Frost, the Secretary of the Society (son of Mr. Thomas Frost, of the Bower Nurseries), in view of his approaching marriage. The presentation was made by Mr. Samuel Davis, the President of the Gardeners' Society, and suitably acknowledged by Mr. Frost.

—— Maidstone Chrysanthemum Show.—This annual exhibition, which was until the present year one of the fixtures of the Maidstone Horticultural Society, has this season been taken over by the Maidstone Gardeners' Society, and will take place under their auspices on Wednesday, November 23. A good show is anticipated, as Chrysanthemums are generally well grown in the neighbourhood of Maidstone.

—— Floral Novelties for 1882. — Among the novelties introduced this autumn by Mr. Ernest Benary, of Erfurt, are a large flowered form of Ammobium alatum, the flowers pure white, and double the size of the old type—(these characteristics should constitute this a very desirable novelty among everlastings); a deep violet-coloured double Aquilegia with variegated foliage—a shade of colour much wanted among this useful class of plants; a dwarf pure white Marvel of Peru, growing only from 9 to 10 inches in height; and a pure white Phlox Drummondi, having blossoms of large size, and being also of a vigorous habit, standing rough weather well. There are other novelties, but these appear to be the most distinct and promising.

—— Chrysanthemums.—Seldom has there been an autumn when such a flowerless interregnum has existed between the going out of the summer and autumn bloom and the coming in of the winter Chrysanthemum as exists now. A week or two since and there was no lack of pretty flowers in the gardens, and there was good reason to hope that the late autumn would be a pleasant one; but the frost came and destroyed all tender flowers, and next the fierce wind played havoc with all hardy ones. The dogs of war were for a day let loose amidst our gardens, and soon all was destruction and desolation. Gardens have rarely looked more miserable than now—leaves whipped all over the place, leaving trees and shrubs half naked and very wretched, not unlike birds at moulting time. The sooner the last leaf has fallen the better. The leaves of hardy plants look scorched and withered, and the flowers battered out of knowledge. We almost turn from gardens with disgust, and wish for a speedy clearance of all the *débris* left by the storm, and the seared leafage by the frosts, that tidyness may once more be in the ascendant. Exceedingly welcome, therefore, under these distressing circumstances will the winter Chrysanthemums be, and in a week or two they will be not the less gay and pleasing that we have had to wait longingly for them. In the open garden only the rarest conditions of weather permit them to bloom freely and show their charms for any lengthened time. A frost or two, or heavy rains, and all is over; they have been a year building up their bloom only to be the joy of a day, and then disappear forever. Under glass, however, no such adverse conditions prevail. There, for several weeks, they will exhibit rich hues and bold flowers, fresh, bright, and pure, and will so far charm us into the belief that summer is not yet past, that spring will be with us almost ere we had thought winter had come.

—— Chinese Primroses.—The fine stock of Primula sinensis we recently mentioned as seen at the Swanley Nursery is bringing some fine and varied flowers. The plants, we understood, were all hybridised, so that something novel was anticipated amongst them. In a box of flowers now before us there are some beautiful crimsons, magentas, and carmines, with and without the yellow central star; there are several good whites,

and one in particular, with the segments so full as to form a double row, is remarkable also for the substance of its flowers. The most distinct and novel is a flesh-coloured flower with a large greenish-yellow eye extended into thick-ended rays, beyond which comes a series of arcs of pale magenta. This arrangement of colour has a very pretty effect.

—— Blue Marguerite.—Under this name Mr. Cannell sends us blooms of the Agathæa cœlestis, a very pretty old-fashioned Cape plant, with blunt leaves and long-stalked flower-heads, having the outer florets radiate, and of a pretty tint of blue, a good deal like that of the Anemone blanda and apennina. The plant is suffruticose in habit, with opposite oblong-obovate obtuse roughly hairy leaves, and the cœrulean flowering-heads are upwards of 1¼ inch in diameter, with a small bright yellow disc. It was called Aster capensis by Lessing, and has been referred back to Aster by some modern botanists. The plant is well worthy a place in a mixed collection of greenhouse plants.

—— The Healing of Wounds. — In the recently issued number of the *Journal of the Linnean Society* is a paper by Mr. S. G. Shattock, wherein the writer alludes to the process of repair in plants after incision or amputation, and after grafting, budding, &c. In some cases, but not in all, there is a formation of a layer of cork-cells which do not become blue when treated with iodine and sulphuric acid, as the ordinary cells do. This formation of cork-cells, as we have often had occasion to point out, takes place in the "callus" of cuttings, and is associated with the collection of large quantities of starch in the adjacent cells. The corky layer in the case of grafts was noticed by the late Mr. Andrew Murray.

—— Pinguicula caudata. — In the porch of the Orchid-house at Kew this remarkably handsome Butterwort is now, and has been for a considerable time, in bloom. The Kew plant, which was presented to the Royal Gardens by its importers, Messrs. F. Sander & Co., is wonderfully different in appearance from the species as it was first exhibited. Then the leaves were arranged in a dense rosette, like some of the Sempervivums, and were fleshy in substance, long, narrow, with slightly incurved tips. At the present time they are few in number, thin, three or four times as broad, and form quite a flat rosette. The flower-stalks, too, are taller, stouter, and the blossoms are very much larger; in colour the latter are a beautiful rich deep carmine. Should this plant prove fairly good to grow and keep, it cannot fail to become a general favourite for the greenhouse and conservatory. It is a native of Mexico, and at Kew seems to flourish under the same conditions as Sarracenias, Droseras, &c. A figure has been prepared for the *Botanical Magazine*. Perhaps it is as well to state that the name given to the species by Messrs. Sander when they exhibited it at the Royal Horticultural Society was P. Bakeriana.

—— A Royal Bouquet. — Success in floral arrangements—whether such consist in their disposal in a vase, a bouquet, a button-hole, or any of the many ways in which flowers are now so much used—depends upon the taste of the individual engaged in the work. A combination of the most graceful forms and beautiful colours which the world of flowers affords ends in failure unless the executant is possessed of a naturally artistic eye. Amongst those who stand out as particularly successful in the leading competitions with bouquets is Mr. Cypher, of Cheltenham, whose productions—made by his daughter—are invariably illustrative of correct taste alike in the combination of form and colour of the flowers used as in their arrangement. On the recent visit of the Prince and Princess of Wales to Chepstow, Miss Cypher had the honour of presenting a bouquet to the Princess, which was graciously received by Her Royal Highness. It was composed of Gardenias, Stephanotis, white Lapagerias, Eucharis amazonica, Dendrobium formosum, Odontoglossum Roezlii, O. Alexandræ, and the violet Cattleya Loddigesii, intermixed with the Ferns Gleichenia rupestris and Maidenhair.

—— Crystal Palace School of Gardening. — The Rev. G. Henslow delivered his fourth lecture on "The Practical Application of Vegetable Physiology to Methods of Propagation," on Wednesday last. Continuing the subject of "Germination," he described in detail the process of development of the embryo till it arrives at the stage when it possesses a true root and green organs, either the cotyledons, as in Mustard and Cress, or of the plumule, as in Beans. He also described the various motions, as modifications of "circumnutation" exhibited by the different parts, explaining how they assisted in causing the radicle to penetrate the soil, and the plumule or cotyledons to rise above-ground. From these and other movements, such as "nyctitropic," or sleep of the cotyledons, he pointed out the importance of protection from radiation at night secured to the plant by such movements. The remarkable sensitiveness of the apex of the radicle, how it turns away from an obstruction, but towards moisture, was alluded to, and the practical importance of preserving the apex of roots intact in transplanting, &c.; the anatomy of the radicle having been explained, this importance is more fully realised; the growth of roots, and the way they "search" the soil for moisture and nutriment, was explained, and the practical importance of a judicious distribution of nutrition pointed out. Lastly, the emergence of the plumule, and its method of rising out of the soil, was described.

—— New Abutilons.—Mr. George, of Putney Heath, continues to bring forward novelties of this showy and useful genus of ornamental plants. Amongst some flowers now before us is one of fair average size and of bell-shaped form, the colour of which is a rich crimson; this must be a very charming plant. Two others, similar in form, are deeper in colour—one a dark cardinal-crimson, and the other deep crimson with a dash of blue. These flowers are sufficient evidence that rich deep colours are attainable. A very pretty variety has a creamy ground colour, with crimson veins, which are raised on the outer surface. Another good flower, large and smooth, is a deep pinkish-rose, with crimson veins. A third has the flowers of a rich orange-scarlet. These are all free-flowering plants of the usual habit, but Mr. George has obtained a race which is dwarfer and freer still. One of these, now on our table, raised from seed sown last June, is still not much more than 6 inches high, with small lobate leaves, and with comparatively large glossy scarlet expanded flowers; another has deeper crimson flowers. This race will probably be found very useful for growing as small decorative plants for the greenhouse or conservatory. Respecting this very distinct dwarf race, which he obtained last season, those now blooming being seedlings from the first batch, Mr. George observes:—"They come quite true in habit from seed, and I have them of many colours. The original plants are now eighteen months old, and only 1 foot in height, with foliage not more than 3 inches long and 2½ inches wide." They seem to us to be real acquisitions, as they have none of the coarseness which somewhat derogates from certain of the larger forms.

—— The Gardeners' Royal Benevolent Institution.—Mr. Cutler informs us, with reference to the Pension Augmentation Fund, that up to October 27 the number of contributors is 426, and the amount he has received is £509 7*s.* 4*d.*, giving an average of £1 3*s.* 10*d.* each response. The committee have decided to close the list for this year on November 15, and they will be greatly obliged by all cards being sent in to the Secretary on or before that date.

—— Abnormal Economy in Species of the Genus Eurytoma.—In our Answers to Correspondents of last week we have noticed an instance in which a species of the genus Eurytoma (belonging to an extremely numerous family of insects of which almost all the species are parasitic within or upon the bodies of other insects) has evidently committed much injury to the buds of a species of Cattleya by boring into them and destroying the heart of the shoot. Nees von Esenbeck, indeed, mentions having taken or reared several species of Eurytoma in different kinds of galls, without assuming that they were the makers of these excrescences; he, however, distinctly asserts that he had seen the female of Eurytoma signata depositing an egg within an already formed gall, which must have been produced by some other insect on which the Eurytoma was parasitic. From the researches, however, of Harris, Fitch, and other American naturalists, it seems certain that Eurytoma Hordei and flavipes produce a kind of gall in the stems of Wheat and Barley, and in the last published part of the *Bulletin of the Imperial Society of Naturalists of Moscow* Professor Lindeman has published a detailed and illustrated account of the injury caused by Eurytoma Hordei and E. Secalis on Rye, the stems of which are swollen into gall-like protuberances or knots. Another instance in which normal habits of the family have been departed from by some of its species occurred to me many years ago. The species of Cynipidæ are the ordinary gall-flies which make galls on plants, within and upon the substance of which their progeny subsist; but I detected a small species of the family to be parasitic in the bodies of aphides, and it is now known that some species of Cynipidæ are parasites upon other true gall makers. *J. O. Westwood.*

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending October 24, issued by the Meteorological Office, London:—The weather has been dull and rough everywhere, but the amount of rain has varied greatly in different parts of the kingdom; in Scotland, the north-west of England, and north of Ireland but little rain was measured; but elsewhere the fall was heavy. Temperature over Great Britain has again been below the mean, but in "Ireland, S.," it was a little above, and in "Ireland, N.," equal to the mean value. In the eastern and central parts of England the deficit was as much as 5°. The highest reading (63°) was recorded at Southampton on the 23d, and the lowest (27°) at Strathfield Turgiss on the 18th. The rainfall has been less than the mean in Scotland, "Ireland, N.," and "England, N.W.," but more elsewhere. Bright sunshine shows a great decrease nearly everywhere, the percentages varying from 35 in "England, S.W.," and 34 over central and north-west England, to 13 both in "Scotland, E." and "Ireland, S." Depressions observed: During the whole of this period a large area of high pressure has existed over Scandinavia, and a large and gradually deepening depression off our south-west coasts. The winds have consequently been between S.E. and E. over these islands, blowing strongly generally, and at times increasing to a fresh or strong gale.

—— Gardening Appointments.—Mr. James Jack, lately Gardener at Beechwood, Cheshire, has been appointed to be Gardener and Ground Officer to the Peebles Hydropathic Establishment.—Mr. Alexander Forbes, lately Gardener at Skibo Castle, Sutherlandshire, has been appointed Gardener to Sir John Richardson, Bart., Pitfour, Perth.—Mr. Thomas Farquhar, lately Gardener at Seabourne House, Broughty Ferry, has been appointed Gardener to Mrs. Dalyrymple, at Langlee, Galashiels.—Mr. James Smith, lately Gardener at Ingleston, Midlothian, has been appointed Gardener to David Anderson, Esq., of Moredun, Liberton, Edinburgh.—Mr. Wm. Paxton, lately Gardener at Gogar Park, Midlothian, has been appointed Gardener to Captain Stewart, of Westwood, West Calder.—Mr. Wm. Smith, lately Gardener at Gogar Bank, Midlothian, has been appointed Gardener to Wm. Kippen, Esq., of Gogar Park, Corstorphine, Edinburgh. — Mr. Donald Clunas, lately Gardener at Craigrannoch, Ballachulish, has been appointed Gardener to George Collie, Esq., Watton House, Midcalder.—Mr. Charles McKechnie, lately Gardener at Ernespie, Castle Douglas, has been appointed Gardener to W. Bertram, Esq., Kersewell, Carnwath.—Mr. Benjamin Sutherland, lately Gardener at Craigie Hall, Cramond, Edinburgh, has been appointed gardener to Alexander Dudgeon, Esq., Gogar Bank, Corstorphine, Edinburgh.—Mr. David D. Thomson, from the Royal Winter Gardens, Edinburgh, has been appointed Gardener to John Stewart, Esq., Banchory House, Aberdeen.—Mr. Andrew Gibb, lately Gardener at Restalrig Park, Leith, has been appointed Gardener to Henry Davidson, Esq., Muirhouse, Davidson's Mains, Edinburgh.—Mr. George Miller, lately Gardener at Thornfield, Selkirk, has been appointed Gardener to David Henderson, Esq., Abbotrule, Jedburgh.—Mr. Wm. McCredie, from Pinkhill Nursery, Edinburgh, has been appointed Gardener to Colonel J. M. Hood, of Stainrigg House, Coldstream.—All the above appointments have, we understand, been made by Messrs. Downie & Laird, Edinburgh.—Mr. A. Taylor, late Gardener to Lord de Mauley, Longford House, Lechlade, has been appointed to succeed Mr. W. Patterson as Gardener to J. Conyers, Esq., Castlegrove, Headingley, Leeds.—We are requested to state that we were in error a few weeks ago in stating that Mr. Cuckney was appointed to succeed Mr. Blackwood as Gardener to Lady Musgrave, at Eden Hall, Cumberland, as it was Mr. Jesse Busby, late Foreman at Blenheim Palace, who obtained the said appointment. We inserted the statement on the good faith of a correspondent who we thought was in a position to know the facts of the case, and can only regret that he should have thought it worth his while to mislead us.

CANADIAN NOTES.

The great North-West is now attracting the attention of English farmers, who a few years ago were very much offended with the writer of these notes for, as the result of investigation and correspondence, drawing their attention to a country where large tracts of beautiful land could be obtained for a trifle. But now the price of land is considerably advanced they are spending large sums in deputations to enquire about the capabilities of the country, whilst those who went out when advised have been able to realise, by acting with spirit, ten times the amount they invested. This has been accomplished, and more than this, by some of our neighbours. Their accounts of this season's harvest are very favourable for all descriptions of grain.

The Wheat harvest in this neighbourhood on the low ground has turned out better than was expected, as fields that suffered from the June frost, where the land and cultivation were good, have yielded from 25 to 30 bushels to the acre, and the upland, uninjured, from 30 to 40. The Oats, Peas, and grass are very various, and will hardly come up to an average return. In some districts the frost did no damage to either fruit or grain, and the crops are good, and the Grapes have sold by auction in Toronto at from 3 to 10 cents a pound, the lowest price being for good wine Grapes.

In some places the Turnips are covered with a small insect which eats the leaves: whole fields are quite brown, and all growth is stopped; in others a large green caterpillar is doing serious injury.

Our Onion crop is a failure, but there are gardens, unvisited by the fly, where the yield is as good as usual.

Potatos well cultivated on good brown or marl clay are excellent; but to a considerable extent, with circumstances not particularly favourable, are a poor crop, owing, no doubt, to an extraordinarily dry season, as there was no rain for many weeks to reach the roots of the plants until September 17, which was too late to remedy the mischief of the drought.

The weather has been very peculiar this summer. May was very hot, June and July were cold, August and the beginning of September extraordinarily heated —say, from 100° to 110° in the shade, the temperature being aggravated by the smoke and fires in proportion to their nearness to the conflagrations raging over 1000 miles of this continent. The fires in this neighbourhood have been numerous, and many farm buildings burnt, but of course when compared with those of Michigan in the United States, only trifling. September 5 will be a memorable day for this part of Canada, for although several hundreds of miles from Michigan, where the principal fires were raging, yet the country all round became in the afternoon as dark as night, and between two and three o'clock the fowls went to roost, and the night hawks came out as the darkness thickened around us. The aggravated nature of this state of things may be better imagined by supposing that (although the burnt district is actually three times as large) all Scotland is in flame, and that the smoke extends to and darkens London. Many people thought the world was coming to an end—some boys went about one village, about ten miles distant from this place, announcing this as a fact, and frightened a sick woman to death. In the evening a yellow glare was visible, and strong men believed the day of judgment had arrived. In Michigan 10,000 people are homeless; 500 were smothered and burnt. Hundreds saved their lives by getting into lakes and rivers. In most places the horses, cattle, and sheep were destroyed. *Minesing, Ontario, Oct.* 1, 1881.

COLONIAL NOTES.

Fiji: *The Coffee-leaf Disease.*—During the last fifteen months I have been making experiments with a view to discovering an effective and lasting cure of Hemileia vastatrix, and I have solved the problem beyond doubt and cavil. I have made two cures on entirely different principles; the first was made by a treatment of direct application of the material to the plant, whilst the second is an indirect treatment, the material employed neither coming in contact with the plant or the soil. I have finally decided in favour of the latter treatment as offering advantages not contained in the scheme for direct treatment. These are, the mechanical mode of manipulation, and secondly, the extreme portabiliy of every item employed during treatment—two chief elements of cheapness. The method consists in the establishment of a permanent enemy to fungi, and those infesting the Coffee tree in particular. The system, once established, can be carried on for years (where necessary) at a merely nominal cost; whilst the cost of first establishment and a year's treatment will scarcely exceed £3 per acre. My method enables me to keep perfectly free of Hemileia vastatrix an area totally surrounded by infected plantations, or even a patch of 10 acres in the midst of thousands. Once established, nothing interferes with it, nothing escapes it, within the radius of its action; the agent employed is more subtle than the disease itself, and the larger the area treated the better. For some time after conceiving the idea I had no subjects to work upon without going to a distance, at great inconvenience and some expense, my grounds here having, after the close of treatment No. 1, remained entirely free of disease until some three months ago, when I had a batch of Fijians from the upper river employed weeding, among other grounds, a large nursery containing some 300,000 Coffee plants, and a group of Liberian trees. Although the natives, upon being asked, denied having any Coffee growing near their village, I was aware that the Government and other plantations, further up the river, were full of infection, and was therefore not very much surprised to find, some six weeks afterwards, the nursery thoroughly infected, as also one of five Liberian trees standing close together. Since then I have established a demonstration of the system in the nursery, as well as with the solitary tree, with such results as will convince even the most sceptical of the practical value of my discovery. In the nursery the disease is withering away as fast as it appears; the spots turn from the brightest orange to a dull ochre colour, and by degrees to a dirty whitish yellow. The blotches of spores instead of, on obtaining maturity, dispersing, remain dead on the leaves, and appear under the microscope as an assemblage of empty almost colourless shells. In the case of the Liberian tree, I have prevented infection reaching its four close neighbours. I hereby declare that I have it in my power to infect a tree, an acre, a plantation, or a whole province, and to cure it again at will. I shall be very glad if Coffee planters and others, conversant with the appearance of the disease, will give me a call and see for themselves. *Jacob R. Stork, Upper Rewa, in the Fiji "Times" of Aug.* 6. [We should be glad to have the testimony of some disinterested person on this matter, and some further explanation of the method adopted. Eds.]

A KENSINGTON GARDEN.

The accompanying plan (fig. 109) of the grounds at The Abbey, Kensington, the residence of W. Abbot, Esq., represents what may be termed a London or town garden, lately designed and executed by Mr. Maurice Young, of the Milford Nurseries, Godalming. It is worthy of notice as an example of how a small piece of ground not exceeding 2 acres, hemmed in on all sides and overlooked by tall houses, may be laid out, not only with great effect but to much advantage.

The laying out of town gardens—it may be premised with circumscribed areas—is of a very different nature to that of doing so in the country. In the country there are generally views of distant objects more or less to be considered which lend extent and variety, &c., whilst in town gardens the chief object is to enclose—the great difficulty being to shut out views in order to secure privacy, &c., in effecting which a great amount of space is often occupied. Mr. Young seems to have given this matter due consideration, and has been particularly successful in the planting of a great number of tall trees, such as Planes, very few Poplars, Limes, Norway Maples, Horse Chestnuts, Magnolia acuminata, some 30 feet in height, interspersed with Conifers, Hollies, Rhododendrons, Aucubas, &c., which have all grown well.

On the east side, or that nearest to Kensington Church, a number of very tall and fine trees have been safely brought from Milford and planted; this part, as shown on the plan, being laid out in a semi-wild or natural style, and planted with Ferns, alpine and herbaceous plants amongst blocks of stones, which under the shade of the trees are doing remarkably well, and present a very pleasing appearance.

On the lawn fronting the house the smaller beds are planted in summe with the usual bedding plants, Pelargoniums, &c., and in the spring are very gay with bulbs, &c, which are largely used—the larger beds being filled with magnificent masses of Rhododendrons, which last season were very attractive whilst in bloom.

Adjoining the Abbey is a small conservatory—an architect's building—neither useful nor ornamental, and at the extreme end is a fine range of vineries, plant-houses and pits—all well filled and well cared for. The laying-out of the grounds has been admirably executed, and everything is maintained in first-class order.

BOTANICAL COLLECTORS.

Peter Good.—The subject of this notice was a young gardener in the service of the Royal Botanic Gardens, Kew, but the time of his entry is not known. In 1796 he was chosen to proceed to Calcutta to bring home a collection of plants prepared for Kew in the Calcutta Botanic Garden by Christopher Smith. On his return he remained at Kew as foreman until 1801, in which year he was appointed botanical collector and assistant to Mr. Robert Brown, botanist, attached to Captain Flinders' voyage of survey of the coast of New Holland. In the early part of their voyage they touched at King George's Sound, on the south-west coast of New Holland, where large collections of herbarium specimens and seeds were collected. After leaving King George's Sound they surveyed the whole of the south coast of New Holland, passing through Bass's Straits to Port Jackson, where shortly after Good caught fever, and died at Sydney in June, 1803. His collection of seeds was forwarded to Kew, by which means many new plants were added to the Kew collection, conspicuous amongst them being different species of Banksia, Dryandra, and other Proteaceæ and shrubby Leguminosæ, all of which are recorded in the second edition of *Hort. Kew* (1813), and which laid the foundation of Kew becoming famed for New Holland plants, regarding which Dr. Lindley, in his official report respecting the garden (drawn up in 1838, and laid before Parliament in 1840), speaking of the plants in the greenhouse called the "Botany Bay House," says, ". . . crowded with magnificent specimens of New Holland and other plants;" and that another house contained "fine specimens of Cape of Good Hope and New Holland plants, amongst which are some noble Banksias." In 1863 two plants of Banksia repens of Good's introduction (sixty years old) were alive, in which year they were removed to the new conservatory called the "Winter Garden," but their new abode and different treatment did not suit them, and they soon died. Goodia, a genus of Papilionaceous shrubs, was dedicated to his honour by Mr. Robert Brown, of which two species, G. lotifolia and G. pubescens, have been long cultivated at Kew.

James Bowie.

James Bowie was the son of a seedsman, who kept a shop at the west end of Oxford Street. He entered the service of the Royal Gardens, Kew, in 1810, and in 1814 was appointed botanical collector in conjunction with Allan Cunningham, their instructions being first to proceed to Brazil, where they remained two years. In 1817, as stated in the life of Cunningham, they left Brazil and separated, Cunningham going to New South Wales, and Bowie to the Cape of Good Hope, where he arrived in 1817. He was not long in taking a journey into the interior, and made considerable collections of seeds and plants, which he from time to time forwarded to Kew, consisting of bulbs, Mesembryanthemums, Aloes, Euphorbias, &c. The new ones were described by Mr. Haworth, who was the greatest writer on succulents of that period. In the country of the Orange River State he discovered the beautiful Amaryllidaceous plant which was received at Kew in 1823, and having flowered, was in 1826 figured and named in the *Botanical Magazine* by Dr. Hooker (afterwards Sir William) under the name of Imantophyllum Aitoni; at the same time a plant which had been surreptitiously obtained from Kew flowered in the Duke of Northumberland's garden at Syon House, was figured and described in the *Botanical Register* by Dr. Lindley under the name of Clivia nobilis, both names appearing in their respective journals of the same date. Dr. Lindley was requested to forego the name Clivia, but refused to do so, and ultimately it became the popular name. A vote in the House of Commons reducing the sum for botanical collectors by one-half, necessitated the recall either of Bowie from the Cape, or of Cunningham

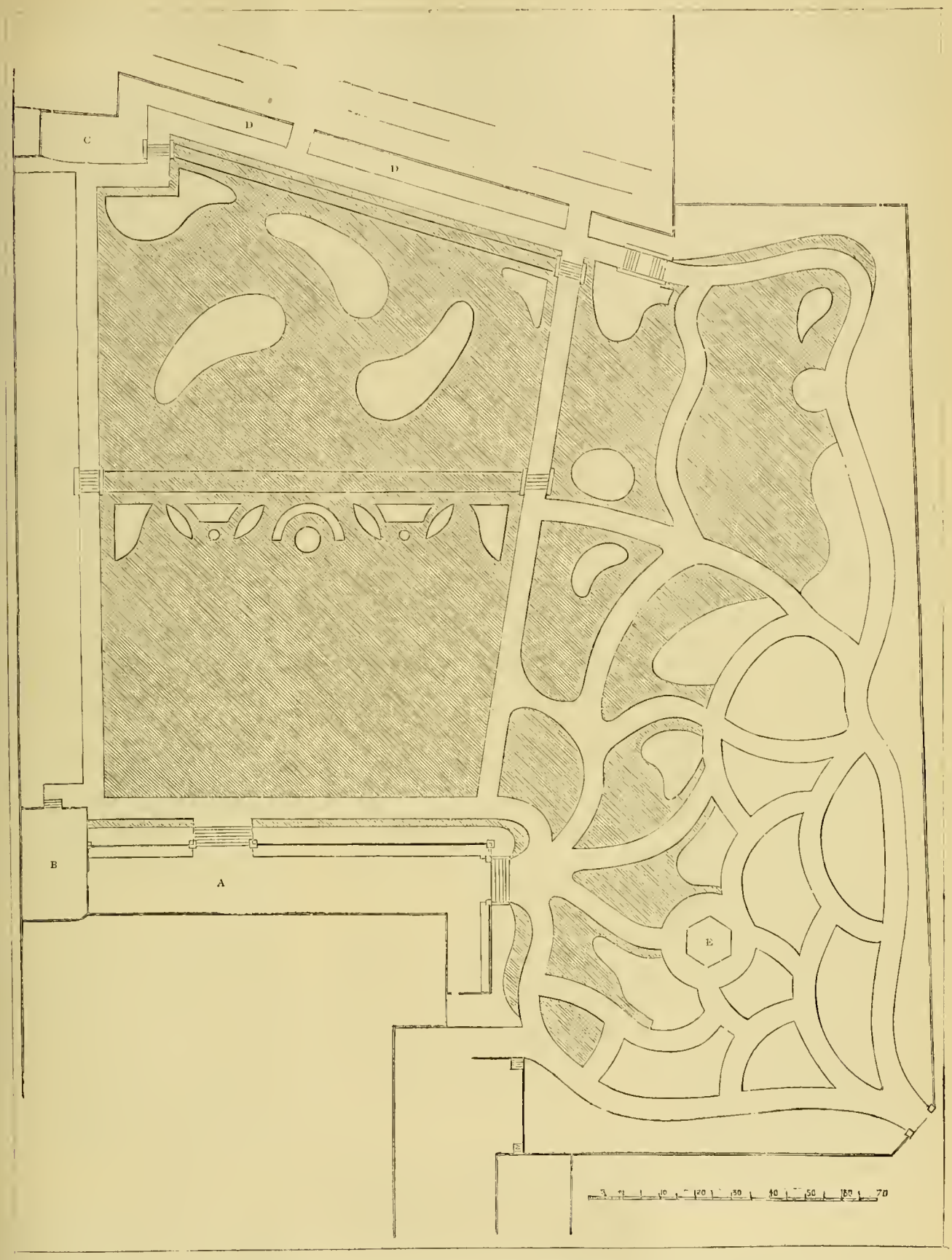

Fig. 109.—Plan of the Abbey Gardens, Kensington. (see p. 568.)

References to Plan:—A, Terrace; B, Conservatory; C, Plant-house; D, D, Range of Vineries; E, Summer-house. Shaded portions Grass.

from New South Wales. The lot of recall fell upon Bowie, and he returned to England in 1823, taking up his residence in Kew, where he was for some time engaged in arranging his herbarium specimens. It was then his intention to return to the Cape to settle, and become a general collector; he, however, did not leave for the Cape until April, 1827, having thus wasted nearly four years doing nothing. He spent his evenings in the public-house, telling stories of his encounters with buffalos, &c., thus showing him to be a very different kind of man from his early fellow-traveller, Allan Cunningham.

From a letter to the writer of this he appears to have made journeys into the interior, and to have made collections of plants for sale, but which do not appear to have been very profitable to him; and in a letter dated 1850 he says, "I have been badly off," and he further complains of being ill-treated in

the colony, a circumstance no doubt due to his intemperate habits. He died in poverty in 1853. One of the smallest species of the Aloe alliance was by Haworth characterised as a distinct genus under the name of Bowiea africana, but it was afterwards found that the characters assigned to it by Haworth were not sufficient to warrant its being retained as a genus; in place of which a remarkable Cape plant of the Lily family was named by Dr. Harvey Bowiea volubilis, which is cultivated at Kew.

William Ker.

William Ker, a young gardener at Kew, was in 1803 appointed botanical collector for Kew at Canton, in China; and after remaining there some time he visited Java and the Philippine Islands, and returned to Canton and forwarded collections of plants to Kew, which are recorded in *Hort. Kew.* to have been forwarded in 1804, amongst which were Pinus lanceolata (now Cunninghamia lanceolata), Lilium tigrinum and L. japonicum. I can find no account of his doings from that time until 1812, at which time he received the appointment of Superintendent of the Colonial Botanic Garden, Ceylon. In the following year he visited the mountain in Ceylon called Adam's Peak, on which he discovered many new plants. He died in 1814. The genus Kerria, founded upon Corchorus japonicus, was dedicated to his honour by De Candolle. *John Smith, ex-Curator, Kew.*

Home Correspondence.

Iris fungus.—In a recent issue my name is mentioned in connection with an Iris disease. I should, indeed, be extremely sorry to have been, unwillingly and unconsciously, instrumental in transmitting a plant-disease, but I must oppose to the statement the fact, that I have carefully visited all my Irises this morning, and cannot find the slightest trace of fungoid disease. Even the rather tender species belonging to the division Onocyclus are as healthy as I could wish them to be. We know very little of the mode of appearance of fungi, but for the horticulturist any practical suggestion how to avoid their attacks, or how to get rid of them, will be of more value than any discussion as to disputed theories. If my correspondent will kindly consider, whether the various species which he cultivates are all under conditions required by their nature, and if it is not so, he will supply their wants, I am quite sure, from experience, that very soon all trace of fungoid disease will disappear. Three years ago my Lilies were sadly attacked by fungus; in the autumn I took them up, cleaned the bulbs from all soil, made a new bed, well drained and filled with peat, loam, and coarse sand, had the bulbs planted rather deep, and the surface dressed with creeping plants to keep it cool—all this in a half shady situation — and my success was complete. Fungus readily springs up when not quite decomposed vegetable matter is mixed with the soil, and with Lilies as well as with Irises the admixture of manure in any form ought to be avoided. The small-leaved Irises prefer a rather moist situation, the broad-leaved ones want partly loose soil, others prefer a soil of a clayey nature, and of course all these wants must be attended to. If these matters are attended to, any disease will soon disappear. *Max Leichtlin, Baden-Baden.*

—— I am very sorry that the quotation from my letter to "M. J. B." took the form it did, because it seemed to throw reproach on Mr. Max Leichtlin. This was far from my wish; indeed, I have received so many valuable gifts from him that I could not complain if a rare Cryptogam occasionally slipped in with the rare Phanerogams which he cultivates with such skill, and distributes with such generosity. I have sent him a specimen of the Uredo, begging him to look over his Irises again, and to make sure that he has no trace of it. If such proves to be the case—if he really has no fungus at all—the incident will be very instructive, for, as I will then show, the *primâ facie* evidence that the fungus came from Baden is really very strong. *Dictes.*

Veitch's Autumn Broccoli.—As further showing the great value of this superb autumn Broccoli, I may state that we are now cutting some splendid heads, a few of which I have had weighed, and find them between 7 and 8 lb., and as they are so solid and heavy, one is quite enough to cook for a very large family. Not only is this Broccoli of large size in favourable seasons like the present, but it is as mild and delicate as a spring or summer Cauliflower if cut and cooked before being touched by the frost, and as plants keep turning in so long as the weather is open, it may often be had quite up to Christmas. Being a strong grower, the plants require plenty of room, and to afford this it is a good plan to plant between rows of Celery, Potatos, or some other low-headed crop. *J. S.*

—— It may be thought that there is no need of any further remarks concerning this fine Cauliflower, but I feel certain, judging from some plots of it which I have seen this autumn, that it is not always made the most of, and that its culture in some cases is not studied as it deserves to be. A not uncommon mistake I think is made in sowing the seeds too late in spring. This Cauliflower takes longer to arrive at maturity than most, if not any other kind, consequently it should be allowed a long season to grow if fine heads are anticipated. In order to give a supply from the middle of August into December two sowings are necessary, viz., one in the first week of February, and another to form a succession about a month or five weeks later. These sowings are best made in a mild hotbed, and the young plants should be pricked out into a frame in good soil, as soon as they are large enough to handle, and carefully hardened previous to being planted into permanent quarters, which should be attended to when they are fit, a dull, showery time, if possible, being taken advantage of, as it is very beneficial to the plants to be transplanted during such favourable weather. Great care should be taken in lifting the plants to raise good balls of soil with them, and in order to retain these entire a trowel should be used in planting, for it is impossible to do it satisfactorily with a dibble. A good practice is to plant in drills, which may be about 2 feet 9 inches apart, and the plants may be placed in them some 2 feet asunder. When the plants have made a good start, sufficient earth should be drawn around them to enable them to withstand wind, and after rain, while the soil is still moist, they should be well mulched with dung, or grass from lawns, if the former is not at command. In very dry seasons, especially where the soil is light and porous, they will require frequent and liberal supplies of water which should have liquid-manure added if the plants are weak or show any signs of distress, but we seldom find it necessary to water on our heavy and deeply worked soil. As the plants "turn in" their leaves should be collected over their heads and their points tied together; this will answer the double purpose of keeping the heads white and protecting them from early frost. The plants from the second sowing should be lifted at the approach of frost, and laid in cold frames, where, if carefully attended to, they will yield a valuable supply for weeks, which is always appreciated at a season when choice vegetables are scarce. In preparing ground for the Autumn Giant we usually select a rich plot, which is double dug in autumn, and very heavily dressed the following spring with well-rotted manure, which is dug in one spit deep, but the finest lot that we ever had was from a quarter which had been double dug and well manured in autumn, and raised nearly 1 foot in winter with vegetable mould from the rubbish yard liberally mixed with night-soil. This produced giants indeed, perfect in every way, which surprised not only the cook, but ourselves also, and all who saw them. This fine production convinced me that it is almost impossible to over-manure for this highly esteemed vegetable. *T. Coomber, Hendre Gardens, Monmouth.*

Eucharis amazonica.—Not long since a correspondent eulogised the Peaches and wall fruits grown at Singleton Abbey by Mr. Harris, and thoroughly well deserved it was. Now I am bound to speak in loud praises of his Eucharis. I read in last week's *Gardeners' Chronicle* that "W. P. R." mentions Eucharis 5 feet over, with a dozen spikes. Mr. Harris has now magnificent specimen pots. I counted twenty-nine spikes, averaging eight flowers to each spike. Their Royal Highnesses the Prince and Princess of Wales have been staying at the Abbey, and H.R.H. the Prince was pleased to point out to Mr. Harris how exceptionally beautiful they were. *Abertawe.*

Melons.—Being shown through the well-managed and fine old gardens at Park Hatch, near Cranleigh, the seat of Mrs. C. Godman, I was much struck by two Melon plants grown under two lights in a dung-pit just finishing off nineteen Melons—ten and nine respectively—averaging from 1 lb. to 1½ lb. each. This in the middle of October, without the aid of hot-water pipes, is very creditable. Mr. Welsh tells me this is the second crop on the same plants. *H. H.*

Vallota purpurea.—I can fully endorse every word of praise that was bestowed at p. 534 on this popular favourite. I cannot understand why such a grand flower should be discarded in many places to make room for things that are inferior to it in every respect, unless it is because it is so easily grown, but nevertheless seldom well done. I have seen it in every place I have lived at, but the only one where I saw it done really well was at Arle Court, Cheltenham, where I counted on one pan as many as fifty-four of its beautiful spikes, other pans being almost equally good; these were dotted here and there in the conservatory, which gave it a striking but pleasing appearance, for its bright scarlet flowers blend so well with white flowering plants, such as Eucharis, Pancratiums, &c. It stands much longer as a cut flower than it is generally supposed it will. I used it this last summer, when it stood well for four days in almost tropical weather. *W. B. G.*

Fair Trade.—I cordially agree with your correspondent "Viator," as do many others of our struggling nurserymen. Here we who have to pay heavy rents, heavy rates, and all the expenses of carrying on a legitimate business, have to contend with the powerful opponents "Viator" mentions—gentlemen who with their large houses and larger means allow their gardeners to sell their surplus stock, and who really are simply and purely nurserymen in disguise. To our market once a week they come, pay 1*s.* for their stand, sell their produce cheaper than we can, and go miles away with their proceeds, leaving the home nurseryman, who bears the burden and expenses of the whole week, to bundle home again with nearly all he took to the market. Is this fair? Either let these gentlemen come out of their shells and class themselves as nurserymen proper, or leave a poor but legitimate trade to those who have spent their anxious lives in it, and to whom, in each particular town, it in all conscience belongs. *St. Clears.*

Sequoia (Wellingtonia) gigantea. — In your last issue I observe an inquiry as to what height this tree has attained in this country: I have one in my nursery, which was planted in May, 1858, being then about 6 inches high—it is now 52 feet high. Circumference at the base, 13 feet 7 inches; circumference around the branches, 85 feet. It is supposed by many persons that have seen it, to be the largest in the country. *William Fletcher, Ottershaw Nurseries, Chertsey.*

—— There is a fine specimen of this noble tree here, which measures 55 feet in height, girth of bole at 2 feet from the ground, 9 feet 4 inches; and the circumference of lower branches, 71 feet. *W. Manning, The Gardens, Amport House, Andover.*

Stealing Grapes not Unlawful.—The account of a recent conviction for breaking into a garden and hothouse, from which the depredators stole about fifty bunches of Grapes and a pair of scissors and syringe, is very singular. Mr. Forrest Fulton, who appeared for the prosecution, made the following peculiar statement. He said: "It was part of our law that a man could not be convicted for stealing growing Grapes, and as these had been cut from the Vine the prisoners could not be charged on that count." The parties were prosecuted for stealing the scissors and convicted; had it not been for that it seems they would have been discharged, as the law was unable to convict. If this is the state of our law surely it is time for our law-makers to see to it. What are we to do if depredators steal our Grapes and take this lawyer's hint and do not at the same time carry off the scissors? Are we to take the law into our own hands and shoot the fellows, as we would blackbirds and thrushes, or are we to stand quietly by and look on? *J. Douglas.*

Tall Balm of Gilead Fir.—Amongst many of the fine trees levelled by the terrible gale of the 14th inst., was an Abies Balsamea growing on the estate of Carolsid, Berwickshire. As this is the tallest specimen the writer has ever seen, he is somewhat curious to know if it attains a much greater height in this country. It stood singly in a rather sheltered situation, and was furnished with short, bushy branches nearly to the ground. Its habit was somewhat slender, with a stem as straight as a billiard cue, and when measured lying on the ground was 89½ feet in length. The tree was in perfect good health, having made a top growth of 6 feet on the aggregate for the last six consecutive years. Any information as to the growth of this tree in other parts of our island would be gratefully received through your pages. *W. W. R.*

The Use of Coloured Foliage among Trees and Shrubs.—The trees and shrubs generally understood by the term "hardy ornamental foliaged" are to a great extent a very neglected class, which, considering that most of them are very easy to grow when once propagated, that the price they are offered at by nurserymen is trifling, their great beauty, and the striking effects made by the contrast of their foliage with that of green-leaved trees, certainly ought not to be. Variegated foliage seems to have the effect on some persons that a red flag has on a bull. Others are hardly satisfied with a plant unless it has foliage either variegated or of some other colour than green. In this as in many other matters however doubtless *in medio tutissimus ibis* holds good. Ever since members of the human race have inhabited this planet there can be no doubt but that variety has been pleasing to them. Where all is variegated however

there may perhaps be want of variety. In planting a shrubbery or a wood with a view among other things to ultimate decorative effect of a high order, subjects with variegated foliage or whole-coloured foliage otherwise than green, such as different shades of gold, purple, copper, white, &c., may frequently be used with the greatest advantage, but the mistake should not be made of overdoing the variety which may by their means be produced. Green, or various shades of green, should as a rule always predominate. Very beautiful and rare effects with various shades of green alone may be produced by a planter who understands his business. Whatever effects are produced by various shades of green, however, may be immensely heightened and rendered ten times more strikingly magnificent by the introduction here and there, in single specimens or in groups, of subjects having leaves of various shades of yellow, purple, and white. Doubtless we all agree with the late Earl Beaconsfield, that "sylvan scenery never palls," yet one must admit that the varying greens in tree foliage do in time cease to excite that admiration which a mind long accustomed to the sight of smoky bricks and mortar always so freely feels on freshly making acquaintance with them. Nature has put it in our power to add to the magnificence of vast masses of green foliage by the foliage of various contrasting colours. The dark sombre hue of the Scotch Fir contrasts well with the greens of almost all our deciduous forest trees, and the colour of the purple Beech again contrasts well with all of these. The white-leaved Willow (Salix cœrulea alba), known in nurseries as Salix regalis, or the Royal Willow; the White Beam, the Acer Negundo variegata, the white-leaved Poplar, and other white-leaved or silver-variegated trees, add another contrast; while golden Poplar, golden Elm, golden Oak, golden Laburnum, and many more offer means for adding further variety. Greens should greatly predominate, and golds, purples, and whites be well placed for contrast; and where this has been done, the beauty of shrubberies and grandeur of larger woods is immensely enhanced. *G. E. Ewing, Eaton, Norwich, Oct.* 22.

Nepenthes Rajah.—The crowd whose eye is usually caught by colour may find little to appreciate in the singularity of form—often unaccountable—assumed by plants; but those who view Nature from a higher standpoint see much to admire in the strange freaks she presents in vegetable life. The so-called insectivorous plants alone are a study, from the humble Sundew of our marshes to this Bornean Prince of Pitchers. Those who doubt their ability to grow this wonderful introduction up to the size of the dried specimen illustrated in the *Gardeners' Chronicle*, p. 493, have nothing to fear if they have been able to manage well the other species now in cultivation, for all these have been grown so as to produce pitchers larger according to their kinds than they bear in their native countries, if the dried specimens which I have seen brought over by collectors or their descriptions of the plants growing in a state of Nature are to be relied on. Neither is this at all to be wondered at, for it is only in keeping with the behaviour of most plants that are cultivated within the necessarily confined atmosphere of a glass structure, except in the case of such as naturally attain a size that does not admit of their full development within the limits of a plant-house. It would be difficult to imagine anything more interesting than a collection composed of the most distinct kinds of these Nepenthes, species and hybrids, when they have attained size sufficient to show their true character, which as a matter of course includes their being treated so as to induce a free production of pitchers. Heat, and a condition of the atmosphere as to moisture, that will grow Cucumbers well in winter, is what they require, with a correspondingly high temperature in summer, such as needed to produce exhibition Cucumbers—that is, enough to grow them quickly, long, and straight—will just suit the Nepenthes, but they will do better with less air than the Cucumbers will bear, and must have more shade; still, they should have their heads kept well up to the light. I have thus attempted to give the cue to their cultivation through that which Cucumbers require, as almost any one can grow the latter, whilst comparatively few have had to do with Nepenthes. *T. B.*

Lapageria rosea.—In reply to your correspondent, "N. Blandford," I would say that it is a general feature of Lapageria rosea to produce a large quantity of flowers from one bud, if the plant is in robust health and its requirements are well attended to. I have had this season the finest show of Lapagerias that I have ever seen, and they have been produced both in long sprays and in large bunches from one eye; but the large bunches come from the strongest shoots, 15 to 18 being quite common. I have also had some double and semi-double flowers, and these also came from the strong shoots. Does Mr. Blandford shade the plants? One of your correspondents last week attributed his success in flowering the plant well to shading it; it would be of interest to myself and others to know whether those who shade can produce an equal quantity of flowers as those who never shade the plants. The plants here are never shaded, and both the red and white varieties flower profusely. On a white shoot, in the space of 4 feet, there are forty-two flowers open and forty-five buds to open, making a total of eighty-seven, and these have from two to eight flowers at an eye. Another white had sixty-five flowers on a spray of 2½ feet, nineteen eyes flowering, each bearing not less than two flowers. In this district to flower it well it needs all the light and sunshine it can get. *T. C. A., Milner Field, Bingley.*

Melon Supports.—The following mode of supporting Melons has some advantages over any other I have seen in use. Get a piece of hard, well seasoned wood three-quarters of an inch thick, 4 or 5 inches wide, and of a length equal to the distance the wires on the roof are apart, say 9 inches; cut a piece of stiffish wire 2 inches long, bend it in the middle at right angles, and drive one end into the end of your supports, as shown at A (fig. 110); get another piece of wire and bend it into the form of that shown at B, and drive the right-angle end into the opposite end of your wood. The length of this must be regulated according to the angle of the roof under which the supports are to be used. To find the proper length place the end A on the top of one wire, as at C (fig. 111), and holding it with just a little fall towards the roof, make your other

Fig. 110.—Melon support.

wire so as to hook on the next wire above, as shown at D. On these the Melon rests in a perfectly natural position, is nearer the glass, and thereby gets better exposed to the sun. They are so simple and quickly made that a handy garden labourer could make them (providing he had wood of the proper width) in about the same time as some men would take to suspend as many Melons with wires, &c. When made they can be placed under the fruits as quickly as placing pieces of slate under those grown in frames. When not in

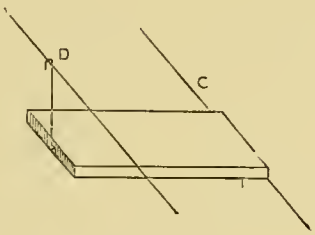

Fig. 111.—Melon support.

use they can be tied in bundles of twenty or so, and suspended from the roof of the tool-shed, and will last for many years. I have heard a story told of a gardener who was so engrossed in showing off his crop of Grapes that he cut off all leaves that came down below the wires and so interfered with the show of bunches. To such men I cannot recommend this support, as it does not show the crop. It, however, saves a lot of time, and the crop is none the worse for not being all seen at once from the end of the house. *R. Inglis, Cuckfield.*

Temperature in Relation to Light.—That heat is the great moving power in the growth of plants is a fact so well known as not to require repeating. Yet the presence of heat in a given volume has not a uniform influence upon all plants that are indigenous to the same country, or even such parts of a country as are alike in climatic conditions. Of this we have abundant evidence continually around us. But the subject upon which I now desire to make a few remarks, in the matter of heat, bears more directly upon such plants as are cultivated under glass, and which consequently may justly be said to have an artificial existence, not alone in regard to the temperature they are in, but in other elements essential to their well-being. These include light, which, next to heat, is of the greatest importance, and at no season of the year more so than through the short days of winter, during which, as gardening is now carried out, the gardener has so many plants to urge into active growth by the aid of fire-heat, whilst he has no means of supplying them with a corresponding amount of light, or any light at all beyond that which is existent under the disadvantages of clouded sky and a leaden atmosphere, and even this for little more than one-third out of the twenty-four hours. That fair results are attainable under the best conditions we can give to winter-forced plants is simply an evidence of the efforts vegetable life is capable of making to exist under difficulties. But is all done that might be to insure success in the winter forcing of plants? In most of what is written on the cultivation of the many different subjects that are forced in winter, the heat which each species or variety treated of requires, or will bear, is usually given possibly along with some remarks of a general character about the necessity of sufficient light; yet it is the extent to which the latter is available in each particular structure, be it house or pit, in which the forcing is carried out, that should in all cases determine the amount of heat applied, for the more light a plant is exposed to the more heat it will bear. Even in the summer season, and still more so in the winter, when the best constructed and most favourably situated houses it is possible to build afford less of this all-important element than is required, particularly when we take into account the much smaller quantity of air that can be admitted to a forcing-house in the winter than during the summer, for air to a considerable extent has a similar influence in solidifying the tissues and checking that undue extension of shoot and leaf growth which is usually described as drawing. There are few acquainted with gardening matters who have not had ample opportunity of seeing how very differently the same variety of flower produced by forcing in winter, will stand in a bouquet or vase without sign of flagging, to what others identical in kind and at the same season will, with a corresponding difference in the length of time each respectively will live and maintain a presentable appearance. Those who have had experience in winter flower forcing in houses that varied considerably in the amount of light they afforded to the plants within them, will have noticed how much better results followed, both in condition and quantity, where the plants were under a maximum of light, to that found possible where it was deficient. In fact, the matter might be fairly concluded by saying that none but thoroughly light structures are fit for the winter forcing of flowers, which is quite true so far as the much greater return obtainable for the expense incurred in labour and fuel as compared to that which is possible in structures where there is a deficiency of light; but unfortunately there are many places where a continuous supply of winter bloom is expected to be forthcoming, and still the structures available to grow it in are either deficient in light through their construction, or, what is very often equally as bad, are placed in positions where there is an impossibility of the plants receiving the amount of light they require, even when they are stood as near the glass as circumstances will allow. In such cases something may be done by keeping the temperature lower. I have found that there is a difference of full 7° or 8° in the heat which most plants forced for winter-flowering will bear consequent on the light or dark description of the house they are forced in. As an unavoidable consequence, when a lower temperature to the extent here named has to be kept up the process of bringing into bloom is much slower, yet it is better to wait than to hurry on the operation in a way that is certain to so far end in disappointment that the flowers, from their drawn-up, flimsy want of substance, are alike deficient in endurance either when cut or allowed to remain on the plants which have borne them. Flowers for cutting and general decorative purposes, winter as well as summer, are now generally in demand wherever there are the structures wherein to grow them, and as the season for forcing is at hand a little reflection as to the amount of heat which in each individual case is calculated to give the best results may not be out of place. Work of this kind can never be well done when it is hurried with too much heat, but as I have attempted to show, a temperature that in one case will not be too great, in another may partially or wholly defeat the object in view. *T. Baines.*

Large Peaches.—To Mr. Grensted my thanks are due for having confirmed the statement (p. 272) respecting the exceedingly fine fruit over which there has latterly been some controversy in your columns, but it is rather to be regretted that Mr. Goodwin did not adduce such evidence when he was invited in the first instance, and so have saved unnecessary correspondence. Gardeners as a rule are such a matter-of-fact class of people that in some exceptional cases they actually require ocular demonstration of facts before they can credit their existence; there also exists amongst them a feeling that if one succeeds in producing anything which is unusual or unheard of, he is invariably willing to impart unto others such information as regards culture, &c., as they may require; Mr. Goodwin, however, does not appear in fall in with this, at least he seems rather reluctant to do anything

of the kind through the medium of your columns. Unsolicited private communications with which I have been favoured on this subject warrant me in saying that I feel quite justified in the course I have taken, and that a great many persons besides myself had their misgivings about the statement at p. 272. *J. Horsefield, Heytesbury.*

Begonia semperflorens grandiflora.—What a capital subject this is for decorative purposes, *i.e.*, when it receives the right treatment. In going through the gardens at Marston the other day I could not help admiring and bestowing a word of praise on what may be described as the finest and best flowered batch I have seen for many a day. Mr. Iggulden's *modus operandi* is very simple, and consists of sowing the seed early in the spring, potting off the young plants when large enough, shifting into larger pots when necessary, and growing them on through the summer in a good rich compost. By this means he is able to get nice sturdy plants in 6-inch pots from 12 to 15 inches high, which in the autumn are one mass of bloom. It occurred to me at the time as being a plant well adapted for a suspending basket for staircase work, and if I had one to make up now I (with my own choice of material) would use the above and a few plants of B. Ingramii, with a good centre plant of Nephrolepis exaltata, this being margined with Tradescantia multicolor. *J. H.*

Passiflora racemosa.—Passifloras are not everybody's plants on account of their requiring so much space, but if any of them deserve to be grown it is this. Compared with others, the flowers are of medium size, and of a bright scarlet colour, and are so thickly produced that pieces may be cut for furnishing epergnes and other tall stands of cut flowers. Three or four pieces used in this way, and at this time of the year, would give relief to many a well-filled vase, which for the want of something after the style of this Passiflora would appear dumpy. They do not last so long as some things after being cut, but any one having a plant of P. racemosa would be amply supplied day by day for the greatest portion of the year. Any plant that does this, and is at the same time unrivalled for adorning the roofs of stoves, deserves notice. It was in this capacity that I saw P. racemosa doing duty at Huntroyde, the seat of Captain Starkie, near Padiham. *W. P. R.*

The Gender of Euonymus (see p. 535).—In the absence of positive proof to the contrary, we have a right to assume that Euonymus, as the Latin name of a tree, is of the feminine gender, the rule being that in Latin all names of trees are feminine unless found in classical authors used masculine or neuter. Euonymus is not so found, therefore Forcellini in his Latin Lexicon, as a matter of course, marks it feminine. The name is a curious one: in classical Greek the common meaning of the word, which is an adjective, is "of good omen." Theophrastus, who describes the tree (*Hist. Plant.*, lib. iii., ch. 18), uses the name only as an adjective in the neuter gender, agreeing with "tree" (*dendron*) "the tree of good omen." He gives no clue to the origin of the name; but if for any reason connected with old superstitious folk-lore the tree had a bad name, it was in accordance with the polite habit of the Greeks to call it "the tree of good omen," in the same way as they called the most stormy and inhospitable sea they knew the Euxine, or "hospitable" sea. Now Pliny (*Hist. Natural*, lib. xiii., ch. 38), who almost copies what Theophrastus says of the tree, begins his description by speaking of it as a "tree of bad omen." After describing the dire effects to health and life of using any furniture made of Hornbeam, he goes on to say, "Of no less evil omen is the tree which is called the Euonymus." As regards the writing *eu* or *ev*, it is merely a question of usage. Names translated from Greek, if they begin with *eu*, followed by a vowel, generally change *eu* into *ev* in the modern printing and pronunciation of Latin, as Evagoras, Evander, Evangelist; but *u* and *v* in Latin were one letter, and probably one sound. For example, a famous anecdote in Roman history informs us that the word "cauneas" (wild Figs) was pronounced exactly the same as "cave ne eas" ("beware of going"). *C. Wolley Dod, Edge Hall, Malpas, Oct. 22.*

Vine Fruiting the First Season.—I read the article headed as above which appeared in last week's issue with very great interest, not only because it emanated from an old friend of mine whom I have known for nearly thirty years, but for the teaching it conveys: how to cope with difficulties which most gardeners have to contend with more or less, being expected by many who know little or nothing of horticulture to produce a supply of first-rate fruit and other things let the weather or appliances for growing them be what they will. With a determination and energy, such as I know Mr. Temple to possess, much may be done, as is proved at Impney Hall, and it is to be hoped that the lesson will be taken to heart by young men who have a future before them and have to make their way in the world. It used to be thought very well to fill a vinery with fruit-bearing rods in three years, but that was in the old days of cutting back the canes, which, forsooth, was supposed to strengthen the Vines so operated on, and the same with Peach and other trees—a system the most barbarous and injurious of any that could well be devised. If roots are expected to be made, plants must have tops and leaves to assist in forming them, and the more foliage the greater the root-action and the more rapid the swelling of the stems, which, when there is plenty of leafage, expand at a marvellous rate. I have a striking instance of this before me now in a young Peach, which, when I got it, was a maiden with four small shoots not more than 18 inches long, and the stem not larger than one's thumb, but which after two summers' growth is now nearly as thick as the wrist and the tree covers quite 100 square feet of trellis full of fine fruit-bearing wood. It will be seen that Mr. Temple objects as strongly as any one to overtaxing the powers of young Vines, and he is right, for as well might we set a child to do man's work, or a colt a horse's, and expect either to grow up strong and be as fit for work after. Mr. Temple does well therefore in pointing this out, and in filling vineries quickly and taking crops at the same time supernumeraries should always be employed as has been done by Mr. Roberts at Gunnersbury, who has filled the noble vineries there in a very short period with splendid rods and has taken many prizes for the magnificent Grapes they produce. The soil appears to have been Mr. Temple's greatest difficulty, and the getting of it of a suitable kind is a serious matter in most places, as parks and pastures are interdicted, and to rob the churchyard is to commit such desecration that no one would think of it. Often have I longed for the run of the downs, as we had when I was a journeyman at Bowood, when turf could be had so full of fibre from off the chalk that one could hardly pull it to pieces, and a lot of Muscats planted in a border made up of it there were a sight to behold. To grow good Grapes, Peaches, and Nectarines there is nothing like soil from off the limestone rock, which contains plenty of calcareous matter, and which is rich in all the elements of food such plants require. *J. Sheppard.*

The Governor's White Clove.—Kindly allow me space to remove a misapprehension that exists in reference to this flower, which Messrs. Cross & Steer, of Salisbury (who have been awarded certificates for it at two or three exhibitions in the district), are now sending out as a seedling. In offering plants for the first time they state that they have not hitherto found the flower in commerce, and that the stock from which their plants have been raised was offered to Mr. Cross by the late Mr. Dowding, then Governor of Salisbury Gaol, some thirteen years ago. Now, it so happens that I was the purchaser of Mr. Dowding's entire stock, quite as long, if not longer ago than that, and an entry of the amount paid appears in my books of that period. I took up the plants myself, leaving none, and supplied some to Mr. Challis, of the Wilton House Gardens, and to others, who, I believe, continue to grow it. I understand that it is somewhat largely grown at Melchet Park. Mr. Kelway, of Langport, made me an offer for my stock last year, and I distinctly remember sending blooms to the Editors of the *Gardeners' Chronicle* five or six years ago. It is scarcely fair, therefore, to represent that the flower is now in commerce for the first time. *George Smith, Wilton Road Nurseries, Salisbury.*

Verbena venosa.—While everything else in the flower way has had all the beauty washed out of it by the almost continuous rains during the autumn, Verbena venosa appeared to enjoy the downpour, as beds of it have been gay right through, and they have only succumbed to the wind, which blew with such fury on the 14th as to dash plants to pieces and knock the bloom off, or they would have been good even now. Purple King used to be a great favourite, but of late years it has been so subject to mildew and so uncertain in its lasting qualities that hardly any one grows it now, although it is of a colour greatly needed in bedding, as there are few plants yielding flowers of that desirable shade. V. venosa, however, is one of the best, as it not only stands well, but is very soft in colour and blends admirably with any of the silver or gold-leaved Pelargoniums, with which it may be used either as an edging or centre, or mixed, and the effect, if so blended, is both pleasing and telling. Unlike other Verbenas that have to be kept through the winter, and propagated by cuttings, V. venosa is as nearly hardy as possible, and is quite safe left in the beds if the surface of the soil has a thick dressing of leaf-mould to keep out the very sharp frosts. The best way, however, to manage it is to take the plants up, and lay them in on a warm sheltered border, or under a Cedar or other tree where the soil is dry, and there cover them with a little short straw for the winter. Early in spring they should be taken up, pulled to pieces, and started by laying the lon strong roots in boxes of light mould, and placing the where they can have a little heat, such as would afforded in a Peach-house or vinery at work, or plan may easily be raised from seed sown in March, whi will afford ample time to get them large enough f bedding. *J. S.*

Notices of Books.

Jahrbuch des Königlichen botanischen Garte und des botanischen Museums zu Berli Herausgegeben von Dr. A. W. Eichler. (Vol. 8vo, pp. 350, tt. 6.) (The Berlin Botanic G den, &c.)

This is a new annual publication devoted to botar and the first volume is almost entirely the work of t officers of the Berlin Botanic Garden and Herbariu Indeed, some 170 pages are devoted to a history the garden and herbarium and a sketch of their p sent condition, of which we give some particul elsewhere; but, as we learn from the Editor's prefa it is not to continue the exclusive organ of the offic botanists of Berlin, and other botanists are invited contribute. We are also informed that it is to absc *Linnæa*, a journal that has appeared in parts, with so slight interruptions, ever since 1826, and which reached its forty-third volume. The *Linnæa* has he in a languishing condition for the last few years, we should have preferred seeing the old title to a n one, especially as it has been successively edited botanists connected with the herbarium or gard Perhaps it was the new title that obtained the subsi from the Minister for Public Instruction, and her the suppression of the old one? Be that as it may, is better to have one flourishing publication than t languishing ones. In addition to the matter alrea indicated, the present volume contains articles Bulbils in Inflorescences; on Lateral Shoots of U equal Force; on Ramification in the Grape Vin on the Pitchers of Cephalotus; on the Genus Pavon on Hybrid Plants; on the Genus Monopsis; F. W. Sieber—a Contribution to the History Botany Sixty Years Ago; on the Anatomy of t Lenticels of the Marattiaceæ; on the Relation of t Stomate-System to the Stereome in the Rhachis Fern Fronds; and on Subfloral Axes as Flyi Apparatus.

Newfoundland to Manitoba, &c. By W. Rae. (Sampson Low & Co.)

This little work consists of a series of letters orig ally published in the *Times*, and now recast and vised. They form the record of two journeys in t Canadian Far West, and are evidently the producti of a careful observer anxious to see correctly a report faithfully. The author tells us of Newfour land, England's oldest colony of Nova Scotia, N Brunswick, Prince Edward Island, Winnipeg, Ma toba, &c. The concluding sentence sums up t author's impressions as to the future of the Canadi Far West:—"Should they" (the Canadians) "fail making Canada what it may become, the fault w be their own, and not that of their magnificent F West, which in all physical advantages and pote tialities cannot easily be matched and cannot an where be surpassed." Speaking of the city of Wi nipeg, the capital of Manitoba, the author reminds that in 1870 it was a miserable looking village some 300 inhabitants, incorporated in 1873, a then supposed to be beyond the confines of ci lisation. It has now a population of 15,00 with eight churches belonging to various relig ous denominations, several schools and colleges, a —most remarkable of all—the University of Manitob which grants degrees in arts, sciences, law, a medicine. Its governing body is composed of repr sentatives of religious societies which have not su ceeded in working harmoniously for a common e in other parts of the old or the new world. Vario colleges, Protestant and Roman Catholic, are affiliat to it, and the governing body consists of a Counci representatives of each college, others elected by t graduates. The Chancellor is the (Protestant) Bish of Rupert's Land; the Vice-Chancellor is the Secr tary of State for the province (a Roman Catholic The affiliated colleges grant theological degrees Remarkable and hopeful as all this is our readers m feel more interest in reading of the vegetable produc in this city, which is placed in the very centre of t American continent, on the fiftieth parallel of latitud

in a district called by some the "Land of Misery," but for all that containing, according to the testimony of the writer, millions of acres available for the culture of Wheat and other products, and this while landless millions in Europe are struggling for the necessaries of life or longing to be the possessors of land which they might call their own.

"The vegetables for sale in the market (of Winnipeg) reminded me of stories which I had read at home in the months of autumn. No imaginative writer in a country newspaper ever penned a paragraph about gigantic vegetables that could not be justified by the Potatos, Cabbages, and Turnips which I saw for sale here, and others which I have seen selected for exhibition. It is a common thing for Potatos to weigh 2 lb. each, and Turnips 20 lb., and for them to be as good as they are heavy. A Squash has been produced weighing 138 lb., and a Vegetable Marrow 26 lb. Cabbages measuring 4 feet 8 inches, and 5 feet 1 inch in circumference, have excited the astonishment of other visitors as well as my own, while a Cucumber, grown in the open air, and measuring 6 feet 3 inches in length, was rightly considered a curiosity. The display of fruit was not equal to that of vegetables, the culture of fruit having been neglected, owing to the supply of wild fruit being so varied and abundant. Experiments made in growing Apples having proved successful, the gardens here will soon be filled with fruit-bearing trees."

The author specifies the wild fruits as follows:—"Plums, wild Grapes, Strawberries, Currants, red and black Raspberries, Cherries, Blueberries, Whortleberries, maron and high bush Cranberries. If the settlers," continues the author, "have not busied themselves about the culture of fruit, they have not neglected the culture of flowers. The little gardens which adorn the fronts of the houses are filled with Roses, Mignonette, and other flowers dear to English eyes. Never have I seen flowers with more brilliant tints than those of Manitoba, and the brightness of their colours is in keeping with the strength and sweetness of their perfumes."

To those who may be revolving in their minds the necessity or desirability of emigrating we commend the present volume, because it is evidently a genuine book, and not one written by an interested person for a purpose.

Household Horticulture; *a Gossip about Flowers.* By Tom and Jane Jerrold. (Chatto & Windus.)

Despite its awkward title and occasional diffuseness of treatment, extending even to repetition of the same phrases, as at pp. 28 and 168, this is a useful little book for amateurs, touching as it does on window gardening, culture of plants in rooms, and the like. One great source of perplexity with the so-called window-gardens is not alluded to, so far as we have seen, in these pages, nor indeed in any other book of a similar character—we allude to the difficulty of cleaning the windows without disturbing or injuring the inmates of the window-box. Where the plants are grown in pots, it is easy to move them on one side when it is desirable to do so, but this is not possible when the plants are planted out on a sill which is perhaps not accessible from the outside by a ladder. A little ingenuity will overcome this difficulty, as by the use of a cloth wrapped around a stick, but the process is not wholly satisfactory under such circumstances.

The Management of Grass Land. By Arthur Roland. Edited by William H. Ablett. (London: Chapman & Hall.)

This is an excellent treatise of its kind, marred by a few blemishes and certainly by some deficiencies. At pages 1 and 2, for instance, the author gives a definition of "grass," and repeats Dr. Lindley's protest against the application of the name to plants which are not grasses; and at pages 12 and 15 he calls Yarrow a common grass, and Burnet a useful grass. Rib-grass (Plantago lanceolata) we must submit to as a name not very happily selected but now universally accepted. "Lucern, an useful article of fodder," at p. 161, is hardly scientific language, nor does it smack of the fields either. "The Sussex Report" is quoted at p. 184, and readers would feel more confidence in the guidance of the author if he were a little more explicit, since there have been several Reports of Sussex—some in the last century, some in this—for the Board of Agriculture, for the Royal Agricultural Society, and for the Bath and West of England Society.

These small blemishes can easily be removed. A larger one, which cannot but depreciate the value of any book in which it may appear, is the quoting of the seed lists of a particular firm.

And here we arrive at a graver fault. The author has apparently read up carefully the older authorities on his subject, and has squeezed out their essence skilfully, and has thus transferred much sound information to his pages, but he has neglected recent writings and inquiries, and has thus ignored an immense amount of practical information. The Royal Agricultural Society instituted a few years since an elaborate inquiry on the laying down and cultivation of permanent pasture, and the paper in their *Journal* would have been referred to by our author with advantage. The older chemists, too, have been consulted as well as Dr. Voelcker, while the Rothamsted investigations have been ignored. But in spite of these defects the book deserves an index, for it contains as much interesting and useful information on its subject as is often packed within 196 pages, and the arrangement of the materials is good.

Handy Book of Fruit Culture under Glass. By David Thomson. (Blackwood & Sons.)

All that it is necessary to say of this book is that it has reached a second edition, and that in all probability it is destined to reach a good many more. No garden library should be without it.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, October 26, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
20	29.56	—0.15	54.0	39.0	15.0	45.7	— 2.6	37.1	71	E. : S.E	0.00
21	29.48	—0.23	47.5	43.5	4.0	45.2	— 3.8	43.9	95	E. : S.E	0.29
22	29.21	—0.51	50.3	45.5	4.8	47.7	— 1.0	46.2	94	E. : S.E	0.31
23	29.30	—0.42	51.0	48.0	3.0	49.6	+ 1.3	48.1	97	E.	1.06
24	29.51	—0.20	49.5	45.0	4.5	47.0	— 0.9	44.3	91	W: NW	0.02
25	29.68	—0.04	50.2	40.0	10.2	43.4	— 4.1	40.3	87	N.N.E.	0.00
26	29.95	+0.23	50.2	39.5	10.7	43.0	— 4.2	40.5	90	N.E. : N.N.E.	0.00
Mean	29.52	—0.19	50.4	42.9	7.2	46.1	— 2.2	42.9	89	S.E.	1.68

Oct. 20.—A fine day; frequently cloudy; cold wind. Night overcast.
— 21.—Overcast; rain in the morning. Dull damp day and night.
— 22.—Moderately fine morning. Heavy rain afternoon and night.
— 23.—Very heavy rain in the morning; a dull wet day throughout.
— 24.—Overcast all day, and night.
— 25.—A fine day, partially cloudy, cloudless at night.
— 26.—A fine day and night; partially cloudy.

London: *Atmospheric Pressure.*—During the week ending October 22, the reading of the barometer at the level of the sea increased from 30.21 inches at the beginning of the week to 30.40 inches by 3 P.M. on the 16th, decreased to 30.34 inches by midnight on the same day, increased to 30.42 inches by 9 A.M. on the 17th, decreased to 29.65 inches by midnight on the 20th, increased to 29.67 inches by 9 A.M. on the 21st, and was 29.36 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.98 inches, being 0.18 inch higher than last week, and 0.10 inch above the average of the week.

Temperature.—The highest temperature in the shade during the week was 53°, on the 17th; the next in order was 52°.5, on the 18th. On October 16 the temperature did not rise above 46°. The mean of the seven high day temperatures was 50°.3.

The lowest temperature in the week was 28°.5, on the 17th; on the 22d the lowest temperature was 45°.5. The mean of the seven lowest temperatures was 36°.9.

The greatest range of temperature in one day was 24°.5, on the 17th; the smallest was 4°, on the 21st. The mean of the seven daily ranges was 13°.4.

The mean daily temperatures were, on the 16th, 38°.9; on the 17th, 40°; on the 18th, 42°.8; on the 19th, 43°.6; on the 20th, 46°.3; on the 21st, 45°.2; on the 22d, 47°.7, being below the average on every day by 11°.1, 9°.8, 6°.9, 5°.9, 3°, 3°.8 and 1° respectively. The mean temperature for the week was 43°.5, being 6°.7 lower than last week; and 5°.9 below the average for the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 118° on the 20th; the highest, on the 22d, was 51°. The mean of the seven readings was 91°.1.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 25°.5, on the 17th. The mean of the seven readings was 33°.4.

Rain fell on three days, to the amount of 0.64 inch.

England: *Temperature.*—During the week ending October 22 the highest temperatures were 60° at Sunderland, 59° at Truro, and 57°.8 at Plymouth. The highest temperatures in the week was 48° at Hull, 50°.2 at Leicester, and 50°.4 at Wolverhampton. The mean from all stations was 53°.5.

The lowest temperatures in the week were 25° at Cambridge, 27°.2 at Nottingham, and 27°.5 at Leicester. The lowest temperature at Plymouth was 33°.9, at Liverpool was 34°, and at Sunderland was 35°. The mean from all stations was 30°.

The greatest ranges of temperature in the week were 29°.6 at Cambridge, and 29° at Truro. The least ranges were 18°.8 at Liverpool, 19° at Hull, and 20°.5 at Brighton. The mean from all stations was 23°.5.

The mean of the seven high day temperatures was 53°.9 at Plymouth, 54°.8 at Sunderland, and 56°.6 at Truro, and was less than 48°.5 at Hull, Wolverhampton, and Leicester. The mean from all stations was 50°.5.

The mean of the seven low night temperatures was 40°.2 at Sunderland, 41° at Liverpool, and 45°.7 at Truro, and was less than 35° at Cambridge, Wolverhampton, and Bristol. The mean from all stations was 38°.1.

The mean daily range was 18°.8 at Cambridge, 17°.4 at Bristol, and 14°.6 at Sunderland, and was only 7°.9 at Hull, 8°.3 at Liverpool, and 10°.9 at Truro. The mean from all stations was 12°.4.

The mean temperature for the week was 50°.1 at Truro, 47°.3 at Plymouth, and 46°.5 at Sunderland, and was less than 41°.5 at Wolverhampton, Hull, and Leicester. The mean from all stations was 43°.4.

Rain.—The largest falls were 1.40 inch at Bradford and 1.31 inch at Sheffield, The least falls were 0.21 inch at Bristol, and 0.26 inch at Leeds. The mean from all stations was 0.81 inch.

Scotland: *Temperature.*—During the week ending October 22 the highest temperature was 58°.4 at Aberdeen. At Leith the highest temperature in the week was 52°.3. The general mean was 55°.7.

The lowest temperature was 27° at Glasgow; at Leith and Greenock the lowest temperature was 32°. The general mean was 30°.3.

The mean temperature for the week was highest at Aberdeen and Paisley, 45°.6, and lowest at Edinburgh, 43°.6. The general mean was 44°.8.

Rain.—The largest falls were 1.15 inch at Dundee, and 0.38 inch at Edinburgh. No rain fell at either Glasgow or Paisley, and only 0.03 inch at Greenock, The general mean was 0.30 inch.

JAMES GLAISHER, F.R.S.

Variorum.

Veneer Cutting in America.—The introduction into this country some few years since of large sheets of thin wood like so much wall-paper, caused people to wonder by what machinery they were cut, for it was evident they were removed from the trunk of the tree in continuous sheets. These gigantic shavings were used in America for covering the walls of rooms, and they were affixed by a method very similar to that used for affixing paper. The process by which these thin veneers are prepared has thus been described by a contemporary:—The logs are delivered to the mill-yard in any suitable lengths as for ordinary lumber. A steam drag-saw cuts them into such lengths as may be required by the order in hand; those being cut at the time of our visit were 4 feet long. After cutting the logs are placed in a large steam-box, 15 feet wide by 22 inches long and 6 feet high, built separate from the main building. This box is divided into two compartments. When one is filled entirely full the doors are closed, and the steam, supplied by the engine in the main buiding, is turned on—the logs remaining in this box from three to four hours, when they are ready for use. This steaming not only removes the bark, but moistens and softens the entire log. From the steam-box the log goes to the veneer lathe. It is here raised and grasped at each end by the lathe centres and firmly held in position, be-

ginning to slowly revolve. Every turn brings it in contact with the knife, which is gauged to a required thickness. As the log revolves the inequalities of its surface of course first comes in contact with the keen-edged knife, and disappear in the shape of waste veneer, which is passed to the engine-room to be used as fuel. Soon, however, the unevenness of the log disappears, and the now perfect veneer comes from beneath the knife in a continuous sheet, and is received and passed on to the cutting-table. This continues until the log is reduced to about a 7-inch core, which is useless for the purpose. The veneer as it comes rolling off the log presents all the diversity of colours, and the beautiful grain and rich marking that have perhaps for centuries been growing to perfection in the silent depths of the great forest. From the lathe the veneer is passed to the cutting-table, where it is cut in length or width as desired. It is then conveyed to the second storey, where it is placed in large dry rooms, air-tight, except as the air reaches them through the proper channels. The pieces are here placed in crates, each piece separate, and standing on edge. The hot air is then turned on. This comes from the sheet-iron furnace attached to the boiler in the engine-room below, and is conveyed through large pipes regulated by dampers for putting on or taking off the heat. There is also a blower attached which keeps the hot air in the dry rooms in constant motion, the air as it cools passing off through an escape-pipe in the roof, while the freshly heated air takes its place from below. These rooms are also provided with a network of hot-air pipes near the floor. The temperature is kept at 165°, and so rapid is the drying process that in the short space of four hours the green log from the steam box is shaved, cut, dried, packed, and ready for shipment. After leaving the dry room the veneers are assorted, counted, and put up in packages of 100 each, and tied with cords like lath when it is ready for shipment. Bird's-eye Maple veneer it much more valuable, and requires more care than almost any other, and this is packed in cases instead of being tied in bundles. The principal timbers used are curled and bird's-eye Maple, Beech, Birch, Cherry, Ash, and Oak.

Law Notes.

Stealing Grapes.—Joseph Hale, 30, labourer, Wm. Preest, 30, and Ruth Preest, 20, were indicted at the East Essex Quarter Sessions for stealing a quantity of hothouse Grapes from the vinery of Mr. G. Phillips, Cranbrook Park, Ilford, on October 4. Mr. Forrest Fulton, who appeared to prosecute, said the facts were very peculiar. It was a part of our law that a man could not be charged with stealing growing Grapes, and as these had been cut from a Vine the prisoners could not be charged on that count. But a pair of scissors had been stolen from the same place and at the same time, and therefore they would be tried on that charge. The two Preests occupied one house. The police having received certain information, went to their house, and found about 56 lb. of Grapes, a pair of scissors, and a brass syringe. It appeared that on October 4 the prisoner, Joseph Hale, went to a fruiterer named Kipper, at Stratford, and asked him whether he would buy any Grapes. The fruiterer asked him what he wanted for them, and the prisoner having quoted a price, he left, saying he would bring samples the next day. The fruiterer having suspicions communicated with the police, and the next morning the man was apprehended with the Grapes in his possession. The house of the prisoners Preest was then searched. The pair of scissors and the syringe found there were identified by a man named Cooper, the gardener to Mr. Phillips. The witness, Cooper, would swear to the Grapes having been stolen from his master's vinery, because he had a peculiar way of tying the Grapes up, and there could be no doubt that they were stolen with the scissors from the house of the prosecutor.

The jury returned a verdict of guilty, and Hale was sentenced to three months' imprisonment, and the two prisoners Preest to one month's imprisonment each.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Crab Apple Pickle.—Will some one kindly furnish me with the recipe for making wild Crab Apple pickle (not jam)? In taste it is somewhat like Indian Mango. *C. B., Norwich.*

Answers to Correspondents.

Books: *Tormentatore.* Apply to Mr. David Bogue, 3, St. Martin's Place, W.C., for Mr. Davis' book on mounting objects for the microscope, &c.

Fungus: *M. C.* A large and beautiful example of Clavaria stricta. *W. G. S.*

Clubbing in Peach Roots: *E. D.* We believe the condition is due to the ill-drained state of the border. We do not find any fungus, and the wireworm you send is not likely to have produced the mischief.

Erratum.—At p. 541, col. *c*, for "fifty-four," read "forty-five"—that is, forty-two Polypodiaceæ and three Ophioglossaceæ.

Meadow Sweet: *G. N.* The North American plant, so called, is Spiræa salicifolia, quite hardy in this country.

Names of Fruits: *A Constant Subscriber of Over Thirty Years. Apples:* 2, Rymer; 5, Golden Pearmain; 8, Cellini; 9, Yorkshire Greening; 10, Fearn's Pippin; 11, Transparent Codlin; 12, Hanwell Souring. Others not recognised; they are probably local seedlings.

Names of Plants: *W. Goodall.* 1, Tradescantia discolor; 2, Celsia cretica.—*H. K., Greenlands.* The Spindle-tree (Euonymus europæus).—*W. T.* Pleopeltis pustulata.—*W. Roberts.* 1 and 2, Dracænas—impossible to name from single leaves; 3, Polystichum angulare—apparently the var. proliferum, but a poor sample; 4, Selaginella uncinata; 5, S. cuspidata.—*E. C.* We have been unable to identify the Miltonia. Please send us a fresh flower, and we will submit it to Prof. Reichenbach.—*May G.* Vernonia novæboracensis, North America.—*A Constant Reader.* Stanhopea grandiflora.—*W. Hannaford & Sons.* 1, Oncidium prætextum; 2, Oncidium cornigerum.

Pinks and Carnations: *M.* We find a species of Vibrio in the diseased spots, but no fungus. It would be well to have specimens forwarded in a fresh condition, for the matter is very curious. *M. J. B.*

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors*," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ Foreign Subscribers sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

Ewing & Co., Newmarket Road, Eaton, Norwich—Price List of Nursery Stock.

George Cooling & Son, Bath—Roses, Fruit Trees, Hardy Shrubs &c.

Anthony Waterer, Knap Hill, Woking—American Plants, Hardy Trees and Shrubs, &c.

J. C. Wheeler & Sons—Fruit Trees, Roses, Ornamental Trees, &c.

Communications Received:—H. K., Sussex.—H. Coster.—A Constant Reader.—F. W. B.—A. O.—C. W.—W. H.—G. W.—W. P.—J. B. T.—G. M.—C. B. P—T. & Co.—G. N.—E. W. D.—Webber & Co.—R. T. C.—M. F.—W. H. F.—W. B. & Sons.—C. G.—H. C.—J. M.—A. F. B.—H. M.—W. H.—G. W.—W. C.—P. G.—S. & S.—C. Y. M.—A late F.R.H.S.—R. G.—J. D.

Markets.

COVENT GARDEN, October 27.

Our market is still quiet. Large quantities of Apples are still reaching us at same rates. Importations light. Cobs have been easier, but with a slight reduction a good supply has been readily cleared. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 4 6	Peaches, per dozen	6 0–12 0
Figs, per dozen	0 6– 1 0	Pears, Eng., ½-sieve	2 6– 5 6
Grapes, per lb.	0 6– 2 6	— French, per doz.	1 6– 2 6
Kent Cobs, per lb.	0 9– 10	Pine-apples, Eng., lb.	3 0– 5 0
Lemons, per 100	4 0– 6 0	Plums, per ½-sieve	4 0– 6 0
Melons, each	2 0– 3 6		

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Lettuces, Cabbage, per doz.	0 6– 1 6
Beans, French, p. lb.	1 0– ..	— Engl. Cos, score	1 6– ..
Beet, per doz.	1 0– ..	Mint, green, bunch	0 4– 0 6
Cabbages, per doz.	1 0– 2 0	Mushrooms, p. baskt.	1 6– 2 0
Carrots, per bunch	0 4– 0 6	Onions, per bushel	5 0– ..
Cauliflowers, English, dozen	2 0– 4 0	— Spring, per bun.	0 6– ..
Celery, per bundle	1 6– 2 0	Parsley, per bunch	0 4– ..
Cucumbers, each	0 6– 1 0	Peas, per bushel	5 0– 8 0
Endive, per doz.	1 0– 1 6	Radishes, per bun.	0 2– 0 6
Garlic, per lb.	1 0– ..	Seakale, per punnet	3 0– ..
Herbs, per bunch	0 2– 0 4	Small salading, pun.	0 4– ..
Horse Radish, per bundle	4 0– ..	Spinach, per bushel	2 6– ..
		Tomatos, per lb.	0 9– 1 0
		Vegt. Marrows, doz.	2 0– ..

Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatt's, 100s. to 120s.; Magnum Bonums, 90s. to 110s.

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 4	Marguerites, 12 bun.	4 0– 6 0
Asters, 12 bunches	9 0–15 0	Mignonette, 12 bun.	3 0– 6 0
Bouvardias, per bun.	0 9– 1 0	Pelargoniums, 12 sprays	1 0– 1 6
Camellias, 12 blooms	6 0– 9 0	— zonal, 12 sprays	3 0– 6 0
Carnations, 12 blms.	1 0– 2 0	Primula, double, per bunch	1 0– 1 6
Chrysanth., 12 bun.	6 0–12 0	Roses (indoor), doz.	1 0– 3 0
— 12 blooms	3 0– 6 0	— (outdoor), 12 bun.	6 0–12 0
Eucharis, per doz.	6 0– 9 0	Stephanotis, 12 spr.	6 0– 9 0
Gardenias, 12 blms.	4 0– 9 0	Tropæolum, 12 bun.	1 0– 3 0
Heliotropes, 12 sp.	0 6– 1 0	Tuberoses, per dozen	2 0– 3 0
Hyacinths (Roman), 12 sprays	3 0– 4 0	Violets, 12 bunches	1 0– 1 6
Lapageria, white, 12 blooms	2 0– 4 0	— (French), p. bun.	1 6– 2 0
— red, 12 blooms	1 0– 3 0	— (Fr. Parme), bun.	4 0– 5 0
Lilac (Fr.), p. bunch	8 0–10 0		

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Evergreens, in var., per dozen	6 0–24 0
Asters, per dozen	6 0–12 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 6
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Begonias, per doz.	4 0–12 0	Fuchsias, per dozen	6 0–12 0
Chrysanthemums, per dozen	6 0–12 0	Myrtles, per doz.	6 0–12 0
Cissus discolor, doz.	18 0–24 0	Palms in variety, each	2 6–21 0
Cyperus, per dozen	6 0–12 0	Pelargoniums, scarlet, per dozen	3 0– 6 0
Dracæna terminalis	30 0–60 0	Solanums, per dozen	9 0–12 0
— viridis, per doz.	12 0–24 0		
Euonymus, various, per dozen	6 0–18 0		

SEEDS.

London: *October 26.*—The market to-day was poorl attended, with but little business doing. New America Clover seed is offering at about 46*s.* per cwt. cif., bu without finding buyers. Alsike, white, and Trefoil ar unchanged. As regards perennial Rye-grasses, a harder ing tendency is perceptible. Good dry winter Tares ar scarce. New white Canadian Peas are now arriving There is an increased inquiry for Canary seed. Linsee keep sfirm. *John Shaw & Sons, Seed Merchants, 37 Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the Wheat trade was dull at a pretty general decline of 1*s.* per quarter on the rate of Monday se'nnight. The floating cargo trade is mor especially quiet. Flour was dull of sale, with a tendenc in favour of buyers. Malting Barley met enquiry an was firm, but grinding sorts were purchasable on rathe easier terms. Beans, owing to scarcity, realised 1*s.* pe quarter over last Monday's rates, and Peas were firm large arrivals of Canadian sold 1*s.* lower. Maize on th week showed a similar decline. Oats were dull of sale but holders did not lower their terms.—On Wednesda there was a very poor attendance of buyers, and sale could not be effected except at easier rates. Flour o good quality was rather scarce and supported its value but inferior grades were dull and drooping. Barley wa without alteration. Beans supported Monday's advance and Peas were dull of sale without further change i value. Oats met very little demand. Maize sold slowl on the spot, at Monday's decline. Average prices o corn for the week ending Oct. 22:—Wheat, 47*s.* 1*d.* Barley, 35*s.* 8*d.*; Oats, 20*s.* 6*d.* For the corresponding period last year:—Wheat, 42*s.* 8*d.*; Barley, 35*s.* 2*d.* Oats, 21*s.*

CATTLE.

At the Metropolitan Market on Monday first quality cattle from scarcity met a fairly ready sale at fully sustained rates, but middling and plain descriptions, o which the supply was heavy, sold with difficulty at low prices. The sheep pens were but moderately filled: the trade ruled steady as regards values, but somewhat slow. Calves did not sell readily. No change was observable in the pig trade. Quotations:—Beasts, 4*s.* 4*d.* to 4*s.* 8*d.*, and 5*s.* to 5*s.* 10*d.*; calves, 4*s.* 8*d.* to 5*s.* 6*d.*; sheep, 5*s.* to 5*s.* 6*d.*, and 6*s.* to 7*s.*; pigs, 4*s.* 4*d.* to 5*s.*—Thursday's trade was quiet, without any special feature. Beasts and sheep sold slowly at about Monday's rates. Calves were unaltered, but pigs were the turn dearer.

POTATOS.

The Borough and Spitalfields Markets reports state that foreign arrivals are fairly large, and English moderate. The condition of a great portion is bad, and trade dull. Quotations:—Kent Regents, 85*s.* to 90*s.*; Essex ditto, 80*s.*; ditto Champions, 50*s.* to 60*s.*; Kent Victorias, 90*s.* to 100*s.*; Magnum Bonums, 80*s.* to 90*s.* per ton.—The imports into London last week were 45,604 bags from Hamburgh, 200 bags Terneuzin, 56 tons Rokoff, 212 bags Ghent, and 400 bags Bremen.

COALS.

The following are the quotations current at market during the past week:—East Wylam, 17*s.* 6*d.*; Walls End—Hetton, 19*s.* 6*d.*; Hetton Lyons, 18*s.*; Hawthorns, 18*s.* 3*d.*; Lambton, 19*s.*; Original Hartlepool, 19*s.* 6*d.*; Wear, 18*s.*; South Hetton, 19*s.* 6*d.*; Tunstall, 18*s.*; Radford Navigation, 17*s.* 6*d.*

Government Stock.—The closing prices of Consols on Monday were 99 to 99⅛ for both delivery and the account. Tuesday's final quotations for both classes was 99⅛ to 99¼. The closing prices of Wednesday were, for delivery, 99⅛ to 99¼, and 99 3/16 to 99 5/16 for the account; and Thursday's closing record was the same.

"EARLY SUNRISE PEAS" (DAY'S).

The best time for planting this variety, for early podding, is *November*, *December*, and *January*, as they vill stand a severe winter, and are *as hardy as a grey Pea;* and this for a *grand, prolific Marrow variety, pecially adapted for Field Culture*, renders them invaluable to Market Gardeners and others. One Market Gardener this year returned £50 for *Half an Acre* podded in June. "SUNRISE" is also adapted for uccession and *late sowings*. Seedsmen can obtain their Stock and every information on application to

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DIANTUM LATHOMI—Strong plants of this splendid New Fern, 10*s.* 6*d.* each.

DIANTUM BAUSEI—A most distinct variety, 5*s.*

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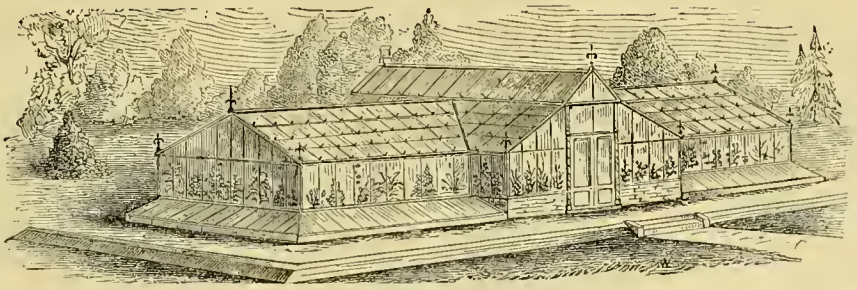

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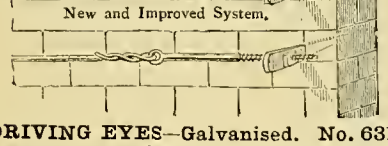

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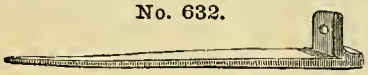

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No. 14 Gauge Wire	1 0	1 7	2 1	2 7	3 1
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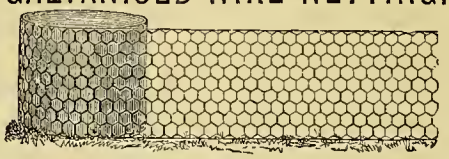

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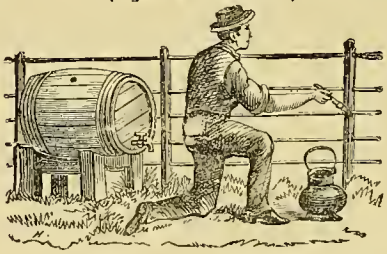

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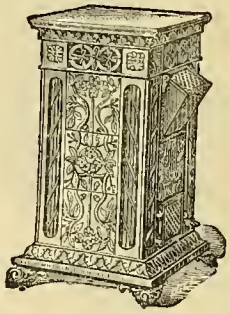

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Petroleum Greenhouse Stove.
26 in. high, portable, and requiring no flue will burn 24 Hours without attention.
No Smoke, no Smell, no Injury to the most delicate Plants.
Packed in case, for sending by rail, 1s. extra
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The Best System of Heating is by Hot Water.
The Best Hot-Water Joint is Jones' Expansion Joint.

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SIMPLE,
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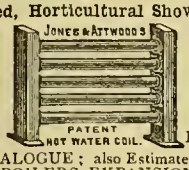

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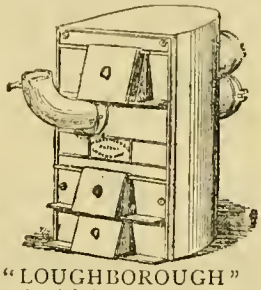
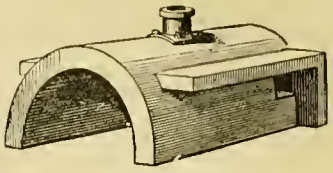


THE "LOUGHBOROUGH" BOILER, now introduced, is intended to supply a want long felt, of a cheap Boiler for small Greenhouses, requiring neither brick setting nor iron case. The Boiler is placed in the wall of the Greenhouse, so that the heat from the Boiler itself is utilised in heating the house. Price with fittings, £2 12s., delivered. Capable of heating 70 feet of 4-in. pipe.
The apparatus for a Greenhouse, 20 feet by 10 feet, complete, for £6 10s. Prices and full particulars on application.
MESSENGER AND CO., Loughborough.

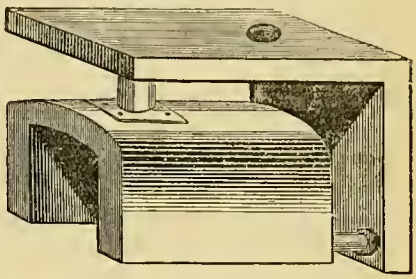
PIPES and FITTINGS,
FOR HEATING APPARATUSES.
The largest stock in the Kingdom. 4-inch pipes, 1*s.* 6*d.* per yard.
SILVESTER & SAINSBURY,
Castle Hill Foundry, Newcastle, Staffordshire.

Silver Medal, 1874. First-class Certificate, 1867.
Highly Commended, 1873. First-class Certificate, 1875.



Mr. W. THOMPSON, Tweed Vineyard, has written the following letter to a gentleman who inquired respecting this Boiler:—
"Galashiels, February 4, 1881.
"The Terminal Saddle Boiler is BY FAR the best one we have here, and we have had all sorts. It does its work well, and with less fuel than most Boilers. It is the most economical and efficient Boiler we have, and has not cost sixpence since we fixed it some eight years ago."
Illustrated Prospectus Post-free.
THOS. JONES, Temple Street, Manchester.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1000	16	0	0
24 ,,	24 ,,	48 ,,	1400	20	0	0
28 ,,	28 ,,	60 ,,	1800	25	0	0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May* 29, 1873.
"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.
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When ordering Boilers please refer to the above advertisement.

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Have the largest and most complete stock in the Trade to choose from.

HOT-WATER BOILERS, PIPES, AND CONNECTIONS,
AND all CASTINGS for HORTICULTURAL PURPOSES.
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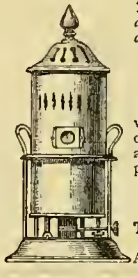
(*price One Shilling*).
Hot-water and Hot-air Apparatus erected complete, or the Materials supplied.
Price List on application free.

RIPPINGILLE'S PATENT
WARMING STOVES.



The only perfect Oil Stoves made to burn absolutely without Smoke or Smell, Trouble or Dirt. Unequalled for Warming
Greenhouses, Vineries, Shops, Bedrooms, Halls, Offices, Damp Rooms, &c.
Perfectly safe, require no pipes or fittings, will burn from twelve to twenty hours without attention, give off no injurious vapour, and are the best Stoves ever invented to save plants from frost, keep out the damp, &c.
PRICE FROM A FEW SHILLINGS.
Write for Illustrated List of Warming Stoves to
The Holborn Lamp and Stove Co.,
118, HOLBORN, LONDON, E.C.,
And say where you saw this Advertisement.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of
WATSON AND SCULL, 90, Lower Thames St., London, E.C.

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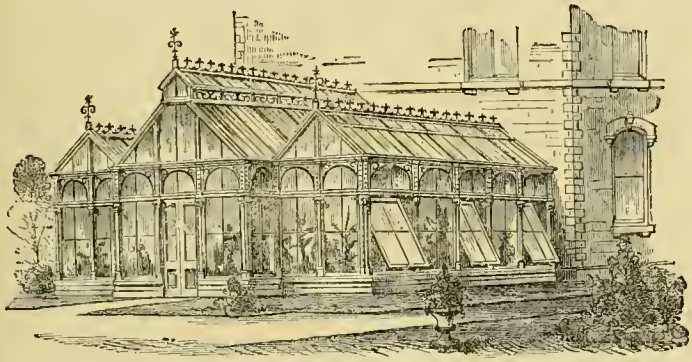

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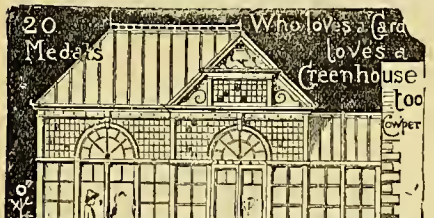

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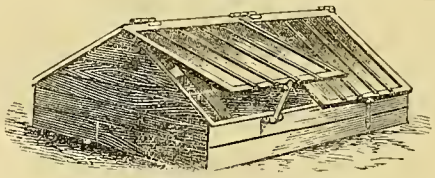

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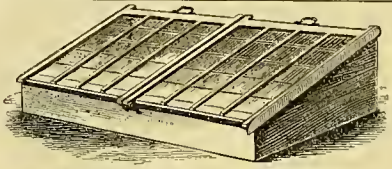

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STANDARD ORNAMENTAL TREES.

18 to 20 feet high.	Each. s. d.	Doz. s. d.	100. s. d.
ASH, common		24 0	..
,, ,, extra strong		30 0	..
,, cucullata	3 6	..	..
,, monophylla	3s. 6d. to 5 0	..	..
ELM, English	7 6	72 0	..
,, Huntingdon	7s. 6d. to 10 6	72/-90/-	..
,, Wych	6 0	60 0	..
MAPLE, colchicum rubrum	7s. 6d. to 10 6	..	..
,, Norway	7s. 6d. to 10 6	..	..
POPLAR, canadensis nova	5s. to 7 6	..	..
,, silver-leaved	5 0	..	..
SYCAMORE, common	5s. to 7 6	..	..

15 to 18 feet.	Each. s. d.	Doz. s. d.	100. s. d.
ASH, common		18 0	..
,, aucubæfolia	3 0	30 0	..
,, cucullata	3 0	30 0	..
,, juglandifolia	3 0	30 0	..
,, monophylla	3 0	30 0	..
,, salicifolia	3 0	30 0	..
,, mountain	3 0	30 0	..
,, ,, yellow-berried	3 6	36 0	..
,, ,, large-berried	3 6	36 0	..
,, ,, orange-barked	3 0	30 0	..
BIRCH, Fern-leaved	5 0	48 0	..
ELM, English	3s. 6d. to 5 0	36/-42/-	..
,, Huntingdon	..	36/-42/-	..
HORSE CHESTNUT, white	3 0	30 0	..
,, ,, extra strong	5s. to 7 6	48/-60/-	..
,, ,, double red	3s. 6d. to 5 0	..	..
,, ,, double white	5 0	..	..
,, ,, ohioensis	3s. 6d. to 5 0	..	..
,, ,, scarlet	4s. to 5 0	42/-48/-	..
,, ,, ,, extra strong	7 6	..	..
LIME, red-twigged, extra strong	7/6-10/6	..	..
LARCH, japonica	2s. 6d. to 3 6	..	..
LIME, dasystyla	5s. to 7 6	..	..
,, latifolia alba	7 6	60/-84/	..
,, red-twigged, extra strong	6 0	60 0	..
MAPLE, Norway	3 6	36 0	..
,, laciniata	3 6	..	..
,, Schwedleri	3 6	36 0	..
,, virginicum rubrum	5s. to 7 6	..	..
OAK, scarlet	5 0	42 0	..
,, Turkey	3 6	36 0	..
PLANE, occidentalis (London Plane)	6 0	60 0	..
POPLAR, Black Italian	2 6	24 0	..
,, silver-leaved	2 6	24 0	..
PYRUS aria (White Beam)	3 0	30 0	..
SYCAMORE, common	3 0	30 0	..
,, purple	5 0	..	..
,, variegated	5 0	..	..

12 to 15 feet.	Each. s. d.	Doz. s. d.	100. s. d.
ACACIA Decaisneana (pink)	3 6	..	..
AILANTUS glandulosa	2 6	..	..
ALDER, quercifolia	2 6	24 0	..
ASH, aucubæfolia	2s. to 2 6	18/-24/-	..
,, juglandifolia	2s. to 2 6	18/-24/-	..
,, monophylla	2s. to 2 6	18/-24/-	..
,, orange-barked	2s. to 2 6	18/-24/-	..
,, salicifolia	2s. to 2 6	18/-24/-	..
,, silver striped	2s. to 2 6	18/-24/-	..
,, mountain	2s. to 2 6	24 0	150 0
,, ,, yellow-berried	2s. to 2 6	30 0	..
,, ,, large-berried	2s. to 2 6	30 0	..
CHESTNUT, Spanish	3 0	30 0	..
,, ,, extra strong	5s. to 7 6	..	..
ELM, Dampieri	2s. 6d. and 3 6	..	..
,, emarginata	3 0	30 0	..
,, English	3 0	30 0	200 0
,, Huntingdon	3 0	30 0	200 0
,, Wheatley's	3s. 6d. and 5 0	..	..
HORSE CHESTNUT, glabra	2s 6d. and 3 6	..	..
,, ,, double white,	2s 6d. and 3 6	..	..
,, ,, glabra pallida	3s. 6d. and 5 0	..	..
,, ,, neglecta	3 6	..	..
,, ,, scarlet	3 0	30/-36/-	..
LIME, latifolia alba	3s. to 4 0	..	..
,, red-twigged	3s. 6d. to 5 0	36/-42/-	..
MAPLE, Norway	2 6	24 0	..
,, Schwedleri	3 0	30 0	..
,, virginicum rubrum	3 0	30 0	..
OAK, Turkey	3 0	30 0	..
,, scarlet	3 0	30 0	..
PLANE, occidentalis (London Plane)	5 0	48 0	..
POPLAR, Black Italian	2 0	18 0	100 0
,, canadensis nova	..	18 0	..
PYRUS aria (White Beam)	2 6	24 0	..
SORBUS hybrida	..	24/-30/-	..
SYCAMORE, common	2 6	24 0	..
,, variegated	3 0	30 0	..
TULIP TREE	5s. and 7 6	..	..

10 to 12 feet.	Each. s. d.	Doz. s. d.	100. s. d.
ACACIA, Decaisneana	3 0	30 0	..
,, monophylla	2 6	..	..
AILANTUS glandulosa	2 0	18 0	..
ASH, mountain	2 0	18 0	..
,, ,, yellow-berried	2 6	24 0	..
,, ,, large-berried	2 6	24 0	..
,, flowering	2 0	18 0	..
ALMOND, flowering	3 0	30 0	..
BEECH	2 6	24 0	..
,, purple-leaved	5 0	48 0	..
ELM, English	2 0	21 0	150 0
,, Huntingdon	2 0	21 0	150 0
,, myrtifolia	2 6	24 0	..
,, plumosa	2 6	24 0	..
,, silver striped	2 0	18 0	..
,, Webbiana	2 6	24 0	..
,, Wheatley's	2 6	24 0	..

10 to 12 feet.	Each. s. d.	Doz. s. d.	100. s. d.
HORSE CHESTNUT, yel. flowered	2/6-3/6	..	..
,, ,, discolor	2s. 6d. to 3 6	..	..
,, ,, laciniata	2 6	..	..
,, ,, rubicunda	2s. 6d. to 3 6	..	..
,, ,, Whiteyii	2s. 6d. to 3 6	..	..
,, ,, aurea variegata	2s. 6d. to 3 6	..	..
LABURNUM, English	2 6	24 0	..
,, purple-flowered	2 6	24 0	..
,, Scotch	2 6	24 0	..
LIME, red-twigged	3 0	30 0	..
LARCH, Siberian	2 0	..	..
,, microcarpa	2 0	..	..
MAGNOLIA acuminata	5 0	..	..
MAPLE, colchicum rubrum	2 6	24 0	..
,, Negundo variegata	2 6	24 0	..
,, Norway	2 0	18 0	..
,, virginicum rubrum	2 6	24 0	..
,, Schwedleri	2 6	24 0	..
OAK, scarlet	2 6	24 0	..
,, Turkey	2 6	24 0	..
PLANE, occidentalis (true London Plane)	4 0	42 0	..
PTELIA trifoliata (Hop-tree)	..	24 0	..
POPLAR, Black Italian	1 3	12 0	75 0
,, canadensis, golden	2 6	24 0	..
,, nova	2 0	18 0	..
SUMACH (Stag's-horn)	2 6	24 0	..
SNOWY MESPILUS florida	2 6	..	..
SYCAMORE	2 0	18 0	..
,, purple-leaved	2 6	24 0	..
,, variegated	2 6	24 0	..
THORN, double pink	3 0	30 0	..

8 to 10 feet.	Each. s. d.	Doz. s. d.	100. s. d.
ACACIA Bessoniana	3 0	30 0	..
,, monophylla	2 0	..	..
,, inermis	3s. 6d. to 5 0	..	..
ALMOND, double sweet	3 0	30 0	..
,, flowering	2 6	24 0	..
ASH, aucubæfolia	1 6	15 0	..
,, flowering	1 6	15 0	..
,, orange-barked	1 6	15 0	..
,, monophylla	1 6	15 0	..
BEECH, common	2 0	18 0	..
,, cut-leaved	3 0	30 0	..
,, purple	3 6	36 0	..
BIRCH, Fern-leaved, weeping	2 6	24 0	..
,, new purple-leaved, weeping	3 6	36 0	..
,, silver	1 6	15 0	..
BIRD CHERRY	1 6	15 0	..
CATALPA syringæfolia	2 6	..	..
CHERRY, double blossomed	2 6	24 0	..
,, hortensis rosea	2 6	..	..
CHESTNUT, Spanish	2 0	18 0	..
,, ,, Fern-leaved	2s. 6d. to 3 6	..	..
COTONEASTER frigida	2 0	..	..
DIMORPHANTHUS mandschuricus	2s. 6d. to 3 6	..	..
DOGWOOD, mascula variegata	2 6	24 0	..
ELM, Huntingdon	1 6	15 0	100 0
,, golden	2 6	24 0	..
,, monumentalis	2 6	..	..
,, purple	2 0	18 0	..
,, plumosa	2 0	18 0	..
,, viminalis nivea fol. variegata	2 6	24 0	..
LABURNUM, English	..	18 0	..
,, golden	2 6	24 0	..
,, monstrosa	2 6	..	..
,, purple-flowered	..	18 0	..
,, quercifolia	2 6	..	..
,, Scotch	..	18 0	..
MAPLE, colchicum rubrum	2 0	18 0	..
,, Negundo variegata	2 0	18 0	..
,, Norway	1 6	15 0	..
,, monspessulanum	1s. 6d. to 2 6	..	..
,, Schwedleri	2 0	18 0	..
OAK, English	2 0	18 0	..
,, pectinata	3s. 6d. to 5 0	..	..
,, scarlet	2 0	18 0	..
PLANE, occidentalis (true London Plane)	3 0	30 0	..
POPLAR, canadensis nova	1 3	12 0	..
,, silver-leaved	1 3	12 0	..
PTELIA trifoliata (Hop-tree)	..	18 0	..
PYRUS malus imperialis	2 6	24 0	..
,, spectabilis	2 6	24 0	..
RHAMNUS frangula	2 0	18 0	..
SNOWY MESPILUS	2 6	24 0	..
SYCAMORE, common	1 6	15 0	..
,, purple	2 0	18 0	..
,, variegated	2 0	18 0	..
THORN, double crimson	2 6	24 0	..
,, single scarlet	2 6	24 0	..
,, in named varieties	2 6	24 0	..
WILLOW, cærulea	2 0	18 0	..
,, Salomon	2 0	18 0	..

WEEPING TREES.

Height of stems in feet.	Each. s. d.	Each. s. d.
ALMOND	5 to 6	2 6 to 3 6
ASH	6 to 9	2 6 to 5 0
,, extra strong	6 to 9	7 6 to 21 0
,, gold-barked	6 to 8	2 6 to 5 0
,, mountain	6 to 8	2 6 ..
,, ,, variegated	6 to 8	2 6 ..
BEECH	6 to 7	3 6 to 5 0
,, extra strong	6 to 7	7 6 to 10 6
,, purple	6 to 7	5 0 to 7 6
BIRCH, new	5 to 6	3 6 to 5 0
CARAGANA	4 to 6	3 6 ..
ELM, Camperdown	7 to 8	2 6 to 5 0
,, English	6 to 8	2 6 to 5 0
,, elegantissima	6 to 7	2 6 to 3 6
,, latifolia	6 to 8	2 6 to 5 0
,, serpentina	7 to 8	3 6 to 5 0

WEEPING TREES.

Height of stems in feet.	Each. s. d.	Each. s.
ELM, suberosa	7 to 8	2 6 to 5
LARCH	6 to 8	3 6 to 5
LIME	6 to 8	2 6 to 3
PYRUS	5 to 6	2 6 to 3
POPLAR	8 to 10	2 6 to 5
WILLOW, American	6 to 8	1 6 to 2
,, Kilmarnock	5 to 6	2 6 to 3
,, Wolseyana	6 to 8	2 6 to 3

CONIFERS, &c.

10 to 12 feet.	Each. s. d.	Doz. s. d.	100. s.
CUPRESSUS LAWSONIANA	10 6	96 0	.
HOLLY, maderiensis	31s. 6d. to 42 0	..	.
JUNIPERUS chinensis	15s. to 21 0	..	.
PICEA Nordmanniana	42 0	..	.
THUYA Lobbii	7 6	72 0	.
,, ,, pumila	15s. to 21 0	..	.
,, occidentalis	3s. 6d. to 5 0	..	.
,, gigantea	15 0	..	.

8 to 10 feet.	Each. s. d.	Doz. s. d.	100. s.
ABIES Douglasii	7s. 6d. to 10 6	..	.
BIOTA orientalis	5s. to 15 0	..	.
CEDRUS Deodara	12s. 6d. to 15 0	..	.
CUPRESSUS Lawsoniana	6 0	60 0	.
HOLLY, latispina	10s. 6d. to 21 0	..	.
,, maderiensis	21s. to 31 6	..	.
,, minorca	15s. to 25 0	..	.
,, silver, weeping	31s. 6d. to 42 0	..	.
JUNIPERUS chinensis	10 6	96 0	.
PICEA Nordmanniana	25s. to 31 6	..	.
RETINOSPORA pisifera	7s. 6d. to 10 6	..	.
TAXUS glauca	12s. 6d. to 21 0	..	.
,, fastigiata	12s. 6d. to 21 0	..	.
THUYA gigantea	10 6	96 0	.
,, Lobbii pumila	7s. 6d. to 10 6	..	.
,, Wareana	10s. 6d. to 15 0	..	.
THUYOPSIS borealis	7 6	60 0	.

7 to 8 feet.	Each. s. d.	Doz. s. d.	100. s.
ABIES Douglasii	5 0	48 0	.
BIOTA orientalis compacta	10s. 6d. to 21 0	..	.
CEDRUS Deodara	10 6	..	.
EVERGREEN OAK (Fordii)	15s. to 42 0	..	.
HOLLY, common	7s. 6d. to 10 6	..	.
,, hybrida	10 6	..	.
,, latispina	7 6	..	.
,, minorca	12 6	..	.
,, standards, silver, weeping	21s. to 31 6	..	.
,, standards, gold, weeping	31 6	..	.
,, ,, Gold Queen	31s. 6d. to 42 0	..	.
,, contorta	21s. to 31 6	..	.
,, Cookii	31 6	..	.
PINUS Laricio	5 0	48 0	.
RETINOSPORA pisifera	5 0	48 0	.
THUYA Wareana	5s. to 7 6	48/to 6:/	.
,, occidentalis compacta	7 6	84 0	.
,, plicata	7 6	84 0	.
THUYOPSIS borealis	5 0	48 0	.
TAXUS glauca	7s. 6d. to 10 6	..	.
,, fastigiata	7s. 6d. to 10 6	..	.

6 to 7 feet.	Each. s. d.	Doz. s. d.	100. s.
ABIES canadensis	3 6	36 0	.
,, Douglasii	4 0	42 0	.
,, excelsa	..	24 0	.
,, Menziesii	3 0	30 0	.
BROOM, white	2 0	..	.
,, yellow	2 0	..	.
CEDRUS Deodara	7 6	72 0	.
HOLLY, common	6 0	..	.
,, green, in variety	7s. 6d. to 21 0	..	.
,, Hedgehog	7s. 6d. to 10 6	..	.
,, hybrida	6s. to 8 0	..	.
,, latispina	6 0	60 0	.
,, maderiensis	10 6	96 0	.
,, silver variegated	15s. to 21 0	..	.
,, yellow-berried	7s. 6d. to 10 6	..	.
PHILLYREA olæfolia	7s. 6d. to 15 0	..	.
STANDARD HOLLIES, bronze	15 0	..	.
,, Gold Queen	15s. to 21 0	..	.
,, gold, weeping	21 0	..	.
,, green, weeping	15s. to 21 0	..	.
,, Milkmaid, weeping	21 0	..	.
,, silver, weeping	15 0	..	.
,, Waterer's gold-striped	21s. to 31 6	..	.
LAUREL, Portugal	7 6	72 0	.
PICEA Pinsapo	12s. 6d. to 15 0	..	.
PINUS Cembra	7 6	..	.
,, Jeffreyii	7s. 6d. to 10 6	..	.
,, Laricio	3 0	30 0	.
RETINOSPORA pisifera	4 0	42 0	.
TAXODIUM sempervirens	5 0	..	.
TAXUS adpressa	12s. 6d. to 21 0	..	.
,, glauca	4 0	42 0	.
,, horizontalis	4 0	36 0	.
,, Irish	5 0	..	.
THUYA Lobbii erecta	4 0	42 0	.
,, occidentalis	..	15 0	.
THUYOPSIS borealis	4 0	42 0	.
WELLINGTONIA gigantea	21s. to 31 6	..	.

5 to 6 feet.	Each. s. d.	Doz. s. d.	100. s.
CEDRUS Deodara	6 0	60 0	.
ABIES canadensis	2 6	24 0	.
HOLLY, yellow-berried	6 0	60 0	.
,, gold-striped, in variety	15s. to 31 6	..	.
LAUREL, Portugal	6 0	60 0	.
EVERGREEN OAK (Fordii)	7s. 6d. to 10 6	..	.
PINUS excelsa	5 0	48 0	.
THUYA gigantea	5 0	48 0	.
TAXUS erecta	5 0	48 0	.
PICEA Pinsapo	10s. 6d. to 12 6	..	.
WELLINGTONIA gigantea	12s. 6d. to 15 0	..	.

N.B.—No one can judge how Cheap and Good these Trees are without seeing them.

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THE

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

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ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.
ARRANGEMENTS FOR 1882.
EXHIBITION of SPRING FLOWERS, WEDNESDAYS, March 29 and April 26.
SUMMER EXHIBITION of PLANTS and FLOWERS, WEDNESDAY, May 17.
EVENING FÊTE, WEDNESDAY, June 21.
EXHIBITION of PLANTS, FLOWERS and FRUIT, WEDNESDAY, July 5
Further Arrangements will be Advertised when settled.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE.—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M.; Scientific, at 1 P.M.; General Meeting for Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, November 8.
PRIZES OFFERED BY Messrs. SUTTON & SONS, READING:—
For Collection of Vegetables, 12 distinct kinds, to be selected from the following—3 heads of Cauliflowers, 3 sticks of Celery, Beet, 1 brace of Cucumbers, 6 Turnips, 3 plants of Brussels sprouts, 6 Parsnips, 12 Onions, 12 Potatos, 24 pods of Peas, 3 heads of Cabbage, 6 Carrots, 12 Tomatos, 3 heads of Savoy, 3 pods of Beans, any variety:—1st prize, £5 5s., or Gold Medal; 2d, £3 3s., or Silver Medal and £1 1s.; 3d, £2 2s., or Bronze Medal and £1 1s.; 4th, £1 1s.; 5th, 10s. 6d.
For 12 Suttons' Improved Reading Onions—1st prize, £1 1s.; 2d, 15s.; 3d, 10s 6d.; 4th, 7s. 6d.
For 12 Suttons' "Magnum Bonum" Potatos—1st prize, £1 1s.; 2d, 15s.; 3d, 10s. 6d.; 4th, 7s. 6d.
For 12 Suttons' "Reading Abbey" Potatos—1st prize, £1 1s.; 2d, 15s.; 3d., 10s. 6d.; 4th, 7s. 6d.
For 12 Suttons' "Woodstock Kidney" Potatos—1st prize, £1 1s.; 2d, 15s.; 3d. 10s. 6d.; 4th, 7s. 6d.
For 12 Suttons' "Reading Hero" Potatos—1st prize, £1 1s.; 2d, 15s.; 3d, 10s. 6d.; 4th, 7s. 6d.
Admission, 1s.

THE PUTNEY and DISTRICT CHRYSANTHEMUM SOCIETY will hold their FOURTH GRAND EXHIBITION, at the Assembly Rooms, High Street, Putney, on TUESDAY, November 15.
G. STEVENS, Secretary.
St. John's Nursery, Ravenna Rd, Upper Richmond Rd., Putney.

KINGSTON and SURBITON CHRYSANTHEMUM SOCIETY.
The GREAT CHRYSANTHEMUM SHOW of 1881 will be held in the Drill Hall, Kingston, on THURSDAY and FRIDAY, November 17 and 18, when, in addition to valuable Money Prizes, the Champion Challenge Cup, value TWENTY-FIVE GUINEAS, will be competed for. Schedules and further particulars on application to
T. JACKSON, Hon. Sec.
Fife Road, Kingston-on-Thames.

WESTMINSTER AQUARIUM.—CHRYSANTHEMUM, FRUIT and VEGETABLE SHOW, NOVEMBER 17 and 18. Liberal scale of Money Prizes, Silver Cups, Medals, &c. Schedules on application to
WILLIAM HOLMES,
Frampton Park Nursery, Hackney, London, E.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
An EXHIBITION of CHRYSANTHEMUMS, &c., will be held in the Town Hall, Manchester, on November 22 and 23. For Schedules, &c., apply to the undersigned,
BRUCE FINDLAY, Royal Botanic Gardens, Manchester.

THE ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY.
ANNUAL EXHIBITION of CHRYSANTHEMUMS, FRUIT, &c., and CAGE BIRDS, at the Skating Rink, on TUESDAY and WEDNESDAY, November 22 and 23. Liberal Prizes for Cut Blooms, Grapes, Apples, Pears, &c. ENTRIES CLOSE November 15.
C. S. FUIDGE, Secretary.
39, York Street, Lower Avenue.

HERBACEOUS CALCEOLARIAS, choice mixed, 1s. 6d., 2s. 6d. and 3s. per dozen, post-free.
CINERARIAS, choice mixed, 1s. 6d. & 2s. 6d. per doz, post-free.
PRIMULAS, choice mixed, 2s. 6d. per dozen, post-free.
WILLIAM POTTEN, Camden Nursery, Sissinghurst, Kent.

English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4½-inch pots, £2 per 100, for cash. Now ready, many thousands of Isabella Sprunt, Gloire de Dijon, &c.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

To the Trade.—Dwarf Roses.
GEO. COOLING AND SON have a large stock to offer, extra fine Plants, and all leading varieties, also TEA-SCENTED, in pots. Prices on application.
The Nurseries, Bath.

ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Floral Commission Agency.
WANTED, all kinds of CHOICE WHITE FLOWERS.—Nurserymen and others having the above will please communicate with W. CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.
WANTED, BEST WHITE ORCHIDS.

WANTED, Consignments of STEPHANOTIS, Maréchal Niel ROSES, EUCHARIS, CAMELLIAS, and other CHOICE FLOWERS; also PINES, MELONS, Marie Louise PEARS, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

White Flowers.
WANTED, CASH OFFERS for WHITE CHRYSANTHEMUMS, Elaine and Mrs. G. Nounde, at per dozen Blooms.
R. LOCKE, Red Hill, Surrey.

WANTED, GERANIUMS (Old Plants):—2000 Bronzes—Marshal MacMahon and Black Douglas; 3000 Tricolors—Beatrice, Mrs. Laing, and Miss Pond; 1000 Silver—Queen of Queens. State price per 1000 to
BETA, *Gardeners' Chronicle* Office, W.C.

Rhododendrons.
WANTED, HYBRID SEEDLINGS, from 18 inches to 4 feet, bushy and well-furnished plants. State size and price to
JOHN CARTER, Nurseryman, Keighley.

WANTED, in any quantities up to 10,000, of each of the following, or of any Hardy Plants about same value:—LAURELS, EVERGREEN PRIVET, BERBERIS, LAURUSTINUS, CUPRESSUS MACROCARPA, AMERICAN ARBOR-VITÆ, and EUONYMUS. Send price, delivered into railway trucks, to
W. WILLETT, Offices, The Drive, Hove, Sussex.

WANTED, APPLE, PEAR, and CHERRY STOCKS.—Send samples, with prices, to
Messrs. RICHARD SMITH AND CO., St. John's Nurseries, Worcester.

Vicar of Laleham.
WANTED TO PURCHASE, a quantity of the above POTATOS. State lowest price and particulars to C. F., 104, Friar Street, Reading.

LILIUM AURATUM, splendid sound bulbs, at 9s., 12s., and 18s. p. doz.; extra strong, 30s. and 42s. p. doz. LILIES, of various sorts, either for greenhouse, conservatory, or open border, by the dozen, 100, or 1000.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THOMAS IMRIE AND SONS' TRADE CATALOGUE of Forest and Ornamental Trees and Shrubs, &c., is now ready, and can be had post-free on application.
Nursery and Seed Warehouse, Ayr.—October 29, 1881.

CALCEOLARIAS, CYCLAMEN, and CINERARIAS, from choicest strains.
CALCEOLARIAS, herbaceous, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS, 1s. 4d. per dozen, 8s. per 100.
CYCLAMEN, 1s. 6d. per dozen. All post-free.
JAMES KIRK, Wollaston Nurseries, Stourbridge.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

OUR NEW CATALOGUE of SPRING FLOWERING PLANTS of all kinds is now issued, and will be sent post-free to all applicants.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

HARDY and COOL CONSERVATORY CLIMBERS.—A most Complete LIST of above, including grand Specimen Magnolias, &c., will be posted gratis to all applicants.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application.
Lion Walk, Colchester.

CEDRUS DEODARA.
Handsome plants, well-rooted:—
3 to 4 feet .. .. 26s. per dozen, 200s. per 100.
4 to 5 feet .. .. 36s. per dozen, 250s. per 100.
Trade price on application.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

HELLEBORUS NIGER—the CHRISTMAS ROSE.
Nice, fresh imported plants of this valuable and beautiful Winter Flower now ready for delivery. Prices, 25 roots, 6s.; 50, 10s. 6d; 100, 15s.; 500, 60s.; 1000, 100s.; 5000, £20.
HOOPER AND CO., Covent Garden, London, W.C.

To the Trade.
ELSTER AND KOLLMANN, Lübeck, near Hamburgh, Germany, beg to offer LILY of the VALLEY for forcing, single crowns, 3-yr. old, extra fine roots, 32s. per 1000.

ARAUCARIA IMBRICATA.—A large Stock of fine Specimens of the above, from 6 to 9 feet high. Price on application to
T. JACKSON AND SON, Nurseries, Kingston-on-Thames.

FOR SALE, a Norfolk Island PINE, height over 8 feet. Apply to
Mr. JONES, Mansfield Cottage, Heath Street, Hampstead, N.W.

DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., and 12s. 6d. per 100; 30s., 42s., 63s., 84s., and 105s. per 1000.
Descriptive LIST on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

To the Trade.—Strawberries.
H. CANNELL AND SONS offer all the best Market kinds in any quantity, during October, at a low price. Good plants, and all warranted true to name. Special prices for large quantities.
Swanley, Kent.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

APPLE TREES with MISTLETO growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

Special Offer to the Trade.
SEED POTATOS.—Rivers' Ashleaf, Myatt's Schoolmaster, International Kidney, Covent Garden Perfection, Magnum Bonum, &c. All true to name and excellent samples. Special prices on application to
C. FIDLER, Potato Grower, &c., Reading.

GARDEN POTS—GARDEN POTS.—From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

SALES BY AUCTION.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.

On view the mornings of Sale, and Catalogues had.

Tuesday Next.

4000 LILIUM AURATUM, from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, November 8, at half-past 12 o'Clock precisely, an importation of 4000 fine Bulbs of LILIUM AURATUM, just arrived from Japan, a quantity of fine roots of CHIONODOXA LUCILÆ, large Bulbs of EUCHARIS CANDIDA, and some choice DRACÆNAS, and consignments of first-class HYACINTHS, TULIPS, CROCUSES, SCILLAS, and other BULBS from well-known farms in Holland.

May be viewed the morning of Sale, and Catalogues had.

Tuesday Next.

CATTLEYA DOLOSA.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, November 8, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., the grandest lot of CATTLEYA DOLOSA hitherto offered. The plants, amongst which are splendid masses with from forty to eighty bulbs, are in the finest possible condition in every way, and buyers will be able to form, from the appearance of the specimens and the old flower-spikes, their own opinion of the surpassing loveliness of the plant, producing as it does, in such profusion, its large-sized and lovely flowers, three on a spike. At the same time will be offered fine specimens of ONCIDIUM FORBESII, with bulbs of unusual size; ZYGOPETALUM MAXILLARE, CATTLEYA CHOCOENSIS, ANGRÆCUM ELLISI, and A. CITRATUM, healthy plants, received from Madagascar some weeks since.

May be viewed the morning of Sale, and Catalogues had.

Wednesday Next.

PLANTS AND BULBS FROM HOLLAND.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, November 9, at half-past 12 o'Clock precisely, First-class Standard, Half-standard, Dwarf and Climbing ROSES of sorts; Dwarf-trained FRUIT TREES, FLOWERING SHRUBS, &c., from Holland; a choice assortment of rare HARDY HERBACEOUS PLANTS, including many beautiful and scarce species; also a consignment of choice named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, and other BULBS for Spring flowering, &c.

May be viewed the morning of Sale, and Catalogues had.

Thursday Next.

LÆLIA PURPURATA, LÆLIA ELEGANS, CATTLEYA AUREA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 10, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, St. Alban's, a grand importation of LÆLIA PURPURATA—among them enormous masses; a splendid importation of LÆLIA ELEGANS and its fine varieties; also a fine lot of CATTLEYA AUREA: this superb Cattleya has just flowered, and proved itself distinct and magnificent.

May be viewed the morning of Sale, and Catalogues had.

Every Monday.

UNRESERVED SALES OF DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL, at the Auction Mart, Tokenhouse Yard, near the Bank, E.C., every MONDAY, at half-past 11 o'Clock precisely, large consignments of First-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other Roots from Holland, lotted to suit all buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Fulham, S.W.

CLEARANCE SALE of well-grown NURSERY STOCK, in consequence of the expiration of Lease of a Portion of the Ground.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nurseries, Fulham, by order of Messrs. Osborn & Sons, on TUESDAY and WEDNESDAY NEXT, at 12 o'Clock each day, a portion of the valuable and well-grown NURSERY STOCK, which has been carefully prepared for removal—a fine assortment of Coniferæ and Evergreen Shrubs for effective planting; Ornamental Trees, and Hardy American Plants; together with a collection of choice Stove and Greenhouse Plants.

May be viewed. Catalogues on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

10,000 Lilium auratum from Japan, Dutch Bulbs, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, at half-past 11 o'Clock precisely, 10,000 LILIUM AURATUM, just arrived from Japan, in fine condition; together with 500 lots of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other ROOTS from Holland.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Caen Wood Towers, Highgate, N.

HIGHLY IMPORTANT SALE of VALUABLE and COSTLY HOUSEHOLD FURNITURE, MAGNIFICENT ORGAN, PICTURES, ARTICLES of VERTU, FARMING STOCK, STOVE and GREENHOUSE PLANTS, and EFFECTS.

MESSRS. PROTHEROE AND MORRIS, are favoured with instructions from the owner (who is leaving the Mansion) to SELL the above by AUCTION, on the Premises, on WEDNESDAY, November 30, and two following days, at 12 o'Clock each day.

Admission to view by Catalogues, price 6*d.* each, to be obtained of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Extensive Nursery Clearance Sale.

CONTINUATION OF SALE.

MESSRS. LYON AND TURNBULL are instructed by the *Curator Bonis* on the Estate of the Sole Partner of Messrs. Jas. Dickson & Sons to further offer on TUESDAY, WEDNESDAY, and THURSDAY FIRST, November 8, 9, and 10, another portion of the STOCK, growing in INVERLEITH NURSERIES, EDINBURGH, consisting of Choice Ornamental, Deciduous and Evergreen Trees, Shrubs, Coniferæ, &c.; fine Specimen and other Named Rhododeudrons, many with Flower-buds; Choice Variegated and other Hollies, Aucubas, Yews, Laurels, &c. Splendid Stove and Greenhouse Plants of the healthiest description. Several thousand Larch, Scots and other Firs, and many well-grown and thoroughly transplanted Hardwood and other Forest Trees, fit for immediate Planting, having been carefully reared and transplanted; will remove with perfect safety.

Catalogues now ready, and will be forwarded to applicants.

The Old Dorking Nurseries.

THE EIGHTH ANNUAL SALE.

MESSRS. WHITE AND SONS (under instructions from Messrs. Ivery & Son) will SELL by PUBLIC AUCTION, at the Home Nursery, London Road, Dorking, on THURSDAY, November 10, at 11 for 12 o'Clock to a minute, a choice assortment of PLANTS in POTS, and SURPLUS STOCK, viz., Azaleas, Pelargoniums, Cinerarias, Chrysanthemums, Coronillas, Genistas, Primulas, Palms, Exotic and British Ferns, Foliage Plants, Orchids, Geraniums, Spiræas, Deutzias, Carnations, Picotees, Pinks, &c.,

Catalogues may be obtained, one week prior to the Sale, of Messrs. IVERY AND SON, at their Nurseries in Dorking and Reigate; at the usual Inns in Guidford, Godalming, Horsham, Redhill, Reigate, Epsom, Ewell, Leatherhead, and adjacent Villages; or of the Auctioneers, Land Agents and Valuers, 18, High Street, Dorking.

Preliminary Notice.

MESSRS. G. AND W. STEELL, Richmond, Surrey, beg to inform Gentlemen and the Trade they intend clearing the portion of the Gas Field Nursery not already raised from its original level, and in order to raise the other part will offer, without reserve, the stock on it for PUBLIC COMPETITION, about the MIDDLE of NOVEMBER, consisting of many thousands of Standard and Pyramid Variegated and Green HOLLIES, AUCUBAS, RHODODENDRONS, large CUPRESSUS, POPLARS, LIMES, THUYAS, and other Ornamental Deciduous and Evergreen SHRUBS, also Standard and Dwarf ROSE TREES, Standard and Dwarf-trained PEACHES, NECTARINES and APRICOTS.

Can be viewed from the present time until the Sale takes place.

WANTED, to Rent, or on Lease, an ACRE of LAND, for NURSERY PURPOSES, within an easy distance of London. Apply, by letter, to

J. T. T., 52, Trafalgar Road, Old Kent Road, S.E.

FOR DISPOSAL (owing to the retirement of the present owner) a thoroughly Genuine High-class FLORIST'S BUSINESS, in the West End (rented at £70 a year), and returning over £2000 per annum, in conjunction with a NURSERY at Balham, with Eight Glass Erections, including a Shop and Dwelling-house (rented at £80 per annum). Incoming about £2300, to include Freehold of Nursery, all the modern Glass erections, the Lease of the Shop and Dwelling-house, the Goodwill, Stock-in-Trade, and effects.

Details and order to view of PROTHEROE AND MORRIS, Horticultural Agents, 8, New Broad Street, E.C.

FOR SALE, a SEED BUSINESS, in a good Town in the Midlands. Convenient Premises, well fitted up, and capital position in main thoroughfare. Stock and Fixtures at Valuation or by Agreement. An excellent opening for moderate capital. For full particulars apply to

VENDOR, *Gardeners' Chronicle* Office, W.C.

To Market Gardeners, Dairymen, &c.

FOR SALE, Three or Four SMALL FREEHOLDS—One Tithe-free—admirably adapted for above purposes and Fruit Growing, especially Strawberries, for which the locality is famous, and one leading Covent Garden salesman has recently taken, and is now planting the adjoining land. Will be sold with immediate possession, and a large portion of the Purchase Money can be arranged for. Station about ¾ mile. Letters delivered 7.30 A.M.

For particulars apply to Mr. EDWARDS, Park House, Bishops Waltham.

To Seedsmen.

FOR SALE, a SEED BUSINESS in Edinbugh, with Stock and Goodwill. The Business is an old-established one, possessing a connection throughout the United Kingdom of nearly a Century's standing, and might be largely extended in the hands of a man of energy and skill. The Lease of a neigbouring Nursery, having fifteen years to run, might also be arranged to be transferred, if wished, with the Nursery Stock.

For particulars, apply to FRASER, STODART AND BALLINGALL, W.S., 16, Castle Street, Edinburgh, who will receive offers up to the 16th inst.

TO BE DISPOSED OF, the Old-established NURSERY and SEED TRADE of the late Mr. Henry Baker, Atherstone. The Nursery (about 8 Acres) is in an excellent neighbourhood, and close to a Market Town, in full working order, and every facility for doing a large trade. For particulars apply to

Mrs. BAKER, The Nurseries, Atherstone.

South Coast—Lyme Regis.

TO BE LET, a most attractive though SMALL NURSERY. Lease and favourable terms, owing to death of owner.

RADFORD AND RADFORD, Agents, Lyme, Dorset.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

J. CROUCHER, F.R.H.S., having given up all connection with Sudbury House Gardens, is open to engagements with Gentlemen, as GENERAL HORTICULTURAL ADVISER, respecting the Management and Construction of Gardens and Garden Structures, on scientific principles.—The Excelsior Nurseries, 64 and 65, Brook Green, London, W.

LANDSCAPE GARDENING.—ALEXANDER SHEARER, many years Head Gardener to the Marquis of Tweeddale, Yester, having COMMENCED BUSINESS as LANDSCAPE GARDENER, is prepared to give Plans, Specifications, &c., for Laying-out Ornamental Grounds, Parks, and Plantations, and the Erection of Vineries, Conservatories, and other Horticultural Buildings, on the most approved system of construction and heating. From wide experience and practical knowledge of the best mode of carrying out such operations, A. S. confidently anticipates being able to give satisfaction to all who may favour him with their patronage.

4, Marchmont Street, Edinburgh.

Raspberry Canes.

MR. R. BATH has now a quantity of his noted FASTOLF for disposal, 7*s.* per 100, packed and put on rail. P.O.O. or cheque with order.

Crayford, Kent.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities of STRAWBERRIES also, in pots, to offer. Prices, &c., on application to

FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey

ARBOR-VITÆ.—Nice bushy plants, for pots, &c., from 9 to 15 inches. Sample and price on application.

H. T. DARTNALL, The Seed Mart, Cheltenham.

SPECIAL NOTICE

PLANES, 10 to 14 feet, stout and good.
AUCUBAS, 3 to 4 feet, fine specimens.
ROSES, Dwarf Hybrid Perpetual, extra fine.
Prices on application to
WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

LARCH and QUICKWOOD PLANTS for SALE.—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet 2,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, to 4 feet; 100 Weeping Ash, Elms, Poplars, Yews, &c.; also Scotch Fir, Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply

FRANCIS BELL, Nurseryman, Easingwold.

FOREST and ORNAMENTAL TREES EVERGREENS and FLOWERING SHRUBS FRUIT TREES, ROSES, &c. Thoroughly transplanted very hardy and well rooted. Immense Stock to select from.

New Priced CATALOGUE on application to

JAMES DICKSON AND SONS, "Newton" Nurseries Chester. Plans and Estimates furnished.

SPECIAL OFFER of NURSERY STOCK to Gentlemen Planting.

RHODODENDRONS and other Shrubs, in good varieties from 2 to 2½ feet; AZALEAS, from 1 to 2 feet; KALMIAS 1 to 3 feet; NOBILIS, 1 to 3 feet—all at 1*s.* to 1*s.* 6*d.* each LAWSONIANA, *fine specimens*, 5 to 12 feet, 2*s.* to 5 each. THUYA GIGANTEA and TAXUS JAPONICA, 1*s.* each, and a variety of other SHRUBS, very reasonable Gentlemen planting.

A large quantity of FOREST TREES, from 8 to 12 feet high Also APPLES and PEARS of choice selection. Apply,

NURSERYMAN, *Gardeners' Chronicle* Office, W.C.

Parsley-leaved Bramble.

JOHN CARTER, NURSERYMAN, Keighley has a fine lot of strong Fruiting Plants of this prolific and useful Fruit. They are very ornamental trained round stakes or trellis, or against a wall. 6*s.* per dozen, or 40*s.* per 100.

J. C. has also a large Stock of FOREST and FRUIT TREES, DWARF ROSES, and HARDY SHRUBS, which he has every confidence would give satisfaction.

Wholesale and Retail CATALOGUES on application.

SEAKALE CROWNS and SETS for Sale also 4 Acres of the finest KALE in Fulham; also ASPARAGUS CROWNS.

T. BROSNAN, Norman Farm, Fulham, S.W.

RHUBARB STOOLS.—Early Forcing, extra strong Stools:—Early Linnæus, Prince Albert, 16*s.* per 100; Ruby, Stott's, Monarch, and Scarlet Defiance, prices on application.

FREEMAN, Seed Grower, Norwich.

CHOICE NAMED CARNATIONS and PICOTEES, strong plants, including all the fine varieties, 40*s.* per 100; TREE CARNATIONS, for winter flowering, good stuff, in 60-pots, 45*s.* per 100; BOUVARDIA VREELANDII and HOGARTH, good plants, 40*s.* per 100 CAMELLIAS, good bushes, well set, 2 to 2½ feet high, 24 per dozen.

W. JACKSON, Blakedown, near Kidderminster.

MAHONIA AQUIFOLIA.—Twice transplanted, bushy, 35*s.* per 1000; 2-yr., 2-yr. transplanted 30*s.* Fine healthy stuff.

HOWDEN AND CO., The Nurseries, Inverness, N.B.

CUPRESSUS MACROCARPA, 18 inches to 2 feet, 25*s.* per 100; broad-leaved ELM, 16 feet, 18*s.* per dozen; Standard ROSES, 24*s.* per dozen; SPRUCE FIR 7 feet, grand CHRISTMAS TREES, 18*s* per dozen.

W. AND J. BROWN, Stamford.

CŒLOGYNE CRISTATA.—See *Gardeners' Chronicle* of October 29, p. 561. Fine plants, all showing bloom, from 7*s.* 6*d.* to 2 guineas.

GEORGE EDWARDS, Balham Nursery, London, S.W.

QUICKS.—500,000 fine transplanted, from 20*s.*, 25*s.*, 30*s.*, 40*s.*; and extra strong at 50*s.* per 1000. Address WM. WOOD AND SON, Woodlands Nurseries Maresfield, near Uckfield, Sussex.

SEAKALE and ASPARAGUS, Forcing and Planting, extra strong, nine year-stools. Also one, two and three years transplanted.

FREEMAN, Seed Grower, Norwich.

To Furnishers and Others.

CHRYSANTHEMUMS.—200 fine, in 7-inch pots, just coming into flower, popular sorts—Mrs. Rundle, Mrs. Dixon, Duchess of Roxburgh, Prince of Wales, Empress of India, &c.—for £3 10*s* per 100. Also 500 PRIMULA SINENSIS, Carters' Prize Strain, Red, fine in flower, at 2 per 100; and 200 STRAWBERRIES, President, specially prepared for forcing, at 30*s.* per 100. All on the place at these prices.

H. BARNARD, Chase Side Nursery (opposite the "Crown Inn"), Southgate, N.

New Seedling Apple "The Queen."

Awarded a First-class Certificate by the Committee of the Royal Horticultural Society.

SALTMARSH AND SON, The Nurseries, Chelmsford, are now Booking Orders for this splendid variety, which they feel confident must become the most popular Apple for either Market or Exhibition purposes.

For description and Testimonials, see advertisement in this Journal on October 1, p. 452.

Maiden Plants ready in November, 10*s.* 6*d.* each, with the usual discount to the Trade.

A Supplementary List of Nurserymen ordering "The Queen," will shortly be advertised.

A correctly and beautifully coloured Plate, by Severeyns, of Brussels, will be sent to any address on receipt of seven stamps.

N.B.—The Stock being limited, early orders are requested.

STRAWBERRIES.—Strong roots for fruiting next year, 4*s.* per 100. Descriptive LIST on application. RICHARD SMITH AND CO., Nurserymen, Worcester.

NOTE.—CABBAGE PLANTS, &c.—Fine autumn-sown Drumhead, Enfield, Sugarloaf, Schilling's Queen, Early Rainham, Nonpareil, Drumhead SAVOY, Thousand-headed, Green Curled KALE and ASPARAGUS KALE, 2*s.* 9*d.* per 1000. CAULIFLOWER PLANTS, 6*s.* per 1000. Early and Late BROCCOLI, 5*s.* per 1000. BRUSSELS SPROUTS, 3*s.* 6*d* per 1000. Bath Cos, Wykeham Giant White Cos, and Lee's Immense Hardy Green Cabbage LETTUCE PLANTS, 4*s.* per 1000. Red Pickling CABBAGE PLANTS, 5*s.* 6*d.* per 1000. Can supply above in any quantities.

N.B. All Plants packed well in crates and hampered free of charge.

EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

To Gentlemen, Nurserymen, and Builders.

R. AND G. NEAL, having to give up a portion of their Nursery for building purposes, beg to inform the Trade, and others engaged in planting, that they have large and varied Stock that they can offer at a great reduction in prices to effect a clearance. An early inspection invited. The Nurseries, Wandsworth Common, S.W., one mile from Clapham Junction, on the high road from Wandsworth to Tooting, and a quarter of a mile from Wandsworth Common Station, London, Brighton, and South Coast Railway.

000 Cyclamen persicum. 5000

ALL FROM THE VERY BEST Covent Garden strains, dwarf, free bloomers, fine flowers, varied colours. Fine plants, to flower this autumn, in 54's and 48's, 7*s.* 6*d.* and 10*s.* per dozen; 55*s.* and 75*s.* per 100. Exceptionally fine plants, in 48's, now showing bloom, which will average over fifty flowers each, 25*s.* per dozen. Carriage free London.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

HARDY FLOWERING PLANTS, PANSIES, VIOLAS, &c.

Our immense Stock is offered at one reduced uniform price, 6*s.* per dozen, in consequence of our Nursery Ground being sold to the London and North-Western Railway Company. Our PINEA COLLECTION will be increased to thirty dozen, actually worth £5, and sufficient to stock a Garden forever. Everything transplanted, not rooted offshoots. Baskets gratis. CATALOGUES free.

JOHN PIRIE AND CO., Stechford, near Birmingham.

SPIRÆA PALMATA, the largest stock of Forcing Plants in Europe.

SPIRÆA JAPONICA fine forcing plants.

RHODODENDRONS, covered with buds, for forcing.

STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.

CHARLES NOBLE, Bagshot.

Roses.

CHARLES TURNER'S Descriptive CATALOGUE is now ready.

Fruit Trees.

CHARLES TURNER'S Select LIST of the above is also ready.

Ornamental Trees, Shrubs, &c.

CHARLES TURNER'S CATALOGUE may be had on application. The Royal Nurseries, Slough.

HARDY BEDDING PLANTS, would make Flower Beds gay three months before Summer Plants can be used:—

VIOLA—DUCHESS OF SUTHERLAND, light mauve; GOLDEN PERPETUAL, yellow; ADMIRATION, purple; PURITY, white; in very strong plants of last year, at 12*s.* 6*d.* per 100.

DOUBLE DAISIES—SWEEP, crimson; GEM, pink; SNOWFLAKE, white; 5*s.* per 100.

CHIZOSTYLIS COCCINEA—Now throwing up flower-spikes, 12*s.* 6*d.* per 100; strong clumps, in or out of pots, 5*s.* per dozen. Apply,

T. L. MAYOS, Nurseryman, Hereford.

ISAAC DAVIES'S SELECT LIST of Sweet-scented and other RHODODENDRONS and AZALEAS (including Rhododendrons Daviesii and floribundum, which have received several Certificates, and are now being sent out for the first time) is now ready, and will be forwarded to any address on application.

Some of the Sweet-scented RHODODENDRONS at 21*s.* each are large bushes, 2½ to 3½ feet high, and covered with flower-buds. For SURPLUS NURSERY STOCK at Reduced Prices, see Advertisement in *Gardeners' Chronicle*, October 22.

Brook Lane Nursery, Ormskirk.

000 Border Carnations. 5000

TWELVE good, distinct, named varieties, 6*s.*; twelve ditto, newer, 9*s.*; twelve ditto, best new, 12*s.*; 12 Crimson Clove (guaranteed the true variety), 1*s.* each, 6*d.* per dozen. Forcing PINKS, in six best named sorts, 9*s.* per dozen. All strong, sturdy stuff, in 60-pots. Plants will also be packed out of pots by rail or by post. Special prices for the 100. Carriage free to London.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES with Prices on application. An early inspection invited.

The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

PAUL & SON,

THE OLD NURSERIES,

CHESHUNT,

Respectfully ask for the Orders of Planters of any of the following well-grown

TREES AND PLANTS.

ROSES, Standards of the best Hybrid Perpetuals.
" Standard Teas, for Rose or Orchard-house or Conservatory decoration.
They hold the largest Stock of Standard Roses in England.
ROSES, Dwarfs, of all the finest varieties, of both Hybrid Perpetuals and Teas, Ground Plants.
" Pot, in large and very select varieties.
DWARF-TRAINED FRUIT TREES of the best Apples, Pears, Plums, Cherries, Peaches, and Nectarines.
STANDARD APPLES—the finest trees in the country of the best sorts.
PYRAMID FRUIT TREES, all carefully formed and pruned.
CURRANTS, GOOSEBERRIES, STRAWBERRIES, and all the small fruit in variety and in large quantities.
VINES, Fruiting, all from eyes this year.

EVERGREENS.

ARAUCARIA IMBRICATA, 2 feet, 3 feet, and 8 feet to 9 feet in height.
BOX, Green and Variegated, in large quantities, 5 feet, 6 feet, and 7 feet in height.
CEDRUS DEODARA, 2 feet, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet to 9 feet in height. Splendid specimens.
CUPRESSUS LAWSONIANA, in some twenty varieties, 1 foot to 6 feet in height.
AUCUBA JAPONICA, extra bushy and fine colour, 1 foot, 2 feet, and 3 feet in height.
HOLLIES, common Green, 1 foot, 2 feet, 3 feet, and 4 feet in height. A splendid lot, in fine nursery condition.
" Variegated, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet, 4 to 5 feet, 5 to 6 feet, 6 to 7 feet, in very large quantities.
" Green varieties, 6 feet, 7 feet, 8 feet, and 9 feet in height; splendid specimens.
" Golden Queen, by the 100 or 1000, in various sizes.
PINUS EXCELSA, extra fine specimens, 10 to 16 feet in height.
" JEFFREYI, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet in height.
RHODODENDRONS, best named varieties, by the 100; 1 foot, 2 feet, and 3 feet in height.
KALMIA LATIFOLIA, handsome specimens, 3 feet, 4 feet, and 5 feet in height.
PICEA NORDMANNIANA, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 8 feet, and 9 feet in height; fine pyramids.
" PINSAPO, 2 to 3 feet, 4 to 5 feet, and 5 to 6 feet high.
YEWS, splendid pyramidally-cut plants, 5 feet, 6 feet, and 7 feet in height.

DECIDUOUS.

LIMES, 10 to 12 feet (extra scented), 12 to 14 feet, 14 to 16 feet in height.
PLANES, 12 to 16 feet in height.
CHESTNUT, Horse, 10 feet, 12 feet, to 14 feet in height.
" Scarlet, 10 feet, 12 feet, 14 feet, and 16 feet in height.
Deciduous Ornamental flowering and fine-foliage Trees in splendid variety.
" Shrubs, in over 500 sorts.

We advise an Inspection of the above.

THE OLD NURSERIES, CHESHUNT

CRANSTON'S NURSERIES.

(ESTABLISHED 1785.)

NEW CATALOGUES

OF ROSES AND FRUIT TREES

Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED), King's Acre, Hereford.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

Roses! Roses! Roses!

The Finest Lot of Plants in England,

STANDARDS and DWARFS.

For DESCRIPTIVE CATALOGUE apply to

BENJAMIN R. CANT,

ROSE GROWER, COLCHESTER,

The holder of the Champion Cup of the National Rose Society.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded free by post on receipt of three 1*d.* stamps.

CATALOGUES of ROSES and ORCHARD HOUSE TREES, post-free on application.

THOMAS RIVERS AND SON, Nurseries, Sawbridgeworth, Herts.

3000 Tree or Perpetual-flowering Carnations. 3000

ALEGATIERE, bright scarlet; La Belle, white; Le Favori, carmine-pink; Garibaldi, rosy-scarlet; L'Hermine, white; Irma, mottled pink; Vulcan, mottled red; Lucifer, scarlet; Miss Jolliffe, blush-pink, &c., 1*s.* 6*d.* and 2*s.* each, 15*s.* and 21*s.* per dozen; Souvenir de la Malmaison, 2*s.* each, 21*s.* per dozen. Fine, healthy stuff, in 48-pots, for early flowering. Carriage free to London. Full LIST on application.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

Dutch Bulbs direct from the Growers.

ANT. ROOZEN AND SON. HYACINTHS, TULIPS, CROCUS, GLADIOLI, &c., at Growers' Prices, delivered entirely free to the Railway Stations in London, Edinburgh, Leith, Glasgow, Hull, Liverpool, Dublin, Belfast, Bristol, Plymouth, and Newcastle-on-Tyne. Orders amounting to £8 are sent carriage paid to destination. Our complete and revised CATALOGUE, in English, for 1881, is now ready, and will, as usual, be handed to all Gardeners and Amateurs free on application to our Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct. Early orders requested.

Collections B, C, E, and F. can be had from Messrs. MERTENS AND CO., during the season; also half C and F Collections, at 10*s.* 6*d.* each, against cash payment.

ANT. ROOZEN AND SON, Nurserymen, Overveen, near Haarlem, Holland.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3*s.* 6*d.* to 5*s.* each; extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1*d.* stamp.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Autumn Planting.

FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.

THE LAWSON SEED and NURSERY CO. (Limited), 1, George IV. Bridge, Edinburgh; 106, Southwark Street, London.

TWELVE AZALEA INDICA, Newest Sorts, for 21*s.* All most beautiful plants, in 5-inch pots, large heads crowded with buds. These do best in a cold frame, with no artificial heat, and make a grand show in early spring months. Packages gratis for Cash with order only.

A. MOLLIS and A. PONTICA at same price and same size, full of Buds.

J. H. LEY, Royal Nursery, Croydon.

To the Trade.

LA GRIFFERAIE STOCKS, all disbudded before planting, 45*s.* per 1000; Standard American Weeping WILLOWS, 15*s.* per dozen fine heads; Weeping ASH, 24*s.* per dozen; and ELMS, 18*s.* per dozen. ARBOR-VITÆ, American, 5 to 6 feet, 12*s.* per dozen; ARBOR-VITÆ, Siberian, 2½ to 3 feet, 8*s.* per dozen; FORSYTHIA VIRIDISSIMA, 2½ to 3½ feet, 3*s.* per dozen; MEZEREON, Red, 2 to 2½ feet, 7*s.* 6*d.* per dozen; LABURNUM, English and Scotch, 8 to 10 feet, 12*s.* per dozen; Strong Fruiting PEAR TREES, Standards, Pyramids, and Bushes. LIST on application.

STRAWBERRY RUNNERS, President, Filbert Pine, La Constant, and Wizard of the North, 2*s.* 6*d.* per 100.

R. W. PROCTOR, Nurseryman, Seedsman, and Florist, Ashgate Road, Chesterfield.

Seakale—Seakale—Seakale.

To NURSERYMEN and OTHERS.

FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,

Mr. WILLIAM BAGLEY, Millshot Farm, Fulham, S.W.

English Yews.

SANDY AND SON have a very fine stock of all sizes of the above. Price per dozen or 100 on application. The Nurseries, Stafford.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE, having secured their Crops of SEED POTATOS in fine condition, are prepared to make special offers of all the leading varieties worthy of cultivation. The Prices will be found very reasonable.

Seed Growing Establishment, Wisbech.

To the Trade.

PRIMULA SINENSIS SEED (fimbriata and filicifolia), the finest strain in cultivation, 15*s.* per dozen; 2*s.* 6*d.* Retail Packets. Price per ounce on application

J. KINGSBURY, Bevois Valley Nursery, Southampton.

D. GUIHÉNEUF, SEED GROWER, Nantes, has to offer the following:—

ARAUCARIA EXCELSA	1000	Seeds,	80*s.*
KENTIA FORSTERIANA	100	"	24*s.*
" BELMOREANA	100	"	24*s.*
" CANTERBURYANA	100	"	50*s.*
MUSA ENSETE	100	"	20*s.*
PANDANUS FORSTERIANA	100	Fruits,	80*s.*
" PEDUNCULATUS	1	"	2*s.*
ZAMIA SPIRALIS	100	Seeds,	40*s.*

Seeds quite fresh. Imported in extra fine condition.

To Planters.

J. SCOTT begs to offer an exceptionally fine assortment of FOREST TREES and ORNAMENTAL SHRUBS, which are this season in excellent condition for removal. He also begs to make an especial offer of fine STANDARD PEARS, 6 feet stems and good heads, 18*s.* per dozen; PYRAMID PEARS, 15*s.* per dozen; fine WALNUT TREES, 6 feet stems, 18*s.* per dozen; PLUMS, 6 feet stems, 2 and 3-yr. old, 12*s.* per dozen; GOOSEBERRIES, Black, Red, and White CURRANTS, fine plants, 25*s.* per 100.

JOHN SCOTT, Merriott, Somerset.

The Merriott Nurseries contain the finest collection of Hardy Fruit Trees in the World. See *Orchardist.*

CATALOGUES free on application.

FROM

J. C. WHEELER & SON,

KINGSHOLM NURSERY, GLOUCESTER.

A walk round our Nursery Grounds shows that whilst we have a good stock of every variety of Tree and Shrub quoted in our Catalogue (which we will send gratis and post-free on application), we have a superabundance of some excellent sorts which we are anxious to sell, and with this view we quote the following Special List, giving names, heights, prices, and all other particulars. Some of them, such as Limes, Yews, Cypress, Firs, Chestnuts, Flowering Thorns, and other Spring-flowering Plants are remarkably strong and healthy, and are such that we feel sure will give entire satisfaction. We are overdone with some of the most delicious sorts of Pears, both standards and pyramids, and these we are disposed to sell very cheaply. For £5 we will supply 100 choice and nicely-grown Pyramids, well selected for the fruit to ripen during the autumn, winter, and spring months, affording a good succession of fine ripe Pears. These may be planted anywhere, either in a kitchen garden or orchard. They take up but little room, and are very productive and profitable.

Our Kingsholm Nursery is at all times open to inspection, and we shall much esteem the honour of a visit.

SPECIAL OFFER, AUTUMN, 1881.

AUCUBA JAPONICA, 1 to 2 feet, 6s. per dozen, 40s. per 100.
" " in sorts, 1 to 2 feet, 9s. per dozen.
BERBERIS DARWINII, 2 feet, 4s. per dozen.
EUONYMUS RADICANS VARIEGATA, very pretty variegated plant for banks, edging, or rockwork, 4s. per doz.
GREEN BOX, 3 feet, 6s. per dozen; 4 to 5 feet, 9s. per dozen.
ARBOR-VITÆ, American, 6 to 8 feet, 12s. per dozen. Suitable for forming hedges or screens.
" Siberian, 4 to 6 feet, 9s. per dozen. Suitable for forming hedges or screens.
" chinensis, 6 to 7 feet, 18s. per dozen. Suitable for forming hedges or screens.
CRYPTOMERIA ELEGANS, 2 feet, beautiful hardy Japanese trees, 6s. per dozen.
ENGLISH YEWS, 4 to 5 feet, extra fine plants, 24s. per dozen.
PICEA NORDMANNIANA, very handsome, 3 feet, 2s. each; 18s. per dozen.
SPRUCE FIR, well grown, 2 to 3 feet, 20s. per 100; 4 to 5 feet, 60s. per 100.
PINUS AUSTRIACA, 8 feet, 24s. per dozen. Excellent for producing immediate effect.
CUPRESSUS LAWSONIANA, 8 feet, 30s. per dozen. Excellent for immediate effect.
PINUS STROBUS, Lord Weymouth's Pine, 3 to 4 feet, 9s. per dozen.
ABIES MENZIESII, 4 to 5 feet, 9s. per dozen.
THUYA COMPACTA, 4 to 5 feet (3 feet through), 3s. 6d. each
LIMES, 5 to 6 feet, 20s. per 100; 8 to 10 feet, 24s. per dozen.
ELMS, well grown, 8 to 10 feet, 12s. per dozen.
POPLARS, Black Italian, Balsam, &c., 8 feet, 4s. per dozen, 25s. per 100.
SYCAMORE, fine, 8 to 10 feet, 9s. per dozen.
CHESTNUTS, scarlet and white, 5 to 6 feet, 9s. per dozen; 10 to 12 feet, 24s. per dozen.
FLOWERING THORNS, red, white, and pink, fine standards 12s. per dozen.
" " red, white, and pink, fine pyramids, 9s. per dozen.
LABURNUMS, 10 feet, 12s. per dozen.
MOUNTAIN ASH, handsome trees, 10 to 12 feet, 24s. per doz.
BEECH, 6 to 8 feet, 12s. per dozen.
HORNBEAM, 5 to 6 feet, 4s. per dozen.
SILVER WEEPING BIRCH, 10 to 12 feet, 24s. per dozen.
WILLOWS, in great variety, 5 to 6 feet, 10s. per 100.
DECIDUOUS FLOWERING SHRUBS, such as Ribes, Spiræas, Weigelas, Deutzia, Lonicera, Amorpha, Lilacs, Philadelphus, &c., 20s. per 100, our selection.
SCARLET DOGWOOD, 4 to 5 feet, 4s. per dozen.
CORNUS MAS VARIEGATA, 3 to 4 feet, 9s. per dozen.
HIBISCUS SYRIACUS, very handsome flowering shrub, 6s. per dozen.
AMPELOPSIS HEDERACEA (Virginian Creeper), 6s. per doz.
" VEITCHII, 9s. per dozen.

FRUIT TREES. Per 100.

PEARS, fine Standards, choice sorts, our selection	£7	10	0
" " Pyramids " "	5	0	0
APPLES " " "	5	0	0

J. C. WHEELER & SON,

KINGSHOLM NURSERY, GLOUCESTER.

Orchids a Speciality.

The stock at the Clapton Nursery is by far the largest hitherto seen in Europe, and is of such magnitude that without seeing it it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

On Sale by the Dozen or Hundred.

ANGRÆCUM CITRATUM,
" ELLISI,
CALANTHE SYLVATICA,
CATTLEYA LEOPOLDI,
LÆLIA PURPURATA.

CLAPTON NURSERY, LONDON, E.

STRONG HEALTHY PLANTS.

	Per doz. s.	d.	Per 100. s.	d.
PRIMULAS, finest strain, fringed	1	0	7	6
AQUILEGIA albo-cœrulea	0	9	5	0
POTENTILLA atrosanguinea	0	9	5	0
CANTERBURY BELLS, fine mixed	0	9	5	0
MIMULUS, large flowered, splendidly marked	0	9	5	0
CAMPANULA pyramidalis	0	9	5	0
SWEET WILLIAMS, finest strain	0	9	5	0

Post-free, or extra plants for carriage.
H. J. HARDY, F.R.H.S.,
Stour Valley Seed Grounds, Bures, Suffolk.

RHUBARB, Victoria and Albert, strong, per 100, 16s.; cask and packing included.
T. EVES, Gravesend Nurseries.—Established 1810.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Gardenia Intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

Hardy Rhododendrons and Azaleas.

ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.
Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.
AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.
Knap Hill Nursery, Woking, Surrey.

CARNATION, GLOIRE DE NANCY.—The largest White Carnation. First-class Certificate this year. For full description and price, see New List of Hardy Florist's Flowers for immediate Planting, containing also Single and Double Pyrethrums, Pansies, Pæonies, Pinks, Yellow and Border Carnations, &c., free on application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

3000 Camellias, Azaleas, and Heaths. 3000

AZALEAS in all the best varieties for Forcing and Greenhouse, bushy plants, well set with flower-buds, 18s., 24s., 30s., and 40s. per dozen; AZALEA MOLLIS and GHENT AZALEAS, extra strong plants, well set with flower-buds, 2s. and 2s 6d. each, 20s. and 25s. per dozen. CAMELLIAS, well set with flower-buds, all distinct varieties, 21s., 25s., and 35s. per dozen. ERICAS and EPACRISES, 18s and 25s. per dozen. Carriage free to London.
CATALOGUE on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 15s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.
BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz., 12s. and 15s.; extra selected, for potting (specimens), 18s. per doz.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

Seakale for Forcing.

OSBORN AND SONS have a large stock of the above, of the very finest quality that can be procured. Price 16s. per 100. Trade price on application.
The Fulham Nurseries, London, S.W.

Christmas Roses.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland, have an immense stock of the above, fine flowering plants, in vigorous growth; have not been so fine for years—can be highly recommended. Price and all particulars on application. Any quantity can be supplied.
Also SPIRÆA PALMATA (Red)
CATALOGUES of Hyacinths, Tulips, &c, sent post-free on application.

LARCH.—Over Half-a-Million, twice transplanted, various sizes, from 2 to 4 feet.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple.

RHODODENDRONS, with bloom-buds; fine plants for immediate effect, 2 to 5 feet high. Also EVERGREENS, FRUIT TREES, ROSES, and VINES. Apply for CATALOGUE.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

CONTINENTAL SEEDS.—O. KNOPFF & Co., Erfurt (Established 1832), offer their well known FLOWER SEEDS to the Trade. For CATALOGUES, &c., apply, BECK & POLLITZER, 211, Upper Thames Street, E.C.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to FRAS. K. KINGHORN, Sheen Nurseries, Richmond, Surrey.

OSBORN & SONS

will be pleased to forward, Post-free on application, their

SPECIAL CATALOGUE

OF

HARDY ORNAMENTAL TREES AND SHRUBS, AMERICAN PLANTS, &c.,

many of which they are disposing of at exceptionally low prices, as the greater portion of their ground at Fulham MUST BE CLEARED, owing to the expiration of the Lease next March.

ALSO THEIR

DESCRIPTIVE Fruit Tree CATALOGUE,

including GRAPE VINES and FIGS.

THE FULHAM NURSERIES, LONDON, S.W.

SPECIAL CHEAP AUTUMN LIST.

In order to make room for thousands of New and Rare Plants J. H. L. is compelled to offer a large number of very beautiful YOUNG PLANTS at far below their value. The plants are all perfectly clean and healthy, well grown, and full of roots are not grown in heat, but fully exposed to the air, and if potted on at once will make fine specimens before winter. Now is the best time of year for all plants to travel. Packages gratis for Cash with Order, and on Purchases of £5 Additional Value to 10s. can be selected by Buyer. This only applies to plants in the present Advertisement, to effect a rapid clearance.

		s. d.
12	ACACIAS, 4 choice sorts	6 0
12	ABUTILONS, 12 choice sorts	6 0
12	FLOWERING GREENHOUSE PLANTS	6 0
12	FERNS, for Greenhouse	4 0
12	" New and Rare	12 0
12	" Maidenhair, 6 sorts	9 0
12	" American, 6 sorts	12 0
12	" Japanese, 12 sorts	9 0
12	ORNAMENTAL FOLIAGE PLANTS 6s. and	12 0
12	ALOCASIAS, 6 sorts	12 0
12	MARANTAS, 12 sorts	12 0
12	DRACÆNAS, 12 sorts	12 0
12	IXORAS	12 0
12	FLOWERING STOVE PLANTS	12 0
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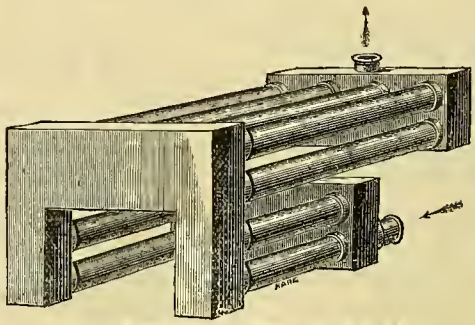

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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 5, 1881.

FLOWER LORE: NOVEMBER.

IN spite of the bad character generally given to the present month, the weather is often bright and genial, many of the autumn flowers still continuing to bloom in the meadow and wayside hedge. Thus the Knapweed may be seen—a plant which has been honoured by a variety of odd names, such as "Hard-head," and "Horse-knob." It is also known as the "Churl's-head," on account, says Dr. Prior, of its rough hairy involucre. Many of the Dead Nettle tribe remain in blossom the greater part of the year, and are termed dead or blind Nettles because they have not the venomous powers of their neighbours, the Stinging Nettles. The white Dead Nettle has been popularly nicknamed the White Archangel, perhaps in allusion to its flowering on St. Michael's Day, May 8 (Old Style), and on this account thought to be a preservative against the influence of witchcraft. Another variety is known as the "Henbit Dead Nettle." Referring, however, to the true Nettle, we may note that the word is the same as the Anglo-Saxon "netel," or "needl" (a needle), so called from its possessing countless small prickles which have a stinging property. According to an old legend recorded by our antiquary, Camden, the introduction of the plant into England originated in the following manner:—When Julius Cæsar landed at Romney with his soldiers they brought with them some Nettle seed, which they sowed for their use in case they might get benumbed through the excessive cold. Before their arrival they had heard that the climate of England was so cold that they would not be able to bear it unless they warmed themselves by friction. Formerly the young tops of the common Nettle (Urtica dioica) were boiled and eaten by poor people, an allusion to which practice is given by Sir Walter Scott in his *Rob Roy*, where Andrew Fairservice says:—"Nae doubt I understand my ain trade of horticulture, seeing I was bred in the parish of Dreepdaily, near Glasco, where they raise Kail under glass and force the early Nettles for their spring kail." Among other uses to which the Nettle has been applied is one mentioned by Dr. Thornton, who tells us that lint dipped in Nettle juice and put up the nostrils has been known to stay the bleeding of the nose when other remedies have failed. Many magical properties are still ascribed to the Nettle, as, for example, in Germany, were it is considered to be an infallible cure for burns, and to ward off thunderbolts. For the sting of a Nettle the application of a Dock leaf with a certain form of words addressed to it is in most places an excellent remedy, the popular formula being:—

"Nettle in, Dock out;
Dock rub Nettle out."

In Scotland children when stung by Nettles cry out, "Nettles go out; Dock go in." Once more, fourteen or fifteen of the seeds of the Nettle, ground into a powder and taken daily, is said to be a good remedy for *goitre*. Alluding to the Dock one variety is known as the alpine Dock, or "Monk's Rhubarb," and is said to have been often cultivated in Abbey gardens.

There is, too, the "Fiddle Dock," so called from its fiddle-shaped leaf, and the "Bloody Dock," deriving its name from its red veins and stems. While speaking of the Dock we may mention that a plant which may frequently be found growing near it is the Burdock (Arctium Lappa) with its ball-like flowers of a dull purplish colour; the curious clinging qualities of which are thus described by Shakespeare in *As You Like It* (act i., sc. 3), in the passage where Celia says to Rosalind:—"They are but burs, cousin, thrown upon thee in holiday foolery: if we walk not in the common paths our very petticoats will catch them." Another name for this plant is "Hardock." The "Ploughman's Spikenard" is a late flowering plant, and in days gone by was much in request amongst our agricultural peasantry for hanging up in their cottages to drive away gnats and other insects.

On many a waste spot, too, the Soapwort, with its clusters of pale pink flowers, is visible, so called from its juice making a kind of lather. It is sometimes called by our peasantry "Bruisewort," from its supposed efficacy in curing bruises. Then, also, there is the Black Briony, which has been nicknamed the "Lady's Seal." Although its flowers are small and unattractive, yet during the autumn months they turn into beautiful scarlet balls, which cannot fail to arouse the notice of the passers-by. The yellow Cockscomb may often be found in blossom up to the commencement of the present month, a plant popularly known as the "Yellow Rattle," on account of the seeds rattling in its seed-vessels when shaken by the wind. Another of its names is "Penny Grass," from the supposed resemblance of its seeds to silver pennies.

Again, amongst the other flowers that may be occasionally found at this season may be mentioned the Chickweed, which, like the Pimpernel, has been styled the "Shepherd's Weather Glass" from its flowers remaining closed when rain is at hand. Threlkeld informs us that "i is thought to be wholesome for sick birds, whence called Chickweed." The Autumn Squill blossoms late in autumn, so called in contradistinction to the Spring Squill or "Star Hyacinth."

Then there is the Ox-eye or Midsummer Daisy, with its showy blossom which often cheers the fieldside when its other companions have died away. One of its popular names is "Moon Daisy," because, says Dr. Prior, "it resembles the pictures of a full moon, the type of a class of plants which, on the doctrine of signatures, were exhibited in uterine complaints, and dedicated in pagan times to the Goddess of the Moon." An interesting plant is the Pig or Earth Nut, and although it flowers much earlier than the present season, yet, as Mr. Burgess in his chatty little volume on *English Wild Flowers* has remarked, it must be considered as belonging to the autumn months. The nut or tuber is some 2 or 3 inches below the surface of the soil, and is frequently as large as a Chestnut. Various names have, at different times, been applied to it, such as "Hog-nut," and "Tetter-berry." Caliban in the *Tempest* (act ii., sc. 2) says:—"I prythee let me bring thee where Crabs grow, and I with my long nails will dig thee 'Pig-nuts.'" As Mr. Ellacombe points out in his *Plant Lore of Shakespeare*—an interesting work, to which we have now often had occasion to refer—this plant "is not much prized in England except by pigs and children, who do not mind the trouble of digging for it."

Of the numerous flowers, however, that have once more disappeared, may be noticed the Great Mullein, popularly termed "Torch Blade," or the "King's Taper," on account, as some antiquaries assert, of its having been used in olden times for tapers by those employed in religious ceremonies. Others think that the names have reference only to its torch-like appearance with its flame-like crown of flowers. In some places it is known by the peasantry as "Aaron's Rod," and one of its former names was "Jupiter's Staff." In Kent it is called the "Flannel-flower" from the appearance of its leaves, and another name for it is the "Velvet Flower." It was once supposed to be a good medicine for disease of the lungs, and on this account it acquired the name of "Lungwort." The Betony, famous from time immemorial for its peculiar properties, no longer offers its abundant purplish-red blossoms in the woods for those anxious to try its secret virtues; although, it may be, a stray Corn Marigold with its cheerful yellow blossom still enlivens the cornfield when most of its other companions have died away. It is known under various names, such as "Goldin," "Goules," and "St. John's Bloom;" one of its most common nicknames, perhaps, being the "Yellow Ox-eye. The Shepherd's Needle has disappeared, with its pretty blossom—a plant that has been termed, says Dr. Prior, "Venus' Comb," from the slender tapering beaks of the seed vessels being set together like the teeth of a comb. It has also had the not very complimentary name of "the Devil's Darning Needles" applied to it.

Again, another plant of the past is the dwarf Elder, generally known as "Danewort." According to an old legend, wherever the Danes fought and bled, in the same place did the dwarf Elder, or "Dane's Blood," spring up and flourish; indeed, it is said only to grow where blood has been shed, either in battle or in murder. A patch of it, we are told by the author of *Flower Lore* (p. 35), grows on ground in Worcestershire where the first blood was drawn in the Civil War between the Royalists and the Parliament. The Welsh call it "the plant of the blood of man"—a name of similar import to its English one of "Deathwort." We now also miss the beautiful little Harebell, the Bluebell of Scotland, waving gracefully in the summer and autumn breezes. Apart from its beauty, it has gained a lasting popularity as being the flower mentioned in the *Lady of the Lake* as strewn in Ellen's pathway—

> "For me she stoop'd; and, looking round,
> Pluck'd a blue Harebell from the ground.
> This little flower that loves the lea,
> May well my simple emblem be."

Another interesting plant from its old associations is the Milkwort, owing to its being the Procession or Rogation flower of our ancestors. It derived its name "Milkwort," says Gerard, from its "virtues in procuring milk in the breasts of nurses." Referring to its use at Rogation time, Gerard further tells us how "the maidens which use in the countries to walke the procession make themselves garlands and nosegaies of it." It was also used for decorating windows during Procession week. Again, the Lady's Mantle is another of the occupants of our hilly pastures, so called from the shape of its leaf. For the same reason it has also been called by our peasantry "Lion's Foot," and in some country places it is styled, we are told, by the somewhat uncommon term "Padelion." We may gather the Kidney Vetch, formerly used as a vulnerary, and therefore much in request in the herb markets It has been nicknamed the "Lady's Finger," and one of the names applied by children to it is "Lamb's Toe," from its soft downy heads of flowers. Once more the Quaking Grass, so termed from its trembling spikelets, has also been called "Lady's Tresses." It is the "Quakers and Shakers" of Gerard, and according to an old superstition this grass is supposed to bring ill-luck to its possessor. Lastly, returning to the flowers of the present month, we must not omit to mention the Chrysanthemum, which cheers our gardens when otherwise they would have but little to attract our notice. It has been popularly termed the "Garden Flower," and the show at the Temple Gardens has become an important event at the present season. This plant is a native of the "Celestial Empire," and was brought into this country about the year 1764, since which period it has been much cultivated.

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.—VIII.

Subgenus III. CODONOCRINUM. — Perianth-tube permanently curved. Limb horizontal or sub-erect, the oblong-lanceolate or oblong segments permanently connivent in the lower half. Stamens declinate, nearly parallel with one another and the style.

*** Tropical African species.

44. *C. Careyanum*, Herb., in Bot. Mag., t. 2466 Baker, Fl. Maurit. and Seych. 367: C. ornatum var. Careyanum, Herb. Amaryll, 264; Kunth, Enum. v. 575. — Bulb globose, 3 — 4 inches in diameter, with reddish brown tunics, and a short conical neck. Leaves 8—10, lorate, spreading, undulated, 1—2 feet long, 2—3 inches broad, thin in texture, bright green, with a narrow entire cartilaginous edge. Scape 1 foot long, green, little compressed. Flowers 4—6 in an umbel pedicels none or very short; spathe-valves green, deltoid 3—4 inches long. Ovary oblong, with 6—10 ovules in a cell. Perianth tube curved, usually 3—4 rarely 5—6 inches long; limb horizontal, 3—4 inches long, its acute oblong-lanceolate segments tinged with red towards the centre. Filaments about an inch shorter than the perianth-segments; anthers about ½ inch long. Style finally as long as the perianth-limb.

A native of marshy places in Mauritius, and found lately by Mr. Horne in the Seychelles in plenty, in the island of Mahé, on the beach near Port Victoria. It is well known in cultivation, and my description is mainly taken from a plant that flowered in Kew in Nov. 1877. It can scarcely be looked upon as more than a Mascarene race of C. latifolium, L. It was named by Herbert in compliment to Dr. Carey, the celebrated Indian missionary, who was a great lover of Crinums, and had one of the finest living collections of the Old World species at Serampore that ever was brought together.

45. *C. fimbriatulum*, Baker, in Trimen's Journ. 1878 196.—Leaves lorate, thin in texture, closely veined, glaucous-green, 2—3 feet long in the specimens seen, 2 inches broad, tapering to a point, the edge closely fringed with minute scales. Scape 2 feet long. Flowers 3—7 in an umbel, fragrant; pedicels none or very short; spathe-valves 2½—3 inches long. Ovary oblong, with several ovules in each cell. Perianth-tube 4—5 inches long limb 3 inches long, the oblong acute segments under 1 inch broad, furnished with a distinct band of red down the centre. Filaments about 1 inch shorter than the perianth-segments; anthers about ½ inch long.

A native of the province of Loanda, in Angola, where it is frequent at a low level in meadows liable to be flooded, flowering in March. It is another discovery of Dr. Welwitsch, and has not yet been brought to England alive. He says that in its native home the leaves reach a length of 4—5 feet. The principal character that separates it from zeylanicum is the scaly fringe of the leaf-margin.

46. *C. Kirkii*, Baker, in Bot. Mag., t. 6512.—Bulb globose, 6—8 inches in diameter, with pale brown tunics, and a neck half a foot long and about 3 inches in diameter. Leaves lorate, acuminate, spreading, bright green, 3½—4 feet long, 4—4½ inches broad, narrowed from the middle to an acute point, with a crisped white distinctly ciliated margin. Peduncles sometimes three to a bulb, 1—1½ foot long, ancipitous, 1 inch thick. Flowers 12—15 in a centripetal umbel; pedicels none or very short; spathe-valves deltoid, red-brown, 3—4 inches long. Ovary oblong, with several ovules in a cell. Perianth-tube curved, greenish, 4 inches long; limb horizontal, 5 inches long, the very acuminate segments above 1 inch broad, and furnished with a bright red stripe down the back. Filaments white, about 1½ inch shorter than the perianth-segments; anthers ½ inch long. Style reaching nearly to the end of the perianth-segments.

A native of Zanzibar, which flowered at Kew for the first time in September, 1879, from a bulb sent by Sir John Kirk in 1878. It is a very fine plant, and a great accession to our stock of Crinums in cultivation.

47. *C. yuccæflorum*, Salisb. Parad. Lond. t. 52; C. Broussonetii, Herb. in Bot. Mag., t. 2121; Lodd. Bot. Cab., t. 668; Kunth, Enum. v. 568; C. Broussonetia

num, Herb. Amaryll. 260; Amaryllis Broussonetii, Red. Lil., t. 62; A. spectabilis, Andr. Bot. Rep., t. 390.—Bulb small, spherical, purplish, without any distinct neck. Leaves multifarious, linear, firm in texture for the genus, closely veined, much undulated, 1—1½ foot long, about 1 inch broad, narrowed to the point, distinctly serrulate on the margin. Scape slender, not more than 1 foot long. Flowers 1—2 to an umbel, sessile; spathe-valves green, lanceolate, 2—3 inches long; ovary oblong. Perianth-tube greenish, curved, 4—5 inches long; limb horizontal, 3—4 inches long, the oblong-acute connivent segments ¾—1 inch broad, furnished with a distinct narrow bright red keel down the back. Filaments declinate, about 1 inch shorter than the perianth-segments; anthers small. Style reaching nearly to the tip of the perianth-segments.

A native of the coast of Guinea. It was introtroduced into cultivation in England by Afzelius about a century ago, but I believe is now entirely lost. There are specimens at the British Museum dried from Kew Gardens in 1785 and 1798, and another from Jacquin, besides wild ones from Afzelius and Smeathmann. In the Smithian herbarium there is one without date from "the Hon. Mrs. Barrington's stove." Amaryllis yuccæoides, Thomps., *Bot. Displ.*, t. 12, is said by Herbert to be a variety of difficult cultivation, with the leaves not undulated, and the flowers two or more. Crinum distichum, Herb. (figured by Gawl in *Bot. Mag.*, t. 1253, under the name of Amaryllis ornata), has a flower exactly like that of yuccæflorum, and comes also from Sierra Leone, but the leaves are said to be arranged distichously, which is the case with no other known species of the genus. Barter got a Crinum in the Niger valley near Nupe, with sword-shaped leaves of very firm texture, 1 inch broad, 5—6 flowers to an umbel half a foot long and very acuminate perianth-segments equalling the tube in length. This will probably prove to be a new species that comes in between yuccæflorum and zeylanicum, and so will another plant gathered by Speke and Grant in Madi, and by Schweinfurth both in Bongo-land and Djur-land, which is much more robust than yuccæflorum, with leaves twice as long, and half-a-dozen flowers to an umbel, and a perianth 7—8 inches long, with broad, distinctly banded segments equalling the tube in length. This is probably Herbert's Crinum scabrum, figured *Bot. Mag.*, t. 2180. A third plant, gathered by Mann in Corisco Island, 1° N. lat., has flowers like that of the last, but with leaves 3 feet long by not more than 1 inch broad, with a smooth edge and a very distinct midrib.

48. *C. abyssinicum*, Hochst. in Schimp. Pl. Abyss., n. 1374; A. Rich. Fl. Abyss. ii. 131.—Bulb ovoid, 3 inches in diameter, with a short neck. Leaves linear, about 1 foot long at the flowering time, 1 inch broad, closely veined, firm in texture for the genus, with a broad distinct white scabrous edge. Peduncle 1—2 feet long. Flowers 4—6 to an umbel; pedicels none, or very short; bracts lanceolate, about 2 inches long. Perianth-tube slender, 1½—2 inches long, limb 2½—3 inches long, with oblong-lanceolate acute segments, about ½ inch broad. Anthers about equalling the stamens in length, each ½—¾ inch.

A native of the province of Samen, in Abyssinia, discovered by Schimper in 1838. It is a well-marked species, with leaves like those of C. yuccæflorum, but remarkable for its very short tube and very short stamens. There is also a C. Ruppelianum, Fres., described from Abyssinia, with four flowers to an umbel, short pedicels, leaves 2 inches broad, flowers with a perianth 5—6 inches long, with a tube a little shorter than the limb and segments banded with red down the back. This again may be Herbert's scabrum.

49. *C. pauciflorum*, Baker, in Trimen's Journ. 1878, 195.—Bulb globose, about 3 inches in diameter, with pale brown tunics and no distinct neck. Leaves about six to a bulb, linear, very firm in texture and stiffly erect, 1—1½ foot long, ¼ inch broad, very closely veined, tapering to a point, the margin indistinct and not at all scabrous. Peduncle slender, 3—8 inches long. Flowers 1—2 to an umbel, sessile; spathe-valves green, lanceolate, about 3 inches long, united in the lower half. Ovary oblong, ½ inch long. Perianth-tube slender, curved, 4—5 inches long; limb suberect, about 3 inches long; segments oblong, obtuse, with a distinct cusp, about 1 inch broad, with a distinct band of claret-purple down the back. Filaments about 1 inch shorter than the perianth-segments, declinate; anthers about ½ inch long. Style falling about ½ inch short of the perianth segments.

Discovered by Dr. Schweinfurth in 1869, in the land of Djur, in the heart of Africa. It is a most distinct and interesting plant. We have a drawing at Kew of a plant that may prove to be the same species, made at Koobie, in the Transvaal, by Mr. T. Baines in November, 1861. The Transvaal plant, according to Mr. Baines' note, has sometimes five or six flowers to an umbel.

50. *C. podophyllum*, Baker, in Bot. Mag., tab. 6483.—Bulb subglobose, 1½—2 inches in diameter, without any distinct neck. Leaves 5—6 to a bulb, lanceolate, 1 foot long, 1½—2 inches broad at the middle, thin in texture, pale green, narrowed gradually into a channelled petiole 2—3 inches long, the narrow white border very obscurely ciliated. Scape compressed, greenish, 8—9 inches long. Flowers two to an umbel, sessile; spathe-valves lanceolate, greenish, 2 inches long. Ovary oblong; perianth tube curved, greenish, 5—6 inches long; limb suberect, 3 inches long, the oblong-spathulate acute segments under 1 inch broad, white, tinted slightly with green only on the back. Filaments white, about 1 inch shorter than the perianth-segments; anthers linear, ¾ inch long. Style not reaching quite to the tip of the perianth-segments, greenish in the upper part.

A native of Old Calabar. My description is taken from a specimen that flowered at Kew in November, 1879, the bulb of which was sent by Rev. H. Goldie.

The Late Mr. J. C. Niven.

Messrs. Veitch flowered it in the summer of last year, from bulbs gathered by Mr. Kalbreyer. *J. G. Baker.*

(*To be continued.*)

THE LATE MR. J. C. NIVEN.

We are now enabled to lay before our readers a portrait of the late Mr. Niven, Curator of the Hull Botanic Garden, and of whose useful career we gave a sketch at p. 541. We trust the well-earned reputation of Mr. Niven will stimulate his successor, whoever he may be, to emulate the good work of his predecessor.

BERLIN BOTANIC GARDEN AND HERBARIUM.*

It is very convenient and useful to be able, before visiting a garden or a herbarium, to ascertain what it contains, and Dr. Urban has done good service in publishing the present very complete history and report on the actual condition of the Berlin Botanic Garden and Herbarium. The historical portion is interesting alike to Germans and foreigners; but one of the most useful features of this little work is a descriptive account of the principal collections in the herbarium. A concise summary of the contents of Dr. Urban's book, with an occasional extract, deserves a place in these columns.

The first botanic, or rather economic, garden in Berlin was founded in 1573 by the Elector, Johann Georg, and conducted by his gardener, Desiderius Corbianius. This seems to have been little more than a kitchen garden and orchard, and was neglected and allowed to run wild during the Thirty Years' War. Thereafter, in 1646, it was restored and replanted, and the botanical section was placed under the direction of Dr. J. S. Elsholz. This included an orangery, 60 yards long by 20 yards wide and 20 feet high, wherein were cultivated Oranges, Lemons, Pomegranates, Myrtles, and various other tender exotics. In the summer the roof was removed, and replaced again in autumn. It consisted first of a covering of boards, which was supplemented as the cold increased by several waggonloads of hay or straw, and thereupon a shingle roof. The house was warmed by means of eight iron stoves, that required constant attention. The garden also contained a museum and botanical library. In 1664 the number of species of plants cultivated amounted to 950, whereof dried specimens of the majority were preserved, and still exist in the herbarium. The present botanic garden was founded by the Elector Frederic William the Great on returning from his victorious campaign in 1679. At that date the site was filled by the Court Hop garden; but among other household reforms the Elector determined to give his servants an increase of wages in lieu of the former allowance of beer, so there was no further need of Hops. Accordingly, the Hop garden was transformed into a general garden, including a botanical section, though the principal object was the cultivation on trial of all the varieties of vegetables and fruits that could be obtained from the surrounding countries. We have not space to follow the vicissitudes of this garden under succeeding rulers. King Frederic William I. (1713—1740) having no taste for such things, and being extremely parsimonious into the bargain, was glad to be relieved of the cost of the maintenance of the garden by Andreas Gundelsheimer, physician to the former king, and companion of the celebrated Tournefort in his travels in the East. Scarcely, however, had the first preparations been made for making it a real botanic garden than Gundelsheimer died. Then the king issued an order, couched in the most flattering language as to the great regard he had for the learning and merits of the members, that the Society of Scientists should maintain the garden out of its income; and in spite of all representations of inability the society was compelled to furnish a considerable sum, thereby crippling its action in other directions. For many years the garden continued in a struggling condition. At times it was almost desolated, and during the Seven Years' War was actually deprived of nearly every source of income. Passing over this unpleasant period, we come to the appointment of C. L. Willdenow, in 1801, to whom was entrusted the reorganisation of the garden. Under the care of this excellent and energetic botanist the garden soon obtained a European reputation. In 1809 the university was founded, and Willdenow was installed as the first Professor of Botany, a post that has ever since been associated with the directorship of the garden. Willdenow died in 1812, and was succeeded, provisionally, by Lichtenstein, who had travelled in South Africa and investigated its flora. Link was the next permanent director. He was appointed in 1815, and held the post until 1851, when Lichtenstein was again made provisional director until Alexander Braun was appointed, early in the same year.

Since Willdenow took the direction in 1801, up to this period the garden had not enjoyed uninterrupted prosperity, for the French troops entered the capital in 1806, and the Russian in 1813; and on two or three occasions the glasshouses and plants were almost ruined by heavy hailstorms. It should be mentioned that although the French plundered the garden in 1806, yet when the General Administrator Estève was conducted over the garden by Humboldt in 1807, he was so astonished at the good condition of the fine collection of plants that he voluntarily allotted the sum of £4 10s. per month for the maintenance of the garden. Yet in spite of all drawbacks the garden very well fulfilled its purpose during Link's long administration. Dr. A. Braun did not, however, assume

* *Geschichte des Königlichen Botanischen Gartens und des Königlichen Herbariums zu Berlin, nebst einer Darstellung des augenblicklichen Zustande dieser Institute.* Von Dr. Ign. Urban. 8vo, pp. 164, tt. 2. Berlin, 1881: Gebrüder Borntrager.

the direction under very favourable circumstances, for on the accounts being examined a deficit of £2250 was detected, which led to the suicide of the secretary. During Braun's administration, from 1851 to 1867, the garden was enlarged by an area of more than its former size, a new Victoria-house and a spacious Palm-house were built, besides several smaller houses, and the museum and herbarium building, finished only last year, was designed. In 1850 the ordinary outlay on the garden was about £2000, and this had risen to £4600 in 1876, and in 1879 it was close upon £5000. The area of the present garden is about 27 acres, and it contains thirty-six plant-houses, covering an area of about 3800 square yards. In 1877-8 there were cultivated in these houses 10,069 species and varieties, belonging to 2159 different genera. Some of the elements of this collection are noteworthy. Thus, there were 495 species of Leguminosæ, including 145 of Acacia, 142 of Begoniaceæ, 599 of Cactaceæ, 391 of Compositæ, 172 Gesneraceæ (belonging to 42 genera), 495 of Orchideæ, 193 of Marantaceæ, 30 of Musaceæ, 268 of Aroideæ, 46 of Pandanaceæ, 173 of Palmaceæ, 180 of Bromeliaceæ, 334 of Amaryllidaceæ, 496 of Liliaceæ, 233 of Coniferæ, 44 Cycadeæ, and 631 Filices. Out-of-doors there were about 7000 species in cultivation at the same date. After A. Braun's death in 1877, the late Professor Karl Koch acted as provisional director of the gardens until the appointment of Dr. Eichler early in 1878. The gardens are open to the public every day except Saturdays, Sundays, and holidays, from 8 A.M. until 7 P.M., and in winter until dusk, but the houses are not opened to visitors at any fixed hours. A notice is posted at the entrance to the gardens stating which houses are open, and at what hours. Travellers are admitted on any day. The other regulations are much the same as those in force at Kew. We intended to have made some extracts concerning the herbarium and museum collections, for which a commodious building was completed in the gardens last year at a cost of £36,000—namely, £28,000 for the structure itself, and £8000 for fitting up the interior; but we have only space to add that Dr. Urban gives full particulars respecting the various collections. Unfortunately the herbarium library is by no means so nearly complete as could be wished, being especially poor in the most useful illustrated books. The total number of volumes is 2344, exclusive of tracts, or about one-third of the number in the herbarium library at Kew.

AGRICULTURAL STATISTICS.

WE take the following extracts from the Report upon the returns for 1881, issued by the Statistical Department of the Board of Trade:—

In Great Britain the area reported to be cultivated in 1881 amounts to 32,212,000 acres as compared with 32,102,000 acres in 1880, an increase of 110,000 acres in all, which is ascribed by the collectors for the most part to the enclosure or reclamation of mountain and waste land in different parts of the country. The area under corn crops is 8,848,000 acres only as compared with 8,876,000 acres in 1880, a decrease of 28,000 acres. The area under green crops is 3,510,000 acres as compared with 3,476,000, an increase of 34,000 acres only. The area under Clover and grasses under rotation is 4,342,000 acres, a decrease of 92,000 acres; and the area under arable lands altogether is 17,568,000 acres as compared with 17,675,000 in 1880, a decrease of 107,000 acres. The increase in permanent pasture, on the other hand, is 216,000 acres—from 14,427,000 acres in 1880 to 14,643,000 acres in the present year. A movement which has gone on without interruption almost since the commencement of these returns, and which has, in conjunction with some changes in definition which ought of course to be allowed for, increased the area under permanent pasture from 12,435,000 acres in 1871 to 14,427,000 acres in 1880, while the arable area fell from 18,403,000 to 17,675,000 acres, has thus been continued during the present year. This continued decrease in arable land and increase of permanent pasture is unanimously ascribed by the collectors in the present as in former years to the low prices of grain and the pressure of American competition.

As regards corn crops the most important fact, apart from the slight decrease in the total, seems to be that there has been a diminution of the area under both Wheat and Barley, and an increase of the area under Oats. The total under Wheat is 2,806,000 acres, a decrease of 103,000 acres from 1880; and under Barley 2,442,000 acres, a decrease of 25,000 acres from 1880; while under Oats the total is 2,901,000 acres, an increase of 104,000 acres over 1880. Among the minor corn crops there is an increase of 14,000 acres in the area under Beans, and a decrease of 18,000 acres under Peas. The decrease in Wheat and Barley and increase in Oats are exclusively in England and Wales, the changes in Scotland being rather in the opposite direction. As regards green crops again, the most important variations, apart from the small increase already noticed, appear to be an increase of 28,000 acres in Potatos, 11,000 acres in Turnips, and 8000 acres in Vetches, and a decrease of 18,000 acres in the area under Cabbage, Kohl Rabi, and Rape. Among the minor crops there is a diminution from 8985 acres to 6534 acres under Flax, and from 66,698 acres to 64,943 acres under Hops. There is also a decrease of 17,000 acres in bare fallow, contrasting, however, with the large increase of 91,000 acres last year, so that there is an increase compared with 1879.

The figures for Ireland exhibit changes of a somewhat different character. Instead of an increase there is a decrease of 53,000 acres in the cultivated area, which is no doubt partly due to the difficulty of distinguishing between permanent and mountain pasture. So far then there may be no real difference between the changes in Ireland and Great Britain, but there is a real difference in the other changes, the area under both corn and green crops having increased in Ireland, while the area under permanent pasture has diminished even more than the above diminution in the total area cultivated. Corn crops have increased altogether 10,000 acres, and it appears that this corresponds very closely to the increase of the acreage under Oats, an increase of 6000 acres under Wheat being balanced by a decrease of equal amount under Barley. Green crops again have increased 21,000 acres, but this is found to be almost exclusively due to the large increase of 34,000 acres under Potatos, there being a slight decrease under the heads of Turnips, Cabbages, and Vetches. Clover, Sanfoin, and grasses under rotation also show an increase of 89,000 acres. On the other hand, the decrease in permanent pasture amounts to 170,000 acres, corresponding nearly to the above increase in corn and green crops and Clover, plus the total apparent diminution of the cultivated area. There is a diminution of 10,000 acres in the area under Flax, and an increase of 6000 acres under bare fallow.

Taking the figures of 1881 as the basis, a comparison of the principal figures of the agriculture of the United Kingdom results in the following summary:—There is a cultivated area in all of 47,646,000 acres, as compared with a total area of 77,829,000 acres, so that 61 per cent. of the area is cultivated. Of the 30,000,000 and odd acres uncultivated, however, about one-half is in Scotland, where the proportion of the cultivated to the whole area is only about 25 per cent., the proportion in England and Ireland rising to about 74 per cent.

The special return as to unoccupied farms or parts of farms shows that the total acreage in England and Wales is returned as 43,817 acres, the number of separate farms wholly unoccupied being stated as 321, of 38,816 acres, and the number of detached plots of arable land of not less than five acres being stated as 191, of 5001 acres.

PLANT PORTRAITS.

ANTHURIUM ANDREANUM. *Floral Mag.*, t. 463.

BERBERIS SINENSIS, Desfontaine, *Bot. Mag.*, t. 6573.—A very graceful species, with slender pendulous branches, small oblong-obovate leaves, and pendulous racemes of small yellow flowers. Sir J. Hooker speaks of it as the most graceful of all the numerous species of Barberry. Cultivated at Kew.

CLEMATIS RETICULATA, Walter, *Bot. Mag.*, t. 6574.—The leaflets are elliptic, glabrous, flowers solitary, on the end of long slender peduncles, perianth ovoid, 1 inch long, bell-shaped, greenish externally, purplish within. Southern United States. Rodger, McLelland & Co.

COLEUS REINE DES BELGES, *Illust. Horticole*, t. 425. — Disc of leaves claret-red bordered with purplish-brown, edge coarsely serrated, green.

ENGELMANNIA PINNATIFIDA, Torr. and Gray, *Bot. Mag.*, t. 6577.—A Composite, with pinnatifid hairy leaves and yellow flower-heads, about 1½ inch in diameter. Native of the prairie regions of the Central United States, and quite hardy at Kew.

EREMURUS OLGÆ, *Gartenflora*, t. 1048.—A species with tufted, linear, scabrous, recurved leaves, from whose centre arises a long dense spike of white, star-shaped flowers with projecting stamens.

GLOXINIAS, *Floral Mag.*, t. 462.—1, Mrs. Bause, pure white, with a pink throat; 2, Countess Renard, throat and tube crimson, edges of petals white; 3, George Smith, tube deep violet-blue, paler at the throat, margin of the petals white. General Horticultural Company.

ODONTOGLOSSUM VEXILLARIUM VAR. RUBRUM, *Floral Mag.*, t. 461.—Surely too highly coloured.

OSBECKIA ROSTRATA, Don, *Bot. Mag.*, t. 6575.—A square-stemmed Melastomaceous plant, with oblong lanceolate acuminate bullate nearly sessile leaves, and terminal cymes of large rosy-pink flowers, with long curved projecting anthers. Wet places, Bengal to Burma. Messrs. E. G. Henderson.

PEAR, SOUVENIR DU CONGRÈS, *Bulletin d'Arboriculture*, July.—Raised by M. F. Morel of Lyons, as a result of the cross between Duchesse d'Angoulême and Williams' Bon Chrétien. Fruit large, pear-shaped, eye open in a shallow depression, stalk stout, very thick, skin reddish on the sunny side; flesh very juicy without grit.

PULSATILLA VERNALIS, *Gartenflora*, t. 1047*a*.—A low growing hardy perennial, with deeply cut palmately lobed leaves, and large pale violet or whitish Anemone-like flowers. Central Europe to Ural.

RHODODENDRON BOOTHII, *Revue de l'Hort. Belg.*, August.—A yellow-flowered species, with small broadly campanulate flowers. Native of Bootan.

RONDELETIA GRATISSIMA, Hemsley, *Illust. Horticole*, t. 424; see *Gard. Chron.* 1879, vol. xii., p. 235 = Rogiera gratissima, auct.

ROSA RUGOSA, Thunb., *Gartenflora*, t. 1049.—A reproduction of our plate, p. 372, vol. xiv.

ROSE, DUCHESSE DE CAMBACÉRÈS, *Journal des Roses*, August. — A hybrid-perpetual, with large, globular, well-shaped flowers of a bright rose colour.

SALVIA BETHELLII, *Floral Mag.*, t. 464.—Flowers rosy pink. Mr. Cannell.

STATICE LEPTOLOBA, Regel, *Gartenflora*, t. 1045.—A species gathered in the district north-east of Kuldscha. It has small spatulate tufted leaves, and short wiry fork-branched stems, with terminal clusters of violet flowers.

SYNECANTHUS FIBROSUS, Wendl., *Bot. Mag.*, t. 6572.—An elegant pinnate-leaved, spineless Palm, 4—5 feet high, remarkable for the arrangement of the flowers in lines upon the edges of the spadix, the lower flower in each group alone being female, the rest male. Central America. Hort. Kew.

VANDA CŒRULEA GRANDIFLORA, *Revue Horticole*, August 1.—A large flowered variety of this lovely species.

THE KEW ARBORETUM.

THE MAPLES.

ACER SIEBOLDIANUM, *Miq. Prol.* 19; Maximowicz, *Mélanges Biologiques*, tome x., p. 606. A. japonicum var. Sieboldianum, Franchet et Savatier, *Enum. Plant. Japon.*, tome ii., p. 317; A. palmatum, Kæmpferi, Hort.—Japan.

No drawing of this species has hitherto been published; the present one (fig. 113) was prepared from a specimen supplied by Messrs. Veitch & Sons. From A. japonicum, with which it has been confused, it differs in its yellowish (not purple) flowers, and in the serration of the leaves. *G. Nicholson, Kew.*

SHERWOOD PARK.

EVERY one who has heard or read of the experiments conducted with the electric light upon different kinds of plants in Dr. Siemens' garden near Tunbridge Wells, will be interested in reading a short notice of the garden which has become so familiar to horticulturists lately. One of the most important questions of the day is as to the future of the electric light in its practical applications, and in its power of hastening the development of plants and fruits in the dull season. The practical cultivator who is not a scientist wants to know in what degree the electric light possesses the elements conducive to the development of plants and fruits. It has been clearly established by Dr. Siemens and others that bleached plants elaborated chlorophyll under the influence of electric light after being perfectly white, so that, as a matter of fact, the electric light has essentially the same power as the sun's rays, and its action can be brought to bear upon plants in a proportionate degree. The application of the light, however, is at present only experimental. The fumes from an exposed lamp in a hothouse burn anything in the shape of plant life that comes in direct contact with the streams of light, but a sheet of glass, placed so that the light must pass through it, counteracts the evil

effects. To obviate this, and also to prevent the escape of injurious gas, Dr. Siemens has a square glass-case erected at one end of the house in which the experiments are conducted, and to which access is obtained from the outside. In this case the electric lamp is placed, and by this simple contrivance what appeared to be a formidable difficulty has been successfully overcome. But the chief difficulty appears to be the diffusion of the electric rays, and their equal concentration over a given area, in order that the light may act upon plants as the sun's rays would do upon a bright day. Whether this effect will be best obtained from large centres or from a number of smaller ones remains to be seen; but of the ultimate success and mastery of these and other points there can hardly be a doubt, considering what has already been accomplished by science in the same direction. The results to be obtained from the use of the electric light must be brought out in a great measure by the practical gardener. He must bring all his intelligence to bear upon the working of the "new power" that is placed in his hands, and assist in perfecting the scheme. If the electric light is to have a fair trial, the material that is to be experimented upon must at least be equal to that from which ordinary results would be expected under the usual system of forcing. Nothing short of a fair comparison of results will satisfy practical gardeners and the public. The season is now approaching when such a step could be undertaken. Two houses of pot vines or two batches of Strawberries (or, still better, French Beans or Melons), one lot to be assisted by the electric light, and the other to be brought forward in the usual way, would prove clearly to what extent we may look forward for assistance from the electric light in early forcing. The Vines or Strawberry plants should be in the best condition for early forcing, of equal strength, and should occupy corresponding positions in their respective houses, which should have the same aspect, and be in all respects managed alike. At the end of a few months a clear case would be established, and the produce of each set of plants should be compared at home or exhibited at one of the meetings of the Royal Horticultural Society. No one who is desirous of doing justice to those who are engaged in elaborating a great scheme would expect astounding results from a system which has as yet only reached its initial stage; but at the same time an actual practical experiment of the nature suggested would go far towards removing misconceptions and prejudices.

A great many cynics write and speak of the application of electric light to cultural purposes in horticulture with as much confidence as if they knew what they were writing or speaking about. No one who visits Dr. Siemens' garden who has a pair of eyes and the will to use them, can come to any other conclusion than that there is a great experimental scheme in progress which may any day develope itself into practical shape and be of vast benefit in the production of early crops of choice fruits, vegetables, and flowers, to say nothing of the other purposes to which the electric force may be applied. At Sherwood the "waste steam," after it passes through the cylinder in the engine-house, is conveyed by means of a pipe into a boiler, which warms a whole range of forcing and plant houses. A supply of water for the house and garden is also pumped from the bottom of the grounds through the agency of the electric force, and chaff-cutting and other agricultural operations are conducted upon the same principle. Probably those who have not paid an actual visit to the place would think—and very naturally so—that the means by which so much is accomplished must be very complex and intricate. The electric current is generated by magnets made to rotate rapidly in juxtaposition. The current from these magnets is sent or conveyed by a single wire to the machine in the pumping-house. The electric force, as will be seen, commences from the top by the wire communicating with the centre of the machine magnet, the return current being conveyed back to the engine-house by an ordinary wire fence in order to save cost. When chaff-cutting is to be done, all that is necessary is to disconnect the wire communicating with the apparatus in the pumping-house. Electric bells are also called into request, so that indications of speed can be communicated to and from the different stations, and upon the whole the simplicity of many of the operations and the rapidity with which they are executed by Mr. Buchanan is truly surprising.

It would appear from actual observation that any estimate of cost must be vague for the present. If the electric light is to be taxed with all the expenses, while the apparatus is capable of doing so much other work, the figures already given can hardly be taken as a fairly approximate cost. Before taking leave of the electric light, I think it is important to notice it in its ornamental phase. I have known instances (some of them with which I have had something to do) in which much trouble and expense were undertaken in order to light conservatories by reflectors. Why should not the whole landscape be illuminated by the electric light, at a trifle more cost? It would give new interest and create fresh enjoyment in gardens if country families would adopt the electric light to relieve the monotony of long winter nights. Where there is a broad expanse of pleasure gardens furnished with fine trees and shrubs the effect at night would be of the most charming character. Upon a recent occasion at Sherwood Park, when a *fête* was held in the grounds, a tent 80 feet long by 40 feet wide was lighted with eight electric lamps, which created a brilliancy of scene hitherto unthought of. The tent was situated upon a long strip of lawn upon the west side of the mansion. Upon the north and south sides are two irregular borders of trees and shrubs, besides several handsome bushes and trees planted singly upon the lawn. At the bottom of the lawn there is a rosery, with a fountain in the centre. Upon the evening of the electric display a heavy shower had fallen, which bathed the trees with moisture and hanging drops, the latter looking like myriads of diamonds suspended from the hanging boughs of Laburnums or Weeping Ash or Birch. To describe the beauty of such a scene is impossible, but an idea of the effect may be gleaned by any one who has seen the brilliancy of the light, and can picture its rays flashing through various forms of trees and shrubs, and lighting up hill and dale, cascade or rockery, with a radiancy at once magnificent and imposing, and yielding a pleasure from the garden and landscape hitherto unknown.

Fig. 113.—Acer sieboldianum. (see p. 590.)

The house, which is partly in the Italian style, is a handsome block, ornamented by towers and a portico in front supported by massive stone columns. It is situated 1½ mile from Tunbridge Wells, and the scenery from the terrace upon the north side is of the most pleasant description. The grand new lodge which has been recently built is quite an ornament at the entrance to the new carriage-drive leading to the mansion from the Pembury Road, which curves gently through the grounds and communicates with the old drive at a point near to the house. The new lodge is not only ornamental but it is also what few lodges are, namely, habitable, while in size and style it is strictly in harmony with the house and grounds. The second or old lodge is some distance further on, and this entrance is ornamented with two fine rows of Wellingtonias from 30 to 40 feet high. The house and grounds are situated on the highest point, and command extensive landscape views. The different varieties of Wellingtonias are of much interest to the arboriculturist, or, indeed, to any one who cares to get acquainted with the various habits and forms of trees belonging to the same family. The beautiful conical habit of some of the specimens, faultless in symmetry compared with the straggling habit of others, is indeed interesting, as showing the care that should be taken in the purchase of plants. By the side of an avenue, however, the different varieties are rather more pleasing than otherwise. As you draw nearer to the mansion where the two drives connect the Cedar avenue begins and continues up to the carriage front of the mansion. The trees are of average size, well furnished, and bearing the true Deodar colour, which is ever beautiful, and gives a distinct and neutral shade from most other trees.

The principal Conifers in the grounds consist of Abies lasiocarpa, A. Pinsapo and A. Nordmanniana, and of miscellaneous trees there are splendid samples of Araucaria, Ailantus glandulosa, Weeping Birch, the Eagle-claw Maple, and numerous other specimens. The flower garden on the west lawn consists of several groups of beds, simple in design but effectively planted. It is a relief for the eye to travel over such an expanse of lawn before it comes in contact with the gaudy colours of the bedding plants, which are subdued in tone by the intervening distance between the house and the garden. Of the latter the projecting portions of the borders which enclose the lawn, and which are neatly planted, have a tendency to improve the appearance of the whole garden. The shrubberies round the south side of the mansion were at the time of my visit gay with autumn flowers double and single Dahlias, Pentstemons, Salvias, Tritomas, Senecio pulcher, &c. Mr. Buchanan only grows such hardy plants as are useful and effective, and he evidently knows their proper position in a garden. I have seldom seen hardy and half-hardy flowers arranged with greater judgment than they are at Sherwood amongst shrubs and in mixed beds and borders. The flower garden, the terrace garden, and mixed beds and borders are all accorded equal attention, but care is taken that the round man is not put into the square hole, and so wherever you go in

the garden there is variety not only of form, but also of arrangement.

The conservatory is situated upon the north front, an elegant structure, architecturally ornamental, but not the best of places for medium-sized plants. The floor is laid with ornamental tiles, and specimen plants occupy the centre of the house. Tree Ferns, Australian Dracænas, Rhopalas, and such-like that are tall enough to leave walking space under them are kept for the centre of the house, and flowering plants are arranged upon a stage along the front. These comprise choice Pelargoniums, Celosias, a fine strain; Fuchsias, blue and white Campanulas, Eupatorium odoratum, and early flowering Primulas. At the east end of the house a fine group of Palms and Camellias has a good effect from some of the principal rooms, as also the hanging shoots of Cobæa scandens variegata and Tacsonia van Volxemi trained upon the roof. From the terrace outside the conservatory there is one of the most delightful views in the county. If there is any fault to find with the disposition of the garden it is that the terraces are too many for the space; one less thrown into the others would perhaps be a short way of getting a better proportion of things, and a better view of the new American garden. This occupies what was formerly the site of a lake, but is now laid out with beds of American shrubs. The garden is oval in shape from the terrace view, but terminates on the west side in a pleasant lawn which is enclosed by a rockery of hardy Ferns and alpine plants, at the back of which is a wood intersected by shaded walks, bordered with hardy Heaths and Rhododendrons, and at some points overshaded by Weeping Birch or other trees of similar form. In the glass department I noticed that preparation was being made for housing the stock of winter flowering plants, including collections of Azaleas, Chysanthemums, Solanums, Eupatoriums, and Salvias. Two ranges of pits are filled with Primulas, Cinerarias, Cyclamens, and a grand display of winter-flowering Pelargoniums. In the Palm-house a fine Banana was bearing a cluster of fruit about 45 lb. in weight, and the house is stocked with other plants requiring a moderate temperature. A long lean-to vinery, in which the Vines are strong and healthy, has produced a good crop of Grapes, capital examples of which are still hanging as black as Sloes and the bunches of fair average size, good form, and splendid quality. In a block of span-roofed houses are some capital examples of Ferns, Orchids, and miscellaneous plants. The block consists of three houses, each of which has two divisions in order to render them more useful and accommodating for practical purposes which need not be referred to here. The Orchids comprise many robust samples of Dendrobiums in variety, Masdevallias, and Odontoglossums; also hard-wooded plants, succulents, Tea Roses in pots, and Camellias. One of the divisions is filled with choice Adiantums and specimen Davallias, and was a pleasing sight. It is a pity that such well-grown samples have to be shorn of their beautiful fronds; would that we could make up our minds to arrange growing flowers among growing Ferns more than we do—the effect would be none the less lovely, and the plants would always be something to look at.

Two of the divisions are used for Pine growing, and Poinsettias and other heat-loving plants occupy the side stages. Mr. Buchanan has had to make a fresh start in Pine-growing, and a promising start it is—with clean young plants which will soon furnish the necessary supply of fruits. The Peach-houses are span-roofed, large, spacious houses, which are also used for storing plants in winter. In the kitchen-garden there are several pits used for Strawberry forcing, and a range of vineries where other operations are carried on in winter. One house is exclusively set apart for forcing French Beans, of which large supplies are required during the winter and early spring. The walls are stocked with healthy bearing trees of Peaches, Plums, Cherries, Pears, &c., and the bush fruits and vegetable crops are alike healthy and well cultivated. Several branches of gardening are in process of extension at Sherwood, where there is abundant scope and many natural advantages which will not be lost sight of by a skilled general and shrewd observer like Mr. Buchanan, who has practical ideas of his own, and knows the way to carry them out. *W. H.*

Nursery Grounds.—The acreage of land used by nurserymen this year is:—England, 10,100; Wales, 335; Scotland, 1825—total, 12,260.

LIST OF GARDEN ORCHIDS.

(*Continued from p. 527.*)

15. Liparis, L. C. Richard, in *Mem. Mus. Par.* iv., p. 52. — Stems sometimes pseudobulbous, 1-leaved, or with several leaves that are narrowed downwards into sheathing petioles. Flowers small, racemose. Column rather long, semicircular or 2-winged in the upper part, but not branched. Terrestrial or epiphytal herbs, with usually small, rarely medium size, commonly dull white, green, yellow, or red flowers. There are about fifty described species, widely dispersed in temperate and warm regions. The proposed genera Sturmia, Alyisa, Empusa, Empusaria, Platystylis, Ephippianthus, and Gastroglottis are referred hither.

1. L. alata, Scheidweiler, in Otto and Dietr., *Allg. Gartenz.* 1842, p. 293; *Bot. Reg.* 1843, Misc., n. 12.—Mexico. Cultivated in the Royal Garden at Lacken, Belgium. Described as a rather pretty species, with a spike of flowers 6 inches long, and purple flowers ½ inch long, with a crimson lip.
2. L. angustifolia, Lindl., *Gen. and Sp. Orch.*, p. 31; *Malaxis angustifolia*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 393. — Java, Buitenzorg Botanic Garden, 1856.
3. L. atropurpurea, Lindl., *Gen. and Sp. Orch.*, p. 28.—Nepal. Henderson & Son's catalogue for 1881. A very pretty species.
4. L. bituberculata, Lindl., *Bot. Reg.*, sub tab. 882; *Cymbidium* (?) *bituberculatum*, Hooker, *Exotic Flora*, t. 116.—Nepal. Introduced into this country before 1825 by Dr. Carey. Lindley (*Gen. and Sp. Orch.*, p. 27) unites this with his L. elata, an American species; I am not able to say how it differs therefrom.
5. L. Boothii, Regel, *Ind. Sem, Hort. Petrop.* 1864, p. 14.—Native country not given.
6. L. Bowkeri, Harvey, *Thesaurus Capensis*, ii., p. 6, t. 109.—South Africa; shaded crevices of rocks near Fort Bowker, Caffraria. Discovered by Henry Bowker. Hort. Kew.
7. L. compressa, Lindl., *Gen. and Sp. Orch.*, p. 32; *Malaxis compressa*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 390, tabellen 54.—Java, Buitenzorg Botanic Garden, 1866.
8. L. crenulata, Lindl., *Gen. and Sp. Orch.*, p. 30; *Malaxis crenulata*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 393.—Java, Buitenzorg Botanic Garden, 1866.
9. L. cylindrostachya, Lindl.: where published?—Brazil, Adelaide Botanic Garden, 1871. Hort. Kew.
10. L. dendrochilum, Rchb. f., *Flora*, 1872, p. 278.—Native country not recorded. Cultivated by Day. Flowers straw-coloured, with an orange labellum.
11. L. diodon, Rchb. f., *Linnæa*, xli., p. 43.—India, Dehra Doon. Cultivated by W. W. Saunders.
12. L. elata, Lindl., *Bot. Reg.*, t. 1175; *Gen. and Sp. Orch.*, p. 27, excluding syn. L. bituberculata.—Tropical America. First discovered by Sir Henry Chamberlain in the vicinity of Rio Janeiro, whence he sent it to the Horticultural Society in 1826. Flowers small, dull purple and green.
13. L. elegantissima, Veitch's Catalogue for 1881.
14. L. ferruginea, Lindl., *Gard. Chron.* 1848, pp. 55, 71.—Penang. Cultivated by Loddiges in 1848. Scape 2 feet long; flowers pale green with a rusty-brown labellum.
15. L. foliosa, Lindl., *Bot. Reg.*, t. 882; *Gen. and Sp. Orch.*, p. 29; Lodd., *Bot. Cab.* 1097; *Bot. Mag.*, t. 2709; *L. reflexa*, Lindl., *Bot. Reg.*, sub tab. 882.—Mauritius. Imported by Robert Barclay in 1823. Flowers small, yellowish-green.
16. L. formosana, Rchb. f., *Gard. Chron.*, n.s., xiii., p. 394.—Island of Formosa. Collected and introduced by Mr. Maries for Messrs. Veitch, with whom it flowered in 1880. Flowers light purple, margined with green, and having a brown labellum.
17. L. gregaria, Lind., *Gen. and Sp. Orch.*, p. 33; *L. disticha*, Lindl., *Bot. Reg.*, sub-tab. 882; *Malaxis disticha*, Thouars, *Orch. Afr.*, t. 89.—Mauritius, Bourbon. Cultivated at Kew in 1871.
18. L. guineensis, Lindl., *Bot. Reg.*, t. 1671.—Sierra Leone. Introduced by Whitfield in 1832, and flowered in the garden of the Horticultural Society in 1833. A species of no beauty, with small green flowers.
19. L. latifolia, Lindl., *Gen. and Sp. Orch.*, p. 30; *Malaxis latifolia*, Blume, *Bijdr. tot Fl. Nederl., Ind.*, p. 393.—Java, Buitenzorg Botanic Garden, 1866.
20. L. liliifolia, Rich.; Lindl., *Gen. and Sp. Orch.*, p. 28; *Bot. Reg.*, sub tab. 882; *Ophrys liliifolia*, Linn., Andrew's *Bot. Rep.*, t. 65; *Malaxis liliifolia*, Swartz, *Bot. Mag.*, t. 2004.—North America, from Canada southward. Cultivated by Peter Collinson in 1763. A very curious terrestrial Orchid, with greenish flowers, and a leaf-like labellum.
21. L. Lœselii, Richard; Lindl., *Gen. and Sp. Orch.*, 28; Syme, *Eng. Bot.*, t. 1488; *Ophrys paludosa Fl. Dan.*, t. 877; *L. Correana*, Spreng., *Sys. Veg.*, iii., p. 740.—North America and Europe including the fens in Eastern England. Flowers yellow. An unattractive plant. Ware's Catalogue, 1881. Hort. Kew.
22. L. longipes, Lindl., *Gen. and Sp. Orch.*, p. 3 Wallich, *Pl. Asiat. Rar.*, i., p. 31, t. 35.—Indi Hort. Kew.
23. L. minima, Lindl., *Gen. and Sp. Orch.*, p. 3 *Malaxis minima*, Blume, *Bijdr. tot Fl. Nede. Ind.*, p. 391.—Java, Buitenzorg Botanic Garde 1866.
24. L. montana, Lindl., *Gen. and Sp. Orch.*, p. 2 *Malaxis montana*, Blume, *Bijdr. tot Fl. Nede. Ind.*, p. 388.—Java, Buitenzorg Botanic Garde 1866.
25. L. mucronata, Lindl., *Gen. and Sp. Orch.*, p. 3 *Malaxis mucronata*, Blume, *Bijdr. tot Nederl. Ind.*, p. 391.—Java, Buitenzorg Botan Garden, 1866.
26. L. nervosa, Lindl., *Gen. and Sp. Orch.*, p. 2 *Epidendrum nervosum*, Thunberg, *Ic. Pl. Ja* t. 10.—Japan, China. Cultivated by Prin Demidoff, San Donato, 1858.
27. L. orbicularis: where published?—Flowered Kew in 1863; plant received from Loddig Flowers yellow. I cannot find that this name l been published.
28. L. pallida, Lindl., *Gen. and Sp. Orch.*, p. 3 *Malaxis pallida*, Blume, *Bijdr. tot Fl. Nede Ind.*, p. 391.—Java, Buitenzorg Botanic Gard 1866.
29. L. parviflora, Lindl., *Gen. and Sp. Orch.*, p. 3 *Malaxis parviflora*, Blume, *Bijdr. tot Fl. Nede Ind.*, p. 392.—Java, Buitenzorg Botanic Gard 1866.
30. L. pendula, Lindl., *Bot. Reg.* 1838, n. 180.—Ind Imported by Messrs. Loddiges. The flowers small and whitish-green, and arranged in slen pendulous racemes fully 1 foot long, giving plant an elegant appearance. Hort. Kew. *W. Hemsley.*

FRUIT NOTES.

Apples.—We have a few varieties that are ne satisfactory in our soil, so I will name only those tl are always good, and which seldom disappoint with a crop. We begin with the little white sumn Juneating, followed by the Red or Early Margar and then we have the best early Apple, Irish Peach this is not only the best early dessert Apple but one the most prolific; Red Astrachan, ripe at the sa time, is better looking, but that is all. Devonsh Quarrenden may be said to be coeval with Ir Peach, and when well grown is very beautiful; it also better flavoured than Red Astrachan, but not good as Irish Peach. When the Irish Peach is o we begin to use Kerry Pippin, which keeps well a is the best second early. After this there are plenty good dessert Apples, and amongst the many candida for popular favour the old Golden Pippin must not lost sight of. Although small, it is the richest flavou of Apples, and remains in use a long time, and is superior to the Pitmaston Golden Pippin. Co Orange Pippin and Ribston Pippin may be used fr now until after Christmas. What a grand, use Apple, too, is the Blenheim Orange, either for co ing or dessert. Cockle Pippin, Mannington's Pe main, and Scarlet Nonpareil come in about the n year; the last-named is rather a shy bearer, which a fault. Lodgemore Nonpareil is the best of t tribe, and comes in during February and Marc while those who like a rather sub-acid Apple m find it at that time in Fearn's Pippin. Of dumpli Apples everybody will continue to grow Lord Suffie and when it is over they will start with Cell Pippin, or Cox's Pomona. A grand Apple to succe these is Peasgood's Nonsuch (see fig. 114). Th we have Alfriston, and afterwards Wellington, a we want no others. The above is a selection Apples and Pears I recommend after trying, I wo be afraid to say how many. *Jas. Douglas, Ilfo Essex.*

The Winter Peach Apple.—Mr. Roberts l exactly hit the description of Winter Peach Ap (see p. 495), both of fruit and tree. Mr. Bunyard, Maidstone, had it in the bunch at the last meeting South Kensington, and spoke of it as a great cropp That is quite exact. It is very productive, and first-class late dessert kind. *A. D.*

Passe Colmar Pear. — I notice that a cor spondent speaks favourably of this Pear among othe and from long experience of it I can testify to good qualities, for when gathered from trees grow in good soil, and trained on a fairly sunny aspect, fruit colours up of a rich yellow, and is full of

most luscious juice. No one planting can, therefore, do better than add one of this kind among their collection; and as it is a sort that comes into use after Christmas it is of more value on that account. *J. S.*

Bergamotte d'Esperen and Joséphine de Malines Pears. — These are about the only two really good late Pears; but, like all others ripening after Christmas, they must have a warm sunny situation to get the fruit properly up to the mark; and not only this, but they must be left to hang as long as they will fairly hold on to the trees. If they could be planted and grown, as suggested, by having their roots in a cool north border, and their heads trained over the wall on the south, no doubt these Pears would attain a higher order of excellence than in any other way, and as the planting season is now here I throw out the hint. *J. Sheppard.*

Cox's Orange Pippin and Pomona.—With respect to "J. S.'s" suggestion that Scarlet Nonpareil was a parent of Cox's Orange Pippin, I am of opinion that it much more resembles Margil in flavour, form, and habit of the tree. It is, however, said to be a seedling from the Ribston Pippin. The raiser sowed two pips from that Apple, one resulting in the Orange Pippin, and the other in Pomona—very diverse fruits indeed. Mr. Cox's luck was simply marvellous, thus to raise two first-class kinds from as many pips, whilst many persons have raised hundreds of seedlings, and not been rewarded by one good kind. *A. D.*

Winter Nelis and Beurré Diel Pears. — Winter Nelis is an old and well-tried favourite, and one that is, perhaps, unsurpassed among Pears during the season at which it ripens—that is, when it has a good aspect to grow on; for, unless favoured in this respect, the fruit comes spotted, with cracked skin, and the flesh, instead of being soft, rich, and buttery, is gritty and poor. As to Beurré Diel, of which Mr. Morgan speaks in terms of praise, I have discarded it by grafting the tree afresh, as with us it was never good; for, although large, clear in the skin, and noble looking, it was always coarse and gritty, and yet the south-westerly aspect on which it was growing gives us some of our best Pears. It has been justly remarked that no fruit varies more than these in quality in different counties, soils, and positions; and I generally find that our finest fruits are those gathered from branches that overtop the wall, and hang on the coping looking to the south-east, where, getting more sun, the crude juices are converted into saccharine matter. When looking over the gardens at Stoke Park, some time ago, I was much struck by a remark made by Mr. Creswell, the intelligent gardener there, about planting Pear trees on north walls, and running them over and down the other side, and he pointed to some he had trained in that way which were bearing high-coloured splendid-looking fruit. Could south walls only be spared for the purpose, there is no doubt but that the growing them in that way would be a capital plan, as by having standards with clean straight stems of the necessary height, and planting them 10 or 12 feet apart, Morello Cherries could be grown between, and every inch of space in that way utilised. Many will probably say, if Pears are to grow on south walls, why not plant them there? But the advantage of having the roots in a more shady and moist border is great, as there they are not likely to suffer from want of water, and the south side will be at liberty for Peaches and Apricots, which may be trained to fill the lower part of the wall. Where walls are low, Pear branches might be led right and left along a couple or three wires strained at about 9 inches apart, so as to form a sort of coping over the Peaches, which the Pears would then help to protect by intercepting the radiation of heat from the bricks. *J. Sheppard.*

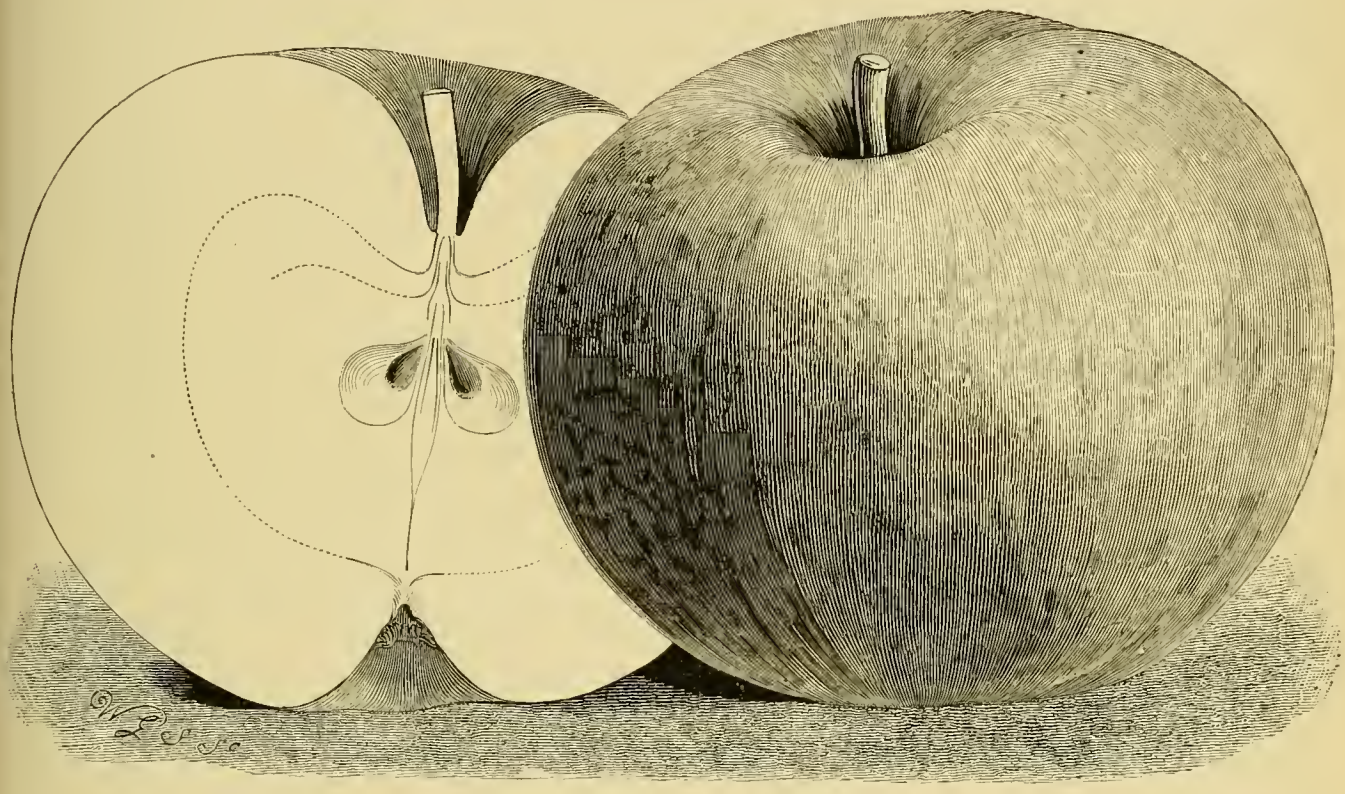

Fig. 114.—Peasgood's Nonsuch Apple. (see p. 592.)

Orchid Notes.

Mr. Bull's Orchids.—In the dark days of winter a startling contrast is afforded between things external and the abundance of bright colour to be seen in Mr. Bull's Orchid-houses. These low span-roofed houses, where the plants are well exposed to light, suit their inmates admirably, as may be seen from the healthy growth the plants make and the profusion of bloom they produce. The aggregation of numbers of specimens of the same species enables the visitor to see how much finer some varieties are than others bearing the same specific name. Just now fine varieties of Odontoglossum tripudians and O. tripudians xanthoglossum, the latter with thirteen flowers to the spike, may be seen. A variety of O. gloriosum, with darker spots, is noteworthy. O. vexillarium rubellum keeps its character as an autumn-flowering variety, with its markings unusually constant. In habit and foliage it is also different from the common type. Mesospinidium vulcanicum lights up the house with its rosy-crimson flowers. A very fine variety of Vanda cœrulea, with the lip unusually deeply coloured, is worthy of remark. Cattleya exoniensis is in flower, with its rich crimson labellum. Maxillaria grandiflora is in form like a Lycaste, the sepals and petals are ivory-white, the lip 3-lobed, the side pieces brownish-purple, the central one yellow. Oncidium Weltoni is remarkable for the colour of its flowers, the narrow sepals and petals being brown edged with yellow, the large lip violet with a white tip. Odontoglossum Roezlii and the white variety are both in bloom, as well as Dendrobium formosum giganteum. Oncidium ornithorhyncum forms a feathery mass of light violet flowers of curious structure. Very attractive are some grand forms of Lælia autumnalis, especially the var. atro-rubens, with unusually richly coloured flowers. Odontoglossum hastilabium with its narrow sepals and petals, with horizontal bars of purplish-brown, and its apron-like white lip at the end from a purple stalk, is remarkable for the length of time it remains in bloom. It has been continuously in flower here, from May to November. O. bictonense is remarkable for the same protracted blooming season. O. Uro-Skinneri has a similar useful property. Masdevallia Chimæra is just going out of bloom; on one spike—which, by the way, is erect—there had been already six flowers, and a seventh was still to come. Colax jugosus, with its white sepals and petals and its rich blue lip, is deservedly a favourite. Calanthe pleiochroma, with dense spikes of bluish-white flowers, is a species rarely met with. These are only a few of the many Orchids now in bloom. Curious little Masdevallias, such as the orange-flowered M. corniculata, and its spotted form, M. ericacea, a little gem; M. Wagneri and M. Wallisii might be added to the list. In a short time there will be a fine display of O. Alexandræ and O. Pescatorei.

Phalænopsis amabilis.

I have under my charge a plant of this lovely species with four leaves, not an imported piece, but one that has been under cultivation some years,

carrying a spike of thirty-one flowers and unopened buds. Unfortunately it is improbable that the entire number will be open at the same time, as the bottom flowers are already expanded, while the topmost buds are in the earlier stages of development. There are also several other branches showing on the spike that I think will push when the strain from the first flowers is removed. This I thought a very creditable performance for a plant of this size, but it is entirely eclipsed by the plant mentioned by Mr. Douglas in his remarks on the Clapton Phalænopsis at p. 562, that has carried seventeen spikes, with an average of nearly nineteen flowers each. It must have been a grand sight. I have travelled in several of the Philippine islands, but never saw anything equalling this; but I saw a plant of P. Schilleriana growing under artificial conditions in the compound of the Fonda at Majajai, which I purchased for 25 cents, and brought home for my employer, that had two spikes carrying between them 733 flowers and buds, 531 being fully expanded at the time of purchase. *W. C.*

Maxillaria picta.

The spotted flowers of this species are produced very freely, and being of some size the plant is a good one for all collections. They may be considered handsome, and they measure 3 inches across when spread open; but as the parts of the perianth are incurved the natural expansion is about 2 inches. The colour is orange on the inside, yellow without, and densely spotted with port-wine colour in zebra-like transverse bands. Now flowering in the Cambridge Botanic Garden. *L.*

Cœlogyne cristata.

Just now, in the Messrs. Brittain's nursery at Salisbury, there are several nice pieces of this useful Orchid, together with Lælia anceps Dawsoniana, showing a profusion of flower-spikes which ere long will be coming into flower. In the same house we also noticed a small plant of Lycaste Skinneri ripening a seed-pod, which is about 2 inches long, 3 inches round, and not unlike the pseudobulb from which it issued. *H. W.*

Oncidium Lanceanum.

This very fine species is mentioned by Mr. Swan at p. 498 as being difficult to grow. The plant he alludes to is grown in a pot. I do not think it ought to be grown in a pot unless the plant is allowed to throw its roots over the sides, and to do this it must be left alone for several years, but even then it does not do well. The best way to grow it is in a Teak basket, in a compost of peat and sphagnum. I bought a small plant seventeen years ago, and it is now a large specimen, and flowers freely every year. The basket is hung up near the glass in winter, but it has to be removed further from it during the summer months—that is, from May 1 to the end of September. Its flowers are very sweetly scented, in addition to their rich colours. *J. Douglas.*

Varieties of Calanthe Veitchii.

Attention is called by the *Gardener* to the varieties of Calanthe Veitchii. I was not aware there was so much difference, but an opportunity has been afforded me now of seeing the great dissimilarity there is between the two varieties. All our stock here is of the dark variety, while that I lately had to do with was of the light variety, a much inferior flower, and, moreover, a more delicate grower. This point I am quite convinced of, though it is not noticed in the *Gardener*, but, as it observes, it is easily distinguished by its contraction about the middle of the bulb. There is no doubt of the superiority of the dark over the light variety, which Orchid growers would do well to note. This and Oncidium Rogersii (the large flowered variety) are uncommonly fine flowering plants for this dull season of the year—none more so or more useful. *Henry Knight, Greenlands, Henley-on-Thames.*

Calanthe Veitchii.

For winter blooming, as a decorative plant for rooms, or the spikes cut for glasses, I think this is not to be surpassed at this time of the year, as it lasts such a long time used either way. We have now about thirty to forty spikes in bloom. They have a very good effect mixed up with other foliage plants in the stove. I send you a bulb with the spike, taken out of a 6-inch pot. *S. A. Woods, Osberton Gardens, Worksop, Nov. 1.* [The spike received measures 4 feet 4 inches in length from the base of the bulb, and bears thirty-one open flowers, with at least a dozen more to follow. Eds.]

NOTES ON VEGETABLES.

School-grown Vegetables.—When school gardening is exciting popular notice, and its value as an educational element is being urged by many well qualified to give practical opinions, it may not be without interest to make special reference to a very remarkable display of vegetables exhibited the other day at Feltham from the Middlesex Industrial Schools, a huge establishment where some 800 boys, taken chiefly from the streets of London, are educated and industrially trained in various pursuits, of which gardening and agriculture are prominent ones. The boys are set to work in sections to perform digging, manuring, hoeing, and all the various gardening operations, under the supervison of a labour-master, but really by the instruction of the bailiff and gardener of the establishment, Mr. Lowe. The entire sewage of the schools is laid on for general application over a large area, and is in dry weather and growing seasons freely used amongst the vegetables. That these are of a high-class character was fully evidenced in the display referred to, and which was made at the exhibition of the Feltham Horticultural Society, reported elsewhere. Just beyond the Industrial Schools are situate other large schools—those of the West London Union District—for pauper children, and as the authorities of both institutions had intimated their intention to exhibit at Feltham collections of garden produce, it was thought desirable to invite Messrs. Jas. Carter & Co. to offer a silver cup to be awarded to the best of these exhibits, and to this that firm readily consented. One collection from the West London District Schools, though a good one under ordinary conditions, looked poor when compared with the grand display made by the Industrial Schools, and which certainly was one of the finest collections we have seen exhibited by any institution or from a private garden, for not only was there abundance but the quality throughout was superb, and of course no difficulty was experienced in awarding to it the Messrs. Carter's cup. The collection included splendid white Cabbages, Mr. Lowe's own strain; fine solid Drumhead Savoys, really grand Giant Autumn Cauliflowers, about a dozen heads, pure white and solid; fine clean white and red Celery, a beautiful basket of Brussels Sprouts, handsome Perfection Beet, Early Nantes and Intermediate Carrots—these remarkably clean and shapely; handsome medium-sized white Dutch Turnips, good white Spanish Onions, and five kinds of Potatos—good samples of Vicar of Laleham, Victoria, Snowflake, Magnum Bonum, and Champion. Parsnips are not grown at the schools, not being in favour, but all other vegetables are of a substantial, serviceable kind, and such as are most fitting to feed so many hungry mouths. Not a little credit is due to Mr. Lowe for the way in which the collection was displayed, and many more pretentious exhibitors might well have taken a lesson from the style of arranging. It doubtless added to the Messrs. Carter's satisfaction that their cup was awarded to such a fine collection. About 100 acres of land are under cultivation for the production of agricultural crops, and there is kept a fine dairy of about twenty cows, and numerous pigs.

The Cropping and Qualities of Potatos.—I can endorse "A. D.'s" praise of the quality of Covent Garden Perfection Potato, although I never find it a heavy cropper. I cannot, however, join with him in the wholesale condemnation of Queen of the Valley on account of its coarseness; this coarseness, as shown in the heap exhibited at the Crystal Palace, arising, I fancy, from growing in contact with too stimulating manure. I last spring obtained from Messrs. Hooper 1 lb. of this variety, and also 1 lb. Adirondack, a handsome round red second early; the former was cut into eleven sets, and planted on April 18, and the produce, lifted on August 24, was 34 lb., nearly all useful tubers, not at all coarse, the heaviest being not more than 12 oz. The other, Adirondack, was cut into thirteen sets and planted at the same time, the produce being 45 lb. of very handsome tubers, 42 lb. being market ware, and the quality good, the heaviest being under 1 lb. A dish of twelve, taking 1st prize at a local show, was very much admired; both varieties were grown in light soil, only made moderately good. White Elephant I did not grow, not liking the look of Daniels' illustration; the samples I have seen of it grown in this neighbourhood have, however, been extremely handsome without any coarseness. It is to the cottager particularly that some of these heavier cropping Potatos are valuable; he wants to get as heavy a crop of food off his small allotment as possible, and for this purpose some of the American varieties are extremely useful. It is this cropping property that has made Early Rose so popular amongst cottagers, notwithstanding the fact that they occasionally come coarse. For the gentleman's garden fine quality is the first consideration, but with the cottager bulk of crop must be had as well as quality. *W. T., Jun., Christchurch, Hants.*

Veitch's Red Globe Turnip.—It is easy enough to get good mild Turnips during early summer, when growth is quick and the bulbs get no check from dry weather, but it is not so easy to obtain them of fine quality after that season, as they are generally strong and hot as well as hard, but this is not often the case with Veitch's Red Globe, which stands heat and drought better than any other variety with which I am acquainted. Sown immediately after the lifting of the first early Potatos, and on the same ground, there is plenty of time for it to grow large enough to be fit for cooking, and medium-sized roots are the best for standing the winter, which this fine hardy sort will do well. Severe frost, however, deteriorates even the finest of Turnips, and the best way to have them fresh, juicy, and succulent is to bury the bulbs by digging the ground over and burying them deep in the soil, and leaving the tops out, which preserves them in the freshest and finest condition, much better than they ever are if pitted or stored in a shed. *J. S.*

Veitch's Autumn Giant Cauliflower.—I have lately seen some splendid heads of this variety, many of them measured from 12 to 14 inches across. The seeds were sown late in March in the open ground and planted out 6 feet from row to row, ridge Cucumbers being grown between the rows, thus allowing the Cauliflowers plenty of room. *S. Pragnell, Laurel Grove Gardens, Chelmsford.*

Hicks' Hardy Green Cos Lettuce.—Having grown this for some years for winter use I can, with confidence, recommend it as one of the best, if not the best Lettuce out, as, like the Paris Cos, it heads in without any tying up, and stands sharp weather well. If grown outdoors at this season it should be planted on a warm south border, or under the foot of a wall having the same aspect, as there it will endure the hardest of frosts, and be fit for use long before the spring-sown ones come in. Those for winter use should be sown at the end of July or early in August, and when grown to their full size lifted and put in cold frames, from whence they can be drawn when wanted for use. It improves Lettuce much if, a week or so before they are required for salads, they are put in a Mushroom-house at work, as there they start to grow a bit, which makes them more delicate and tender, and being totally in the dark they become better blanched—a condition that adds both to their appearance and quality. *J. Sheppard.*

Garden Operations.

PLANT HOUSES.

Stove.—Plants of Aralia Veitchii, A. elegantissima, or other hothouse kinds that may have become too tall for convenient use, should now be kept dry for a week or two, after which they may be cut down rather close to the soil. If it should happen that they are grafted plants, be careful to cut them over a fair distance above the union with the stock. Keep the plants still dry at the root till they show signs of breaking, when it would be well to reduce the ball, and pot into one size smaller pot; after this, give them all the light and heat at command for a few weeks till the plants are again in fair growth. Jacaranda mimosæfolia may be treated in like manner. Dracæna gracilis makes one of the prettiest of dinner-table plants. A young stock of these may soon be worked up if an old plant is at command. Proceed first by striking or rooting off the top; this will make a serviceable young plant, although it will not produce a growth so pendulous as those struck from offsets. These latter will soon push out after the top is cut off, and when large enough to be inserted singly into the smallest of pots they may be heeled off. Other growths will again shoot forth from lower down the stem, to be served in like manner. Tops of Crotons with good colour that have been struck as previously advised, will now make serviceable plants for the dinner-table. If well rooted in small pots, supply them liberally with water, and sponge the foliage at intervals. Keep up the stock of Pandanus Veitchii for table-work by propagating the smallest growths that can be got. This plant will

resist as much or more rough treatment than any other stove plant grown for decorative purposes. If a crown or two can be had of the variegated Pine-apple they should be struck in preference to suckers. These make pretty plants, developing their character very early in life. If room is short they may be suspended ont of harm's way near the glass when they have become established. Keep plants of Cissus discolor drier at the root now, they will start all the more vigorously in the spring; this remark should also apply to Fittonias and their near allies. Be cautious with any plants of Cycads, now that colder weather is upon us. Do not risk them any longer in a cold house, or irreparable injury may be done both to the roots and the stem. Though not requiring the temperature of the stove in which to grow them successfully, it will be far better to keep them there when the convenience of a temperate-house is not at hand. During the winter they should be kept somewhat dry at the root, this will induce them to push up young growth in the spring. Offsets from strong plants of Cycas revoluta will strike readily and make nice stuff in a season or two. Those who are fortunate enough to possess the best form of Tillandsia Lindeni should watch their plants closely to guard against drip, which will lodge readily in the axils of the leaves, and oftentimes cause the plant to decay.

Ferns.—Pteris tricolor, the best of all variegated Ferns, is very liable to attacks of brown-scale; now would be a good time to endeavour to eradicate the same while the plant is not in active growth. P. argyræa is also very susceptible of brown-scale. By constant attention now much trouble and annoyance will be saved later on, when work gets more brisk in this department. Keep all decaying foliage removed from Gleichenias, and do not allow the plants to become dry enough at the root for them to suffer. Davallia bullata will now be losing its fronds; keep the stock of this Fern drier from this time onwards, all young fronds again push forth. A good substitute for this Fern for cut purposes may now be had in D. Tyermanni and elegans. Where large pans of Selaginellas are grown the stock of several sorts is best kept through the winter in small pots, in which way they are not so liable to damp off. S. apoda, cæsia, denticulata, rubricaulis, and Mertensii are best kept under this treatment; several small pots pricked off now of S. denticulata will make serviceable stuff in the spring for decorative purposes.

Greenhouse, Pits, and Frames.—Advantage should be taken during the next few weeks to train and tie the stocks of Indian Azaleas where it is necessary for this operation to be done. For my own part I dispense with this work as much as is possible. Where plants are grown for exhibition purposes it is very essential for them to be properly secured with stakes and ties, so also is it if the plants have to be removed a long distance for furnishing work. The growth of all Cape and New Holland plants that are intended for specimens should be regulated, to give a proper balance to the entire plant. Boronias are liable to attacks of white-scale, which should be checked immediately any trace of it is seen—a small brush and some insecticide will stop its progress. Plants of Pleroma elegans that have become leggy may be kept dry for a while, and then cut back. After this they may be started into growth in a little heat, and kept pinched back when any young growth is too much in advance of the rest; this operation may be carried on for some months until a good bottom is again formed. Plants of Cytisus that are become pot-bound should be liberally supplied with water; if allowed to suffer the forwardest spikes will often go blind. The stock of Agaves, Buonaparteas, Dasylirions, and Yuccas, should be watered very cautiously throughout the winter months. Any plants of Yuccas that have become too tall should at this season be cut off close up to the lower leaves, and inserted firmly into a small pot with room enough for sufficient soil in the which it can strike fresh root; if plunged in a slight bottom-heat they will soon be induced to make a start. Camellias that are swelling their buds must be watered freely, and occasional syringing will be beneficial to the plants. Avoid forcing them now if possible; the groundwork for early bloom must be laid in an early growth properly matured. Bouvardias turned out in pots are now flowering freely. If any trace of fly is seen fumigate at once. All cold pits should now be utilised to protect hardy and half-hardy roots and bulbs for future forcing, indications of another sharp winter already appearing. *James Hudson, Gunnersbury House, Acton, W.*

HARDY FRUIT GARDEN.

The brighter weather we have lately experienced has greatly assisted the maturing of all fruit trees, and the recent frosts have brought many of the leaves to the ground, so that the sooner a start is made with the pruning and nailing or tying the better, in order to rush on the work before the weather becomes too cold for the operator, and the days too short for making good progress. Cherries are now almost devoid of leaves, and a commencement may be accordingly made upon them. The Morellos may have their shoots laid in more thickly than other fruit trees, at the same time taking care not to overcrowd. In thinning out shoots care must be taken to leave those arising nearest to the starting points of the respective branches, removing many of those that have borne fruits to make room for the young shoots next below them. Growths that have reached the limits allowed them may be cut out to the nearest shoot, or, if they were stopped when the summer growths were laid in, they may be retained if it is thought desirable, as, although the Morello does not readily make spurs, a twiggy growth frequently results which is very fruitful. In the same way shoots may be cut back in any portions of the tree where there is a scarcity of young wood, but they must be cut out where the result would be to overcrowd an already well-furnished part. Young growths may be tied upon all old branches to utilise all the available space and prevent crowding elsewhere. See that all tight ties are removed from the larger branches that are not loosened from the wall, and observe where nails are used that none be suffered to remain in contact with growing branches to afford a fertile source of gumming. In the case of sweet Cherries little use of the knife ought to be required at this time if the summer pruning has been attended to as recommended in previous Calendars. Old spurs continue in full bearing for a great number of years, and only require removal or shortening back when too crowded, or when they extend too far from the wall. In furnishing young trees, if the branches are sufficiently numerous for the requirements of the case they can be laid in at full length, when every bud will in time naturally form a fruit-spur, and avoid shortening the branches where it would cause the emission of unnecessary growths that require time and attention to bring to a fruitful state. Where Cherries are affected with scale, a diligent search should be made on all portions of the trees likely to escape observation, and wherever it is found to have established itself the part should be carefully dressed with rock oil after scraping off as much as possible. If the black aphis has been troublesome it will be advisable to remove all old ties or shreds, and to apply a mixture of tobacco-water and soft soap, thickened with a little clay, to the walls behind the branches, taking care to fill all nail holes or other crevices. Push on the general work in this department while the open weather continues.

Pyramidal Pear and Apple trees that require lifting to check over-luxuriance and induce a fruitful habit, may be operated upon at once. Commence by taking out a trench at 2 or 3 feet distance from the bole of the tree, according to size; remove the soil from the trench to a depth of 2 feet, clear off the top soil from the ball with a digging fork, remove the earth carefully from amongst the roots, also with the fork, until a spade can be used to cut clear through under the ball in order to remove all roots directed downwards. Replant in fresh loam if convenient, spreading the roots out carefully nearer to the surface, and finish by making the ground firm, securely staking the tree, and mulching the surface with long litter. Trenching for fresh fruit quarters, and for renewing rows and single stations, must be proceeded with as opportunity offers. Leaves should be removed from walks and borders, and the department kept cleared up after every operation—neither suffering prunings to accumulate to be trodden into the ground, nor irregular heaps of soil to mark the spots where lifting or planting has been done. Wall trees may be gone over with a light broom to remove the loose leaves, using little force, and that only in the direction of the run of the branches; and wet days must be taken advantage of to prepare a stock of shreds of various sizes. *Ralph Crossling, St. Fagan's Castle.*

FRUIT HOUSES.

Vines.—The earliest vineries should by this time be ready for starting. If not already started, shut them up at once, and water the border as recommended in my last Calendar. Tie the Vines in a horizontal position to induce them to break regularly, and on the inside borders place fermenting materials composed of dung and Oak leaves, well mixed together by turning the heap over every morning, which will make a moist, healthy, growing atmosphere. Should the weather be mild no fire-heat will be necessary for the first fortnight, if a little fresh dung and leaves be added; but if the nights are cold, give fire-heat to keep the temperature from falling lower than 50°, with a rise of 10° by day. Syringe the rods when they become dry, but when fermenting materials are used on inside borders they will not require so much syringing as when forced with fire-heat alone. Outside borders that have been covered with shutters to throw off the cold autumn rains must have them removed, and some dung and leaves thoroughly mixed together put on, sufficient to impart a gentle heat without exciting the Vines too quickly; then place the shutters over the borders again, and the heat will last for some time. Hamburghs that are wanted to hang must be looked over carefully for decayed berries, and the atmosphere must be kept dry, airing them as recommended in my last Calendar. Succession-houses of Hamburghs can be pruned as the leaves fall off, and the loose bark taken from the main stems and the Vines washed as recommended in previous Calendars. Prune them to a good eye, but in most cases one eye to each spur will be sufficient, as they rarely fail to break well if the wood is properly ripened. Muscats should now be kept at a night temperature of 50° to 55° according to the state of the weather outside, using only sufficient heat to keep the temperature dry and the berries plump; do not admit front air when the wind is very cold save only on clear still bright days, but admit air at the back on all favourable occasions. Late varieties of Grapes that are thoroughly well ripened can be kept for a short time longer at a night temperature of 50° with the internal atmosphere as dry as possible, looking over the bunches often for decayed berries, for if allowed to remain only a few days they will soon spoil many more and disfigure the bunches; give air in abundance on all favourable occasions, but on wet or dull days give only a very little back air, with sufficient fire to keep a circulation. In dull weather it is better to use only a little fire and give very little air, for if much air is given it only admits damp, which no amount of heat can disperse without injury to the Grapes that it is required to keep. Newly planted vineries will now have the wood thoroughly ripened, and the back and front ventilators must be left open night and day to give them a thorough rest; do not let the borders get dust-dry, but only use enough water to keep the roots healthy. The earliest pot Vines should now be started. Before starting, water them with clear tepid water at a temperature of 85°; and if they are plunged in fermenting material see that the bottom-heat does not exceed 75°: even if a little lower it will be all the better. Keep the night temperature for the first fortnight from 50° to 55°, with a rise of 10° by day. As the bottom-heat declines add fresh material to keep the heat regular, and syringe the rods several times daily, or whenever they are dry. Pot Vines for next year's planting should now be stood in a cold house; but where they have to remain outside cover the pots well over with ashes or cocoa-fibre, and secure the rods to stakes to prevent the wind breaking them. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

Fruiting plants in all stages have every facility afforded them now for swelling and ripening off their fruits as rapidly as possible. I have invariably found that those fruits which are ripened in the shortest space of time during the dull winter months are not only better coloured, but less liable to turn dark in the centre, and the flavour does not become deteriorated, as is the case with fruits grown in low temperatures and kept about for a long time. Keep the bottom-heat for fruiting plants at about 90°, the minimum temperature at 70°, and the maximum at 80° to 85°. Give a little air on all favourable opportunities, the best time being when the temperature stands at or near 80°. Those plants that have shown fruit since October 1 should have every attention given to them; especially Smooth Cayennes and Charlotte Rothschilds, which will ripen in May or June—a very scarce time, and are then invaluable; these can be relied upon to keep up a succession of fruit, if the first lot of Queens are not ripe at that time. Water should be given to fruiting plants very cautiously during the winter months; examine each plant individually at least twice a week, and only give water when the soil is in a proper state to receive it. On the first sign of the fruit commencing to change colour give the plants no more water. Keep succession plants at 65° by night, with a rise of 10° by day, and the bottom-heat from 80° to 85°. Keep the soil uniformly moist, neither too wet nor too dry. Give them a little air every day, if only for a short time. The atmosphere should be kept a little drier at this season than is recommended for fruiting plants, but this must not be carried to excess. This applies forcibly to the roots of the plants, and under no circumstances allow the soil to become parched. If the growth of these plants has been thoroughly matured they will readily start at the proper time. Those that are intended to start for the first batch should be placed together in one compartment, they should consist principally of Queens, with a few other kinds as required. Choose the most vigorous plants, and select those that are closing in the centres—a sure indication of fruiting. Keep rooted suckers close to the glass, and keep them gently moving; the soil should be moist at all times, and not allowed to become too dry during the winter. A bottom-heat of 70° to 75° suits them well, with a night temperature of 60°—this may rise 10° by day. Give a little top air every day, and the centres of the plants must not be allowed to become drawn or blanched. The atmosphere for suckers may be kept as advised for succession plants with regard to moisture. *D. Wilson, Castle Hill, Devon.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 7	Sales of Dutch Bulbs, at Stevens' Rooms, and at the Auction Mart, by Protheroe & Morris.
TUESDAY,	Nov. 8	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Clearance Sale, at Osborn's Nursery, Fulham, by Protheroe & Morris (two days). Sale of Lilium auratum Bulbs, at Stevens' Rooms
WEDNESDAY,	Nov. 9	Sale of Roses, Shrubs, &c., at Stevens' Rooms.
THURSDAY,	Nov. 10	Richmond Chrysanthemum Show (two days). Sale of Imported and Established Orchids, at Stevens' Rooms Clearance Sale, at the Leytonstone Nursery, by Protheroe & Morris.
FRIDAY,	Nov. 11	Sale of Lilium auratum and Dutch Bulbs, at the Mart, by Protheroe & Morris.
SATURDAY,	Nov. 12	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

IN our last issue we alluded at some length to the action of "GERMS" in producing certain forms of disease in animals and plants. We showed how modern investigation had sufficed not only to detect the germs, but even to isolate them and grow them under artificial conditions. The existence of these organisms has, of course, been known from the time people began to use the microscope; but it is only lately that it has been proved that they are not the mere accompaniments of disease and decay, but, in some cases at least, the actual cause. This has been proved by isolating the germs, cultivating them, and inoculating healthy animals with them, as detailed in our last number. Introduce these organisms, and disease and decay set in; prevent their ingress or destroy them by carbolic acid or other germ destroyer, and no disease is produced. Already, in the case of animals, the practical results of these discoveries may be called enormous, and the prospects for the future are even more hopeful. We refer to the subject again because, since writing our remarks, some papers of Professor BURRILL have come under our notice, in which the author shows that the "blight" in Pear and Apple trees and the "yellows" of the Peach owe their origin to the presence of bacteria. We have ourselves noticed the occasional presence of "micrococci" in cankered Apples, but we had looked upon their presence more in the light of a coincidence than a cause; with Professor BURRILL'S papers before us, however, we would urge those who have the requisite leisure to investigate this matter for themselves. According to Professor BURRILL'S statements he finds bacteria in the drops of whitish viscid fluid found oozing from the bark of diseased Apple and Pear trees. At the same time the cells of the bark, which should be full of starch, are nearly void of that reserve of nutriment. The bacteria are found, as we understand it, actually in the cells, but how they gain access to the interior is not made out. Inoculation of previously healthy trees was practised in a great number of instances, the disease being thus reproduced in a large percentage of cases, but not invariably. Actual inoculation by means of a needle charged with the virus, as in the case of vaccine lymph, is necessary, or the transfer of a portion of infected bark, as in the operation of budding, are requisite, as it seems that the mere deposit of the virus by means of a brush upon the leaves is inefficacious. The progress of the disease is very uncertain and irregular but always slow, no change being visible for nine or ten days. The chemical changes produced are the giving off of carbonic acid gas and the formation of butyric acid. In the Lombardy Poplar these ferment-producing agents follow the attacks of the wood-boring beetles, and complete the destruction set up by them.

Such in brief outline are the results obtained by Prof. BURRILL. We do not know by actual observation what the "fire blight" of the Pear and the "twig blight" of the American Apples are, and what relation they bear to the canker and other diseases of our fruit trees, but we have said enough we hope to induce those with the requisite leisure and competence to investigate these matters for themselves. It may be requisite to point out that some only—not all such diseases—are likely to be caused by these organisms, that the presence of bacteria, micrococci, and the like need not necessarily cause diseased action, for assuredly they often occur where no ill effect is perceptible. Their presence is readily detected by the microscopist, but to prove that they are the actual cause of the disease requires prolonged careful experiments directly to prove and indirectly to show that no other cause is sufficient. Should it turn out—as we strongly suspect it will—that some forms of canker are due to these organisms, we may have a chance of combating the malady by cutting away and destroying the affected branches and by the free use of carbolic acid as a poison to the germs.

A trial might be made of this substance at once, for in any case it would be as efficacious as any other remedy, and there is the probability that it may prove much more so. Practical points to be borne in mind are to take care not to take grafts from an affected tree, and not to use the same knife for pruning healthy trees as has been used for those that are in any way diseased. Who knows but that the explanation of the facts attributed by some to wearing out and degeneration of particular varieties may really be due to the dissemination of disease by means of the knife and pruning-saw.

The whole subject demands the most careful examination—practical men are too busy; few of us, indeed, have the requisite leisure, and unfortunately at present we have no schools of gardening or forestry, no experimental botanic gardens where such experiments could be undertaken by competent persons. Some day, perhaps, we shall be wiser. At present not only the Americans but the Germans and the Belgians, and to some extent the French, give us the go-by in these matters, to our certain loss in the future.

THE growth of the London suburban railway system, which is an undoubted necessity of the enormous increase of population, is in a large degree tending to force the market gardener further and further from the centre to the circumference. This is true on all sides of the great metropolis, but especially so in the west and south. Acres upon acres of market gardens, and especially of fruit gardens—the latter containing trees of many years' growth—have disappeared before the railway contractor, and where the Plum was seen to redden in the long summer days and the Beurré take on its tints of russet and gold, the shrill scream of the locomotive is heard, or brand-new villas appear in line upon line of streets. Many and many a large space of ground, with a deep fertile soil eminently fitted to produce fruit and vegetables in perfection, is lost to this useful industry; and the market gardener is driven further afield to find suitable spots, and, what is perhaps more needful, a fitting soil. Where these are to be lighted upon within a convenient distance of the great London markets, is a matter of much greater social importance than is generally supposed.

The market gardener appears to be on the eve of a time of depression similar to that which has come upon his brother agriculturist. He is now found asserting that the legitimate trade of the market gardener is being interfered with by a large number of private gardening establishments about the country, where fruit, flowers, and vegetables, are produced in large quantities, and sent to market. He is handicapped with heavy rents, ordinary and special rates, some also of an extraordinary character, fees, charges, &c., to scarcely any one of which are private growers subject, or by whom is their incidence felt. He is hampered with regulations and traditions of the trade, from which it is almost impossible for individuals to free themselves, and which can only be resisted and modified by an energetic system of combination. He finds rents rising and rates increasing, while the cost of transit, by reason of the longer distance over which his goods have to travel, is considerably augmented. In a time of scarcity he can realise good prices, but his resources are much diminished; in a time of plenty there is a glut, so great that it scarcely pays to send his produce to market. He does not come into contact with the consumer, or, at least, only to a limited extent; much of his produce passes through the hands of the middleman, who he asserts pockets the lion's share of the profits of trade.

Such is the case as presented by the market gardener; and, granted that his complaint is a just one, it does appear that he is falling into a bad way. What can be done to place him in a better position? is the question which occupies his thoughts, and he gladly considers any suggestion that may lead to a partial, if not entire extrication from his impending difficulties. Some of the more reflecting of the market gardeners are advocating the practical application of the principle of co-operation. They ask for the establishment of suburban markets where, with the privilege of lighter fees and charges, they may come into immediate contact with the retail dealer and the general consumer, and supply direct without the intervention of any middle agency. Is this a proper solution of the difficulty? and can the market gardening fraternity combine on some common ground to give effect to what is proposed, or to some other practical proposal? It is said that the suburban residents who live in the neighbourhood of the market gardens fare worse in regard to their supplies of vegetables and fruit, owing to the practice of sending the produce to a central market, and then carting it back again to the circumference. Many of those who live in the suburbs find out the truth of this to their cost. But the question raised needs to be discussed in all its bearings, and a full consideration may perchance be followed by appropriate and energetic action. It is needful that the end to be striven for be clearly apprehended ere action is taken.

—— AERIDES ODORATUM PURPURASCENS.—On the opposite page we give an illustration of the grand specimen of Aerides odoratum purpurascens, owned by JOHN J. D. LLEWELYN, Esq., of Penllegare, and which was described by our correspondent Mr DOUGLAS, in the *Gardeners' Chronicle* for August 6 p. 173. This form of the species is remarkable for the length of its spikes of flowers, which are waxy white tipped with red. In 1858 it was a very small plant, not more than a foot high, while now it occupies a basket 12 feet in circumference, and this season it produced sixty-eight spikes of bloom. For the photograph we are indebted to Mr. NUNN, who for many years had charge of the garden at Penllegare.

—— A NEW AROID.—A very remarkable and handsome Brazilian Aroid, Taccarum Warmingianum, is now in flower at Mr. BULL'S establishment. We shall give a figure of it at another time, and consequently reserve a full description; meantime we may say that the leaf is solitary, with a stout cylindrical erect green petiole, marked with fine white lines. The leaf is pinnatisect, glabrous; the stalked convolute spathe is closed below, open above, of an olive-green colour, finely streaked with white, the interior of the same hue, but flushed with pink and speckled with small green spots. The spadix is shorter than the spathe, pinkish in colour, studded with stalked male flowers above, female flowers beneath. It is certainly one of the handsomest and most remarkable of its class.

—— ROYAL HORTICULTURAL SOCIETY.—At the meeting of the Fruit and Floral Committee, next Tuesday, there promises to be a large display of vegetables in competition for the prizes offered by Messrs. SUTTON & SONS. Messrs. SUTTON themselves intend making a large exhibit. Apples and other fruits will be shown largely by the chief growers in Kent, &c.

Fig. 115.—Mr. J. T. D. Llewelyn's specimen of Aerides odoratum purpurascens. (see p. 596.)

—— SANDRINGHAM. — We hear that two of WEEKS & Co.'s Hydro-Caloric Coils have been fixed in the grand saloon at Sandringham for the purpose of improving the warming and ventilation of that apartment, which has not been hitherto deemed quite satisfactory.

—— ANTS IN STOVES. — After trying various means to rid his Orchid-houses of these pests, Mr. BULL finds nothing so satisfactory as sugar and water placed in ordinary ounce physic vials. These are filled two-thirds full with the solution, and placed about the plants. The insects readily enter by the narrow neck, but do not find the exit so easy. It is a singular fact that ordinary sugar has little attraction for them: the sugar used must be the best crystallised kind. From inspection we can testify to the success of the plan.

—— MUSHROOMS.—I have just had a communication made to me by an experienced doctor, that several cases have occurred this year of diarrhœa from eating Agaricus campestris, and one of great severity. My remark in this, and other cases of supposed poisoning with undoubtedly good Mushrooms, is simply that the persons who gather them return hungry and fatigued, the Mushrooms are badly cooked and hastily swallowed, so that they are irritating, tough, indigestible masses in the intestines. When properly masticated they are, on the contrary, perfectly wholesome. A schoolmaster who had been employed by BAKER when preparing his history of Northamptonshire, and in his intercourse with his accomplished sister had acquired a considerable knowledge of natural productions, fed his family every year for some time during the autumn months on fungi with complete security. It is not an example to be followed without a competent knowledge of species. A case of fatal poisoning has lately been reported from Norfolk. *M. J. B.*

—— MARKET GARDEN CROPS.—On the whole market gardeners can scarcely complain of the past spring and summer. There has been a great abundance of greenstuff; and, indeed, so much is now being sent to the market that there is quite a glut of it. The summer-sown seeds for winter and spring crops have done well. Such a plant of hardy white Cos Lettuce has hardly been known for some time, and should the winter be sufficiently kind there will be plenty of Lettuces in May and June. On the somewhat light, and always richly manured ground, of our market gardens, Lettuces generally stand well, and they are always sown sufficiently thick to allow for losses. Up to within the past few days the young plants have grown rapidly, but the recent frosts have now checked their development. The crops of winter Spinach are in every respect most promising. Since the time of sowing the weather has been favourable to a free growth, and acres of vigorous plants can be seen with scarcely a break, so regular is the growth. With the plants have sprung up an abundance of weeds, and hand-weeding has been resorted to to keep them under. In like manner the crops of Lisbon Onion are very good; one piece of 6 acres, sown in drills, is as regular in growth as a field of grass. The hoe has to be in constant requisition, but now is the time for cleaning to be done. On the whole, market garden prospects are promising, but a great deal will depend on the severity or otherwise of the winter.

—— DACRYDIUM FITZGERALDI.—Baron VON MUELLER writes:—"Some time ago I obtained through Mr. FITZGERALD fruiting specimens of Dacrydium Fitzgeraldi, which showed the fruiting characters to be those of Pherosphæra, the size and shape of the fruits being all much like those of P. Hookeriana. Whether Pherosphæra is to be maintained as a genus, or whether it should merge as a section into Dacrydium, depends much on the latitude any one wishes to allow to generic limits in Coniferæ, and I am quite willing also to transfer D. Fitzgeraldi to Pherosphæra."

—— "ICONOGRAPHY OF INDIAN AZALEAS."—Under this somewhat awkward title M. AUGUSTE VAN GEERT, of Ghent, has undertaken the publication of a monthly periodical devoted to the illustration and description of the Indian Azalea. The introduction comprises some brief historical details, from which it appears that the Azalea was first introduced into Holland about 1680, when it was described by BREYNIUS. Three quarto coloured plates are given, with illustrative text, the English version being undertaken by Mr. THOMAS MOORE, Jun. The varieties figured in this first part are A. alba speciosa plena, which epithet does not apply to three plants, as might be imagined, but to one only; A. Madame Paul de Schryver, and A. Antigone. Would that all garden plants of this description had such names as the last, or at any rate something different from the long string of Latin adjectives, which LINNÆUS demolished, but which the horticulturists seek to revive.

—— "BRITISH BIRDS."—Another part of Professor NEWTON's new edition of YARRELL's *History of British Birds* has been issued (VAN VOORST). It contains the continuation of the history of the cuckow (*sic*) and its allies, the hoopoe, the roller, the bee-eater, the kingfishers, the woodpeckers. The text combines with the most accurate scientific descriptions matter of a more popular character, relating to the history and literature of the subject. This circumstance alone, apart from the excellent woodcuts, keeps YARRELL's *Birds* still a favourite, as it has always been the standard, authority on British birds.

—— INSECTS OF MISSOURI.—For ten years Mr. C. V. RILEY annually prepared a report on the insects of Missouri of interest to the cultivator. In this way a vast amount of very valuable information on the habits of insects and their relation to farm and garden crops was got together. It was, however, published in such a form, as a Government report, that it was not readily accessible to the masses. To obviate this inconvenience, or, at any rate, to lessen it, Mr. RILEY has now published a full table of contents of each of the nine reports and copious indices of plants, insects, and illustrations, together with supplementary notes, lists of errata, and descriptions of new species and varieties. There can be no question as to the value of this laborious work, for which those who have access to the volumes will be devoutly thankful, but it is worth Mr. RILEY's consideration whether a popular volume, containing a condensed account of the several insects, and the mode of preventing or remedying the ill effects occasioned by them, would not be even more generally useful. At present we have a veritable encyclopædia of information on the phylloxera, the locust, the Colorado beetle, and scores of other insects, but from the conditions of publication it is diffused and scattered in a way that renders it difficult for a professed entomologist to get at all he wants, and almost impracticable for an amateur to do so. In so saying, however, we do not wish to underrate the valuable aid given in the indices now published.

—— "THE HEREFORDSHIRE POMONA."—The fourth part of this superb publication is before us, containing eleven coloured plates of great beauty and mostly very faithful representations. Twenty-nine varieties of Apple and thirty-five kinds of Pears are illustrated and described in the present part. The literary matter also includes the completion of the practical treatise on the orchard and its products, *i.e.*, the manufacture of cider and perry, and a note on the orchard in its financial aspect and its future by the Rev. C. H. BULMER. The work is to be concluded in seven parts. The woodcut outlines are still coarsely executed and not worthy of the remainder of the volume. Nevertheless, the work must always rank among the foremost of its class, and reflects credit on the Woolhope Naturalists' Field Club, under whose auspices it is produced.

—— THE SMOKE ABATEMENT EXHIBITION.—We are requested to state that Mr. J. CAVEN FOX, who was officially employed in the Exhibitions of 1855, 1862, and 1871, and who is so well known to many of our readers as the agent for the sales made in the Royal Horticultural Society's Gardens, is authorised to act also as agent for the sale of objects exhibited in the forthcoming Smoke Abatement Exhibition, to be held in the Royal Horticultural Society's Arcades and Annexes at South Kensington. Mr. FOX's office is in the East Arcade, and all communications should be sent to that address.

—— NATIONAL ROSE SOCIETY.—We understand that the dates for the National Rose Society's exhibitions in 1882 are—for the metropolitan show, July 4, at the gardens of the Royal Horticultural Society; and for the provincial exhibition, at the Sydney Gardens, Bath, June 28. As these dates are too early for the Northern and Midland growers, it is contemplated to hold a third show about the third week in July at some town in the Midland Counties.

—— CRYSTAL PALACE SCHOOL OF GARDENING.—The Rev. G. HENSLOW delivered his fifth lecture on "The Practical Application of Vegetable Physiology to Methods of Propagation," on Wednesday last. The lecturer treated of vegetable multiplication, and showed, first, how this is the only method in certain plants, as some algæ and fungi, and that while conjugation or a union of different cells give rise to new beings, till the elaborate processes carried on by stamens and pistils was reached, yet the vegetative method was never obliterated, and in higher plants often assumed an importance quite equal to the reproductive process by seeds. After enumerating plant organs, viz., roots, subterranean stem-structures, aërial stems, buds, he showed how Nature could utilise each of them as a means for propagating, and that the cultivator might imitate Nature in doing the same. Though roots are usually distinguished from stems by not bearing leaf-buds, yet in many cases they will do so naturally if exposed to the air, and may even be stimulated to bear them by artificial treatment. As far as subterranean stem-structures furnish propagation means there is little to do beyond separating and replanting, but with layering and cuttings of aërial shoots several physiological conditions must be considered, viz., the concentration of the elaborated or descending sap by notching, &c., the regulation of light, heat, and moisture being most important so as to check too great transpiration on the one hand without reducing the excitement to form roots. The choice of and time for making cuttings was then alluded to, and the importance of knowing what is the usual temperature at which any plant thrives, as a cutting from it must be placed at a higher temperature, in order to stimulate it to produce roots.

—— FUCHSIA EDELWEISS.—The new Fuchsia Edelweiss, of which we have received copious examples from Messrs. W. HENDER & SONS, of the Bedford Nursery, Plymouth, is one of the largest and finest double whites we have yet met with. Messrs. HENDER themselves say that "grown beside the best double whites they know, including Grand Duchess, Clarinda, Miss Lucy Finnis, Snowcloud, &c., this beats them all in every point; the purity of the corolla is unapproached, while the habit is, we think, equal to that of any of the dark free-blooming kinds. It often has from four to six flowers at a joint, and is scarcely ever out of bloom." It is certainly a most profuse bloomer, and has a noble presence. The tube and calyx is of a rich carmine-scarlet, the tube short (about ½ inch long), the sepals 1¼ inch long and ⅝ inch broad. The corolla is dense and moderately spreading, showing clear white on the outer surface, and very slightly streaked with rose at the base of the petals. The buds are very large, almost globose, with a short point, about 1 inch long and ⅞ inch wide. The leaf is ovate, about 2 inches long, and therefore, as will be seen, not at all coarse for so massive a flower. It is a very showy and telling variety.

—— MESSRS. VEITCH'S NEPENTHES-HOUSE.—A visit to Messrs. VEITCH's collection of Nepenthes just now will fascinate the plant lover and stir the pulses even of the most indifferent spectator. The free unconstrained way in which they fling their branches about, the luxuriance with which they hang down their goblets, and their remarkable forms and distinct colours leave an impression of as great beauty as singularity. Let no one suppose that there is a monotony either of form or colour among them. It is very much otherwise. There are the gigantic blood-red tubes of N. sanguinea, the long horn-like tubes of N. distillatoria, the bag-like pitchers of N. Rafflesiana, so richly spotted with dark red on a green ground, and with deep wings. To the same general type belong N. Hookeri, N. Domini, and a host of other hybrids, all different but acknowledging a common starting point. Then there is N. bicalcarata, a most robust habited kind with sturdy foliage and bag-like pitchers provided with a vicious looking rat-trap-like apparatus in its lid which renders it very distinct from its neighbours. N. Veitchii is one of the most *distingué* of the series, with its yellowish-green soft pitchers

and neatly frilled collar thrown back. N. ampullaria bears fat pouches, variously striped with red, and with disproportionately small lids. N. Rajah at present is only a young Rajah, what it will become was lately illustrated in our columns. We should have to enumerate all the sorts in cultivation if we spoke of all that are to be seen here, for there they all are, and, if we may be pardoned a Hibernicism, a good many more—there are, that is to say, a number of species not yet "come out," but of whose glories we may have to tell by-and-bye. Then there are the numerous hybrids and crosses, for Messrs. Veitch and their *aide-de-camp*, Mr. Court, have no notion of standing still. When one plant blooms the first question is, What shall we cross it with? The plants are diœcious—that is, the male flowers are produced on one plant, the females on another; in consequence it often happens that there are no available partners to be had, which vexes the soul of these energetic hybridisers. This uncertainty is unfortunate in one way—it compels the hybridisers to use what they can rather than what they would. Anything like a forelaid scheme is frustrated, and the consequence is that it often happens that the offspring are no improvements on their parents, and come under the category of "too much alike" plants. Few, for instance, of the hybrids or crosses obtained, directly or indirectly, from N. Rafflesiana, can be considered improvements on that noble species—we mean as to appearance; it may well be that there are differences which a cultivator would appreciate. Be this as it may, the casual visitor in search of a new "sensation," and the plant lover who revels in the beauty, the interest, and the significance of plants, will find in the Nepenthes-house at Chelsea such delight that he will thank us for calling his attention to it.

—"Aunt Judy's Magazine."—This admirable publication for elder children appears this month in a new series, and is to be henceforth issued by Bogue. The magazine is edited by Miss Gatty, and if in the future it retains the excellence it has had in the past, and of which there is good promise in the present number, success will be assured.

— Anthurium Scherzerianum. — There seems no end to the vagaries of this plant. Messrs. Robert Veitch & Son, of Exeter, send us a flower-stalk, provided not only with a small spathe of the ordinary character, but also with a large scarlet leaf, the veins of which, unlike those of the spathe, are arranged precisely as they are in the leaf. At Messrs. James Veitch & Sons, at Chelsea, a few days since, we noticed a branched spadix in one of the plants. Some of these vagaries would, in a florist's sense, be real improvements, if duly selected and fixed.

— A Giant Elm.—Amongst the historic trees laid low by the storm of last month was an immense twin tree, which stood in the grounds of Silver Hall, Isleworth, and near to the Thames. This big fellow had two stems starting from one base, and these had close to the ground a diameter of 13 feet 7 inches. At 3 feet from the ground the girth of the largest stem was 20 feet 4 inches, and that of the smaller one 14 feet 6 inches. To show that this bulk was continuous proportionately, the measurement of the larger stem at 30 feet high was 14 feet 4 inches, whilst the smaller one at 39 feet from the ground was quite hollow, and had an internal diameter of 3 feet 8 inches. The trees was 120 feet in height, and must have been of great age. Mr. Glossop, the present tenant of Silver Hall, mentions, that he has known the tree for forty years, and during all that time it had been in a state of decadence. It is believed that Brinsley Sheridan formerly lived in the house, and alluded to the tree in a letter to Horace Walpole.

— Tradescant's Garden.—We read in *Land* that the gardens through which King James I. wandered with his courtiers, and Charles I. and Villiers strolled with the frail beauties of those monarchs' courts to view the strange rarities which had been brought from foreign parts into "Tradescant's ark," have at length yielded to the speculative spirit of the modern builder, and the 4 acres of land which they comprised have just been covered with houses. The Turret House in the South Lambeth Road, in which lived John Tradescant, father and son, gardeners to two, if not three English monarchs, was one of those spots so strong in historical associations that in any other country but England some society of *savants* would have at least attempted its rescue. The first Mulberry tree planted in England was planted in these gardens; the first idea of a botanical museum was sketched out in these grounds; and, in fact, posterity is indebted to the Tradescants for the introduction of the study of botany as a science into this country. But none of these reminiscences appear to have enhanced its value one penny; as 4 a. 14 p. of first-rate building land simply, with excellent frontages to a main road, and contiguous to the city and the river, it realised £16,150. The collection formed by these enterprising, science-loving Dutchmen passed to Elias Ashmole, their personal friend, and is, in fact, the collection now known as the Ashmolean Museum at Oxford. There is a very good sketch of the old Turret House in Pepy's Library at Cambridge, distorted, however, by crocodiles and other "wonders" crawling about the grounds. Tradescant Road will now mark the site thus rich in reminiscences.

— The Temple Chrysanthemums. — It is the general opinion of growers that the Chrysanthemums are not likely to be seen at their best this season, but those who make a point of paying a visit to the exhibitions thrown open by the Benchers of the Inner and Middle Temples should, if possible, include this in their next week's programme, when the flowers in both collections will be in as good condition as they will be seen this year. In the Inner Temple Gardens Mr. Newton has a larger display than usual—some 100 plants more than last year—and arranged in a better showhouse, erected on a new site, on the east side of the gardens between the Temple Pier and Blackfriars Bridge. In this position more light is obtained, and the advantage is apparent in the brighter colours of many of the varieties. Notably is this the case with the Japanese section, many varieties of which are well represented, such, for instance, as M. Chaté, the finest of the "Japanese Anemones;" Red Dragon, Elaine, Triomphe du Nord, Dr. Andiguer, blood-crimson; Princess Machin, peach colour, with white centre; Tendresse, rose-pink, with lemon centre; Cry Kang, &c. In the incurved and reflexed sections Mr. Newton has been very successful with certain types, such as Pink Venus and White Venus, Nil Desperandum, Prince Alfred, and Inner Temple, an improved form of the old amaranth-coloured Arigena. The collection which Mr. Snelling has provided, and well exhibits in the Middle Temple, will be found located at the bottom of the steps leading from the fountain to the library in Garden Court. His blooms are a little later than those of his colleague, and they are not quite so large, but still furnish a well marked improvement on his past efforts. All the well known sorts are represented here, but we did not notice any new ones. The Benchers have generously thrown open their gates to the public, and a great number of people have already availed themselves of the privilege.

— German Moss.—But a faint idea can be entertained by those who have no special knowledge of the subject, of the immense quantities of green moss annually imported from Germany after being specially prepared in that country. The supply of natural moss in this country would appear to fall below the quantity required for packing purposes in nurseries, as nurserymen complain of their inability to procure it in such quantities as they formerly did. This want has no doubt, to some extent, stimulated the demand for German moss. The latter is also used in many ways in the preparation of bouquets, wreaths, crosses, &c., as well as for other purposes. There are three different shades of green which are said to be natural tints, but brightened in all probability by some process. One form is of a finer texture, and darker green than the others; it is of a deep, almost maroon-green. After the moss is prepared for exportation, it is done up into small bundles and packed in wooden cases; each case contains about twenty dozen bunches. How many of these cases come to London alone it would be difficult to say, but Messrs. Hooper & Co., of Covent Garden Market, require from 500 to 600 cases for their business. This is one of many industries to which the trade done in artificial and dried flowers have given rise, and it is an industry that grows rather than declines. It would be interesting to know how the neatly-trimmed, compact, and symmetrical bundles of moss are made up, each with its ornamental paper band. It is done in a thoroughly artistic and business-like fashion.

— Physalis Alkekengi.—The Winter Cherry proves to be an excellent plant for pots in the conservatory at a season when flowers are comparatively scarce. In the Cambridge Botanic Garden are pots with from fifteen to twenty of the fine orange globes formed by the enlarged calyces, and besides being handsome they serve a good botanical purpose. The plant may be taken up from the open ground, but is better perhaps if plunged in pots for the growing season.

— The Lessons of the Late Storm would appear to be that we should in our generation plant freely, and plant with discretion. To make good as far as possible all deficiencies is but a natural course, but in doing that there is danger that we may think only of repairing our present ills rather than to plant for the benefit of others. It is true we have now fewer demands upon home-grown timber for domestic purposes than formerly existed. The abundant use of metals and the discovery of what have so far seemed the inexhaustible forests of trees in other countries, have caused our own timber to be in less request. That, however, may be but a temporary result, for the changes wrought by science in mechanics and our common life are so rapid and so vast that it is not possible to forecast the needs and requirements of any succeeding generation. Besides, the present drain upon the forests of other countries, vast as they are, cannot go on for ever, and at some time or other, unless men are to cease building, or new materials are to be employed in construction, we may have to fall back upon our own woods for a needful supply of timber. But whatever may come—and the prospect, if possible, is yet indefinite—it is certain we must plant trees, and plant abundantly. It is not so long since we had a mania for cutting down trees, and clearing them from off the face of the earth, because they seemed to encumber our fields and to injure our crops. Better a thousand times that trees should have fallen, and gone not ignominiously out of existence, than that they should be reserved for the fate too many have to endure in our metropolitan counties, to be indeed maimed, elongated poles with mop-heads—burlesque trees, that only serve to amuse where they do not create pity. Men have now begun to learn that trees are not unmixed evils, and if they do abstract a little from the soil, they will serve to stem the course of the cutting blasts, to temper the force of the hurricane, and to give shelter to tenderer vegetation; not less also when the fierce glare of sunshine pours down upon the earth, the exhausted beast or wearied man gladly seek their welcome shade for rest and repose. We must plant trees that are capable of producing useful timber, that in good time it may be valuable, if not to us at least to posterity. We must plant, that the elements of grandeur and beauty we now enjoy may be as abundant in the future. The recent disaster must not be permitted to dishearten or deter us from the due performance of what is an absolute duty. Such storms come but seldom, and even more seldom when the trees are heavily clothed with leafage. Even a fiercer hurricane a month later might not have done one tithe the mischief we have seen worked, but we cannot rule the blast nor its time of coming. We can do little to arrest its progress or even to soften its effects, but we may at least do our utmost to repair its ravages, and in proceeding to do that now we must do so in the hope that no more in our time may our noble trees have to endure such a dread visitation as that just experienced.

— Parochetus communis.—This pretty herbaceous plant appears likely to be good for baskets in the greenhouse. Its stems are prostrate, and bear delicate Clover-like leaves, while the flowers are of some size, and remind one of Clitoria. From the appearance of a plant in the Cambridge Botanic Garden it seems likely to be floriferous under greenhouse treatment, and of course at this season it cannot flower out-of-doors.

— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending October 31, issued by the Meteorological Office, London:—The weather over the greater part of our islands has been cloudy, but dry. Towards the close

of the period, however, some frequent showers of hail, snow, or cold rain were experienced. The temperature has been much below the mean in all districts, the defect ranging from 4° in "Scotland, E." to 7° or 8° over England. The maxima, which occurred on the 25th, were 49° on our north-east coasts, 51° over central England, and 55° or 56° in the extreme western and south-western parts of the kingdom. The minima, which were registered on the 31st, were very low, varying from 20° over central Ireland, and 21° at Marlborough and Silloth, to 27° at Leith and Arlington (North Devon). The rainfall has been less than the mean in Great Britain, but equal to it in Ireland; in the north-west the deficit was very striking. Bright sunshine shows an increase in most places; the percentage being greatest (49) in "England, S.W.," and least (22) in "Scotland, W." Depressions observed:—During the greater part of this period an area of high pressure has existed over Scandinavia, and one of comparatively low readings over France and the Bay of Biscay, so that moderate or fresh winds, generally between N.E. and S.E., have been prevalent. On the 30th, however, the barometer was highest over Ireland, and on the day following over southern and central England; westerly breezes consequently sprang up over Scotland, and southerly winds in Ireland, and the latter, though at first moderate, quickly increased to a strong gale, with a rapidly falling barometer.

—— Gardening Appointments.—Mr. William Patterson, lately at Swinton House, Coldstream, has been appointed Gardener to the Hon. J. H. Hofmeyer (Member of the Legislative Council), at Fairmont, Cape Town, Cape of Good Hope.—Mr. William Chisholm, lately Gardener to J. M. Teesdale, Esq., Down Hall, Kent, has been appointed Gardener to Miss M. A. Heath, Ferndale Park, Tunbridge Wells.—Mr. Thomas Rae, lately Foreman at Floors Castle, Kelso, has been appointed Gardener to Lady Sitwell, Wood End, Scarborough.—Mr. Alexander Crosbie, lately Foreman at Overtown, Dumbartonshire, has been appointed Gardener to Bernard Hall, Esq., Dudlow House, Wavertree, near Liverpool.—Mr. John Brown, lately Gardener to the Misses Inverarity, Rosemount, by Montrose, has been appointed Gardener to Mrs. McMurdo, Cargenholm, Dumfries.—Mr. David Robertson, lately Gardener at Blebo, Cupar Fife, has been appointed Gardener to James Tait, Esq., Edenside, Kelso. — Mr. John Sinclair, lately Gardener at Horsforth Hall, near Leeds, has been appointed Gardener to Major Manley, Mancetter Lodge, Atherstone, Warwickshire.—Mr. Alexander McLennan, lately Gardener at Greenlaw, Paisley, has been appointed Gardener to Dr. Campbell, Craigrannoch, Ballachulish.—Mr. John Hunter, lately Gardener at Parsleyden House, Aberdeen, has been appointed Gardener to Neill McDonald, Esq., Dunach, Oban.—Mr. Robert Laurie, lately Gardener to the Very Reverend the Dean of Argyll and the Isles, Greenhill House, Edinburgh, and Aultshielloch House, Ballachulish, has been appointed Gardener to J. F. Mackay, Esq., Inveralmond House, Cramond, by Edinburgh. — Mr. George Hendry, lately Gardener to Alexander Stevenson, Esq., Inglis Green, Slateford, by Edinburgh, has been appointed Gardener to Henry Cadell, Esq., Grange House, Boness.—Mr. Thomas Brown, lately at Donaldson's Hospital, Edinburgh, has been appointed Gardener to Captain Houston Boswell, Kelloe House, Edrom, N.B.—Mr. John Dunse, lately Gardener at Kirkoswald, has been appointed Gardener to A. H. Stewart, Esq., Inverhadden, Rannoch, Perthshire.—Mr. Robert Lennox, lately Gardener to Thomas Hutchison, Esq., Bellfield, Duddingston, by Edinburgh, has been appointed Gardener to Charles Morton, Esq., Glenlyon House, Arrochar, N.B.—Mr. T. Wilks, late Gardener at Park House, Chiswick, has been appointed Gardener to the Duke of Somerset, at Bulstrode Park, Gerrard's Cross, Bucks.—Mr. J. Lloyd Jones, late Gardener at The Mount, Congleton, has been appointed Gardener to F. Stanier, Esq., Peplow Hall, Market Drayton.—Mr. Thomas Middlemiss, for the last six years Foreman at Whitinghame, East Lothian, has been engaged as Gardener to the Earl of Lauderdale, at Thirlstane Castle, Berwickshire.

Market Gardens.—The returns for the current year show that the total acreage of land used by market gardeners in England is, 41,996; Wales, 652; and Scotland, 3956—total, 46,604.

HELIANTHUS DECAPETALUS.

If not the showiest of the autumn-flowering perennial Sunflowers, this is assuredly one of the most elegant and useful of them. It grows up into a well-furnished plant some 5 feet in height, the stems being comparatively slender, but much branched, more or less scabrous in the upper parts, and well clothed with foliage. The larger lower leaves are less than 6 inches in length, and of an ovate acuminate figure, somewhat tapered to the base, and three-nerved; the upper leaves, those on the flowering branches, are from 2 to 3 inches long, all being rather obscurely serrate, scabrous on both surfaces, of a lively green above and paler beneath, where the three nerves stand out very prominent. The slender branches in the upper part of the stem, 6 inches to 1 foot long, and sometimes themselves branched, are each terminated by a head of pale yellow florets; these heads from their number rather than their size, render the plant very ornamental in the late autumn months of September and October. The involucral scales are squarrose, linear-lanceolate, scabrously hispid, and ciliate. The ray-florets are described as being ten in number, whence the name, but they are sometimes more numerous, as here represented (fig. 116), from a plant grown in the Chelsea Botanic Garden, where it had been received from the splendid collection of this class of subjects brought together by Sir George Macleay, Bart., at Pendell Court, Bletchingley. The flower-heads are each about 2 inches across, and being of moderate size, on slender twiggy branchlets, they are well adapted for use amongst other cut flowers, either singly or in larger examples, for filling vases, in which they associate well with the Helianthus multiflorus, and the single-flowered Dahlias, especially D. coccinea and D. gracilis. The figure gives only a slight idea of the branching habit of the plant, which could only be shown fully by a much larger drawing. *T. M.*

NOTES FROM NORTH SOMERSET.

Porlock is chiefly known as a favourite meet of the North Somerset and Devon staghounds. Few villages, however, can boast of prettier surroundings. Before it, half a mile distant, stretch the broad waters of the Bristol Channel, beyond the hills of Monmouth and Glamorganshire, while behind it, on the south—

> "The mountain Pines wag their high tops
> When they are fretted with the winds of heaven."

Visitors to Lynton and Ilfracombe by coach pass through Porlock, and they may remember something of its bay and the bluff headlands which guard it. Under the western point is the residence of Lord Lovelace. Behind the hill, to be reached by a path by his lordship's grounds without paying the customary shilling to enter the gates, is the lonely little church of Culbone, about which people in the neighbourhood curiously enough boast that it is the smallest church in England. It is surrounded, except on the Channel side, by wooded heights. The village itself, embosomed in orchards lately bending beneath heavy crops of fruit, has a homely English beauty which grows upon the visitor. The cottages, which stand at varying angles to the main road, are stone built, invariably lime-washed and straw-thatched, and the walls and gardens and windows are gay with flowers—Magnolias, Roses, Clematis and Myrtles. Among the latter, which grow to a large size and bloom freely when trained to walls, is a small-leaved dark variety, very effective against white walls. Half-a-dozen species of Ferns find roothold in the crevices of the sandstone walls, Asplenium Trichomanes, A. Adiantum-nigrum and Polypody being most plentiful. Having seen and heard so much of stag-hunting on Exmoor, I accompanied some friends to the meet at Cloudsham, and was so fortunate (?) as to be present at the death of the stag—not the half asinine creature turned out of a van to canter a while over the grass pastures of the Harrow country, and then find shelter in some farmer's stable, but the wild denizen of the forest—Landseer's red deer. It is an interesting and exciting scene even for those who don't care to assist at the sanguinary finale. The crowd of lusty horsemen, well booted, white breeched, red necked, the loud baying of the hounds, the shouting of excited pedestrians, the twanging of horns, and the rush of the pack, as, after half an hour's law, they stream across the moor, is a sight not easily forgotten. It is picturesque and exciting. But there is another phase of the hunt that calls to remembrance Goldsmith's pathetic couplet, literally fulfilled here if we put stag for hare—

> "And as a hare whom hounds and horns pursue,
> Pants to the place from whence at first he flew."

At the early part of the season the antlers are covered with the "velvet," and cannot touch the tough branches of Oak or Ash without bleeding. So after an hour and a half run, no longer able to keep the hounds at bay, with starting eyeballs and distended nostrils, amidst the shrieks of the horsemen and baying of bloodthirsty dogs, he staggers down a fern watercourse, is seized by brawny hands, and offered as a sacrifice to the elated Nimrods. One glance at the red-muzzled dogs as they slink away after lapping at the bleeding throat, and for ever adieu to this so-called noble sport.

Turn we for a space to the quiet of the woods and the ferny combes, and then to the village with its quaint white cottages, and the blue belt of Porlock Bay. The casual visitor to these North Somerset villages will not fail to notice the widespread love of flowers as shown in the wayside gardens. It is a healthy and hopeful sign, this love of gardening by the cottagers, most of whom, probably, are farm labourers. There are exchanges of slips and seed and buds, no doubt—of kindly gossip on garden matters—something to lift the common life to a higher level, to soften the asperities of the labourers' lot, like a bright and peaceful sunset after a stormy day. Gifts of seeds or cuttings to such poor amateurs are always welcome, and nothing serves more effectually to enlist kindly sympathies. Among the flowers most frequently met with in these cottage gardens there was one, however, that deserves more than a passing notice. For fine contrast of glowing colour, tender green leafage, elegance of outline and ease of culture there is nothing to equal—well, try it, fastidious amateur. What among the array of so-called bedding plants, or climbers, or basket plants can equal this poor man's pet on a trellis, in a marble vase, by a whitewashed porch? Or drop a penn'orth o' seed (ah! now we have it) by a frost or drought smitten Conifer, or Bay tree, or Laurel, and it shall clothe it with beauty, like the charity that covers a multitude of sins. But when shall we get a pure white Nasturtium—has there been one? Has some rich nurseryman purchased the entire stock, for the good of the trade, and destroyed it? Maroon we have, crimson we have, scarlet, and orange, and yellow; but the white and the blue, and then the deluge!—no more bedders. There is one great advantage here for the student of Nature. No restriction (so far as I know) is put upon the ramble in the woods. Here and there there are no fences whatever, and the tracks through the woodlands are almost innumerable. One may climb up the bank to feast on wild Raspberries or Whortleberries, or hunt for Ferns or wild flowers, or rest awhile under the rustling leaves, fanned by sea breezes, without fear of molestation. In mentioning the Ferns to be found in the combes and watercourses that descend from Exmoor I do not indicate the exact localities. It seems to me a matter for regret that the author of a pleasant book or two, the last one with a somewhat fantastic title, *My Garden Wild*, announces a new book, *The Ferns Round London, and Where to Find Them*. Let those who are really fond of Ferns and will take the trouble to grow them, have the pleasure of finding and gathering them; but the book alluded to, without intending it, will be a guide to the lazy, greedy people who only gather and neglect them, and to the dealers who pillage for sale. Through the ill-advised assistance of such a book Ferns will quickly disappear from the hedgerows and shady nooks within easy reach of the metropolis. Among the rarer of the sixteen or seventeen species of Ferns to be found round Porlock are the Osmunda, Lastrea recurva or fœnisecii, and Asplenum viride and septentrionale. Hymenophyllum would probably be found, too, by the patient searcher. All the villages in North Somerset have allotment gardens. Round Hawkcombe especially, under the fostering care of Sir Thomas Dyke Acland, a model landlord, there is abundant evidence of the success of a system which adds materially to the comfort and prosperity of the labourers on his large estates. But for cleanliness and good cultivation the allotments at Minehead are still better, and the charge

is only 3*d.* a yard, an area equal to a pole or perch. Fortunate Minehead workmen, with such a soil and climate, and such an opportunity of making substantial additions to the daily meal!

Fig. 116.—Helianthus decapetalus. (see p. 600.)

Between 2 and 3 miles from Minehead, by the allotment grounds, is the village of Dunster, with its ancient market cross, where the thrifty housewives would dispose of their homespun yarns, and its wide, clean street and handsome old church; we notice here, too, that there is scarcely a house in the village without its healthy group of window plants. Before us on the steep wooded hill stands the famous Dunster Castle, the ancient seat of the Luttrells. The present owner, G. F. Luttrell, Esq., has lately expended a large sum in its restoration and enlargement. I call upon the head gardener, Mr. Hepper, with a request to be allowed to look round. There is so much to see, however, in the short time at our disposal that I can make only a few hurried notes on the more interesting features of the place. Flower gardening is not extensively done at Dunster Castle, but what there is is in excellent taste. The nature of the ground, a steep incline on all sides, does not allow of extensive parterres. The largest area of lawn is on the site of the ancient keep, and is now used as a bowling green. It is margined, however, with choice shrubs and evergreens and bedding plants. The view from the bowling green which overlooks the Castle is magnificent, richly wooded deer parks backed by the rolling masses of Exmoor, and northward the cloud-chequered waters of the Channel. On a south wall I noticed a fine old Lemon tree loaded with fruit, Magnolia, Gloire de Dijon, and Ampelopsis Veitchii, the latter forming an elegant tracery to the stone mullioned windows. Bright and concentrated masses of colour are essentially necessary here with the dark sandstone walls of the Castle and the luxuriant leafage of surrounding trees, and there they were glowing and sparkling like huge precious stones in an emerald setting. Coleus Verschafeltii and Iresine and tricolor Pelargoniums were in capital colour, and Lobelia Emperor William in splendid bloom. There were two charming little conservatories, in one of which, the back covered with Ferns, was a fine Tacsonia exoniensis hanging in rich magenta festoons. The charm of these gardens is in the variety of aspect, finish, and cleanliness everywhere apparent; add to these their unique situation, and the consciousness that the eye could seek relief from dazzling colours by glancing over the distant moors and the blue sea. We noticed, while descending from the keep, a large breadth of Hart's-tongue Fern, planted under the shade of trees, the cool glossy fronds flourishing where nothing else could live. There were fine crops of Grapes and Peaches in the houses, and capital crops of the latter on the walls, which were furnished with Rendle's glass screens. A pleasant walk of 8 or 9 miles brought us again to our destination at West Porlock just as the little fleet of oyster boats were returning to Porlock Weir from dredging in the bay. *T. W., Harrow.*

TROPÆOLUM AZUREUM.

The charming manner in which Mr. A. F. Barron flowered this fine species at Chiswick during the past summer, leads one to regret that it is not more generally grown. This and its congener, Tropæolum tricolorum grandiflorum, are extremely handsome plants in spring and early summer. The bulbs start into growth sometimes in September and October, and in some cases as late as November, according to the treatment they have received. The largest sized bulbs should be in a 7-inch pot, and it is very essential to secure good drainage: and if over the drainage something can be placed of a stimulating character, the plants, which are gross feeders, will be benefited thereby. A successful cultivator of these perennial Tropæolums uses a compost made of two-thirds decomposed manure, one-third loam, and a small proportion of sand. As a cultivator, he believes these Tropæolums cannot be grown too strongly, and the nature of the compost expresses his belief. The drainage is covered with a layer of moss, which keeps the soil from being carried down among it. He also places a little bone-dust round the sides of the pots, to give freedom to the soil, as he expresses it, the which, being used in a rough and not too fine a state, promotes the circulation of air and water throughout the mass. This is a matter of some importance in the culture of these tuberous-rooted Tropæolums, as in their early stage they do not make root for some considerable time after commencing growth. The pot being filled with soil, the bulb is placed in the centre of it, pressed slightly into the soil, and covered up to the neck. The sticks necessary for training may then be placed round the pot; or, perhaps, what is better, a wire-trellis, over which the plant can ramble, placed in position. Some cultivators of these Tropæolums are very particular in having the shoots mechanically trained and neatly tied to the wires, but some prefer to allow the shoots to ramble freely, only taking care the trellis is regularly covered, which is easily accomplished by occasional attention and placing the growths in a proper position. This is all the training necessary to obtain regularity in the

growth, which is all that need be aimed at. Water is withheld for some time after potting, too much water in its earlier stages often materially injuring a plant from the soil being apt to go sour at a season when evaporation goes on very slowly. Should the plants be required to be in flower early, it is best to grow them on quietly in a greenhouse till January, when they may be put into an intermediate-house, and thereby brought into bloom a month earlier than common. As growth advances water should be given according as required. A scanty supply of water will injuriously affect the future bloom at the growing season.

Forestry.

Game Covert.—Since the late important changes in the Game Laws have been effected, whereby tenant-farmers have in most cases obtained liberty to kill ground game upon their own farms, proprietors have been induced to adopt means by which to maintain game to the desired extent within their own policies and preserves; and now the inquiry is how to have proper pheasant covert, and at the same time have it so that hares and rabbits will not destroy it. Now there appears but one practical method of accomplishing this, namely, by planting only such plants as ground game do not eat, and at the same time such as pheasants delight in. There are not many kinds of trees or shrubs which they do not eat when storms prevail and they are pinched by hunger; but when it is only under conditions of real hunger that they eat the plants there is every apology to be made for the poor creatures, for it is allowed on all hands that the pangs of hunger are ill to bear either by man or beast. Well, in cases of severe or protracted snowstorm, I would say by all means hand-feed them—give small quantities of hay daily so that it be not wasted. Turnips should also be supplied if they can be procured, but hay without Turnips will do. Branches of trees and copse cut down, hedge prunings and plantation thinnings of all kinds, should be provided, and if they are not in the place they may be carted or dragged along on the snow, and this not only affords food but very effectively prevents them from injuring standing trees. These considerations, however, are all about food, and now we come to the real question in regard to covert. By this time it may be presumed that almost every person knows that Elder is a plant which game and animals of all kinds universally dislike, and it is also well known there is no plant easier cultivated and of faster growth; but how to make it subservient for game covert is another consideration, seeing it is of such upright habit, and little disposed to spread its branches. One system is and may be adopted till at least a better is found, namely, to allow the plants to grow up to 6 or 8 feet high, which they very quickly do, then cut them half through with a hook bill at 1½ or 2 feet from the ground, and lay them down in a horizontal position, when they will send up shoots from all parts, which require keeping down by annually cutting them. By these means excellent covert is produced at once cheaply, rapidly, and efficiently. Indeed, few who have not seen it would credit the excellent screen thus produced.

There are places, however, where Elder would be inappropriate on account of its being deciduous, and perhaps also from its straggling appearance; in such places, where the soil and exposure will suit, plant Rhododendron ponticum. I never saw it eaten by game, and never heard of its being eaten, except it may be a twig nipped by the creatures by way of mischief or amusement, but no bark peeled and no leaves taken.

There are soils, however, and also situations where Rhododendrons, even the most hardy of them, will not grow well, and in such situations I find Tree Box often succeed; it will grow and even flourish where Rhododendrons would scarcely exist. It makes splendid covert, but requires to be planted considerably closer than Rhododendrons. There are still other places, such as sandy links and severe maritime exposures, for which I would recommend Buckthorn. It is of easy propagation, and when once planted spreads rapidly and grows fast. I cannot say I ever saw a plant of it barked by game, and although they may now and again nip off a twig, it is an excellent covert plant, and if only well cut back every second year it produces excellent covert in all severe exposures, especially near the influence of the sea, where nothing else will grow.

But the question may still perhaps be asked, What about trees that ground game do not like? There must be trees in the covert for roosting, otherwise the covert is incomplete. The trees I have found most distasteful are the Abies Nordmanniana as an evergreen, and the common Sycamore as a deciduous tree. It is not to be inferred that ground game will not bark or otherwise injure both, under severe conditions, but they are the safest and best in their own place of any I know. Now it may still further be enquired, How are the different plants to be planted? and that again depends upon various circumstances; it is often found best to plant them in groups and leave a clear space all round. Again, it is better when the covert is extensive to plant it in rows, at least to have straight vistas through it 15 to 20 feet wide at 50 yards apart for convenience of shooting. The Elder may be planted 10 feet apart, and in plashing them down the tops laid so as to overlap each other, thus leaving a clear space and a close covert alternately. The Rhododendrons should be planted 6 feet apart, with an alley 15 feet at every 50 yards. The Box may be planted 3 feet apart each way, and an alley 12 feet at every 50 yards apart. The Buckthorn may be planted 4 feet apart, and at every 50 yards an alley of 15 feet. The standard trees, as A. Nordmanniana, may be planted at 30 feet apart, closer or wider apart as circumstances may suggest. From the foregoing list excellent covert may be produced, and not only produced but maintained where a full head of ground game is kept. *C. Y. Michie, Forester, Cullen House, Banffshire, Oct.* 25.

Florists' Flowers.

Seasonable Notes: Auriculas.—The plants now look very well, although many of the outer leaves are dying off, as is to be expected at this season. Keeping the plants as dry as it is safe at the roots, and in a north aspect, has certainly prevented much autumn bloom which we should otherwise have had; of course it has not quite prevented it, and a number of seedlings that were throwing up good trusses have been removed to a greenhouse to open their flowers. It is most essential to admit plenty of air at this time, and the lights should be removed entirely whenever it does not rain, nor do we like to expose them to keen frost-winds. Look out now for slugs, which are always active in mild weather. There is still greenfly on some of the plants; this pest manages to survive the winter somehow, and it also injures the plants in mild weather, but it can very easily be destroyed by fumigating at this season. The decaying leaves do more injury now than at any other season, and they must frequently be removed. Give water sufficient to prevent the plants flagging.

Carnations and Picotees.

The plants should now all be established in their pots, and if this is the case they, like the Auriculas, require plenty of air; it is better that they grow very slowly at this season. Do not let the plants be exposed to heavy rains, but in wet weather the lights should be tilted back and front. This is the time of the year that the plants are likely to contract the disease called "spot." I fancy this is caused by nothing but too much moisture during this and next month. Another disease never seen on the plants here is "gout"—a swelling on the stem close to the surface of the ground. Whether our immunity from this is due to our climate or culture I know not. Mr. Dodwell says it is the climate, and probably he is right. Any late layers which are scarcely rooted may now be removed from the parent plants; they should be potted, and placed in a frame over a gentle hotbed, but they must not remain here long after roots are formed.

Carnations (Perpetual Flowering).

These will not produce very good flowers in an ordinary greenhouse after this time of the year. They require a temperature of at least 50° to 55° at night; and the plants placed where they will be freely exposed to the sun. Varieties the flowers of which are likely to burst the pods should have a tie put round to prevent it.

Dahlias.

The frosts about the middle of last month cut these down everywhere. It is now time that the tubers were taken up. This is generally done on a dry day. The bunch of tubers, with about 6 inches of stem attached, is inverted; this allows the roots to dry, and any water to drain well out of the hollow stems; then tie the labels to the stems with fine wire, and they can be stored in any room or cool-house for the winter. They keep all the better if the soil attached to the roots is not too much shaken off. About two weeks after the roots have been stored away, look them over, and if there is any decay caused by damp remove it.

Gladioli.

The whole collection of corms should now be lifted. The best plan is to dig them up, and cut the stem over at once, just above the crowns of the bulbs; remove the small bulbs, and label them separately. Lay the whole of them under cover to dry, and then store them away until planting time. The bulblets may either be potted at once, about a dozen of them in a 5-inch or 6-inch pot; or they may be mixed with a little dry earth and wrapped up in paper. I usually put the large bulbs in flower-pots, with the labels, and then place the pots in a room where frost cannot get in. The ground should be at once trenched for next year's beds, if it has not yet been done. I like to do this in September or October, but the ground is not always ready for them at that time.

Hollyhocks.

No time should be lost now in seeing that all the plants intended to be protected under glass are placed there as speedily as possible. The young plants propagated during the summer and autumn should now be potted into pots a size larger, if they require it, and the pots be plunged in cold frames quite close to the glass, as they are not so likely to damp off in that position. The very best and scarce varieties cannot be trusted in frames, laid in amongst ordinary varieties, to take their chance; and even if they are potted they do better in an airy vinery than in frames. The ground should also be prepared for planting them out next year. Trench it deeply, and give plenty of manure.

Pansies.

We have planted our named varieties out in a long bed for flowering in the spring. The plants were of large size, and they are already established. They are apt to be injured by high winds, and we prefer to peg the long growths down to tying them up. One or two plants of each variety have been potted into small pots to fill up any vacancies that may occur during the winter. They do well in cold frames with the Carnations, and to be treated like them. If good strong seedlings are planted out now they will flower rather more freely than the named varieties, and they make a grand display in the spring. Those plants intended to flower in pots will require rather more attention than the few that are to be planted out. See that they receive plenty of air, and that they do not get too dry at the roots.

Pinks.

The treatment for these is very much the same as that recommended for Pansies. The plants should now be put out in the beds, if that was not done a month ago. The surface of the beds requires to be stirred up during the season, as often as it has been hardened by rains; the plants are also occasionally loosened by frost and worms, and they must be pressed in with the finger and thumb. Labels are also thrown out of the ground, and have to be replaced as often as this happens. Weakly plants seldom winter well out-of-doors, but they will do so if they are potted and placed in frames; a pair of plants will do well in a small 60-sized pot.

Polyanthuses.

These, if planted out-of-doors for the winter, as some of them ought to be, will require looking over at night to destroy slugs, and another troublesome pest, the leather-coated grub. Stir the soil amongst the plants, and keep the ground free from weeds. Mr. Sanderson, one of the best growers near Newcastle, told me that he always planted out a set to flower in the open ground, and these were grown in pots the following season. The plants now in pots require similar attention to the Auriculas, except that they must not be allowed to become so dry at the roots. Our plants were very much debilitated by attacks of red-spider in the summer; and even now, after their exposure to frost and cold rains, they are not quite free from the pest. Tobacco and soapy water kills it, if it can be reached by it.

Roses.

Purchasers were advised to order their plants last month, and most likely they will be sent home this. The ground will also be prepared for the plants, as advised at the same time; so that as soon as the plants are unpacked they can be planted at once where they are to remain; that is, if the ground is in good condition. If it is frozen, or very wet, better by far let the plants be laid in somewhere until the ground is in good condition. In our light sandy soil, with very little holding power, we manage to grow very fair Roses by trenching as deeply as we can, and mixing plenty of good manure with the soil, and when the Roses are planted some good clayey loam, well enriched with rotten manure, is placed round the roots. The Roses make immense quantities of fibrous roots in this the first year, and the manure trenched deeply into the ground supports them when they travel further afield. *J. Douglas.*

Home Correspondence.

The Rookery.—A gentleman with a small estate applied to me for information as to how he could get the rooks to build in his wood. He had tried rearing young rooks as one would rear pigeons, and when they were fledged letting them fly; and they did fly away, and never returned to feed or to roost in the old place. He had also been advised to make sham nests of straw, and fasten these high up in the trees. The straw was no doubt to blame in this case, for the rooks use strong twigs in the building of their nests, and in such hurricanes as that which threw the Tay Bridge down good basket-work would be necessary to hold against the strain. The rook is a shy bird until it gets to have some confidence in man, when the ploughman turns up worms, grubs, &c.; otherwise he gives man a wide berth, and, being gregarious, some old cock bird watches the flock whilst the rest are feeding, or when they are deliberating as in council met in some open field or common, away from the danger of dogs or men. The idity of the small faggots of straw would scare the rds rather than attract them, for it is well known at they have no confidence in novelties; and though men may work right under the nests, and railway engines play their screech-whistles, the rooks Alderley station ply their business within a stone's row of the line, and when they do move out of the ay it is only for a short distance, just to give no emptation to idlers. There are two small rookeries ear Manchester—one is at the Alderley railway ation, and the other at the railway station at Worsley. With these I am well acquainted. The nests are in very high trees, and there were several not in use, still there were plenty of birds to enable any one to study their character and listen to their music. Some naturalists tell us that no place is complete without a rookery; but be that as it may, they are cheerful neighbours in the breeding season, and ly their name is legion. I recollect, when a boy, unting the rooks returning home at dusk, and they umbered thousands; and that was only one contingent—those which had been reared in Aberdeenshire, where the Fir cones would be available for food at all times. Although the rook is gregarious, ving in flocks for mutual protection, they are mated couples for the breeding season. The raven pairs r life, and they usually live long, and get acquainted ith visitors at roadside public-houses. There used be one or two tame ravens at Lord Stanley's, at lderley, and the dogs in the yard had to stand by until the raven had had his share. The habits of the ven differ widely from those of the rook. The ven builds his nest in some hollow tree or evergreen thicket; and there must be an error in the tiom "the callow raven," for the unfledged rook has colder berth than the raven. A few artificial nests, made as like the originals as may be, well established fore Christmas, to be in time for the hatching process, would be likely to attract them. It is the fashion with many birds to drive their young ones away to seek new homes, and to this may be ascribed the ease with which numbers of small rookeries get established. *Alex. Forsyth.*

Sequoia (Wellingtonia) gigantea.—A tree planted by my predecessor (the late Mr. W. Ingle) about the year 1856 measures 55 feet in height; circumference of trunk 2 feet from the ground, 11 feet; circumference of branches on the ground, 77 feet. *William Smith, Birch Hall, Colchester, Essex.*

Protecting Hardy Plants for Forcing.—The convenience for standing these in houses at this season is very limited, and there are few places where room can be spared for placing them under glass, but for if this shelter of some kind is really necessary if they are expected to force well without loss of time. It is not the heads that take much harm, but the roots, as plants in pots are very differently situated to those growing in a more natural state planted out, where from being in a large body of earth that cools slowly they are less affected by change, and frost does not hurt them, but stood out in pots the case is very different, as the balls are soon frozen through. To preserve them from this, they should be plunged and protected, for which purpose nothing answers better than fresh-fallen leaves, and if these are slightly fermenting the warmth the roots receive will be a great help to the plants, as by keeping the sap gently in motion the flower-buds gradually plump up, and require much less heat and time to get them to open. The next best material to leaves for plunging in is dry straw or bracken, which lies light, and keeps the roots snug and warm. Herbaceous things, such as Solomon's Seal, Lily of the Valley, and Spiræas, may be buried deeply under leaf-soil or cocoa-nut fibre in any sheltered part, and deciduous plants, like hardy Azaleas, Weigelas, Roses, Lilacs, &c., do well wintered in any close shed, where, if kept syringed, they may be considerably forwarded before being placed under glass. For these things we often make use of the Mushroom-houses, which answers well for starting bulbs, and any or all of the herbaceous subjects mentioned above. Evergreens must have light, or the foliage soon suffers, but such thick-leaved plants as Rhododendrons take no harm without it for a week or two. *J. S.*

Asters in Pots.—A few days ago, in looking through Messrs. Brittain & Son's nursery in Salisbury, I was pleased to see in one of their furnishing-houses, amongst other useful decorative stuff, a nice batch of white Chrysanthemum Asters in large 60-pots, three plants in each pot, about 6 inches high and in fine flower; the latter, as might be expected, owing to the seeds having been sown late, together with the plants being purposely starved in small pots, are rather small—a circumstance which enhances their value for the making-up of bouquets, in which the Messrs. Brittain do a good trade. The plants make nice marginal plants, and, with scarlet Pelargoniums, Begonias, Ferns, &c., in the background, had a good effect, not only in the house but also when viewed from the busy street with which the latter communicates. Asters thus grown—especially white ones—are not only very effective decorative plants, but also supply a colour which at this time of year is rather scarce. A batch of plants, such as those in question, is so easily got up that it is scarcely necessary to make any remark respecting their culture, further than stating that the seed should be sown about the end of June, and the seedlings, so soon as they are large enough to handle, pricked into large 60's and 48-pots—three plants in each pot—and shaded from the sun for a few days until the roots have taken hold of the soil, after which the pots should be stood on, or plunged to the rims in cool ashes, but not too closely together, which would cause the plants to become drawn. Early in September they should be removed to a cold pit or frame where the plants can be protected from frosts and heavy rains; and thence, as required, into heat. *H. W. W., Oct. 29.*

The Grape Stealing Case referred to in your last number requires explanation. By the 24 & 25 Vict., c. 96, s. 36, stealing fruit growing in a "greenhouse or conservatory" is to be felony, with a limit of six months' imprisonment or £20, plus the value. *T. T.* [We told the case as reported, but our impression is that something has been left unsaid. Eds.]

The Winter Cherry.—In some gardens the Physalis edulis is grown for the sake of its fruit, which is much liked by many, but it is seldom one meets with its congener, P. Alkekengi, which is exceedingly ornamental on account of having the inflated capsule coverings of its berries so highly coloured, as when ripe they are of a very bright orange-red, and have something the appearance of minute Chinese lanterns. Both kinds are easily raised from seed, and are well worth cultivating, the one as a border plant and the other for pots to train on trellises, or the sunny back walls of houses, where it ripens its fruit well. Sown in heat early in the spring and potted and grown on, P. edulis will bear a large crop in the autumn, and in warm fine summers will ripen its fruit outdoors on a south wall, or on a border having the same aspect if the branches of the plants are tied up to stakes. *J. S.*

Hardy Fruit Culture.—Wherever any particular branch of horticulture is made a speciality, and that speciality is left in the hands of an intelligent, industrious workman, the result is sure to be satisfactory. What can be accomplished in the cultivation of hardy fruits is strongly, and, I should add, practically exemplified in the garden of Mrs. Molyneux Williams, Hungershaw Park, Tunbridge Wells, by Mr. McFeate, the industrious gardener there, who has devoted many years of careful thought and study to the cultivation of Pears and Apples, of which his harvest seldom fails to be a paying return. What makes the trees under Mr. McFeate's charge particularly interesting is, that they are grown upon the principle of restriction, and seldom fail to yield abundant crops. The trees are all pyramids, from 7 to 8 feet high and 3 feet across. The garden stands on an elevation of over 300 feet above the level of the sea, and this no doubt is a great advantage to the ripening of the wood of the trees; but apart from this they have no other advantage—indeed the soil is shallow, the average depth of the garden being 18 inches, and the subsoil sandstone. The soil is, however, of a root-producing nature, and Mr. McFeate knows well what to do with trees having plenty of fibrous roots. An annual surface-dressing of cowdung is given to each tree that is in a prolific state, and this is covered with an inch or so of soil, in order that none of the virtue of the manure is lost by exposure to the action of the atmosphere. If a tree misses a crop and is growing too strong, Mr. McFeate is in the habit of going to the root to see what is the matter. The case is seen to at once, and the grossness corrected by root-pruning and replanting the tree nearer to the surface than before. It is seldom, however, that such a step is found necessary, the annual treatment being such that abundance of roots are produced near to the surface, and trees with plenty of fibrous roots seldom give much trouble in maintaining a proper balance of fruitfulness. Many of the trees now in full health and fruitfulness have been planted as far back as 1865. The varieties consist of the following kinds:—Doyenné Boussoch, Williams' Bon Chrétien, Marie Louise d'Uccle, Beurré Hardy, a grand tree and a splendid bearer; Bergamotte d'Esperen, Doyenné du Comice, Conseiller à la Cour, Bergamotte de Pentecôte, Beurré Superfin, Napoléon, Joséphine de Malines, Sans Pepins, a round variety with no pip in it; and many other varieties, all faultless as regards shape and bearing regular crops of large finely formed fruits. The best cropping Apples are Reinette de Canada, Calville Blanche, Alexandra, Borovitsky, &c.; these are also grown as pyramids, equally fruitful and handsome in appearance. *W. H.*

Renovating Old Roses.—It would be a difficult matter to estimate the number of old trees which are annually rooted out and replaced with young ones. We will not stop to enquire, neither need we concern ourselves about the number further than to say that it is more than probable that fully one half of them might be given a fresh lease of life, or an extension of time, if they were taken in hand at the proper time, and treated in the right way; they would also regain some of their lost vigour and would continue to yield us an abundance of flowers which, if not exactly equal to those of their young days, would at least be such as no one need despise. Any one having old trees in a weak and sickly condition, and which only merit the appropriate name of eyesores, owing to their being, as some people would say, long and lanky—all top and no bottom—cannot do better than let them remain where they are and adopt remedial measures without further delay. To do justice to Roses they must have a rich soil to grown in. A heap of good compost is therefore of the highest importance and is the first thing to prepare. This should consist of two parts turfy loam, one part night soil about three years old—if it is not obtainable, well decomposed farmyard manure will do, and one part soil from the kitchen garden. The latter, of course, may be dispensed with altogether where there is an unlimited supply of the first named. The whole should be well turned over two or three times, after which operations at the roots may commence. In the case of very old trees dig out a trench at a distance of 5 feet from the bole and about 3 feet deep, all roots with the exception of one or two of the strongest—these to be left to prevent a total collapse—extending beyond this distance may be cut off; fork out all the old soil, at the same time be careful not to further mutilate the roots which are left, fill in with the above-mentioned compost, and as the work proceeds tread down moderately firm and spread out the roots in their original position. This being done, a good mulching of half-decayed stable manure may be given, and should the situation be high and dry, or the soil well drained, a few pots of water would be advisable, but under reverse conditions it is unnecessary. Judging from the present appearance of an old tree (Devoniensis) of our own which was treated in the above way last autumn, we may safely say that no one adopting the same plan need entertain any doubts as to what the ultimate result will be. The tree referred to was planted about eighteen years ago, so my informant says, and for some few years past has been in an unsatisfactory state, but this year it has done wonders and more than pleased us with having made a total length of 170 feet of new wood, some of which is as thick as a walking stick and enough to gladden the heart of the most enthusiastic Rose-grower. The greater portion of the wood, however, is only about half ripe owing to its being rather late in the season before the tree commenced to grow, still we shall endeavour to preserve it through the winter, and will bandage it up with dry moss. *J. Horsefield, Heytesbury.*

The Clove Carnation, "The Governor."—We fail to see what the misapprehension is that Mr. Smith is so anxious to remove. Surely he does not doubt our word that the late Mr. Dowding did offer to our Mr. W. J. Cross the stock, as stated in our advertisement, but who was not then in a position to purchase the same. It is possible that it was likewise offered to Mr. George Smith,

but most certain is it that he never purchased "the entire stock." We believe he did secure a few plants at the time of Mr. Dowding's sale, and may have distributed them amongst his neighbours, as his letter implies; but the question arises, Did Mr. Smith send out his "entire stock" in the usual way of trade, and if so, at what date and under what name, and in what papers did he advertise it? Will Mr. Smith produce his catalogue containing it under the name he must have given it? In a word, did he send it out as nurserymen usually do send out new plants? and if so, how is it that the fact—if fact it be—is known to only a few persons, and those not including any of Mr. Dowding's family? We have left no stone unturned to ascertain from the principal Carnation growers and florists what they think of it, and in not one single instance have we heard of its being in the trade—Mr. Smith's letter gives us the first intimation. The principal portion of our stock has been purchased this year from members of the late Mr. Dowding's family, and from a friend of his, and who certainly never received their stocks through Mr. Smith. As to our sending it out as a seedling, we confess that we really cannot say what it is, and in our advertisements state only that "it is thought Mr. Dowding raised it from seed." Mr. Smith would do well to read more carefully. *W. J. Cross & Steer, 8, Canal, Salisbury.*

Monthly Roses.—Now that rosarians are having a quiet time—a little repose after their season's labour—one may, I think, venture to urge a plea on behalf of the old monthly Rose, seldom seen now-a-days, except in a semi-starved state in a shrubbery. Pity the old monthly should be ostracised altogether. There is nothing to equal it at this season as a bedder, and the buds in a half expanded state are so useful for cutting, and produced in such abundance, that one may cut a large handful from a good sized bed two or three times a week—no small luxury in the month of November. Mr. Graham, at Hampton Court, has a whole bed in bloom at the present time, which may be seen any day. Facts speak for themselves. *Visitor.*

Lapageria rosea.—In answer to the question put by "T. C. A." as to whether we shade our Lapageria, I have to say both No and Yes. We do not shade that part of the roof where the plant is trained, but Nature shades it for us to some extent. There are some tall forest trees growing at a little distance from the house, and their shadow is partially thrown upon the roof, especially during the autumn, winter, and spring, till the sun gets high enough to shine over the trees right on to the roof. This it does for about two months in midsummer. At the present time, however, the Lapageria gets no sun, as, the trees being clothed with foliage, all its rays are intercepted; but in spring, as the sun rises higher daily, it strikes upon the roof, there being no foliage on the trees then, and I have sometimes found the young growths of the plant scorched a little. *N. Blandford.*

—— In Lord Suffield's garden at Gunton Park, Norfolk, there is a grand display of these beautiful flowers, both rosea and alba, and on a shoot of the former there are at this time twenty-three bunches. Mr. Allan never shades his plants, which are planted in the centre of one of the conservatories, and trained up four pillars with arches, and now form a most lovely canopy of these choice flowers. *A. D. H.*

Transplanting Old Gooseberry Bushes.—The transplanting of bush fruit trees in gardens after they have attained a certain age and size is not usually considered a safe or profitable operation. It is, perhaps, because fruit bushes can be purchased so cheaply by the score or hundred in a small state that old bushes are not more frequently removed into fresh quarters. Yet it is an open question whether it is the wisest course to keep planting young stuff, except for special purposes, when bushes already grown only require fresh food to restore them to full vigour and fruitfulness. Even size, if that be the aim of the cultivator, will be secured by transplanting providing the varieties are rightly selected. It is well known that change of soil works wonders with fruit trees; so will change of quarters too in the same garden. What is an acknowledged rule with nearly all kinds of crops in gardens, viz., annual change of situation, is almost if not altogether ignored in the case of bush fruits—our most useful and reliable crops. Compared with the returns obtained of late years from wall fruit trees I think bush fruits deserve more attention generally. They seldom or never fail to yield good crops, and I am certain they more than pay for the ground and the scanty treatment they in a general way receive. An expert knifeman will prune a large brake of Gooseberries in a few days, and he will dig about and surface-dress them in even a shorter time. The only labour that is then required until weeds begin to grow in the spring is to protect from birds (where they are troublesome), which is more written about than practised. Taken in the aggregate, then, the annual labour expended in the cultivation of bush fruits is of a minimum nature. Let me plead for a more generous system of cultivation. It is, I fear, too often supposed that the removal of large trees necessitates the loss of a season's crop. This is not so. Transplanting performed judiciously at once (the operation must not be deferred later) will be almost certain to result in a better crop next season, and increased vitality in the bushes. It is too much to expect trees to flourish in the same ground for ten or a dozen years, and to maintain sufficient vigour to nourish heavy crops or to produce—what is much in demand with private families—large fruits; the change of soil remedies the defect, supplies the component elements that are wanting in the exhausted soil. Admitting that the operation is necessary, it is also practicable. It should be performed in mild weather, or at least it should not be attempted during frosty weather or during a period when drying winds prevail. First of all the plot or quarter should be selected and prepared. It is not necessary to dig it, only to clear the surface of weeds or other objectionable refuse. Mark the lines out at 2 yards apart and the same distance from plant to plant—wider if the trees are large. Insert a stake in the ground to indicate the position of each bush, and then proceed with planting. Two careful men, accustomed to the moving of trees, should be deputed to the work, and the fact of their being held responsible for results will give them interest in the undertaking. Before a single tree is lifted the hole should be prepared for its reception, and a barrowload, or half a one at least, of fresh soil should be got in readiness for planting. Only a single bush should be lifted at a time, in order that the roots may not be exposed to the action of the weather. In case the operation of planting should at any time be delayed and the roots have a dry appearance, keep a supply of water near at hand and a syringe, and sprinkle the roots before planting. Of course if a delay is foreseen the roots will be temporarily covered with soil. Having placed the bush in position, one man holds it in its place while another puts the earth carefully about the roots. If the land is poor a good dressing of rotten dung placed at about 3 inches from the surface will be beneficial. After planting the whole surface of the ground should be heavily mulched, say to about 2 inches in depth, with some light, open material that will not exclude the warmth of the sun and at the same time keep the roots of the trees comfortable in frosty weather. The advantage of the practice related above will be found beneficial not only to the trees themselves, but in moderate sized gardens it will also give fresh quarters for other crops—vegetables, for example, which, like the Gooseberries, deteriorate in quality and size when grown for a series of years in the same situation. *W. Hinds.*

Brighton Blue Lobelia.—At this season of the year, when small flowering plants are not over numerous, and are much in request for furnishing various devices for windows and stands in rooms, the above variety of Lobelia will be found very useful for front lines associated with Alternantheras, which are the most brilliant dwarf foliage plants that we possess for winter use. I lately saw a handsome bunch of this Lobelia at Barrington Hall, Essex, and Alternantheras I noticed kept close up to the glass in a warm house were of fine colour, ready at any moment that they are required for various purposes of decoration. The Lobelias had been trimmed over late in August, and after they had broken away were lifted and potted up and are now in full flower, only three or four weeks after they were taken from the open ground. The colour is pale blue, and I was told the variety is a great favourite in the flower garden at Barrington during the summer months. *Visitor.*

White Chrysanthemums.—As a pot plant La Petite Marie has no rival; it flowers freely, with every possible vigour, for at least three months. Early struck plants may be had in bloom about the middle of July, whilst those that were struck later are in flower now (Oct 29). It is without doubt the dwarfest variety extant, rarely exceeding 8 or 9 inches in height, bearing from twenty to thirty reflexed flowers, which open slightly tinged with yellow, but soon change to a pure white; this, however, does not occur in the autumn months—it then opens pure white, and is a little gem. Sœur Melanie shows well to the front, coming as it does between the flowering seasons of the early and late varieties. La Vierge, which much resembles Souvenir d'un Ami, is a fine thing, opening pure white, with fluted petals of some substance. It may be added that the varieties noted above are totally distinct from such old varieties as Cedo Nulli, White Trevenna, &c. *W. T. W.*

Orchards.—The total acreage in 1881 of arable or grass land, but also used for fruit trees of any kind, in England is 180,038; in Wales, 2995; and in Scotland, 1832—total, 184,865.

Reports of Societies.

Exhibition of Apples and Pears at Hereford *Oct. 26 and 27.*—The annual exhibition of Apple and Pears, held under the auspices of the Pomon Committee of the Woolhope Club (from whence ha emanated that superb work, *The Herefordshi Pomona*, so ably produced by Dr. Bull), which too place last week, may be pronounced a great succes Favoured by fine weather, in contrast to the delug of rain experienced last year, and in a season f more favourable for fruits than has been experience for some years, the display proved not only attracti and pleasant to look upon, but was altogether a high-class. The extent of the exhibition an variety of the exhibits was fully greater, and th quality far superior to that of past years, the bright colour of the Apples being specially remarkable.

Dr. Bull, the presiding genius and moving spirit this great pomological centre, is to be congratulate on the great success that has followed the establisl ment of these displays, which assume more of educational character than similar exhibitions usual do, the object here aimed at being the correction the nomenclature, and the securing of proper typical specimens for illustration in the *Pomona.*

The magnificent display of Apples and Pea from Mr. Haycock, gr. to Roger Leigh, Esq M.P., Maidstone, Kent, and Lewis Killick, Esq were the admiration, and occasionally the envy, every one present. Seldom have we seen fin examples, yet Mr. Haycock thinks we are but in o infancy in regard to fruit culture, and that even l can produce finer and better. It may be so. A ve common observation to be overheard was—"Ol there is no use contending with these Kent peopl with their fine climate, bright sun, &c.;" yet here Hereford were exhibited scores of dishes of Blenhei Orange finer in size and quality, and with ruddi cheeks by far than any from Kent, or any that have seen elsewhere this season; and has not S H. S. Stanhope shown year after year that Pears seco to none can be grown at Holme Lacy, which is sufficient answer that Hereford has a fine climat and, were a little more attention bestowed on cul vation, could procure fruit equal, if not superior, any in the kingdom.

To enter a little more into detail, we would spe of the Apples as providing the greatest display. the class for fifteen varieties, dessert, there were nl competitors: the 1st prize was awarded to M Haycock, for very fine examples of Margil, Corni Gilliflower, Court-pendu Plat, Reinette Grise, Moth Apple, very fine; Lord Burghley, Mannington Pe main, Calville Blanche, Melon, very fine; Reine du Canada, King of the Pippins, Ribston, Co Orange, Brownlees' Russet, and a variety wrong named Sam Young. Mr. Killick secured the place with fine dishes of Margil, Yellow Ingest Blenheim Orange, Queen Caroline, a varie new to us; Cox's Orange Pippin, Worcester Pe main, &c. Mr. John Watkins, Wistaston, was with, amongst others, the largest and finest amples of Cornish Gilliflower we have ever seen, a very fine examples of a handsome variety nam Stoke Edith Pippin. Several lots which would ha taken honours, were disqualified through exhibiti King of the Pippins under a variety of synonyn such as Seek no Further, Prince's Pippin, Engli Winter Gold Pearmain, &c. For the collection eighteen culinary varieties there were seven compe tors: Lewis Killick, Esq., Maidstone, being award the 1st prize for remarkably large and fi examples of Lewis' Incomparable, Round Win Nonsuch, New Hawthornden, Emperor Alexand Minshull Crab, Golden Noble, Striped Beaufin, Lc dington, Tower of Glamis, Dumelow's Seedlir Cox's Pomona, Blenheim Orange, Hollandbu Warner's King, &c. Messrs. Davison & Co., n serymen, Hereford, obtained 2d honours with so fine examples of Hollandbury, Emperor Alexand Blenheim Orange, Cellini, the old Pearmain, &c and Mr. Watkins, Wistaston, 3d, with the old Ca head, Costard, Beauty of Kent, Yorkshire Beau &c. For the collection of nine varieties, desse there were seven competitors, Mr. Haycock age securing 1st honours with similar varieties to the already named; Mr. Young, gr. to Sir H. S. Stanho Bart., being placed 2d, a dish of Ribston Pipp being very fine. For a collection of five dess varieties there were twelve competitors: Mr. Bric man, gr. to Somers Cocks, Esq., was 1st, wi Braddick's Nonpareil, Court of Wick, Lord Burg ley, Cox's Orange Pippin, and King of the Pippi For a collection of nine culinary varieties there we nine competitors: Mr. Haycock was placed 1st, w a remarkably fine lot—Lord Derby, Bedfordsh Foundling, Belle Josephine, Reinette du Canac Peasgood's Nonsuch, Warner's King, Empe Alexander, Loddington, Belle Dubois; 2d, Sir H. Stanhope. For five culinary varieties there we fourteen competitors, M. Benoist, of Havre, bei worthily placed 1st with very fine examples Alfriston (spelt "Alfrighton"), Reinette Grise

Canada, Reinette de Versailles (same as King of the Pippins), Reinette Douce (same as New Hawthornden) and Gloria Mundi, very large; 2d, W. Wilkins, Barton Farm, Ledbury. A special class was provided for Nonpareils, which was not well responded to, the varieties represented being Scarlet Moss, Old Lodgemore, Braddick's and Sturmer Pippin. Blenheim Orange was specially well shown, there being thirty competitors, and almost every dish being deserving of a prize:—1st J. G. Woodhouse, Esq., 2d Mr. Watkins. Seek no Further, the favourite name for the King of the Pippins in Herefordshire, was also well represented, there being sixteen dishes: 1st Mr. E. Davis. Golden Harvey, or Brandy Apple, a very favourite fruit in this neighbourhood, was again this season much confused with Old Nonpareil, Court of Wick, &c., many dishes being disqualified. Ribston Pippin was represented by fourteen dishes, the 1st prize going to Mr. Haycock, the 2d to Mr. Cox, Madresfield Court. Cox's Orange was well represented by fourteen competitors, Mr. Haycock being placed 1st, Mr. Killick 2d. The prize for any new variety was not awarded. For dessert Apples, present flavour, there was a very spirited competition, all sorts of kinds being submitted, such as Cox's Orange, Ribston, Margil, Kerry, Grange, King of the Pippins, Melon, Pomeroy, &c., all of the prizes being awarded for Cox's Orange Pippin, the 1st prize going to Mr. Bridgman. The 1st prize for the heaviest culinary Apples was awarded to Mr. Haycock, for Belle du Bois—the five fruits weighing 5 lb. 5½ oz. The heaviest single fruit, which obtained the blue ribbon, was a Belle du Bois, weighing 1 lb. 3¾ oz., exhibited by M. Higgins, Esq., Thring Hall. Messrs. Cranston exhibited a collection of about one hundred varieties in fine condition.

Pears were not displayed to so great an extent as Apples; there were, however, some remarkably fine examples, especially those from Roger Leigh's garden at Maidstone (Mr. Haycock), and from M. Benoist of Havre, and Sir H. S. Stanhope, that created quite a sensation. In the class for fifteen varieties there were eight competitors, Mr. Haycock being placed 1st, with extraordinary examples of Beurré Superfin, Passe Crassane, Van Mons' Léon le Clerc, Easter Beurré, General Todtleben, Conseiller à la Cour, very fine; Duchesse d'Angoulême, Doyenné du Comice, Pitmaston Duchess, Durandeau, Beurré Hardy, Marie Benoist (a very large and handsome newish Pear that deserves notice), Emile d'Heyst, Beurré Diel, Brown Beurré; Sir H. S. Stanhope (Mr. Young) being a good 2d with very fine Flemish Beauty, Duchesse d'Orleans, General Todtleben, Beurré Superfin, Beurré d'Aremberg, &c.; 3d, M. Benoist, Havre, with very fine Chaumontel, Beurré d'Anjou, Duchesse d'Angoulême, &c. For nine varieties Mr. Haycock was again 1st against nine opponents; Mr. Scouse, gr., Wessington Court, Ledbury, was 2d, with a very good lot, containing a remarkably fine dish of Urbaniste, &c. For five varieties the 1st prize was awarded to B. S. Austen, Esq., Petworth, for very fine Marie Louise, Beurré Bosc, Duchesse d'Angoulême, Durandeau, and Beurré d'Anjou; Sir H. S. Stanhope being placed 2d. For three varieties Mr. Bridgman was placed 1st with very fine Pitmaston Duchess, Beurré Clairgeau, Beurré Bachelier; and Mr. Froggat, gr. to W. Prosser, Esq., Belmont, 2d. Mr. Haycock received the 1st prize for the best three varieties of stewing Pears—Bellissime d'Hiver, Uvedale's St. Germain, and General Todtleben. For present flavour the prizes were awarded to Mr. Haycock and Sir H. S. Stanhope respectively for Beurré Superfin, which for freshness of flavour, &c., was found to excel all others. Mr. Ross, Welford, was placed 3d, with very large examples of Seckle, somewhat too musky in flavour. Other varieties that proved very good were Aston Town and Thompson's. The heaviest five Pears came from M. Benoist, of Havre, the variety being Uvedale's St. Germain, and the aggregate weight 11 lb.—the blue ribbon for the largest single specimen going to the same exhibitor, for a fruit weighing 2 lb. 14 oz.

A very large and varied collection of cider Apples and perry Pears, about 600 dishes, was exhibited, as to the merits of which we are scarcely competent to speak. It was noticeable, however, that although the fruits of Herefordshire are much smaller than those of Devon and even Gloucester, yet we are informed they are much the better in quality.

Feltham Horticultural. — The second annual exhibition of this Society was held in the Public Hall, Feltham, on Wednesday of last week, and was favoured by pleasant weather and a large attendance of visitors. It is perhaps somewhat late in the year at which to hold such a show, but it was originally promoted to favour the market growers' hardy fruits and autumn vegetable crops. This year the committee expanded the schedule of prizes so as to include amateurs, gentlemen's gardeners, and cottagers also, whilst some local plant growers sent groups of their products, so that all sections of horticulturists were well represented; so far also the competitions have been confined to the parish of Feltham, the Public Hall being of too limited an area to permit of a wider radius of exhibitors, but the success which has attended the recent show, and the demands of outsiders to be permitted to participate in future ones, will doubtless compel the committee to extend the radius of the Society so as to include a group of some five or more West Middlesex parishes, of which Feltham is the centre, and also to hold the show at such an early date that it may be in the open air. At last week's exhibition the Messrs. Lee & Sons sent from their local nursery a group of handsome Conifers, and some tall and good shaped Irish Yews that formed prominent features around the hall. The golden Arbor-vitæ were very effective. Mr. Roberts, the present occupant of Catleugh's old establishment, made up a good and effective group of early winter Chrysanthemums, Palms, Solanums, Chinese Primroses, Maidenhair Ferns, &c. Messrs. Smith & Larke, market florists, of Ashford, sent a capital collection of market plants, Palms, Solanums, strong perfumed Pearl Tuberoses, Cyclamens, Primulas, &c., a few scarlet Pelargoniums adding much welcome colour. Mr. R. Dean, Seed Grounds, Bedfont, put up a good collection of Potatos, and some forty dishes of good samples of Apples and Pears, that were greatly admired; and Mr. W. Cole, of The Grove Vineyard, Feltham, gave Grape exhibitors a wrinkle in setting up, by putting a box of half-a-dozen bunches of good Muscat of Alexandria Grapes into a framework of Maidenhair Ferns and Chinese Primroses. The display of vegetables made from local institutions is alluded to elsewhere, whilst, for local reasons, the competition in the market growers' class was limited to one exhibitor, Mr. Joseph Vincent, who took the 1st prizes for six vegetables, six dishes of Apples, and three dishes of Potatos, all good and well worthy the position. Mr. Vincent also was awarded the price of a new wheelbarrow offered by a local tradesman for the best bushel of Potatos, showing a good sample of Magnum Bonum. The new class for gentlemen's gardeners made ample amends for the lack of market growers, and here Mr. Jones, gr. to the President, E. M. Browell, Esq., and Mr. Gaywood, gr. to T. Quihampton, Esq., were placed equal 1st, with good collections of plants, fruits, and vegetables; Mr. Higgs, gr. to R. Thompson, Esq., coming next with plants, fruits, immense Gourds, and other products. Other gardeners had fine Pears and Apples, and generally were well represented.

The amateurs made a good show with vegetables and fruits. Some very handsome Holland Pippins, Emperor Alexander, Norfolk Pippin, Flower of Kent, and King of the Pippin Apples; Vicar of Winkfield, Beurré Diel, Marie Louise, and other Pears; fine Quinces, &c., were staged in this section. The cottagers exhibited very well indeed for the time of the year, but many asked for an earlier date, as with Potatos especially they had found it troublesome to hold samples over so long after digging. A very interesting feature was a window wire plant-stand, the top of which, lined with moss, had been planted with simple hardy Ferns, and Lycopods, and Musk, whilst the lower shelf, having a zinc base, was also similarly planted. As it was the exhibit of a young lady, it certainly was very meritorious.

Notices of Books.

The Analysis and Adulteration of Foods. By James Bell. Part 1. (Chapman & Hall.)

This is the first part of a book intended "partly as an aid to those who may desire to carefully examine the illustrations of food adulteration in the Bethnal Green branch of the South Kensington Museum, and partly as a contribution to the already published knowledge of the composition and analysis of articles of food." The analyses have for the most part been made in the laboratory of the Inland Revenue Department at Somerset House, and are valuable not only as affording indications as to the rightful composition of various objects of daily consumption, but also as showing the substances commonly used as adulterants, and as making public the absurdities of the so-called substitutes, such as Mochara, Melilotine Coffee, Date Coffee, Chicory, and the like. These substances and admixtures are for the most part harmless, but they are by no means "substitutes" in the correct sense of the term for Coffee, and if purchasers like to expend their money upon them there can be no objection, provided they know preeisely what they are buying. If this be secured purchasers have only themselves to blame if they buy rubbish. The book is somewhat meagre, but it is only Part 1, and may, therefore, be expected to improve as it grows.

Obituary.

We have to record the death, at Appley Bridge, on October 11, of Mr. John Reid, formerly gardener at Haigh Hall, Wigan. Mr. Reid was born in the parish of Erskine in 1811, and at an early age was apprenticed under Mr. Shields, the then gardener to Lord Blantyre, at Erskine House. Here he remained till he became of age, when he removed to Cawdor House for a couple of years, thence to Woodhall (Campbell of Islay's), then one of the most extensive places in Scotland and under the management of Mr. Denholm. Here he remained three years, when he was appointed gardener to the Lord Justice Clerk (Hope) at Granton House, and with whom he stayed five years. On the Lord Justice Clerk leaving Granton, Mr. Reid went to Professor Syme, near Edinburgh, an entirely new place, during his twelve or fourteen years' stay at which he acquired great celebrity in the cultivation of plants. His next situation was with the late Marquis of Huntly, at Orton Hall, where the grounds were entirely remodelled by him. Here was raised from seed a magnificent collection of Conifers, many of which may be seen to this day. Having been at Orton for eight years, he was next engaged by the present Dowager Countess of Crawford and Balcarres at Haigh Hall, and here too be completely remodelled the grounds as well as made extensive additions to the gardens. Here he remained for eleven years when he removed to Appley Bridge, and interested himself in a market garden undertaking. During the last two years he had been in failing health, and finally succumbed on the 11th inst., after a short but sharp attack, heart disease being his chief ailment.

—— By the death, on the 24th inst., at Oakfield, Wimbledon Park, of Mr. George Curling Joad, horticulture loses one of its most ardent and cultivated followers. Of retiring disposition, and health so delicate as to necessitate his passing the winter at Mentone, Mr. Joad was comparatively little known outside his own immediate circle of friends, so that when a few years since he removed from Sussex and took up his residence at Wimbledon it was with a feeling of surprise that those privileged to make his acquaintance found themselves in the company of one who not only loved plants but knew them well and cultivated them well. His collections, both living and dried, were large, selected with knowledge, and arranged with skill. His herbarium was extensive, and his garden richly stocked, and so varied in arrangement that while herbaceous and alpine plants had special attention, no other department was neglected. Mr. Joad's garden is one of the most interesting in the neighbourhood of London, and in it beauty was not sacrificed to science, as it sometimes is in collections of this character. Mr. Joad was a member of the Scientific Committee of the Royal Horticultural Society.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, November 2, 1881

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
27	30.05	+ 0.32	45.5	39.0	6.5	41.6	— 5	36.9	84	N.E.	0.02
28	29.97	+ 0.24	46.0	36.5	9.5	41.5	— 5	37.7	87	N.E., N.W.	0.00
29	29.98	+ 0.25	44.2	34.5	9.7	38.0	— 8	34.8	87	N.W., N.E.	0.00
30	30.05	+ 0.31	43.7	32.4	11.3	34.7	— 11	31.2	87	N.	0.00
31	29.96	+ 0.21	41.0	28.5	12.5	33.8	— 12	31.3	90	N.E.	0.00
Nov 1	29.67	— 0.08	38.5	31.0	7.5	34.3	— 11	27.5	76	N.E.	0.00
2	29.63	— 0.09	42.2	33.5	8.7	37.5	— 8	32.8	83	E. : S.E.	0.00
Mean	29.91	+ 0.18	43.0	33.6	9.4	37.3	— 9	33.2	85	N.E.	0.02

Oct. 27.—A fine, but a cold, damp, overcast day and night.
— 28.—A fine day, but frequently overcast; day and night very dull; a few drops of rain.
— 29.—Fine morning but dull and cold; a little sleet fell between 9 A.M. and 10 A.M. Partially cloudy till the evening. A fine, clear, cold night.
— 30.—A fine, bright, but very cold day and night.
— 31.—Fog in the morning; ice on ponds a quarter of an inch thick, which did not melt during the day. A fine day and night, but very cold.
Nov. 1.—Overcast in morning. Snow and sleet from a little after noon. A fine clear night.
— 2.—A fine day and night. Cold S.E. wind.

London: *Atmospheric Pressure.*—During the week ending October 29, the reading of the barometer at the level of the sea increased from 29.36 inches at the beginning of the week to 30.25 inches by mid-

night on the 27th, decreased to 30.13 inches by 9 A.M. on the 29th, and was 30.23 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.96 inches, being 0.02 inch lower than last week, and 0.05 inch above the average for the week.

Temperature.—The highest temperature in the shade during the week was 51°, on the 23d; the next in order was 50°.2, on the 25th and 26th. On October 29 the temperature did not rise above 44°.2. The mean of the seven high day temperatures was 48°.1.

The lowest temperature in the week was 34°.5, on the 29th; on the 23d the lowest temperature was 48°. The mean of the seven lowest temperatures was 40°.4.

The greatest range of temperature in one day was 10°.7, on the 26th; the smallest was 3°, on the 23d. The mean of the seven daily ranges was 7°.7.

The mean daily temperatures were, on the 23d, 49°.6; on the 24th, 47°; on the 25th, 43°.4; on the 26th, 43°; on the 27th, 41°.6; on the 28th, 41°.5; on the 29th, 38°. On the 23d the temperature was 1°.3 above its average, while on the 24th, 25th, 26th, 27th, 28th, and 29th, it was respectively 0°.9, 4°.1, 4°.2, 5°.3, 5°.2, and 8°.6 below the average. The mean temperature for the week was 43°.4, being 0°.1 lower than last week, and 4° below the average for the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 118° on the 25th; the highest on the 24th was 51°. The mean of the seven readings was 77°.8.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 29° on the 24th. The mean of the seven readings was 36°.5.

Rain.—Some fell on three days, to the amount of 1°.07 inch, of which 1°.06 inch fell on Sunday, the 23d.

ENGLAND: *Temperature.*—During the week ending October 29 the highest temperatures were 63° at Truro, 61°.2 at Plymouth, and 60°.4 at Bristol. The highest temperature in the week at Sheffield was 47°, at Bradford 47°.4, and at Leicester and Hull 48°. The mean from all stations was 52°.2.

The lowest temperatures in the week were 30°.5 at Wolverhampton, 30°.9 at Cambridge, and 31° at Truro. The lowest temperature at Plymouth was 37°.9, at Brighton 35°.6, and at Bradford 35°.2. The mean from all stations was 33°.7.

The greatest ranges of temperature in the week were 32° at Truro, 25°.7 at Bristol, and 23°.3 at Plymouth. The least ranges were 12°.2 at Bradford, 13° at Sheffield, and 14° at Leeds. The mean from all stations was 18°.5.

The mean of the seven high day temperatures was 55°.3 at Truro, 54°.2 at Plymouth, and 50° at Bristol, and was less than 46°.5 at Sheffield, Bradford, and Leicester. The mean from all stations was 48°.5.

The mean of the seven low night temperatures was 44°.1 at Plymouth, 42°.6 at Truro, and 41° at Brighton, and was 37° at Cambridge, 37°.3 at Wolverhampton, and 38°.3 at Liverpool. The mean from all stations was 39°.8.

The mean daily range was 12°.7 at Truro, 12°.1 at Cambridge, and 10°.5 at Bristol, and was only 5°.5 at Sheffield, 6°.2 at Bradford, and 7°.5 at Leicester. The mean from all stations was 8°.7.

The mean temperature for the week was 48°.2 at Plymouth, 48°.1 at Truro, and was less than 42° at Wolverhampton, Liverpool, and Leicester. The mean from all stations was 43°.3.

Rain.—The largest falls were 1.07 inch at Blackheath, 0.91 inch at Sunderland, and 0.90 inch at Leeds. The least falls were 0.02 inch at Wolverhampton, 0.03 inch at Liverpool, and 0.24 inch at Brighton. The mean from all stations was 0.57 inch.

SCOTLAND: *Temperature.*—During the week ending October 29 the highest temperature was 52°.7, at Aberdeen. At Edinburgh the highest temperature in the week was 47°.5. The general mean was 49°.8.

The lowest temperature was 32° at Dundee, at Greenock the lowest temperature was 35°.2. The general mean was 33°.9.

The mean temperature for the week was highest at Paisley, 44°.8, and lowest at Edinburgh, 41°.7. The general mean was 43°.2.

Rain.—The largest falls were 0.62 inch at Aberdeen, and 0.50 inch at Dundee. No rain fell at Glasgow, Greenock, or Paisley, and only 0.22 inch at Edinburgh. The general mean was 0.22 inch.

JAMES GLAISHER, F.R.S.

CLOVER AND GRASS SEEDS to the extent of 13,578 tons, and of the value of £587,423, were imported in 1880.

CURRANTS AND RAISINS.—The imports of these in 1880 amounted to 1,215,436 cwt., of the value of £1,801,860.

Answers to Correspondents.

ACTION OF FROST ON FRUIT: *J. S.* The softening you speak of is probably due to the exudation of water through the cell-walls, which takes place when cells are reduced to the freezing point, the cell-sap becoming proportionately thickened, and the cells themselves less turgid. The discoloration is consequent on the death of the protoplasm, which in dying frequently assumes a brownish colour—we presume from some re-arrangement of its particles.

ASH TREES IN HEDGE: *J. Johnstone.* The Ash is a tree which rapidly impoverishes the ground, and four of these "fine trees" in your garden hedge would be likely to do much injury to the contiguous fruit trees, as your gardener points out. You must sacrifice either the one or the other, unless you compromise the matter by saving one of the handsomest and best placed of the Ash trees, and removing the rest, thus freeing a portion of the fruit trees from their injurious influences.

BOOKS: *E. W. Serpell.* The *Herefordshire Pomona* is the only book of the character you enquire about; but that only gives a selection of sorts, not all the different varieties.

COLOURED TREES: *X. Z.*—The Liquidambar, Quercus coccinea, Q. rubra, Q. Concordia, the Purple Beech and the Copper Beech, the Norway Maple, Taxodium distichum, and the Tulip-tree. High-coloured subjects of a shrubby habit are more numerous.

FRUITS FOR ORCHARD-HOUSE: *Thorne.* Apricots—Moorpark, or Pêche, Kaisha, Angoumois hâtif, Hemskirk, Musch Musch, Montgamet, Pine-apple. Cherries—Black Eagle, Noire précoce de Strasse, Black Tartarian, Early Lyons, May Duke, Duchesse de Palluau, Belle de Choisy, Joc-o-Sot, Governor Wood, Elton, Bigarreau Napoléon, St. Margaret. Plums—Early Prolific, Angelina Burdett, Bmby's Green Gage, Transparent Gage, Dennistoun's Superb, Jefferson, Coe's Golden Drop, McLaughlin's Gage, Green Gage, Reine Claude de Bavay, and Ickworth Imperatrice.

GUM ON POSTAGE STAMPS: *H. B. B.* Your question has no bearing on horticulture, and we must decline to travel outside our particular province.

NAMES OF FRUITS: *Camjee. Apple:* Yellow Ingestre. —*N. B.* 1, bruised beyond recognition; 2, Lord Suffield.—*E. Morgan.* 1, Duckbill; 2, Thompson's Seedling, most probably; 3, Sturmer Pippin.—*Thos. Imrie.* Your Pear is most probably Doyenné Grise.—*H. C. Pears:* 1, Easter Beurré; 2, Verulam; 3, Passe Colmar; 4, Ne plus Meuris; 6, Comte de Lamy; 7, Vicar of Winkfield. *Apples:* 1, Dutch Mignonne; 2, Court-pendu Plat; 4, Cox's Pomona; 5, Lemon Pippin; 6, Manks' Codlin; others not recognised.—*W.* 1, Holmes' Large; 2, a very fine Apple, not known; 3, Winter Majetin; 4, *Pear,* Vicar of Winkfield; 5, Passe Colmar; 6, most probably Black Prince Grape.—*H. K., Sussex. Apple:* Emperor Alexander.—*Richard Fryer. Apple:* Claygate Pearmain.—*G. M. Apples:* 2, Hampshire Nonsuch; 3, Dumelow's Seedling; 6, Court-pendu Plat; 7, Jefferson; 8, Kerry Pippin; 9, Beauty of Kent; 1, Golden Knob; 10, Court of Wick. *Pears:* 2, Bergamotte d'Esperen; 3, Beurré Diel; 4, probably Beurré Diel; 5, quite decayed.—*L. Bryan.* Next week; not quite sure.—*J. C.* Next week.

NAMES OF PLANTS: *J. S.* 1, Phillyrea media; 2, Ruscus racemosus; 3, Viburnum Tinus; 4, Euonymus japonicus variegatus; 5, Berberis Darwinii; 6, Aucuba japonica; 7, Cratægus Pyracantha; 8, Sequoia gigantea (Wellingtonia).—*W.* 1, Asplenium cicutarium; 2, Cystopteris fragilis angustata; 3, Pteris serrulata cristata; 4 and 5, Pteris serrulata; 6, Selaginella cuspidata.—*A. B. C.* 1, Pteris cretica albo-lineata; 2, Adiantum hispidulum; 3, Polystichum capense; 4, Nephrolepis tuberosa; 5, Onychium japonicum; 6, Selaginella pubescens.—*W. B.* 1, Tricyrtis hirta; 2, Æschynanthus grandiflorus; 3, Thyrsacanthus rutilans; 4, Davallia novæ-zelandiæ; 5 and 7, Selaginella caulescens; 6, Selaginella, apparently Schottii; 8, Selaginella Martensii.

STEPHANOTIS FRUITING: *J. W.* Not particularly uncommon.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors,*" and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.

THOMAS IMRIE & SONS, Ayr—Forest and Ornamental Trees, Fruit Trees, Roses, &c.

DAMMANN & CO., Portico, near Naples, Italy—Wholesale List of Garden and Agricultural Seeds, Bulbs, &c.

KELWAY & SON, Langport—Gladioli.

ORMISTON & RENWICK, Melrose, N.B.—Forest and Ornamental Trees, Roses, Fruit Trees, &c.

COMMUNICATIONS RECEIVED.—T. F. D. — Robert Veitch & Sons.—I. S.—Professor Caruel.—S. R. H.—R. J. M.—J. B. T.—D. G.—F. G.—F. T.—W. T. D.—E. J.—W. H.—E. P.—T. C.—M. J. B.—F. M.—M. F.—H. W. W.—E. T.—W. B.—J. G.—G. B.—H. P. H.—A. M.—T. S. J.—G. S.—W. D.—W. H.—N. E. B.—F. B.

Markets.

COVENT GARDEN, November 3.

Prices remain much the same. Pines in good dem Trade quiet. *James Webber, Wholesale Apple Mark*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 4 6	Melons, each	2 0– 6
Figs, per dozen	0 6– 1 0	Peaches, per dozen	6 0– 0
Grapes, per lb.	0 6– 3 6	Pears, Eng., ½-sieve	2 6– 6
Kent Cobs, p. 100 lb.	77 6–80 0	— French, per doz.	1 6– 6
Lemons, per 100	4 0– 6 0	Pine-apples, Eng., lb.	4 0– 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Horse Radish, per bundle	4 0–
Asparagus, French Sprue, per bundle	1 6– ..	Lettuces, Cabbage, per doz.	0 6– 6
Barbe de Capucin, per bundle	0 8– ..	— Engl. Cos, score	1 6–
Beans, French, p. lb.	1 0– ..	Mint, green, bunch	0 4– 6
Beet, per doz.	1 0– ..	Mushrooms, p. haskt.	1 6– 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	5 0–
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6–
Cauliflowers, English, dozen	2 0– 4 0	Parsley, per bunch	0 4–
Celery, per bundle	1 6– 2 0	Peas, per bushel	5 0– 0
Cucumbers, each	0 6– 1 0	Potatos (new), punnet	1 6–
Endive, per doz.	1 0– 1 6	Radishes, per bun.	0 2– 6
Garlic, per lb.	1 0– ..	Seakale, per punnet	3 0–
Herbs, per bunch	0 2– 0 4	Small salading, pun.	0 4–
		Spinach, per bushel	2 6–
		Tomatos, per lb.	0 9– 0

Kent Regents, 100*s.* to 110*s.*; Roses, 80*s.* to 90*s.*; Myatt's, to 120*s.*; Magnum Bonums, 90*s.* to 110*s.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 4	Marguerites, 12 bun.	4 0– 0
Asters, 12 bunches	9 0–15 0	Mignonette, 12 bun.	3 0– 0
Bouvardias, per bun.	0 9– 1 0	Pelargoniums, 12 sprays	1 0– 6
Camellias, 12 blooms	4 0– 6 0	— zonal, 12 sprays	3 0– 0
Carnations, 12 blms.	1 0– 2 0	Primula, double, per bunch	1 0– 6
Chrysanth., 12 bun.	6 0–12 0	Roses (indoor), doz.	1 0– 0
— 12 blooms	2 0– 4 0	— Tea (French), per dozen	1 0– 0
Eucharis, per doz.	6 0– 9 0	Stephanotis, 12 spr.	6 0– 0
Gardenias, 12 blms.	4 0– 9 0	Tropæolum, 12 bun.	1 0– 0
Heliotropes, 12 sp.	0 6– 1 0	Tuberoses, per dozen	2 0– 0
Hyacinths (Roman), 12 sprays	2 6– 3 0	Violets, 12 bunches	1 0– 6
Lapageria, white, 12 blooms	2 0– 4 0	— (Fr. Parme), bun.	4 0– 0
— red, 12 blooms	1 0– 3 0		
Lilac (Fr.), p. bunch	8 0–10 0		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Evergreens, in var., per dozen	6 0– 0
Asters, per dozen	6 0–12 0	Ferns, in variety, per dozen	4 0– 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0– 6
Begonias, per doz.	4 0–12 0	Fuchsias, per dozen	6 0– 0
Chrysanthemums, per dozen	6 0–12 0	Myrtles, per doz.	6 0– 0
Cissus discolor, doz.	18 0–24 0	Palms in variety, each	2 6– 0
Cyperus, per dozen	6 0–12 0	Pelargoniums, scarlet, per dozen	3 0– 0
Dracæna terminalis	30 0–60 0	Solanums, per dozen	9 0– 0
— viridis, per doz.	12 0–24 0		
Euonymus, various, per dozen	6 0–18 0		

SEEDS.

LONDON: *Nov.* 2.—The market to-day was pt attended and hardly any business was transacted. new American red Clover seed is still neglected; ne its quality this season nor the prices asked meets the approval of buyers. A few parcels of new he grown Cow-grass are now offering. Alsike tends wards; German samples prove dear when comp with English. White and Trefoil show no change. Canary seed market is steady. For blue Peas full are obtained. *John Shaw & Sons, Seed Merche 37, Mark Lane, London, E.C.*

HAY.

Tuesday's Whitechapel Market report states moderate supplies were on offer. Clover sold slo Best meadow hay brought firm prices. Quotation: Prime Clover, 100*s.* to 140*s.*; inferior, 75*s.* to 9 prime meadow hay, 100*s.* to 132*s.*; inferior, 60*s.* to 9 and straw, 30*s.* to 52*s.* per load.—On Thursday t was a fair supply of hay and straw on sale. The t was rather quiet, and prices were without alterat Cumberland Market quotations:—Superior meadow 120*s.* to 132*s.*; inferior, 90*s.* to 110*s.*; superior Clo 132*s.* to 140*s.*; inferior, 90*s.* to 112*s.*; and straw, 48 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state trade is quiet, with moderate supplies. Quotation Kent Regents, 85*s.* to 90*s.*; ditto Victorias, 90*s.* 100*s.*; Essex Regents, 80*s.*; ditto Champions, 50 60*s.*; Magnum Bonums, 80*s.* to 90*s.* per ton.— imports into London last week were 28,956 bags f Hamburgh, 1203 bags Stettin, 300 bags Harling 45 packages St. Malo, and 45 packages Amsterdam.

COALS.

The following are the prices current at market du the week:—East Wylam, 17*s.* 6*d.*; Ravensworth W Hartley, 16*s.* 3*d.*; Walls End—Caradoc, 20*s.*; Sc Hartlepool, 19*s.* 3*d.*; Thornley, 19*s.* 6*d.*; Het 20*s.*; Hetton Lyons, 18*s.* 6*d.*; Hawthorns, 18*s.* Lambton, 19*s.* 6*d.*; Original Hartlepool, 20*s.*; W 18*s.* 6*d.*; South Hetton, 20*s.*; Tunstall, 18*s.* Haswell, 20*s.*; Radford Navigation, 18*s.*

JOHN EDMONDS & CO.,

HORTICULTURAL BUILDERS, &c.

CONSERVATORIES, GREENHOUSES,

AND EVERY DESCRIPTION OF

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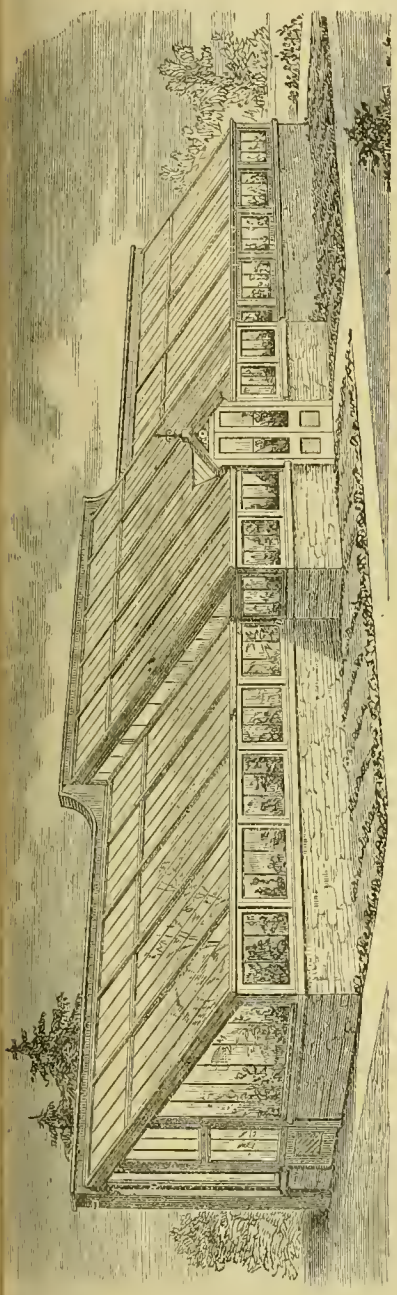
Manufactured by Steam-Power Machinery, and of the Best Materials and Workmanship.

Designs and Estimates Gratis on Application.



ARCHITECTS' AND LANDSCAPE GARDENERS' DESIGNS CARRIED OUT.

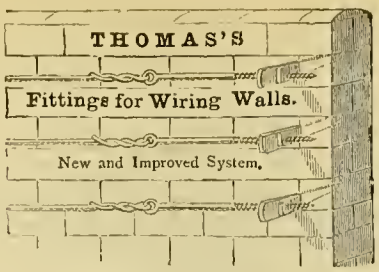
HOT-WATER APPARATUS ENGINEERS.

Manufacturers of Wrought-Iron, Welded, and Rivetted Boilers of all descriptions.

Patentees of the Cast-Iron Tubular Saddle Boiler

ILLIE BRIDGE, LONDON, S.W.

☞ *Adjoining West Brompton Station, Metropolitan and District Railway.*



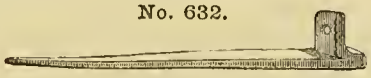
DRIVING EYES—Galvanised. No. 631.

Spaced about 10 feet apart for guiding the wires on the wall.

1½ 2 2½ 3 3½ 4½ in. long.
2*d.*, 3*d.*, 4*d.*, 5*d.*, 7*d.*, 9*d.* per doz.

New and Improved Pattern.

TERMINAL HOLDFASTS—Galvanised. No. 632.



One required for each line of Wire, 5 in. long, price 2*s.* per doz.

The above pattern EYES and HOLDFASTS are very much superior to those usually sold, being WARRANTED TO DRIVE INTO THE HARDEST WALLS WITHOUT BREAKING.

STRAINING BOLT and HOLDFAST (No. 635), as illustrated above, price 4*s.* per dozen. Best Quality GALVANISED WIRE, 1*s.* 9*d.*, 2*s.*, and 2*s.* 6*d.* per 100 yards.

The following Prices give the total cost of each line of Wire, including Holdfasts, Straining Bolt, Intermediate Guiding Eyes, 10 feet apart, and best quality Galvanised Wire:—

Length of Wall	20 yds.	40 yds.	60 yds.	80 yds.	100 yds.
	s. d.	s. d.	s. d.	s. d.	s. d.
No. 14 Gauge Wire	1 0	1 7	2 1	2 7	3 1
No. 13 Gauge Wire	1 2	1 10	2 5	3 0	3 7

Illustrated Lists, with full particulars of the above, and Fittings for Espalier Trainers, on very economical principles, free on application.

5 per cent. discount allowed for cash with order.

J. J. THOMAS & CO.,

Show Rooms { 87, Queen Victoria Street, E.C.
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Manufactory { Paddington Iron and Wire Works,
362, Edgware Road, London, W.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

3*d.* per bushel; 100 for 20*s.*; truck (loose, 250 bushels), 30*s.*; 4-bushel bags, 4*d.* each.

LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*; 12 for 45*s.*, or 36*s.* per ton.

BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; 12 for 40*s.*, or 34*s.* per ton; sacks, 4*d.* each.

COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* half ton, 26*s.* per ton; in 1 cwt. bags, 4*d.* each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1*s.* per bushel.

SPHAGNUM MOSS, 8*s.* 6*d.* per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.

H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre). W.C.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1*s.*; 15 bags, 12*s.*; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3*s.* (truckload free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1*s.* each; 15 Sacks, 12*s.*; 30 Sacks, 20*s.* (all Sacks included); Van-load at Works, 4*s.*; ditto delivered within 5 miles, 10*s.*; Truck-load (equal to about 300 bushels when dry), free on rail, 25*s.* Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,

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12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per truck. Sample bag, 5*s.*; 5 bags, 22*s.* 6*d.*; 10 bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per bag.

SILVER SAND, Coarse or Fine, 52*s.* per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 tons. GRAVEL, good colour, 25*s.* per truck of 6 tons.

WALKER AND CO., Farnborough Station, Hants.

SOLUBLE FIR TREE OIL INSECTICIDE.

Royal Botanical Gardens, Stretford, Manchester, October 22, 1879.

DEAR SIR.—We have used your Fir-tree Oil, and find it a most effectual destroyer of all kinds of pests to which plants are subject. I have a very strong impression that it will be very extensively used, at any rate it ought to be.—I am, yours very truly, BRUCE FINDLAY.

To Mr. E. G. HUGHES.

Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d., 7s. 6d.; Gallons, 12s. 6d. each.

Manufacturer, E. GRIFFITHS HUGHES, Operative Chemist, Victoria Street, Manchester.

Geometrical Mosaic and Encaustic

TILE PAVEMENTS, for Conservatories, Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.

MAW AND CO., Benthall Works Broseley, Shropshire

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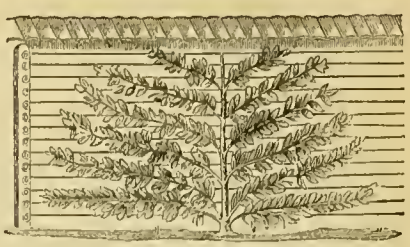

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PEACH TRELLISES—Circular or Straight.

VINE TRELLISES, and other Internal Wiring made and fixed in a substantial manner.

ESPALIERS, for Garden, with Circular Tops.

STRAINED WIRE FENCING.

RABBIT-PROOF FENCING. Made by

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PHEASANTRY IRON AND WIREWORKS,
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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1850, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6*d.* and 1*s.* each.

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THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

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KENT PEATS or LOAM supplied at lowest rates in any quantities.

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SUPPLY EVERY GARDEN REQUISITE
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TRANSPLANTING TREES.—A Patent, Expeditious, Economical, Labour-saving, Powerful Implement, £2 2*s.*, removes large trees in a few minutes, with large section of earth and roots uninjured. Extract sent from *Gardeners' Chronicle*, March 5; *Chambers' Journal*, May 2; *Field*, June 2; *Design and Work*, Aug. 20, 1881.—Agent, Mr. J. CHARLTON, Landscape Gardener, Tunbridge Wells

Protect your Glass from Frost and Cold Winds, by using a Material, called

FRIGI DOMO, which can be obtained from all Nurserymen and Florists, or from BENJN. EDGINGTON, 2, Duke Street, London Bridge, S.E. Frigi Domo is a registered article, with all Trade Marks and rights.

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Manufacturers of ROPES, TWINES, SACKS, TARPAULINS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1s. each; 15 sacks, 12s.; 30 sacks, 20s.; truck-load, delivered to any station in London, 25s. Try our HEMP SASH-LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.
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15-oz. and 21-oz., in Boxes containing 200 feet.
Carriage Paid to any Railway Station in England.
Price Lists on application.
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Can be obtained in all sizes and qualities of
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B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting up purposes, in 200-ft. and 300-ft. cases.

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SHEET GLASS, IN CASES, FOR CUTTING UP.

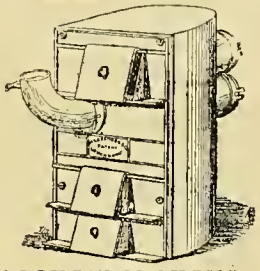
Common ..	15-oz.,	300 feet,	35s. 0d.,	if 21-oz.,	200 feet,	35s. 0d.
Fourths ..	,,	,,	37s. 6d.	,,	,,	37s. 6d.
Thirds ..	,,	,,	41s. 0d.	,,	,,	41s 0d.
Seconds ..	,,	200 feet,	40s. 0d.	,,	,,	47s. 9d.
Best ..	,,	,,	50s. 0d.	,,	,,	60s. 0d.

Also 26-oz., 28-oz., and 32-oz. Glass.

SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½ × 5½	.. 9s. 6d.,	10s. 6d.,	11s. 6d., 12s. 6d.
8 × 6 to 10½ × 8½	.. 10s. 0d.,	11s. 0d.,	12s. 0d., 13s. 0d.
11 × 9 to 14 × 10	.. 11s. 0d.,	12s. 6d.,	13s. 6d., 14s. 6d.
15 × 10 to 18 × 12	.. 11s. 0d.,	12s. 6d.,	13s. 6d., 14s. 6d.
20 × 12 to 20 × 18	.. 12s. 0d.,	13s. 0d.,	14s. 0d., 15s.;

if 21-oz., 15s., 16s. 6d., 18s 6d., 20s.
SHEET LEAD, WHITE LEAD, OILS, TURPENTINE, and COLOURS.



THE "LOUGHBOROUGH" BOILER, now introduced, is intended to supply a want long felt, of a cheap Boiler for small Greenhouses, requiring neither brick setting nor iron case. The Boiler is placed in the wall of the Greenhouse, so that the heat from the Boiler itself is utilised in heating the house. Price with fittings, £2 12s., delivered. Capable of heating 70 feet of 4-in. pipe.
The apparatus for a Greenhouse, 20 feet by 10 feet, complete, or £6 10s. Prices and full particulars on application.
MESSENGER AND CO., Loughborough.

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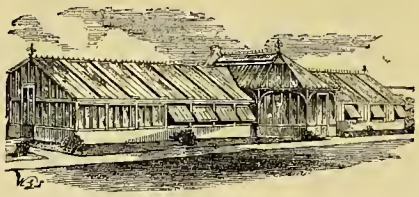
HORTICULTURAL BUILDINGS



Illustrations, Price Lists, and Testimonials free.
Hot-Water Apparatus fixed in any part of the Kingdom, and guaranteed.

FIRST PRIZE MEDAL
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Send for particulars to
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Horticultural Builders & Hot-Water Engineers,
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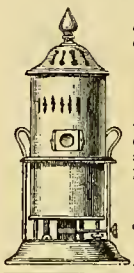
WARMING STOVES.



The only perfect Oil Stoves made to burn absolutely without Smoke or Smell, Trouble or Dirt. Unequalled for Warming
Greenhouses, Vineries, Shops, Bedrooms, Halls, Offices, Damp Rooms, &c.
Perfectly safe, require no pipes or fittings, will burn from twelve to twenty hours without attention, give off no injurious vapour, and are the best Stoves ever invented to save plants from frost, keep out the damp, &c.
PRICE FROM A FEW SHILLINGS.
Write for Illustrated List of Warming Stoves to
The Holborn Lamp and Stove Co.,
118, HOLBORN, LONDON, E.C.,
And say where you saw this Advertisement.

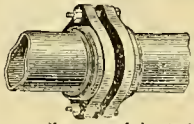
PIPES and FITTINGS,
FOR HEATING APPARATUSES.
The largest stock in the Kingdom. 4-inch pipes, 1s. 6d. per yard.
SILVESTER & SAINSBURY,
Castle Hill Foundry, Newcastle, Staffordshire.

THOS. W. ROBINSON,
DENNIS PARK IRONWORKS, STOURBRIDGE,
MANUFACTURER OF
HOT-WATER PIPES,
IMPROVED "EXPANSION JOINT" PIPES,
BOILERS,
SPOUTING, PUMPS, TANKS, WROUGHT-IRON TUBING,
And every description of Ironwork for Horticultural and Building Purposes.
SOCKET HOT-WATER PIPES.

	s.	d.		s.	d.		s.	d.	
Pipes (6 ft. long)—2-in.,	1	9	.. 3-in.,	3	0	.. 4-in.,	3	10	each.
,, (9 ft. long)— ,,	—		.. ,,	4	3	.. ,,	5	3	,,
Elbows (No. 12)— ,,	1	1	.. ,,	1	8	.. ,,	2	0	,,
Tees (No. 33)— ,,	1	5	.. ,,	2	4	.. ,,	3	3	,,
Syphons (No. 23)— ,,	1	3	.. ,,	2	0	.. ,,	3	0	,,

"Expansion Joint" Hot-water Pipes.

The "Expanston Joint."



The Best and Quickest Made.

This Joint, being easily removed, is specially adapted for Tenants.

	s.	d.		s.	d.		s.	d.
Pipes (6 ft. long)—2-in.,	1	8	.. 3-in.,	2	8	.. 4-in.,	3	4 each.
,, (9 ft. long)— ,,	—		.. ,,	4	0	.. ,,	5	0 ,,
Elbows (No. 3)— ,,	0	8	.. ,,	0	10	.. ,,	1	0 ,,
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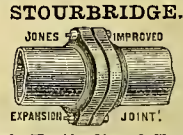

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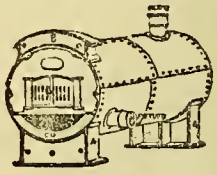

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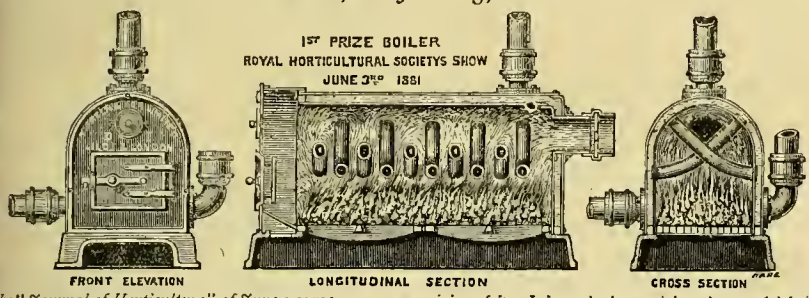

The "Journal of Horticulture" of June 9 says:—
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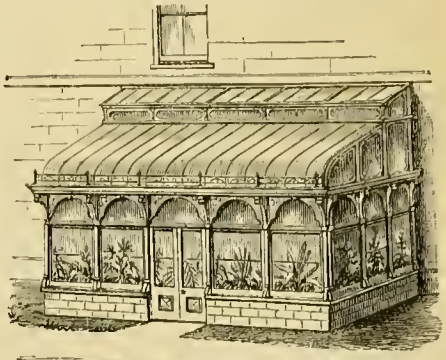

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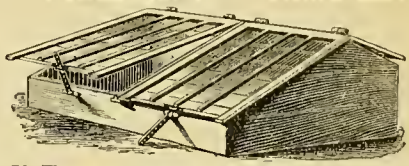

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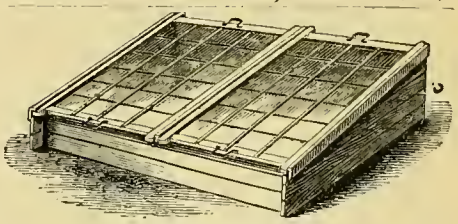

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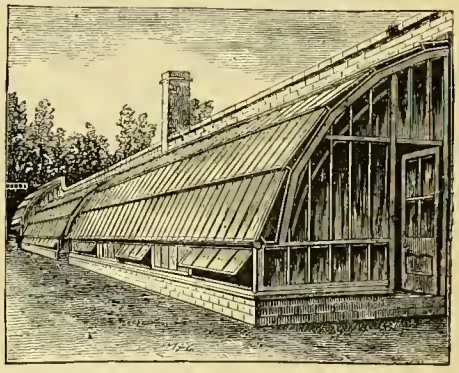

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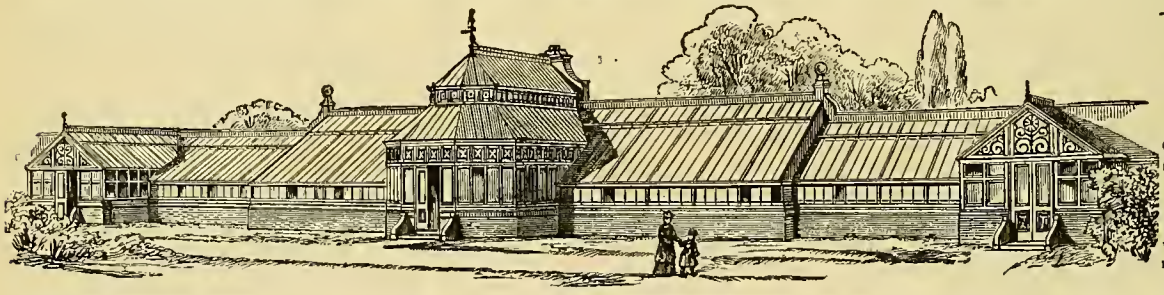

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FREDK. PERKINS, Nurseryman, Regent Street, Leamington

English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

English Yews.
SANDY AND SON have a very fine stock of all sizes of the above. Price per dozen or 100 on application. The Nurseries, Stafford.

QUICKS. — 500,000 fine transplanted, from 20s., 25s., 30s., 40s.; and extra strong at 50s. per 1000.
Address WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ENGLISH OAKS, fine clean stuff, sizes from 5 to 10 feet. Prices on application to
E. S. KNOX, Nurseryman, Alcester.

Bulbs of all kinds, Orchids, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 53) is just published, and will be sent free on application.
Lion Walk, Colchester.

To the Trade.
SNOWDROPS, Double and Single. Samples and Prices on application.
EDMUND PHILIP DIXON, Hull.

MAHONIA AQUIFOLIA.—Twice transplanted, bushy, 35s. per 1000; 2-yr., 2-yr. transplanted, 30s. Fine healthy stuff.
HOWDEN AND CO., The Nurseries, Inverness, N.B.

HARDY and COOL CONSERVATORY CLIMBERS.—A most Complete LIST of above, including grand Specimen Magnolias, &c., will be posted gratis to all applicants.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

OUR NEW CATALOGUE of SPRING FLOWERING PLANTS of all kinds is now issued, and will be sent post-free to all applicants.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d, 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s 6d. and 15s A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

THOMAS IMRIE AND SONS' TRADE CATALOGUE of Forest and Ornamental Trees and Shrubs, &c., is now ready, and can be had post-free on application.
Nursery and Seed Warehouse, Ayr.—October 29, 1881.

CŒLOGYNE CRISTATA.—See *Gardeners' Chronicle* of October 29, p. 561. Fine plants, all showing bloom, from 7s. 6d. to 2 guineas.
GEORGE EDWARDS, Balham Nursery, London, S.W.

To the Trade.
HARRISON AND SONS, Leicester, have a fine stock of extra strong transplanted QUICK, suitable for Working and Gapping; also Forcing SEAKALE and LIGUSTRUM OVALIFOLIUM. Samples free.

GRAPE VINES.—Planting Canes, all the leading sorts, 3s. 6d., 5s. to 7s. 6d., true to name, from eyes grown and proved in our own vineries.
DOWNIE AND LAIRD, Royal Winter Garden, Edinburgh.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities of STRAWBERRIES also, in pots, to offer. Prices, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

PEASGOOD'S NONSUCH APPLE, sent out by us, when known must be one of the leading sorts of the day both for market and general use. We can supply Standards at 2s., Pyramids at 3s., and Espaliers at 3s. 6d. each.
W. AND J. BROWN, Stamford.

SALES BY AUCTION.

Every Monday.
UNRESERVED SALES OF DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL, at the Auction Mart, Tokenhouse Yard, near the Bank, E.C., every MONDAY, at half-past 11 o'Clock precisely, large consignments of First-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other Roots from Holland, lotted to suit all buyers.
Catalogues at the Mart, and 8, New Broad Street, E.C.

10,000 Lilium auratum from Japan, Dutch Bulbs, &c

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, at half-past 11 o'Clock precisely, 10,000 LILIUM AURATUM, just arrived from Japan, in fine condition; together with 500 lots of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other ROOTS from Holland.
Catalogues at the Mart, and 8, New Broad Street, E.C.

Friday Next.
7000 LILIUM AURATUM, PLANTS from Belgium, and DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, at half-past 11 o'Clock precisely, 7000 LILIUM AURATUM, just arrived in fine condition; 300 CAMELLIAS and AZALEAS, well budded; also FICUS, PALMS, and other DECORATIVE PLANTS, from Belgium; 400 lots of DUTCH BULBS, in large quantities; 500 SPIRÆAS, 200 LILIUM RUBRUM, 1000 Bulbs of GLOXINIAS, BEGONIAS, and CYCLAMENS.
Catalogues at the Mart, and 8, New Broad Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.
CONSIGNMENT from GHENT, for Absolute SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, November 22, at 12 o'Clock precisely, a choice collection of about 200 Double CAMELLIAS and AZALEA INDICA, compact plants, 1½ to 3 feet, beautifully set with bloom-buds; about 300 Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, with a collection of DUTCH BULBS, Winter Blooming ERICAS, PRIMULAS, &c.
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Richmond.
Without Reserve.—Important Three Days' Sale of well-grown NURSERY STOCK, the ground having to be cleared and raised for drainage purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. G. & W. Steell to SELL by AUCTION, on the Premises, the Gas Field Nursery, Sandy Lane, ten minutes' walk from the Richmond stations, on TUESDAY, November 29, and two following days, at 12 o'Clock precisely each day, 100,000 EVERGREENS and CONIFERÆ, of all sizes, and in endless variety, including 1000 great Silver HOLLIES from Messrs. Steell's noted stock, 7000 THUYAS of sorts, 3000 RHODODENDRONS, 10,000 English YEWS, 2½ to 5 feet; 8000 fine LIMES, 8 to 10 feet, and other ORNAMENTAL TREES; 5000 Tea and other ROSES, on their own roots, &c.
May be viewed. Catalogues of Messrs. STEELL, Kew Road, Richmond, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

Caen Wood Towers, Highgate, N.
HIGHLY IMPORTANT SALE of VALUABLE and COSTLY HOUSEHOLD FURNITURE, MAGNIFICENT ORGAN, PICTURES, ARTICLES of VERTU, FARMING STOCK, STOVE and GREENHOUSE PLANTS, and EFFECTS.

MESSRS. PROTHEROE AND MORRIS, are favoured with instructions from the owner (who is leaving the Mansion) to SELL the above by AUCTION, on the Premises, on WEDNESDAY, November 30, and two following days, at 12 o'Clock each day.
Admission to view by Catalogues, price 6d. each, to be obtained of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.
On view the mornings of Sale, and Catalogues had.

Plants and Bulbs from Holland.—(Sale No. 5988.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 16, at half-past 12 o'Clock precisely, first-class Standard, Half-Standard and Dwarf ROSES, of sorts; FRUIT TREES, FLOWERING SHRUBS, &c., from Holland; CAMELLIAS, DRACÆNAS, and other Ornamental Stove and Greenhouse Plants; also an importation of Choice-named Double and Single HYACINTHS, of different sorts and colours; TULIPS, CROCUSES, NARCISSUS, SNOWDROPS, and other BULBS for Spring Flowering, &c.
On view the morning of Sale, and Catalogues had.

Thursday Next.
IMPORTED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 17, by direction of Messrs. Shuttleworth, Carder & Co., 191, Park Road, Clapham, S.W., ODONTOGLOSSUM CRISPUM, O. PHALÆNOPSIS, O. PESCATOREI, O. GLORIOSUM, MAXILLARIA VENUSTA, ONCIDIUM Species, &c.
May be viewed the morning of Sale, and Catalogues had.

Thursday Next.
CATTLEYA ELDORADO SPLENDENS, CATTLEYA VIRGINALIS, CATTLEYA MAXIMA.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 17, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, CATTLEYA VIRGINALIS—the dried flowers will give an idea as to the beauty of this superb species; the grandest lot of CATTLEYA ELDORADO SPLENDENS hitherto offered, with perfect leaves and in finest condition; a large and fine importation of CATTLEYA MAXIMA, a few CORYANTHES EXIMEA, BURLINGTONIA CANDIDA, a fine lot of CATTLEYA SUPERBA VAR. SPLENDENS. Dried flowers will be shown day of Sale.
May be viewed the morning of Sale, and Catalogues had.

Friday Next.
10,000 LILIUM AURATUM from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY NEXT, November 18, at half-past 12 o'Clock precisely, an importation of 10,000 LILIUM AURATUM just received from Japan, in fine condition; also a consignment, from Holland, of HYACINTHS, TULIPS; CROCUSES, NARCISSUS, SCILLAS, and other BULBS, in lots to suit all Buyers.
May be viewed the morning of Sale, and Catalogues had.

Preliminary Notice.

MESSRS. G. AND W. STEELL, Richmond, Surrey, beg to inform Gentlemen and the Trade they intend clearing the portion of the Gas Field Nursery not already raised from its original level, and in order to raise the other part will offer, without reserve, the stock on it for PUBLIC COMPETITION, about the MIDDLE OF NOVEMBER, consisting of many thousands of Standard and Pyramid Variegated and Green HOLLIES, AUCUBAS, RHODODENDRONS, large CUPRESSUS, POPLARS, LIMES, THUYAS, and other Ornamental Deciduous and Evergreen SHRUBS, also Standard and Dwarf ROSE TREES, Standard and Dwarf-trained PEACHES, NECTARINES and APRICOTS.
Can be viewed from the present time until the Sale takes place.

Whitecross, Hereford.
Important TWO DAYS' SALE of Splendid Specimen EVERGREEN TREES, from 3 to 10 feet high; also 650,000 LARCH, SCOTCH, and other FOREST TREES.

MR. F. H. MERRICK will SELL by AUCTION, at the Whitecross Nurseries, Hereford, ¾ of a mile from the Barton Station, on THURSDAY and FRIDAY, November 24 and 25, at 12 o'Clock each day, NURSERY STOCK, consisting of fine Specimen Abies Nordmanniana (grand trees), nobilis, Pinsapo, Douglasii, Cryptomeria, Pinus austriaca, &c., all frequently transplanted, and in the best possible condition; thousands of Dwarf Roses, Portugal and common Laurels, &c.; 350,000 fine transplanted Larch, from 1½ to 3½ feet, and 3-yr. and 4-yr. old; 200,000 Ash, Scotch, Spruce, and Sycamore; 100,000 Spanish Chestnuts, 1 to 2 feet.
May be viewed. Catalogues by post, or at the Nurseries, or on application to the Auctioneer, Broad Street, and Library Buildings, Hereford.

WANTED, a SEED BUSINESS.—The ADVERTISER is open to Purchase an established Seed Business (only) in England. Large town in the Midland Counties preferred. Apply with full particulars, rent of shop, &c., to FRANK YATES, G. & W. Yates, Market Place, Manchester. Applications will be treated with the strictest confidence.

FOR DISPOSAL, owing to the retirement of the present owner, a thoroughly genuine high-class FLORIST'S BUSINESS in the West-end (rented at £70 a-year), and returning over £2000 per annum, in conjunction with a Nursery in the S.W. district, with 8 Glass Erections, including a Shop and Dwelling house (rented at £80 per annum). Incoming to include Freehold of Nursery, all the modern Glass Erections, the Lease of the Shop and Dwelling-house, the Goodwill, Stock-in-Trade, and Effects.
Details and orders to view of Messrs. PROTHEROE AND MORRIS, Horticultural Agents, 8, New Broad Street, E.C.

To Seedsmen.

FOR SALE, a SEED BUSINESS in Edinburgh, with Stock and Goodwill. The Business is an old-established one, possessing a connection throughout the United Kingdom of nearly a Century's standing, and might be largely extended in the hands of a man of energy and skill. The Lease of a neighbouring Nursery, having fifteen years to run, might also be arranged to be transferred, if wished, with the Nursery Stock.
For particulars, apply to FRASER, STODART AND BALLINGALL, W.S., 16, Castle Street, Edinburgh, who will receive offers up to the 16th inst.

To Florists and Others.

TO BE LET, a genuine PUBLIC HOUSE, doing a First-class Trade, with Nursery attached, 3 Greenhouses, and several Pits well stocked, and with about 30,000 dozen of Roots of all sorts for market in the spring. Price £1100 all at, or at £800 and valuation.
For particulars apply by letter to B. B., *Gardeners' Chronicle* Office, W.C.

South Coast—Lyme Regis.

TO BE LET, a most attractive though SMALL NURSERY. Lease and favourable terms, owing to death of owner.
RADFORD AND RADFORD, Agents, Lyme, Dorset.

J. CROUCHER, F.R.H.S., having given up all connection with Sudbury House Gardens, is open to engagements with Gentlemen, as GENERAL HORTICULTURAL ADVISER, respecting the Management and Construction of Gardens and Garden Structures, on scientific principles.—The Excelsior Nurseries, 64 and 65, Brook Green, London, W.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

To the Trade.

LAVENDER.—Two-year Seedling, very fine.
EDMUND PHILIP DIXON, Hull.

JOHN TUCKER, The Nurseries, Bridgwater, has to offer:—
PINUS AUSTRIACA, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
,, LARICIO, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
LARCH FIR, 3 to 4 feet, 2 to 3 feet.
Well transplanted and in quantity.

3000 Tree or Perpetual-flowering Carnations. 3000

A. ALEGATIERE, bright scarlet; La Belle, white; Le Favori, carmine-pink; Garibaldi, rosy-scarlet; L'Hermine, white; Irma, mottled pink; Vulcan, mottled red; Lucifer, scarlet; Miss Jolliffe, blush-pink, &c., 1s. 6d. and 2s. each, 15s. and 21s. per dozen; Souvenir de la Malmaison, 2s. each, 21s. per dozen. Fine, healthy stuff, in 48-pots, for early flowering. Carriage free to London. Full LIST on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

Roses.

CHARLES TURNER'
Descriptive CATALOGUE is now ready.

Fruit Trees.

CHARLES TURNER'
Select LIST of the above is also ready.

Ornamental Trees, Shrubs, &c.

CHARLES TURNER'
CATALOGUE may be had on application.
The Royal Nurseries, Slough.

To the Trade.

GLOBE ARTICHOKES.—Price application.
EDMUND PHILIP DIXON Hull.

SPIRÆA PALMATA, the largest stock Forcing Plants in Europe.
SPIRÆA JAPONICA, fine forcing plants.
RHODODENDRONS, covered with buds, for forcing.
STANDARD RHODODENDRONS, of finest kinds; n be selected from hundreds.
CHARLES NOBLE, Bagshot.

5000 Cyclamen persicum. 50

ALL FROM THE VERY BES Covent Garden strains, dwarf, free bloomers, fine flow varied colours. Fine plants, to flower this autumn, in 54's 48's, 7s. 6d. and 10s. per dozen; 55s. and 75s. per 100. ceptionally fine plants, in 48's, now showing bloom, which average over fifty flowers each, 25s. per dozen. Carriage to London.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-train MORELLO CHERRIES, APPLES, and PLUM also PYRAMID APPLE, PEAR, and PLUM TREES. Th are some of the finest Trees in the Trade. CATALOGU and Prices on application. An early inspection invited.
The Nurseries, Wandsworth Common, and Garrett La Wandsworth, S.W.

NOTE.—CABBAGE PLANTS, &c. Fine autumn-sown Drumhead, Enfield, Sugarloaf, Sc ling's Queen, Early Rainham, Nonpareil, Drumhead SAV Thousand-headed, Green Curled KALE and ASPARAG KALE, 2s. 9d. per 1000. CAULIFLOWER PLANTS, 6s 1000. Early and Late BROCCOLI, 5s. per 1000. BRUSSE SPROUTS, 3s. 6d per 1000. Bath Cos, Wykeham Giant Wh Cos, and Lee's Immense Hardy Green Cabbage LETTU PLANTS, 4s. per 1000. Red Pickling CABBAGE PLAN 3s. 6d. per 1000. Can supply above in any quantities.
N.B. All Plants packed well in crates and hampered free of char
EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalmi

Autumn Planting.

FOREST and ORNAMENTAL TRE and SHRUBS. Intending Planters are respectfully formed that the extensive stocks of Seedling and Transplan Trees and Shrubs are this season in excellent condition. Spe offers upon application.
THE LAWSON SEED and NURSERY CO. (Limited) George IV. Bridge, Edinburgh; 106, Southwark Street, Lond

Raspberry Canes.

MR. R. BATH has now a quantity of noted FASTOLF for disposal. In consequence prolonged drought during the earlier part of the past fruit seas young Raspberry Canes have not reached their usual heig but, being excellently rooted (guaranteed such), are equally good as those sent out during more prolific seasons. Price per 100, 50s. per 1000, packed and put on rail. P.O.O. or che with order. Crayford, Kent.

New Seedling Apple "The Queen."
Awarded a First-class Certificate by the Committee of Royal Horticultural Society.

SALTMARSH AND SON, The Nurseri Chelmsford, are now Booking Orders for this splen variety, which they feel confident must become the most popu Apple for either Market or Exhibition purposes.
For description and Testimonials, see advertisement in Journal on October 1, p. 452.
Maiden Plants ready in November, 10s. 6d. each, with usual discount to the Trade.
A Supplementary List of Nurserymen ordering "The Quee will shortly be advertised.
A correctly and beautifully coloured Plate, by Severeyns Brussels, will be sent to any address on receipt of seven stam
N.B.—The Stock being limited, early orders are requested

NURSERY STOC to be Sold Cheap.
LARCH FIR, 3½ to 5 feet, 5s. per 100.
HORSE CHESTNUTS, 9 to 11 feet, 8s. per dozen.
BEECH, 11 to 13 feet, 6s. per dozen.
QUICK, transplanted, strong, 10s. to 14s. per 1000.
Terms Cash.
H. MINCHIN, The Nurseries, Hook Norton, Oxon.

LARGE ORNAMENTAL EVERGREE SHRUBS, for immediate effect. A very extensive lection of the above, all recently transplanted and in fine c dition for removal, are now offered at greatly reduced price effect a clearance.
FRUIT TREES, the largest and best stocks in the Kingd Prices on application to
W. B. ROWE AND CO. (Limited), Barbourne Nurser Worcester.

CHRYSANTHEMUM.—Speciality.—3 best and newest varieties only, flowered under glass a kept true to name. Purchaser's selection, well-rooted plar 2s. 6d. per dozen, 14s. per 100; cuttings, 2s. per dozen, 10s. 100. W. E.'s selected plants, 2s. per dozen, 10s. per 100; c tings, 1s. 6d. per dozen, 8s. per 100, distinct varieties, po free. Send one stamp for LIST and compare with others.
W. ETHERINGTON, The Gardens, Manor House, Swa combe, Kent.

Euonymus.

J. MILES, Bristol Nurseries, Kemp Tow Brighton.
A special offer, at moderate prices; hundreds of specia plants, from 3 to 6 feet high, very bushy.
Also some hundreds of the same plant, especially trained walls or fences.
No samples sent. Inspection invited.

LILIUM AURATUM, splendid sound bulbs, at 9s., 12s., and 18s. p. doz.; extra strong, 30s. and 42s. p. doz. LILIES, of various sorts, either for greenhouse, conservatory, or open border, by the dozen, 100, or 1000.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., and 12s. 6d. per 100; 30s., 42s., 63s., 84s., and 105s. per 1000. Descriptive LIST on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

To the Trade.

ELSTER AND KOLLMANN, Lübeck, near Hamburgh, Germany, beg to offer LILY of the VALLEY for forcing, single crowns, 3-yr. old, extra fine roots, 32s. per 1000.

RHODODENDRONS, with bloom-buds; fine plants for immediate effect, 2 to 5 feet high. Also EVERGREENS, FRUIT TREES, ROSES, and VINES. Apply for CATALOGUE.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

LARCH.—Over Half-a-Million, twice transplanted, various sizes, from 2 to 4 feet.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple.

Christmas Roses.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland, have an immense stock of the above, fine flowering plants, in vigorous growth; have not been so fine for years—can be highly recommended. Price and all particulars on application. Any quantity can be supplied. Also SPIRÆA PALMATA (Red).
CATALOGUES of Hyacinths, Tulips, &c., sent post-free on application.

Seakale for Forcing.

OSBORN AND SONS have a large stock of the above, of the very finest quality that can be procured. Price 16s. per 100. Trade price on application.
The Fulham Nurseries, London, S.W.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz., 9s and 15s.; extra selected, for potting (specimens), 18s. per doz.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 5s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.
BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

Hardy Rhododendrons and Azaleas.

ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.
Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.
AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.
Knap Hill Nursery, Woking, Surrey.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 5-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

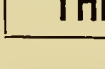
FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

To Gentlemen, Nurserymen, and Builders.

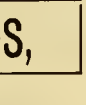
R. AND G. NEAL, having to give up a portion of their Nursery for building purposes, beg to inform the Trade, and others engaged in planting, that they have large and varied Stock that they can offer at a great reduction in prices to effect a clearance. An early inspection invited. The Nurseries, Wandsworth Common, S.W., one mile from Clapham Junction, on the high road from Wandsworth to Tooting, and a quarter of a mile from Wandsworth Common Station, London, Brighton, and South Coast Railway.

TREES for AVENUES and STREET PLANTING.—The trees here mentioned have all stout stems, and handsomely furnished well balanced heads, and are splendidly rooted. They have always had ample room and thorough exposure, and are without doubt the finest stock of Avenue Trees to be met with in any Nursery in Europe. The girt of the stems is taken at 4 feet from the ground, and not at the base, which is often deceptive:—
ACER DASYCARPUM, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 8 to 9 inches.
,, PLATANOIDES (Norway Maple), 12, 14 to 16 feet, girting 5 to 8 inches.
ACACIA BESSONIANA, 10 to 12 feet, and 12 to 14 feet.
BEECH, Common, 10 to 12 feet.
,, Purple or Copper, 10 to 11 feet.
CHESTNUT, Horse, 10 to 12 feet; 14 to 16 feet, girting 7 to 10 inches.
,, Scarlet, 10 to 14 feet, girting 8 to 10 inches.
LIMES, 12 to 14 feet, girting 5 to 6 inches; 15 to 18 feet, girting 9 to 11 inches.
OAKS, Scarlet American, 12 to 14 feet, girting 5 to 6 inches.
PLANES, Occidental, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 7 to 10 inches.
POPLAR, CANADENSIS NOVA, 12 to 14 feet; 14 to 18 feet, girting 8 to 10 inches.
SYCAMORE, 12 to 16 feet.
,, Purple, 14 to 15 feet.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

SUTTONS'



CHOICE



FLOWER ROOTS.

ALL

THE BEST KINDS,

AT

VERY MODERATE PRICES.

PARTICULARS ON APPLICATION.

THE QUEEN'S SEEDSMEN,

and by Special Warrant to

H.R.H. THE PRINCE OF WALES,

READING, BERKS.

ROSES.

The Largest Rose Gardens in England

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

120 FIRST PRIZES, 1880-1881.

STANDARD and HALF STANDARD.

DWARF STANDARDS.

DWARFS ON MANETTI, Magnificent Plants.

DWARFS on SEEDLING BRIER.

DWARFS on OWN ROOTS.

DWARF TEA-SCENTED and NOISETTE on SEEDLING BRIER.

CLIMBING and PILLAR ROSES.

EXTRA-SIZED ROSES, in 8, 9, and 10-inch Pots, Grown especially for Forcing.

NEW ROSES, French and English.

CRANSTON'S NEW ROSES, "MRS. JOWITT," and "MARY POCHIN."

Descriptive Priced Catalogue on application.

Special quotations for 100 and 1000 plants.

ADDRESS—

CRANSTON'S NURSERY and SEED CO. (LIMITED),

KING'S ACRE, NEAR HEREFORD.

CEDRUS DEODARA var. BREVIFOLIUS.—This is the rare variety from Cyprus. A few only to offer, at 10s. 6d. each.
ARALIA QUINQUEFOLIA var. GRACILIS, a very elegant form of this handsome and nearly hardy species. The leaflets are only about one-third the width of the type; it will bear 10° or 12° of frost without injury; it is a first-class plant for table or ordinary room decoration, not requiring more than a cool greenhouse temperature at any time. Good plants, each, 7s. 6d. and 10s. 6d.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

WINTER BLOOMING and DECORATIVE PLANTS.
CALCEOLARIA BURBIDGEII—This most distinct and valuable winter-blooming variety can now be supplied in strong flowering plants, at 18s. and 24s. per dozen.
CHAMÆROPS EXCELSA—Fine plants, with from six to eight leaves, 21s. per dozen.
CORYPHA AUSTRALIS—Fine plants, six to eight leaves, 24s. per dozen.
DRACÆNA AUSTRALIS—Fine plants, ten to twenty leaves, 12s. per dozen.
,, CONGESTA and RUBRA—Fine plants, twenty to thirty leaves, 18s. per dozen.
EUPATORIUM GRANDIFLORUM—This is the finest of all—a strong growing plant with immense heads a foot or more across, of pure white flowers, which are produced in winter and early spring. Very strong plants, in 6 and 8-inch pots, 18s., 21s., and 30s. per dozen.
GREVILLEA ROBUSTA—Fine plants, 9s. per dozen.
PITTOSPORUM EUGENOIDES—A most distinct Myrtle-like shrub, admirably suited for window decoration, bushy plants, 9s. and 12s per dozen.
SEAFORTHIA ELEGANS—Fine plants, 12s. and 18s. per doz.
PALMS—Large plants of various species, extra well grown, 60s. to 84s. per dozen.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

ANTHONY WATERER respectfully invites the attention of intending Planters to the following List of desirable and in every way first-class Nursery Stock:—
BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
YEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
,, Golden, many thousands, 3, 4, 5, to 10 feet high. The Golden Yews in this Nursery are quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
,, Irish, hundreds of fine specimens, 6, 7, and 8 feet high.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10 and 12 feet high.
,, LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS', and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high.
,, Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high.
,, Golden Queen, many handsome specimens, 4, 5, 6, to 10 feet high.
,, Silver, in variety, 4, 5, 6, to 10 feet high.
,, Waterer's, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 feet high; hundreds.
PICEA PINSAPO, 6, 7, 8, to 10 feet high; hundreds.
,, NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds
CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choice to be met with in no other Nursery.
,, ,, GRACILIS, 4 and 5 feet high.
,, ,, ARGENTEA, 4 and 5 feet high.
,, ,, LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIBOCEDRUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6, and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine plants, 3, 4, and 5 feet high.
THUYOPSIS BOREALIS, 4, 5, and 6 feet high.
,, DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high; splendid specimens.
THUYA WEAREANA, an immense quantity of fine specimens up to 10 feet.
,, AUREA, 2, 3, and 4 feet high.
,, SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
,, Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.
The Plants referred to in this Advertisement have all been recently transplanted.
Knap Hill Nursery, Woking, Surrey.

FOREST and ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, FRUIT TREES, ROSES, &c. Thoroughly transplanted, very hardy and well rooted. Immense Stock to select from. New Priced CATALOGUE on application to
JAMES DICKSON & SONS, "Newton" Nurseries, Chester. Plans and Estimates furnished.

KENTISH FRUIT TREES.—One of the largest and best stocks of every description, in 300 Varieties, including the most profitable kinds for Market Growers, at 25 to 50 per cent. under usual prices. Immense stock of AUCUBAS, 1 to 5 feet, very cheap.
T. EVES, Gravesend Nurseries.—Established 1810.

Grape Vines.

H. LANE AND SON have a very large stock of well-ripened Canes to select from. The numerous Gold Medals awarded for collections of Grapes is a guarantee that our mode of growing them is right.
The Nurseries, Berkhamsted, Herts.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

CONTINENTAL SEEDS.—O. KNOPFF & Co., Erfurt (Established 1832), offer their well known FLOWER SEEDS to the Trade. For CATALOGUES, &c., apply, BECK & POLLITZER 211, Upper Thames Street, E.C.

ROSES.

WM. PAUL & SON

Have to offer 500,000 ROSES, of all sorts and sizes, from 30*s.* per 100 to 42*s.* each. The largest and best stock in Europe.
See Priced Descriptive CATALOGUE, free by post.

FRUIT TREES.

Several Acres of Standards, Pyramids, Dwarfs, Fan-trained and Horizontal-trained Trees; FILBERTS, GOOSEBERRIES and CURRANT BUSHES, by the thousand; GRAPE VINES, Fruiting and Planting Canes, RASPBERRIES, STRAWBERRIES, &c.
Priced Descriptive CATALOGUE, free by post.

EVERGREEN AND ORNAMENTAL TREES AND SHRUBS.

Several Acres in the finest possible condition for removal, having been frequently transplanted, and having passed through the recent severe winter uninjured by frost.
Priced Descriptive CALALOGUE, free by post.

CAMELLIAS.

The largest and finest stock in Europe; plants with flower-buds, from 2*s.* 6*d.* to 30 guineas each.
Priced Descriptive CATALOGUE, free by post.

HYACINTHS, TULIPS, AND OTHER BULBS,

Of the best quality, both for Greenhouse and Outdoor Culture.
Priced Descriptive CATALOGUE, free by post.

**** Large Buyers of the above will be charged at special and reduced rates.*

IMPORTANT.—Please observe the Christian Name and Address—

WM. PAUL & SON,
WALTHAM CROSS, HERTS.

PELARGONIUM CUTTINGS.

3000 Rooted Cuttings for Sale, all best market sorts, such as Digby Grand, Kingston Beauty, Mermerus, &c. Price 4*s.* per dozen, 30*s.* per 100.
JAMES PALMER, Lodge Nurseries, Iselworth.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to
CRANSTON'S NURSERY and SEED CO. (Limited), KING'S ACRE, near HEREFORD.

PRIMULA. CINERARIA. CALCEOLARIA.
Wm. Cutbush & Son's
Strain of these cannot be surpassed. They are sold in Packets, 2*s.* 6*d.*, 3*s.* 6*d.* and 5*s.* each; but quality is the same.
HIGHGATE, LONDON, N., and BARNET, HERTS.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.
Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

CRANSTON'S NURSERIES.
(ESTABLISHED 1785.)

NEW CATALOGUES
OF ROSES AND FRUIT TREES
Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED), King's Acre, Hereford.

GEO. JACKMAN & SON,
(ESTABLISHED 1810.)

Cultivators of
FRUIT and FOREST TREES,
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.
THE CLEMATIS
A SPECIALITY.

Descriptive Priced Catalogues free.
WOKING NURSERY, SURREY.

STRAWBERRIES.—Strong roots for fruiting next year, 4*s.* per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

ENGLISH and IRISH YEWS.
SPECIMENS.
The most extensive Stock in England.
Must be sold at great sacrifice, the Land being required immediately for Building Purposes.
Will be found very desirable for all kinds of Geometrical Gardening, Hedges, and Churchyard Planting, &c. Apply to
LUCOMBE, PINCE & CO.,
EXETER NURSERY, EXETER.—ESTABLISHED 1720.

Roses! Roses! Roses!

The Finest Lot of Plants in England,
STANDARDS and DWARFS.
For DESCRIPTIVE CATALOGUE apply to

BENJAMIN R. CANT,
ROSE GROWER, COLCHESTER,
The holder of the Champion Cup of the National Rose Society.

FRISBY'S EXCELSIOR BEET

EDMUND PHILIP DIXON

Begs to state that he has carefully selected and grown, from picked Bulbs at Burton Constable, a fine stock of the New BEET, "FRISBY'S EXCELSIOR," which is acknowledged by a number of practical growers to be the best and most distinct variety of Beet in cultivation.

It is excellent both for the Flower Garden and for Table use. The top is small, with dark shining leaves; root, growing about double the length of most kinds, is of fine tapering form, with very dark skin; flesh deep crimson, and of fine quality.

PRICE
per Ounce Packet,
1*s.* 6*d.*

The following Testimonials are selected from a large number received:—

From Mr. W. WRIGHT, *Gardener to the* Hon. A. L. Melville, *Branston Hall.*—After giving 'Frisby's Excelsior' Beet a fair trial, I am glad to be able to say that it is quite distinct from any other that I am acquainted with, and of excellent quality and colour, whilst in productiveness I think it far excels all other kinds, being almost double the length of most kinds, with fine tapering form.

From Mr. JOHN RIDSDALE, *Gardener to the* Marquis of Ripon, *Nocton Hall.*—"Having given 'Frisby's Excelsior' Beet a fair trial, I can with confidence recommend it. The roots are distinct from any other Beet, being the shape of the Altringham Carrot, and grows to a good size; the flesh, a very dark colour, is juicy, tender, and a splendid flavour, with dwarf, dark, shining foliage."

From Mr. D. LUMSDEN, *Gardener to* Lady M. Nisbet Hamilton, *Bloxholm Hall.*—"I have great pleasure in recommending 'Frisby's Excelsior' Beet, having seen it grown at Blankney for several seasons, and also made trials of it at Bloxholm. I consider it an excellent variety, and quite distinct; foliage very dark, and excellent for Flower Garden Decoration; root very dark, fine grain, and first-rate quality, 12 inches long, and about 2½ to 3 inches through, carrying its girth to the point like a well-grown Altringham Carrot."

From Mr. JAMES BROWN, *Gardener to* Mrs Wilson, *Rauceby Hall, Sleaford.*—"I have given 'Frisby's Excelsior' Beet a fair trial, and find it to be a very good one, quite distinct from any other variety as yet sent out; it is beautiful in shape, fine in colour: it will be a Beet that will be largely grown when it gets to be known."

From Mr. S. WILKINSON, *The Nurseries, Sleafora.*—"'Frisby's Excelsior' Beet is one of the best ever grown, both for flavour and colour. For the Table and the Flower Garden it will take the lead, and it only requires to be known to bring about an extensive growth of it."

From Mr. RICHARD NISBET, *Gardener to* Sir T. Whichcote, Bart., *Aswarby Park.*—"I have grown 'Frisby's Excelsior' Beet; I find it a good one and excellent in quality, and a valuable addition to the Beet list."

TRADE PRICE ON APPLICATION.

EDMUND PHILIP DIXON,
SEED MERCHANT and NURSERYMAN, HULL.

STRONG HEALTHY PLANTS

	Per doz. s. d.	Per 10 s. d.
PRIMULAS, finest strain, fringed	1 0	7
AQUILEGIA albo-cœrulea	0 9	5
POTENTILLA atrosanguinea	0 9	5
CANTERBURY BELLS, fine mixed	0 9	5
MIMULUS, large flowered, splendidly marked	0 9	5
CAMPANULA pyramidalis	0 9	5
SWEET WILLIAMS, finest strain	0 9	5

Post-free, or extra plants for carriage.
H. J. HARDY, F.R.H.S.,
Stour Valley Seed Grounds, Bures, Suffolk.

Orchids a Speciality.

The stock at the Clapton Nursery is by fa the largest hitherto seen in Europe, and is c such magnitude that without seeing it it is nc easy to form an adequate conception of its ur precedented extent.

HUGH LOW & CO.

very cordially and respectfully solicit an inspec tion by all lovers of this interesting and beaut ful class of plants, whether purchasers or not.

On Sale by the Dozen or Hundred.
ANGRÆCUM CITRATUM,
,, ELLISII,
ONCIDIUM KRAMERIANUM,
,, WELTONI,
LÆLIA PURPURATA.

CLAPTON NURSERY, LONDON, E

FROM

J. C. WHEELER & SON
KINGSHOLM NURSERY, GLOUCESTER.

A walk round our Nursery Grounds shows that whilst we ha a good stock of every variety of Tree and Shrub quoted in o Catalogue (which we will send gratis and post-free on applic tion), we have a superabundance of some excellent sorts whi we are anxious to sell, and with this view we quote the follo ing Special List, giving names, heights, prices, and all oth particulars. Some of them, such as Limes, Yews, Cypre Firs, Chestnuts, Flowering Thorns, and other Spring-floweri Plants are remarkably strong and healthy, and are such that feel sure will give entire satisfaction. We are overdone wi some of the most delicious sorts of Pears, both standards a pyramids, and these we are disposed to sell very cheaply. F £5 we will supply 100 choice and nicely-grown Pyramids, w selected for the fruit to ripen during the autumn, winter, a spring months, affording a good succession of fine ripe Pea These may be planted anywhere, either in a kitchen gard or orchard. They take up but little room, and are very pr ductive and profitable.
Our Kingsholm Nursery is at all times open to inspectic and we shall much esteem the honour of a visit.

SPECIAL OFFER, AUTUMN, 1881.

AUCUBA JAPONICA, 1 to 2 feet, 6*s.* per dozen, 40*s.* per 1c
,, ,, in sorts, 1 to 2 feet, 9*s.* per dozen.
BERBERIS DARWINII, 2 feet, 4*s.* per dozen.
EUONYMUS RADICANS VARIEGATA, very pretty var gated plant for banks, edging, or rockwork, 4*s.* per d
GREEN BOX, 3 feet, 6*s.* per dozen; 4 to 5 feet, 9*s.* per doze
ARBOR-VITÆ, American, 6 to 8 feet, 12*s.* per dozen. Suital for forming hedges or screens.
,, Siberian, 4 to 6 feet, 9*s.* per dozen. Suitable for formi hedges or screens.
,, chinensis, 6 to 7 feet, 18*s.* per dozen. Suitable for formi hedges or screens.
CRYPTOMERIA ELEGANS, 2 feet, beautiful hardy Japane trees, 6*s.* per dozen.
ENGLISH YEWS, 4 to 5 feet, extra fine plants, 24*s.* per doze
PICEA NORDMANNIANA, very handsome, 3 feet, 2*s.* eac 18*s.* per dozen.
SPRUCE FIR, well grown, 2 to 3 feet, 20*s.* per 100; 4 to 5 fe 60*s.* per 100.
PINUS AUSTRIACA, 8 feet, 24*s.* per dozen. Excellent producing immediate effect.
CUPRESSUS LAWSONIANA, 8 feet, 30*s.* per dozen. E cellent for immediate effect.
PINUS STROBUS, Lord Weymouth's Pine, 3 to 4 feet, per dozen.
ABIES MENZIESII, 4 to 5 feet, 9*s* per dozen.
THUYA COMPACTA, 4 to 5 feet (3 feet through), 3*s.* 6*d.* eac
LIMES, 5 to 6 feet, 20*s.* per 100; 8 to 10 feet, 24*s.* per dozen.
ELMS, well grown, 8 to 10 feet, 12*s.* per dozen.
POPLARS, Black Italian, Balsam, &c, 8 feet, 4*s* per doze 25*s.* per 100.
SYCAMORE, fine, 8 to 10 feet, 9*s.* per dozen.
CHESTNUTS, scarlet and white, 5 to 6 feet, 9*s.* per doze 10 to 12 feet, 24*s.* per dozen.
FLOWERING THORNS, red, white, and pink, fine standar 12*s.* per dozen.
,, ,, red, white, and pink, fine pyramids, 9*s.* per dozen.
LABURNUMS, 10 feet, 12*s.* per dozen.
MOUNTAIN ASH, handsome trees, 10 to 12 feet, 24*s.* per d
BEECH, 6 to 8 feet, 12*s.* per dozen.
HORNBEAM, 5 to 6 feet, 4*s.* per dozen.
SILVER WEEPING BIRCH, 10 to 12 feet, 24*s.* per dozen.
WILLOWS, in great variety, 5 to 6 feet, 10*s.* per 100.
DECIDUOUS FLOWERING SHRUBS, such as Ribe Spiræas, Weigelas, Deutzia, Lonicera, Amorph Lilacs, Philadelphus, &c., 20*s.* per 100, our selection.
SCARLET DOGWOOD, 4 to 5 feet, 4*s.* per dozen.
CORNUS MAS VARIEGATA, 3 to 4 feet, 9*s.* per dozen.
HIBISCUS SYRIACUS, very handsome flowering shrub, 6 per dozen.
AMPELOPSIS HEDERACEA (Virginian Creeper), 6*s.* per d
,, VEITCHII, 9*s.* per dozen.

FRUIT TREES.

	Per 1c
PEARS, fine Standards, choice sorts, our selection	£7 10
,, ,, Pyramids ,, ,,	5 0
APPLES ,, ,, ,,	5 0

J. C. WHEELER & SON,
KINGSHOLM NURSERY, GLOUCESTE

JUST LANDED EX. SS. FROM JAPAN.

LILIUM AURATUM.

In Cases as imported, containing 100 Bulbs, more or less.

Price, 84s. per case.

As these are offered unopened and unexamined, we sell them with all risks and imperfections. At the same time we have every reason to hope the Consignments will this year prove to be in the same splendid condition as those of 1880.

TRADE PRICE ON APPLICATION.

JAMES CARTER & CO.,

THE QUEEN'S SEEDSMEN, AND BY SPECIAL APPOINTMENT TO H.R.H. THE PRINCE OF WALES,

237 and 238, HIGH HOLBORN, W.C.

WALKER'S PERPETUAL BEARER PEA.

NUTTING & SONS

Have much pleasure in announcing that they have purchased of Mr. John Walker, of Thame, the whole of the stock of the above fine New Pea, and will in a short time be in a position to offer it.

It has already obtained a First-class Certificate of the Royal Horticultural Society, on August 9, 1881.

Also a First-class Certificate at the Royal Oxfordshire Horticultural Show, on August 3, 1881; and a First and Second Prize at the above Society's Show, held on September 7, 1881, the first time it had been put up for competition.

NUTTING & SONS,

SEED MERCHANTS, 60, BARBICAN, LONDON, E.C.

HUGH LOW & CO.

Have pleasure in announcing the receipt from their Collector in Brazil of a fine Importation, in the best possible condition, of the lovely

CATTLEYA DOLOSA.

The Plants, amongst which are strong specimens, are on Sale at moderate prices, by the dozen or hundred.

CLAPTON NURSERY, LONDON, E.

PURCHASERS OF PLANTS

Of every description are respectfully invited and earnestly advised to inspect

RICHARD SMITH & CO.'S

NURSERY STOCK at WORCESTER.

SPECIAL OFFER OF SURPLUS STOCK

OF THE VERY FIRST QUALITY,

At exceedingly Low Prices, is just published, and may be had on application.

Vines.—Vines—Vines.

B. S. WILLIAMS has much pleasure in intimating that his stock of VINES is unusually fine this year, the Canes being very strong and well ripened. For List of Prices see B. S. W.'s BULB CATALOGUE for 1881. Victoria and Paradise Nurseries, Upper Holloway, London, N.

To Planters.

J. SCOTT begs to offer an exceptionally fine assortment of FOREST TREES and ORNAMENTAL SHRUBS, which are this season in excellent condition for removal. He also begs to make an especial offer of fine STANDARD PEARS, 6 feet stems and good heads, 18s per dozen; PYRAMID PEARS, 15s. per dozen; fine WALNUT TREES, 6 feet stems, 18s. per dozen; PLUMS, 6 feet stems, 2 and 3-yr old, 12s. per dozen; GOOSEBERRIES, Black, Red, and White CURRANTS, fine plants, 25s. per 100.

JOHN SCOTT, Merriott, Somerset.

The Merriott Nurseries contain the finest collection of Hardy Fruit Trees in the World. See *Orchardist*.

CATALOGUES free on application.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE, having secured their Crops of SEED POTATOS in fine condition, are prepared to make special offers of all the leading varieties worthy of cultivation. The Prices will be found very reasonable.

Seed Growing Establishment, Wisbech.

Seakale—Seakale—Seakale.

To NURSERYMEN and OTHERS.

FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,

Mr. WILLIAM BAGLEY, Millshot Farm, Fulham, S.W.

3000 Camellias, Azaleas, and Heaths. 3000

AZALEAS in all the best varieties for Forcing and Greenhouse, bushy plants, well set with flower-buds, 18s., 24s., 30s., and 40s. per dozen; AZALEA MOLLIS and GHENT AZALEAS, extra strong plants, well set with flower-buds, 2s. and 2s. 6d. each, 20s. and 25s. per dozen. CAMELLIAS, well set with flower-buds, all distinct varieties, 21s., 25s., and 35s. per dozen. ERICAS and EPACRISES, 18s and 25s. per dozen. Carriage free to London.

CATALOGUE on application.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

CARNATION, GLOIRE DE NANCY.—The largest White Carnation. First-class Certificate this year. For full description and price, see New List of Hardy Florist's Flowers for immediate Planting, containing also Single and Double Pyrethrums, Pansies, Pæonies, Pinks, Yellow and Border Carnations, &c., free on application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LARCH and QUICKWOOD PLANTS for SALE.—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet; 2,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, 3 to 4 feet; 100 Weeping Ash, Elms, Poplars, Pears, &c.; also Scotch Fir, Weeping Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply,

FRANCIS BELL, Nurseryman, Easingwold.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded free by post on receipt of three 1d. stamps.

CATALOGUES of ROSES and ORCHARD HOUSE TREES, post-free on application.

THOMAS RIVERS AND SON, Nurseries, Sawbridgeworth, Herts.

To the Trade.

CAPE FLOWERS.—A large Consignment just received in first-class condition. Prices and sample sent on application to the importers.

CORRY, SOPER, FOWLER AND CO. (Limited), 18, Finsbury Street, London, E.C.

ASPARAGUS PLANTS.—1-yr. Giant, 2s. per 100, 16s. 6d. per 1000; strong 1-yr. Connover's Colossal, from imported seed, 2s. per 100, 17s. 6d. per 1000; strong 2-yr. do. do., 2s. 6d. per 100, 21s. per 1000. Special quotations for large quantities; discount to the Trade. 8-yr. Giant, for forcing, 8s. per 100; 8-yr. Connover's Colossal, 10s. per 100; in any quantity. Package gratis. Cash with Order.

CHRISTMAS QUINCEY, Fulney, Spalding.

FOR SALE, RASPBERRY CANES.—100,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 100 for 5s. Also a few Thousand Fastolf, at £1 per 1000 on rail. The Canes are small, but being well rooted are equally as good as large grown ones. Payments to accompany orders. Postal Orders on Knockholt. Apply to

A. AND E. BATH, Colgates Farm, Sevenoaks, Kent.

HARDY BEDDING PLANTS, would make Flower Beds gay three months before Summer Plants can be used:—

VIOLA—DUCHESS OF SUTHERLAND, light mauve; GOLDEN PERPETUAL, yellow; ADMIRATION, purple; PURITY, white; in very strong plants of last year, at 12s. 6d. per 100.

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NEW DWARF FRENCH BEAN, "NE PLUS ULTRA."

This splendid variety, although only before ths gardening world one season, has gained golden opinions; we are of opinion that it must eventually supersede all other varieties for forcing and first sowing out-of-doors, its free-setting qualities and immense productiveness rendering it peculiarly suitable for early work.

Electrotypes, 5s. each.

IT IS QUITE DISTINCT IN SEED and growth to any other variety; habit dwarf and compact; very delicate in flavour, and very early. It is enormously productive, both indoors and out. Ninety-three pods were at one time, in the winter, gathered from a pot containing three plants; and several roots were pulled from the breadth we had this season growing for seed, with from fifty to seventy fully developed pods upon each.

Under the name of Cooling's Early Forcing Bean, it was awarded the only First-class Certificate at the Chiswick Trials, when nearly 200 varieties of Beans were grown.

The engraving is a fair representation of a single plant in pot.

The Editors of the Gardening Papers and others have reported upon the "Ne Plus Ultra Bean" as follows:—

From the GARDENERS' CHRONICLE, *August* 20, 1881.—"The plants received are a foot high, and very compact. One bore forty-three, and the other four dozen straight handsome pods, averaging 4 inches in length. If the bulk is like the sample, this is evidently a first-rate introduction."

From the JOURNAL OF HORTICULTURE, *September* 1, 1881.—"The plants are extremely productive, of dwarf habit, and have large and fine pods. It is certainly a very fine Bean."

From the GARDENERS' MAGAZINE, *September* 3, 1881.—"The plants are tree-like in habit, dwarf, compact, and strong, the leaves smooth, light, the pods long, narrow, light green, tender. The productiveness is something remarkable, for we took from two plants ninety-three mature pods, and there was not an old or stringy one amongst them; they were, in fact, nearly all of the same age—S. H."

From the GARDEN, *August* 27, 1881.—"The plants sent were literally loaded with pods. Evidently the variety is most prolific."

From Mr. E. BOURTON, *The Gardens, Lanefield, Kirkby Lonsdale, March* 31, 1881.—"I really cannot withhold my expression of satisfaction and surprise at the great productiveness and good quality of your new Bean, 'Ne Plus Ultra.' From a sowing of fifteen 8-inch pots on February 14 we have made this week two large gatherings, and still they are fairly clothed with Beans, being ready just one day over six weeks from sowing. The plants are very uniform in height, varying from 10 to 12 inches. There has long been great difference of opinion respecting Beans for forcing; soon, however, I am confident there will be none—one trial will be sufficient."

From Mr. D. WALKER, *The Gardens, Dunorlan, Tunbridge Wells, in the "Journal of Horticulture," September* 8, 1881.—"I have grown 'Ne Plus Ultra' Bean in pots during the past Winter and Spring. It is very productive, and has fine pods. I do not think any one will be disappointed in giving it a trial. Those grown in the open ground have produced an excellent crop of good sized pods, and I have no doubt this new variety will give satisfaction to any who may grow it."

From Mr. JOHN CARTER, *Nurseryman and Seedsman, Keighley, August* 9, 1881.—"Your 'Ne Plus Ultra' Bean is one of the very few new things that prove equal to the raiser's description."

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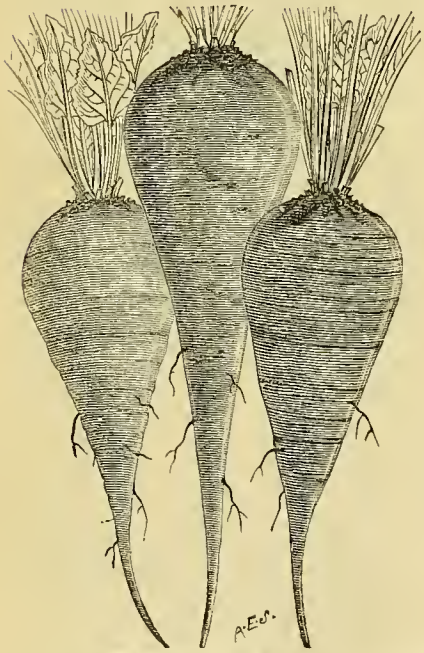
NEW BEETROOT, "OMEGA."



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Its chief characteristics are the small amount of top it produces; the remarkably handsome shape of its root, which is of medium size; its colour, which is of the richest crimson; and more especially its flavour, which is delicately sweet, and will be found far superior to any variety yet introduced.

The following are selected from a large number of Testimonials received:—

From Mr. T. B. PAYNE, *Gardener to the* Bishop of Bath and Wells, *October*, 1881.—"I have given your new Beet, 'Omega,' a fair trial beside other varieties, and I consider it quite distinct and far superior to anything I know as regards fine shaped medium sized roots, splendid crimson colour, and most excellent quality. I have had it cooked with a fine selection of Dell's, and we find it much more pleasing in colour, sweeter, and quite free from all stringiness."

From Mr. W. YARKER, *The Gardens, Almora Hall, near Darlington, October*, 1881.—"In expressing my opinion of your Beet, 'Omega,' it has given me every satisfaction, being one of the best I have ever grown; its qualities have surpassed my expectations."

From Mr. T. THOMAS, *The Gardens, Sandhey, Liverpool, October*, 1881.—"Your new Beet, 'Omega,' has proved highly satisfactory. I may say I am an old hand at Beet growing, but I have never grown any that has received such praise from my employer as the 'Omega.' It is a nice size, and splendid colour when cooked; and my employer has pronounced it to be superior in flavour to any he has tasted in England."

From Mr. J. HIGGINS, *Gardener to* Lady Hood, *Glastonbury, October*, 1881.—"I have grown your 'Omega' Beet by the side of my two other varieties. I am of opinion that yours is the best Beet that has been offered; the colour is beautiful indeed, and the flavour has been most favourably spoken of by all who have tasted it."

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WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
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ELDER—(Sambucus nigra) variegated: a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 12, 1881.

ST. ANNE'S HILL, CHERTSEY.

THE lower portion of the Thames valley, in spite of the meandering course taken by the river, can hardly be termed picturesque. The Middlesex side is painfully flat and monotonous, and Surrey, always excepting Richmond, has not in its eastern district very much to show that is specially attractive beyond the usual features of valley or pastoral scenery. Richmond, it is true, has some very beautiful features, and the look-out from its famous hill is singularly lovely, but yet it reveals always to the west a district of flatness that would be enhanced in beauty were heights and elevations more prominent.

It is not till the old town of Chertsey, dear to Thames anglers, is passed, and the heights of St. Anne's and Cooper's Hills come into view that we discover attractions pleasing and unwonted. But, unlike Richmond Hill, that of St. Anne does not overshadow the river, it is not a portion of the natural formation of the land, like that which runs from Wimbledon to Richmond, and there almost abruptly terminates. It is rather a huge mound, a gigantic hillock, rising abruptly and without apparent reason from out the pastoral and fruitful region that borders Chertsey on its west and northern sides, and naturally leads to wonder how it came there, and what purpose in the economy of Nature it serves. If it were possible to conceive such a curious geological circumstance as that of the earth striving to fortify itself against some advancing enemy from seaward, we might fancy St. Anne's Hill as an advanced outpost flung out from the massive Chobham Hills behind for the purpose of offering points of observation and a temporary check to the invader,. But whilst few will trouble themselves with geological problems, many will, and indeed do concern about the beauties of the said mound, and of the truly glorious views of the surrounding country which may be obtained not only from its summit but also from its sides, where the open wood permits the eye to range freely.

The town of Chertsey lies some half a mile or more from the Thames and St. Anne's Hill is perhaps 2 miles further on, and indeed seems to stand midway between the town and that of Egham, which itself lies almost under the shadow of the classical Cooper's Hill. It is within easy walk of either place, or from the South-Western station at Virginia Water, and because of that it is now becoming a favoured resort for those on pleasure bent, who, tired of the Long Walk in Windsor Park and its "copper 'oss," of the picturesque yet monotonous expanse of Virginia Water, or of the old palace at Hampton, pant for other scenes and charms wherewith to regale that occasional holiday in which all Cockneys delight and many seem to get. In addition to its beauties, St. Anne's Hill has its history, for upon its summit there was built a chapel in 1334, and which as dedicated to St. Anne. Some people might perchance have imagined that this same Anne was the jolly old lady who became the last monarch of the Stuart line, but the date given shows that the saintly lady must have existed

long anterior to the great Duke of Marlborough's sovereign. But if the ancient history of the hill is somewhat mythical, as properly becomes all that is traditional, there are no doubts concerning its more modern associations, for here once lived that great statesman, Charles James Fox, and whose property it became through his wife, Elizabeth Basil Cave, to whom he was married in 1795.

In this charming retreat, says the local guidebook, Mr. Fox lived like the Roman Cincinnatus on his farm, removed from the turmoil of political life, and enjoying the sweet delights of rural life and pleasant social intercourse with friends. As one of his contemporaries wrote of him—

> "And here, oh! Fox, in Wisdom's golden hour,
> She led thee from the statemen's ceaseless strife
> To mild Philosophy's sequestered bower—
> To rural studies, and to tranquil life."

Fox died in 1806, and his widow survived him thirty-six years. At her death she bequeathed the estate to her great-nephew, the late Lord Holland, and it is now the property of Lady Holland, who sometimes resides there. The private estate is, however, separate from the portion so generously placed at the disposal of the public by Lady Holland, and which is entered from the summit of the hill, and some way beyond Fox's old residence.

We cannot now remember how many acres are thus made open to all comers, or how many miles of semi-rural yet well-kept pathways there are, but it is a grand testimony to the kind-heartedness of the owner and the appreciation of the public that though thus open for the enjoyment of all, including thousands of children during the summer, no wilful damage is done, and yet there is not to be seen a keeper of any kind; no flunkeys in rich liveries hang about and watch the motions of all visitors as though they were so many dogs needing a huntsman to keep them in order. Only one man lives on the hill, and he alone suffices to check disorder, for of that there is none. This man, who is keeper and gardener in one, lives in a pretty cottage standing at the extreme height of the enclosed ground, and under his roof may be obtained needful refreshments whilst the visitor, doubtless somewhat fatigued after the long ascent, seeks rest on the little lawn and looks out over as extensive an expanse of beautiful scenery as can be equalled in the kingdom. At St. Anne's Hill the views are of a purely panoramic character, for though the eminence is so lofty the entire hill is planted with trees and shrubs so artistically that views of the most charming kind break in here and there—they burst upon the eye unexpectedly, and then call forth expressions of admiration. Far away to the right come in portions of Kent and Sussex, and such well known objects as Epsom Racecourse, the Crystal Palace, and Richmond Hill drop into this view. Then farther round the eye ranges right up to the metropolis. More to the north come in Highgate, Hampstead, and Harrow, famous resorts of Cockneys, and, we suppose, so named to confound his "h" dropping propensities. More to the left may be seen the noble tower of Windsor, and Cooper's Hill, and a glorious breadth of pastoral and woodland scenery in the foreground.

Staines and Egham, thriving towns, show up amidst the trees, and on the hill yet more to the left there crops in a huge building fast raising its walls toward the skies that will in a few years be known as the Holloway Ladies' College, and one of the finest buildings of its kind in the world. The founder, Mr. Holloway, is well known as the patentee of certain pills and ointment, and having amassed an enormous fortune from these articles is expending it in a way that can hardly be questioned, whilst in a fiscal sense it will largely rob Death of his dues. Standing upon a bold promontory just opposite to St. Anne's Hill, surrounded with fine trees and woods, this noble college will in a year or two be a grand feature in the landscape.

A little farther to the left, and standing upon an eminence close to Virginia Water station, is yet another of Mr. Holloway's buildings, erected as a sanatorium; this, too, comes in as a prominent feature, although it can only be seen when the Lover's Walk has been traversed. These buildings, with their furnishing, decorations, endowments, and other charges will cost Mr. Holloway very nearly £1,000,000, and will present the noblest foundations ever made by any one person. Yet farther round to the left are the Chobham Hills and some superb scenery, so that with a partial exception almost the whole of the surrounding country for a wide area is visible from the various portions of the hill. With great taste the walks, broad and mossy, run round the sides of the hill, and the views break in here and there in the most unexpected places. The undergrowth is largely composed of Whortle bushes, Rhododendrons, and Heather, and trees of all descriptions cover the hillsides.

Behind the keeper's cottage, which literally crowns the height, is a grassy expanse of some 2 acres, that was in pre-Reformation days a vineyard, and doubtless from which has been made many a butt of wine for the refreshment and delectation of the monks of old, who lived and no doubt died in the ancient convent of Chertsey. This space is now largely enclosed by Coniferæ planted in groups, and on the north side there is as charming a combination of Wellingtonias, Thuyas, Deodaras, Abies Douglasii, and evergreen shrubs as can be found in any public park. Here the visitors play, and schoolchildren inhale the health-giving odours with their cake and tea. Just in front of the cottage Lady Holland has erected a summer-house, where the tired rambler may rest; and this looks on to a gigantic basket bed composed of a rustic fence covered with Virginian Creeper, the which is also trained across a broad handle. When the Rhododendrons and other shrubs, and the spring flowers growing within this basket are in bloom a very charming effect is produced. The guidebook tells us that where this basket now stands there was erected in 1334 a chapel dedicated to St. Anne; five hundred and fifty years later sees the site a basket flower garden. May it never be applied to a worse use.

The Lovers' Walk above alluded to is reached after a sharp descent through groves of noble trees and greenery, and extends for half a mile along a spur of the hill which runs out in the direction of Virginia Water. It is bordered on the one side by a high bank and trees, and on the other the ground, literally covered with trees and undergrowth, slopes down sharply to the north. If St. Anne's Hill shows only meagre garden features it must be admitted that there is little room for their display, and further, that they would hardly be in keeping with a spot so strictly rural. The change from the metropolitan prison-house of walls, streets, noise, and eternal hurry to this wilderness of beauty and sweetness must be such as only town denizens can realise. Gardeners may miss their trim flower beds, their smooth-mown lawns, their prim gravel paths, and other garden associations, but even the most deeply wedded to these things will not fail to admit, if visiting here, that, Nature having done so much, were man to attempt to beautify he might but spoil.

COLONIAL NOTES.

Seychelles.—An official paper, dated June 20, 1881, and embodying some remarks by Mr. Horne on the capabilities of these islands, contains matter of much interest. The Cocoa-nut trees are suffering greatly from the attacks of a boring insect, which, however, cannot be looked upon as an unmixed evil since it has caused attention to be given to other products; thus the Vanilla yields about 250 lb. per acre. realising a nett profit of 2500 rupees an acre. Th quality is such that the first prize was obtained at th Paris Exhibition. Cocoa is also cultivated of unsur passed quality; but the results with other plants ar considered to be eclipsed by the marvellous succes obtained by Liberian Coffee. In thirty months fron the time of planting, we are told, they attain a heigh of 8—10 feet and bear very freely, the fruit bein much larger than that of the ordinary variety Through the courtesy of Mr. Dyer we have seen a phc tograph of one of these trees laden with fruit. Clove are also cultivated, and Pepper, which grows wild i the islands, is being tried. The Teak-tree has bee proved to grow well. Mr. Horne, whose opinion i specially valuable, confirms the statement that all purel tropical agricultural products thrive in Seychelles i the most admirable manner. Mr. Horne advise that some of the native forest produce should b encouraged, such as Imbricaria sp., which yield timber rivalling Mahogany; Valeria sechellarum which also yields a most excellent timber; Afzeli bijuga also furnishes valuable timber. Verschaffelti splendida is a large-growing Palm, whose trunk i split, and the outside slabs are used as palisades i house-building. The leaves of Stevensonia grand folia are used for thatching. The "heart" of th Deckenia nobilis is a most useful and excellent veg table. Owing to the numbers of it which are annu ally felled, and the circumstance that none are plante to replace those cut, the tree is becoming more an more scarce. The extension of this tree is mo desirable. Coco de Mer—Lodoicea sechellarum—o account of its interest and rarity, as well as its utilit should be planted in all the reserves. Altogeth there would appear to be great capabilities in the little-known islands, if the natives could only b induced to develope the resources at their disposa Though near the equator, the great heat of tropic countries is not experienced, and the hurricanes whic do so much injury in Mauritius and Bourbon nev visit the islands, which are but three weeks' stea from England.

New Garden Plants.

Notylia laxa, *n. sp.**

This is a botanical curiosity, introduced from Braz with Rodriguezia (Burlingtonia) candida by Mr. B. S Williams, who most kindly sent a whole plant, pe haps a precious unit. It is quite a Notylia, modes greenish in all its organs, petals, lip, and colum except with the usual orange spots on the base of th petals. The very lax, long inflorescence, the narro sepals and petals, and the short lip's blade, rend it impossible to combine it with Notylia nuptiali *H. G. Rchb. f.*

ON THE FUNGOID DISEASE OF THE TOMATO.†

During the autumn of last year (1880) I carrie on a series of investigations concerning the variou fungi which deleteriously affect the Tomato, havin the opportunity of examining any and every disease specimen of Tomato which occurred in a large Tomat growing establishment near King's Lynn.

Tomatos grown in the open air in this country ar a very uncertain crop, sometimes proving a very pro fitable venture, but not unfrequently the reverse. Th Tomato disease is almost as well known to gardener and as much dreaded by them, as the Potato disease is A very large number of outdoor diseased Tomatos wer examined by me last year. The appearance of dis eased Tomatos is so well known that it is almost un necessary to give any description of it beyond statin that they have a peculiar bruised look, and are mor or less mottled with black or dark brown patches c disea-e. These patches increase in size after the frui has been gathered to such an extent as to render i valueless. If the Tomato be examined in this stat he must indeed be an acute mycologist who coul demonstrate the fungus which has caused the disease for, barring a few hyaline mycelial tubes permeatin

* *Notylia laxa*, n. sp.—Aff. Notyliæ nuptiali, Rchb. Folis cuneato-oblongo ligulatis acutis; racemo elongat deflexo laxiflorο; bracteis setaceis ovariis pedicellatis ben brevioribus; sepalo impari lineari falcato f rrucato; sepali lateralibus ad apicem usque connatis, ibi divergenti bifidis labelli ungue laminam obtusangulam trulliformem vix dimidi æquante, carina per unguem in basin laminæ; columna glabra Ex Brasilia imp cl. Williams. *H G. Rchb. f.*

† A paper read at the October meeting of the Woolhop Club, 1881.

the substance of the fruit in and towards the margins of the spots, nothing adventitious can be detected. At any rate, I was quite unable to find any perfect fungus upon the numerous specimens I then examined which could with certainty be credited with causing the mischief. This is not to be wondered at when it is remembered how rarely we are able to discover the perfect Peronospora infestans upon the diseased tubers of the Potato. On September 10 of this year

Fig. 117.—Sphæronema lycopersici. Perithecia and spores highly magnified.

a specimen of a typically diseased Tomato was brought to me with the information that although the Tomato was diseased the plant which had produced it was healthy. I at once visited the spot and examined the plant in question. Sure enough the Tomatos on it were diseased to a large extent, but the plant looked healthy. A few dead-looking spots were observed upon the lower leaves, which were examined with a pocket lens, but not very thoroughly, as it was raining at the time. When, however, these dead-looking spots were examined microscopically, they were found to be due to the

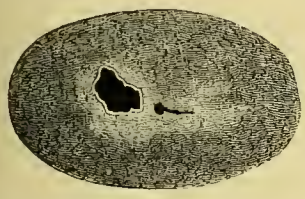

Fig. 118.—The "black spot" upon the crown of a ripe Tomato. Nat. size.

presence of Peronospora infestans. The fungus was not producing its conidiiphores very abundantly, but still there it was without doubt. The central portion of the spots where the Peronospora first made its appearance were now nearly free from it, it being more or less confined to the circumferential portions of the spots. The appearance of these spots was quite unlike the spots produced by the same fungus upon the Potato leaf. On the Tomato leaf the spots lack the black rotting look which is so characteristic of the Potato disease. The Tomato leaf is larger and harder, so that instead of putrefying it rather dries up;

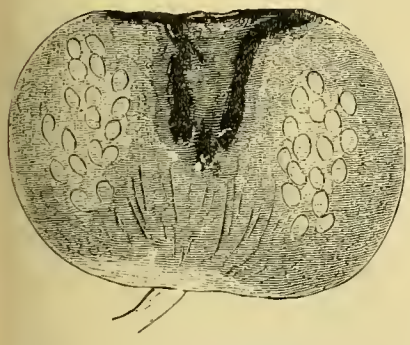

Fig. 119.—Section of fig. 118.

the spots themselves look more like the sun-scalds one sees upon the leaves of plants grown under glass. After diseased Tomatos have been gathered a short time decomposition rapidly sets in, and they then harbour an incredible quantity of fungi. But as these fungi are, as a rule, only such as are found upon almost all decomposing vegetable matter, it is useless to enumerate them. One species, however, seems to me worthy of special note, as when it appeared upon a Tomato the latter underwent very rapid decomposition. The fungus is, I believe, an undescribed species of Sphæronema, of which I have given a figure (fig. 117); it may be thus described:—

Sphæronema lycopersici, n. sp.—Perithecia minute, spherical, arranged somewhat concentrically upon the surface of diseased Tomatos. Each perithecium surmounted by a dirty flesh-coloured globule of spores. Spores minute, cylindrical, or somewhat sausage-shaped, hyaline, either with or without nuclei. On outdoor Tomatos, Clenchwarton, King's Lynn, Oct. 1880. Perithecia about 150 mk. in diameter. Spores 10 by 2—3 mk.

The diseases of the Tomato to which I have given most attention, however, have been those peculiar to fruit grown under glass. It is worthy of remark that the Peronospora disease does not occur under these conditions; at least if it ever does do so it is very uncommon.

The first and most important disease to which I would call attention is of frequent occurrence, and

Fig. 120.—Sporocybe lycopersici and spores: highly magnified.

may be termed for distinction's sake the "black spot." It makes its first appearance usually (but not invariably) upon the green Tomato as a circumscribed brownish spot of no great size upon the crown of the fruit, usually near the remains of the style. As the Tomato ripens the spot has a whitish hue from the semitransparent dead cuticle of the fruit, which is at this time unaffected with any fungus growth, being simply dead. Specimens of this disease have been submitted to more than one horticultural journal, and pronounced to be "sun-scalds." This, however, they cannot be, for the spots of disease are upon the crown

Fig. 121.—Cladosporum lycopersici: highly magn.

of the fruit, which hangs downwards, so that any sun-scald would be upon the base of the fruit, which is uppermost. I have seen numerous specimens *in situ*, and can therefore speak positively upon this point, as it might be suggested that the primary lesion was due to a burn, and that the fungus afterwards attached itself to the injured spot. As the Tomato ripens and assumes the beautiful red colour of maturity, the spot, which varies in size from 3 to 10 millimetres, acquires a jet-black colour. If a section be now made through it, it will be found that this blackness extends inwards towards the centre of the fruit, to a much greater extent than is apparent from the exterior. It is distinctly defined and harder than the parenchyma of the fruit. If a portion of this black substance be examined microscopically, it is found to consist of an assemblage of black mycelium compacted pretty closely together, having the appearance of the mycelium of the Dematici or black moulds. Upon the upper surface—the black spot—four fungi are found; one a true black mould, the other three polymorphic states of a Phoma. The black mould may be thus described:—

Sporocybe lycopercisi, n. sp. (fig. 120).—Tufts olive-green, flocci erect, twice or thrice septate, about 5 mk. in diameter. Heads terminal globose, 20—30 mk. across. Spores numerous, sub-globose or ovate, black, 3 mk. long.

The Phoma is preceded by conidia and macro-conidia.

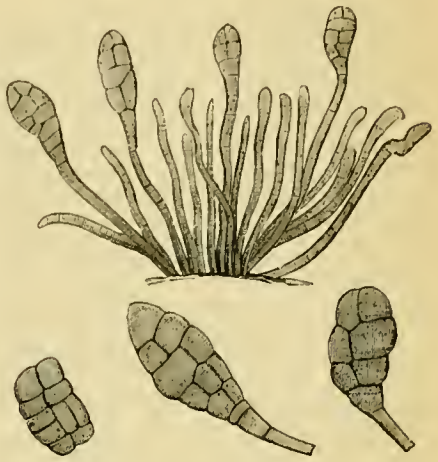

Fig. 122.—Macrosporium lycopersici (M. tomati, Rav.?): highly magnified.

Conidia: *Cladosporium lycopersici* (fig. 121).—Hypha tufted, septate, irregular in outline at their apices, springing by their bases from a black spot; compacted mycelium, spores abundant, cylindrical, black, 1—3 septate, slightly pointed at their extremities; 10—30 mk. long, by 8—10 mk. wide.

Macro-conidia: *Macrosporium lycopersici*.—Flocci, well developed, black, septate, somewhat flexuous, pro-

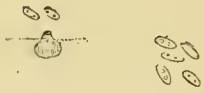

Fig. 123.—Phoma destructiva. Perithecium and spores highly magnified.

ducing abundantly sooty-black irregular pyriform o sub-quadrate muriform spores, which vary in size from 20—70 mk. long, by 10—20 mk. wide.*

Stylospores: *Phoma destructiva*.—Perithecia carbonaceous, minute, globose, spherical clustered spores, hyaline, oval, cylindrical, binucleate, 5—6 mk. long, by 1.5—1 mk. wide.

Another disease which sometimes but much more rarely attacks Tomatos while still growing is due to a Dactylium very closely allied to if not identical with D. roseum, B., from which it differs in producing its spores in threes, and in growing parasitically upon a living plant. This disease seems more especially to affect that variety of Tomato known to gardeners as

Fig. 124.—Dactylium lycopersici: highly magn.

the Trophy, and commences upon the base of fruit, near the attachment of the stalk.

Dactylium lycopersici (fig. 124).—Forming a dense floccose whitish-pink mass. Spores hyaline, with a tinge of pink, oval or ovato-pyriform, uniseptate, often apiculate, produced in threes upon the terminal extremities of erect sparsely septate hyaline hyphæ.

My best thanks are due to Mr. S. Castle, of The Vineyard, West Lynn, for pointing out these different

* This is probably the species of Macrosporium found, and I believe published, by Ravenel, from the Southern States of America, under the name of M. tomati.

diseases, and supplying me with abundant specimens and much valuable information which has been inserted in this paper. *Charles B. Plowright, King's Lynn.*

MARGAM PARK.

MARGAM, the seat of C. R. M. Talbot, Esq., M.P. (see pp. 628, 629), is situated midway between Port Talbot and Pyle stations on the Great Western Railway, in the county of Glamorganshire, in South Wales. Reaching Port Talbot, which was created by the enterprise of Mr. Talbot as an additional outlet for the mineral wealth of this busy district, we pursue the road through Taibach, past copper works and tin-plate manufactories, and through a smoke-laden atmosphere that certainly would not lead one to expect such luxuriant vegetation as is displayed in the woods around Margam a couple of miles further on. As soon as one gets beyond the murky atmosphere surrounding Aberavon and Taibach some beautiful scenery opens upon the view. To the left rise steep hills of greatly diversified appearance, some presenting the most barren look, but very lovely in their tints of grey and purple, others clothed with vegetation and showing signs of cultivation far up their sides; while yet others are covered from base to summit with noble timber. Stretching for miles in front are the Margam moors, which reach from the base of the hills to the line of shifting sands that here border the channel of the Severn, and lie in great wave-like masses like some turbulent sea suddenly petrified, while here and there arise immense mounds of the unstable sand, which is tossed by every wind and seems from the way in which the tops of fences here and there appear through it near its boundary to be steadily and surely encroaching, and covering the benty grasses that border the sand and struggle on in isolated patches wherever they can gain a roothold. Beyond is the Channel, its surface ever animated by the many ships bearing its immense mineral export trade.

Entering by one of the lodges we leave the level ground and commence a gentle ascent by the avenue which winds along the side of a hill, and through a magnificent forest with which the hill is covered to the extent of 800 acres. The trees are principally grand old Oaks, which must have been many hundreds of years in arriving at their present dimensions, as the winds, fresh from the Atlantic, sweep over them and destroy every twig that ventures beyond its fellows, so that, looking at the wood from a distance, it presents none of the rounded forms of individual trees or branches, but stretches evenly from base to summit of the hill in one even sheet of verdure like a clipped bank of evergreens. Immense boulders from the heights above lie in wild confusion amidst a luxuriant undergrowth of bracken, and are wrapped about by the gnarled roots of some of the Oaks in a most picturesque fashion in this old wood, where buzzards are yet common, and an eagle is occasionally seen. As we approach the mansion, the road admits of an open view of the park on the right, with clear spaces at the base of the hill to the left, beautiful with Ferns, and embellished with groups of Coniferæ, in which Pinus excelsa and Abies Douglasii appear in most flourishing condition. With a bold sweep the lake, of about 5 acres in extent, and well stocked with trout, is passed by, the road running along its banks at the foot of the almost precipitous hill that towers above. Fine timber and waving Fern fronds reach to the water's edge, and with the conformation of the ground effectually prevent any view of the lake until it breaks unexpected upon the vision.

The mansion is likewise hidden from any one approaching it from this side, until the road, winding out of the hollow by the lake, brings one immediately before the north or entrance front of the noble mansion of Margam Park, or Castle, as it is locally called. This fine building—of which a better idea can be formed from the illustration (p. 628) than from any written description we could give—was erected by the present proprietor, who was also his own architect and draughtsman. The interior is equally beautiful with the outside, and is embellished by several good paintings executed by members of the family. To the south front are the terraced flower gardens, separated from the park by massive ornamental stone balustrades. The whole of the beds, which are laid out in the Italian style, with portions of grass and gravel walks between the beds, are effectually filled with the ordinary flowering and carpet bedding plants, which at time of my visit were looking bright and full of colour, notwithstanding the continued wet of the previous week. To the south-west, looking across a portion of the well-wooded park, and over the moors and sands before-mentioned, lies the Channel, with the Somersetshire coast visible beyond, which in ordinary weather must present a most delightful prospect, but it was lost to the vision on the day of my visit by the steadily pouring rain. To the east of the mansion stretches the deer park of 700 acres in extent, in which is a fine herd of fallow deer numbering several hundreds; some beautifully mottled stags with large antlers were browsing close to the flower garden, and, like the enormous quantities of rabbits everywhere present, seemed to know no fear.

From the west front the descent to the lower grounds is gained by a succession of flights of stone steps varied by easy slopes. The steps of this terraced walk are of noble proportions, and the walk is flanked on either side by closely-shaven turf with specimen shrubs upon it, backed by thick growths of Rhododendrons and Hydrangeas, blue and pink, broken by specimen Conifers, Hollies, variegated and plain leaved, and thickets of Arbutus, while towering far above on either side are Scotch Pines, Platanus orientalis, Cedars, and lofty Beech trees confining the view, and forming a lofty vista, in which is seen the interesting ruins of the old Abbey, while straight in front over the tops of the distant trees of a lower level are seen the waves of the Channel, seeming to roll to the very foot of the grounds when viewed from the commanding position afforded by the upper steps, while in reality they are 2 miles distant. Side-paths strike into the shrubberies on either side from the foot of the first flight of steps, which are 60 feet in width. Taking the one to the left, we notice some grand old Scotch Pines, healthy trees of Pinus excelsa, and more Arbutus. Near together are fine specimens of Pinus Pinsapo, Abies Douglasii, and a Wellingtonia over 50 feet high and 12 feet in circumference at 3 feet from the ground—at which height all measurements given are taken—of almost perfect form, and covered with young cones almost to the ground. A Picea cephalonica makes a fine specimen with its 50 feet spread of branches; it is fully furnished, but has lost its leader, and is in consequence only some 40 feet in height. Crowded amongst Laurels stands a notable evidence of the mildness of the climate in a tree of Araucaria excelsa, 30 feet high, which, although injured by the severity of the last winter, is making fresh growths from the points of most of its branches. Some large plants of Rhus typhina are, however, killed in close proximity to it, although others have escaped in other parts of the grounds. A grand clump of Arbutus is here quite uninjured with its 40 feet spread of branches.

Returning to the main walk one of the first trees to attract attention is a lofty Horse Chestnut, with a bole of about 20 feet in circumference, and with all its parts in proportion, and a little further on is a fine Sequoia sempervirens, 55 feet high. As the walk descends the lawns widen out on each side, and are dotted with specimen shrubs, where, remarkable above all, are the wonderful bushes of Hydrangea hortensis, some of which are 5 feet high and 10 feet through—perfect half globes covered with their blue (or pink, as the case may be) flowers, of which 760 trusses were counted on one specimen. These Hydrangeas are met with in all parts of the grounds, and are in no way protected during the winter. The ruins of the venerable Abbey of Margam stand to the right and left of the centre walk of the pleasure grounds, and are of great interest to the antiquarian, and the cloisters and chapter-house are still beautiful in their present state to the ordinary observer. The Abbey was founded about 1147 by Morgan, son of Caradoc.* It was exempted by King John in 1210 from a levy he extorted from the monasteries, in consideration of his having been entertained there in passing to Ireland. Subsequently it passed into the Mansell family, which was raised to the peerage in the reign of Queen Anne, and it came to the present family through the marriage of Mr. Talbot, of Lacock, in Wiltshire, with a daughter of the Mansell family after the male line had become extinct. Growing on the top of the cloisters is a remarkable Scotch Pine, with a peculiar Yew-like conformation of branches, not more than 15 feet high, but with quite a thick bole indicating its great age. Forming groups and standing as single specimens around the ruins, are evergreen Oaks, red Cedars, Stone Pines, some Sweet Bays that are quite uninjured by the winters, and one which has a stem of 3 feet in circumference; Araucaria imbricata, various Cupressus, Fern-leaved Beeches and Alders, a nice specimen of Cryptomeria japonica, several Yucca gloriosa, and more Hydrangeas.

* Harl. MSS., 4181, p. 66.

Further to the right is Margam Church of pure Norman architecture, restored by the late Mr. Talbot, which is supposed to have formed a portion of the Abbey buildings. The well-kept lawn reaches up to a herbaceous border running along the southern side of the church, and the walls are covered up to the roof with Tea Roses, Clematis, Honeysuckles, Jasmine, Magnolias, Fuchsias, Myrtles of 18 or 20 feet high; Banksian Roses, and Camellias. A little beyond the Abbey ruins is the orangery (see p. 629), erected in 1787 by the father of the present Mr. Talbot. It is a Doric edifice, substantially built of stone with glass front, is 327 feet long, and presents a noble façade, in front of which are Italian gardens with three beautiful fountains, which, in common with others in the grounds, have a limitless supply of water which they throw forth at all times. In four large beds, alternating with the fountains, are placed some five or six dozen Orange trees in tubs—for in the summer the orangery is emptied. Some large plants of Clethra arborea, about 18 feet high, are here standing out in tubs, and covered with their effective flowers. In the shrubbery, at the other side of the walk are Camellias, that have grown in their present position to be 15 feet high, and 25 feet through the spread of branches. They have made a summer growth of 10 inches, and are well set with bloom-buds. Near by is the largest specimen of Platanus orientalis, which has a spread of branches sweeping the turf of 84 feet in diameter, it is apparently 60 feet high, and has a girth of 11 feet. Standing opposite the centre of the orangery is a group of Sweet Bays grown together like a single specimen, which is 200 feet round, and 45 feet high; and there are several almost equally fine clumps in other portions of the grounds. Following the descending walk to a still lower level, a perfect ampitheatre surrounded by trees is reached. In the centre is a large fountain with massive basin containing Water Lilies, and around this a large circular lawn on which in two rows stand three dozen of the largest Orange trees in the United Kingdom. As the legend goes, these trees were intended by the King of Spain for a present to Queen Elizabeth, but the vessel being stranded on the Margam sands, they did not reach their destination. The Orange trees here number over 100, some of which are 18 feet in height, with a width of head in proportion. The orangery being unheated, they sustained some injury during last winter, the fruits dropping off, also part of the foliage; but they are all now looking the very picture of health, and most sorts are carrying green fruits and abundance of blossom, scenting the air for some distance around.

Standing by the sides of the encircling gravel walk are specimens of Camellias, a Magnolia conspicua 18 feet high, and other shrubs of interest, of which the unfavourable weather prevented notes being made. However, the large Tulip-tree must not be omitted, as its vast proportions make it one of the most conspicuous of objects amongst the many fine timber trees. Its height is stated by the gardener, Mr. Muir, to be 90 feet, with a circumference of trunk of about 14 feet, and it is annually covered with thousands of its gay flowers from May until the end of July. This portion of the grounds is in the most sheltered position of a generally well sheltered place, is 150 feet above sea level, and is screened by noble timber to the east and west; while to the north abruptly rising forest-clad hills stand 400 feet higher. The conservatory with its collection of Oranges and Lemons, from which Mr. Muir exhibited so strongly at the Manchester International Show, and the other houses and kitchen gardens, must be left to be described in another paper. *R. C.*

(To be continued.)

HOPS.—The acreage under Hops in the various counties this year is stated in the Agricultural Returns to be:—Kent, 41,476; Sussex, 9269; Hereford, 5939; Hants, 2963; Worcester, 2698; Surrey, 2352; Salop, 88; Suffolk, 67; Notts, 31; Gloucester, 24; Essex, 16; Berks, 14; Hertford, 3; and Lincoln, 3.

SEASIDE PLANTING.

Nothing can exceed the perfect beauty of Nature's elements when they are well blended. Even the hedgerows of trees and plants, disfigured as they often are by the cutting sea breeze, are objects of natural beauty when contrasted with their surroundings. But it is to the artificial improvement of the sea-coast I wish to direct attention, and to point out the best means of effecting it. There are certain vegetable growths which may be developed in most uncanny places by the application of art and a scientific system of after-treatment. It is simply necessary that the operators should have a knowledge of the nature of the plants they handle, and the best means of preparing the soil in which they are to be planted, as well as how to plant them.

The trees and plants which generally thrive best in such localities are those of pyramidal and spiral growth. The Atriplex Halimus, the Sea Buckthorn, the Tamarisk, the evergreen Oak, Pinus austriaca, and the Lombardy Poplar, are all most useful for protection. Cupressus macrocarpa stands the wind well, and seems to luxuriate in the battling about of the winds. The Silver Poplar and varieties of Elder grow well where the situation is damp. Some of the varieties of Willow, but especially the Salix malifolia, or Apple-leaved Willow, grows where few other plants can exist. Many of these soft-wooded plants grow so rapidly when fairly established as not to suffer much from the cutting winds, but of all these plants the Quercus Ilex, or evergreen Oak, may be most strongly recommended, on account of its spiral growth and the hard texture of its leaves. It is quite true that the number of plants is not legion which are adapted to the purpose of shelter. Furze may sometimes be seen growing in great luxuriance on the hills surrounding the coast, where the soil is composed of peat and the detritus of the rocky substratum, but the locality must be favourable or it will not thrive. When the climate is not too severe—and it is notorious that although the winds are most felt on the sea-coast, still the frosts are less severe—the different varieties of Euonymus japonicus grow well, more especially the green variety, which is the most vigorous. The peculiar forms and growths of the plants enumerated, and their pliability, offer a natural resistance to the wind, allowing it to sweep over them, and leave them unharmed, beyond the discolouring of the foliage, which they soon recover.

The first object of the planter should be to examine the soil and the locality to be planted, to ascertain which parts are most exposed to the prevailing wind, and to consider how he can best arrange his plants so that they may be most sheltered, and be a protection to the others which are to be protected by them. It is quite evident to all experienced planters that clump planting is far preferable to lineal or individual planting, as clumps of trees, when carefully planted, offer the greatest possible resistance to the wind and protection to one another, the tallest plants being planted in the centre, and the surrounding ones being so arranged as to form a cone. The circular form of clump is the most acceptable, offering the greatest resistance, and, as in the case of individual plants, allowing the wind to sweep over the surface until it reaches the apex and loses itself in space. Experienced planters feel little difficulty in carrying out such work, a foreknowledge of how to begin and the best descriptions of trees and plants to use is already of great assistance to them. The inexperienced do not enjoy these advantages and often seek advice, which is always very cheap and too often as worthless.

The foundation of all successful planting must be the soil in which the plants are planted. The substratum of sand is in most cases clay. Trenching rich materials and bringing the clay to the surface is comparatively useless, as the clay, being composed of such finer particles than the sand, invariably becomes washed through the sand and reforms its original substratum. It is necessary to mix with these substances some compact matter as a third component part, such as vegetable refuse or the screened sweepings of a town, so as to hold them together until the roots of the plants have taken firm hold of them and add to the general body of the soil by their falling leaves and the moisture they attract from the atmosphere. In this manner tracts of waste and useless land may be gradually converted into productive soil. The next stage in successful planting is to fix plants in the soil so as to give them every advantage and enable them to root freely in it. Spreading out the roots carefully and lightening the tops of the larger plants is essential, the latter operation having the good effect of preventing the wind from shaking them about, preventing them from taking root, and thus becoming established. All trees and plants require to be planted more deeply in such light soils and exposed situations than is usual, and care should be taken that the bottom branches of the outside rows should be embedded in the soil so as to give them a firmer hold in it. All the nourishment which plants derive from the soil in which they are planted must necessarily be drawn through their roots, and, if the plants are not kept steady, so that the extremities of the roots may absorb the elements of their after-composition, it is impossible they can thrive.

Staking, pruning, and trimming are also essential elements which should command attention. It often happens that the mode of staking and trying adopted is more injurious than beneficial, and leads to injudicious expense and unnecessary labour. If the selection and planting of the trees and plants can be so arranged as to render staking unnecessary, so much the better, as it is a grand point of advantage in more senses of the word than the mere expense. Good or well prepared soil, deep planting of carefully selected and appropriate plants, the tops being reduced so as to be as little shaken by wind as possible, is far preferable to a multitude of ungainly stakes and innumerable ties, which are liable to become detached and gall the bark of the trees, causing irreparable damage to their boles and stems. But when stakes cannot be dispensed with, the best mode is to use single stakes fixed firmly in the ground in immediate proximity to the trees, which should be first tied close to the ground, and gradually at given distances upwards. The ties least likely to injure the bark of newly planted trees should be composed of long strips of cloth or tailor's list and tar-cord twisted together; the ties should be first put round the stakes and tied immediately at the back of them away from the tree, and then brought round both stake and tree and carefully retied, making both firmly fixed to each other and immovable by the wind, unless both are blown down together.

The beautiful gardens attached to the Pontac Hotel, St. Clement's, Jersey, offer unmistakable evidence of what may be effected by judicious planting near the sea-coast. Here may be seen a fine collection of evergreen shrubs, Conifers, and deciduous trees, flowering shrubs and trees, besides an immense variety of decorative plants, in the most luxuriant health and growth, sheltered by well-planted hedgerows of evergreen Oaks, and the black or Olive-eaved Phillyrea. The system of clump planting, as adopted in these gardens, does more than point to "a moral, or adorn a tale," for it specifies undeniable fact; and I dare to argue, that what has been done may be repeated, surrounding circumstances and attributes being congenial. These gardens are open to the sea breezes and eastern wind, being separated from the sea-beach by the road only which skirts the coast. Again, at La Chaire Rozel, Jersey, may be seen beautiful gardens, planted by the late Samuel Curtis, Esq., many years since, during his sojourn in the island, and whose name was so well known to English horticulturists. Here he planted evergreen Oaks for shelter, and within the pale they afforded fruit trees and exotic shrubs and plants of immense variety, which are growing and thriving as evidences of his skill and knowledge of plants, although the planter has long since passed to that bourne whence no traveller returns. *C. B. S., Jersey.*

TRADE MEMORANDUM.

Letters addressed to Mr. James Kirk, Wollaston Nurseries, Stourbridge, have been returned, on the ground of the addressee having "left." His present address is not known.

Pickles and Vegetables preserved in salt, of the value of £132,888, were imported into Great Britain in 1880.

Manures.—In 1880 the quantities and values of imported manures were:—Bones of animals and fish for manure only, 78,138 tons, value £436,186; guano, 80,497 tons, value £810,177; unenumerated, 192,040 tons, value £537,279—the total values being £1,783,642.

A SYNOPSIS OF THE GENUS CROCUS.

By George Maw, F.L.S., &c.

Section II. Fibro-membranacei: *continued from p. 562.*

Vernal species with yellow or white flowers.

The four following species are closely allied, and form a natural group; they have all finely divided capillary stigmata, oblong bright crimson seeds with a glabrous shining surface, and yellow flowers produced in the winter and early spring.

50. ‡†*C. vitellinus*, Wahl.; C. syriacus, Boiss. and Blanche; C. graveolens, Boiss.—Corm from ½—⅔ inch wide and high, pyriform; tunic membranous, splitting up into a fibre-like fringe at the base. Sheathing leaves falling short of proper spathe, and enclosing two or more scapes. Proper leaves appearing before the flowers, and reaching about the level of the flowers, produced at maturity to a length of 10 or 12 inches, from ⅛—⅙ inch wide, the margins of blade and keel slightly ciliated. Proper spathe diphyllous. Perianth: throat glabrous; segments orange, occasionally feathered with bronze, about 1 inch long, and from ¼—⅓ inch broad. Anthers yellow or orange, a little shorter than the yellow papillose filament; the style dividing at or below the base of the anthers, and produced into a spreading bunch of orange or scarlet stigmata, which are split up into capillary divisions reaching above the anthers.

C. vitellinus appears to be a common species in Northern Palestine and Syria, and has also been found by Mrs. Danford on the Giaour Dagh, in the Taurus. It flowers from the end of November into February, and varies with self-coloured orange flowers (the form prevalent about Beyrout), and flowers with the outside of the outer segments marked with bronze featherings (the variety found at Aleppo and in the Taurus); the Beyrout plant is also occasionally feathered with bronze. As nearly all the orange species of Crocus vary with bronze markings, I cannot consider that the Syrian plant is entitled to specific distinction from that of Palestine, in the absence of any character, other than the external bronze markings, by which they can be separated.

51. ‡†*C. Balansæ*, J. Gay; C. vitellinus var. Balansæ, Baker.—Corm pyriform, about ¾ inch broad and deep; tunic membranous, splitting up at the base into flat fibre-like divisions. Sheathing leaves falling short of the proper spathes, and enclosing several scapes. Proper leaves appearing with the flowers, $\frac{3}{16}$ inch broad; and produced at maturity to a length of about 10 inches, keel very narrow, the lateral channels wide and open, margins of keel and blade ciliated. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat glabrous; segments orange, the external surface of outer segments feathered with bronze, or evenly suffused with a brown coating, from 1—1¼ inch long, and from ¼—⅓ inch broad. Anthers orange, a little longer than the papillose yellow filament; the style dividing near the summit of the anthers, and produced into a spreading bunch of much divided, capillary, orange stigmata, which exceed the anthers. Capsule purple. Seed glabrous, oblong, of a bright crimson colour, and polished surface.

C. Balansæ is limited to Western Bithynia, in the neighbourhood of Smyrna; and flowers about the middle of March, two or three months later than C. vitellinus. The foliage is remarkably persistent, remaining green to the end of July.

52. ‡†*C. Suterianus*, Herbert.—Corm pyriform, from ½—¾ inch broad and high; the tunic membranous, splitting up at the base into flat fibre-like divisions. Sheathing leaves enclosing several scapes. Proper leaves about three to a corm, dark-green, about ⅛ inch wide, ciliated over the entire surface of the keel and the margins of the blade, the keel very narrow, the leaves very persistent, remaining green long after those of C. Olivieri, to which it is allied, have died away. Proper spathe diphyllous. Perianth: throat glabrous; segments about 1 or 1¼ inch long, and ⅓ inch broad, clear orange, fulvous externally towards the base. Anthers orange, exceeding the slightly papillose filament; the style dividing towards the base of the anthers, and shortly produced into about six divisions of the capillary yellow stigmata, which are below the summit of the anthers. Capsule purple. Seed oblong, bright crimson, with a glabrous surface, ripening to a rich chocolate colour.

C. Suterianus is closely allied to the Greek C. Olivieri, but is readily distinguished by its much narrower leaves. It is common on the mountains of Nicæa and Angora, and also occurs in Cappadocia in Asia Minor; flowering in March and April.

(*To be continued.*)

MANOR FARM, FINCHLEY.

MANY of our readers must have heard of a certain "Universal Provider," who has gradually added shop to shop, till at length a small town, as it were, has been erected wherein it may be said, without much exaggeration, that everything, from a needle to an elephant, may be procured. Builder, undertaker, upholsterer, coal merchant, draper, provision-merchant, hair-dresser, and we know not what beside, Mr. Whiteley may fairly claim to be the "Jack of all trades," but at the same time his enterprise and business tact show that he is also master of many. Although we had heard much of the variety and extent of the business operations carried on in Westbourne Grove it was with a feeling of surprise that we found one day in passing that to his many other departments Mr. Whiteley had added those of a nurseryman, market gardener, grazier, and dairyman. A ticket in the window mentioned the locality in which the products exhibited were grown. They were not choice Orchids or Pitcher-plants, but fruit trees, plants for the window-boxes and boudoirs of Bayswater, as well as Grapes, Tomatos, and ordinary vegetables for the supply of the table. Mr. Whiteley seems to be of opinion that it is in those branches of horticulture which are devoted to the supply of ordinary requisites that success is most likely to be achieved in the future. Interested by what we saw by mere inspection of the shop-window—for the establishment has such a look of stern business that we did not venture to enter and interview the proprietor or trespass on the time of the assistants—we made our way to the manufactory, if we may so call it, at Manor Farm, Finchley. Here we made the acquaintance of Mr. Merrison, who has had large experience in cultural matters, and to whose courtesy we were indebted for the permission to inspect this department of the universal establishment. Here nothing but marketable produce is grown, and the crops succeed each other in rapid order all through the season. The glass structures are span-roofed, and are 200 feet long each, and 25 feet wide. The houses run east and west. There is a path up the centre of each, and a border upon either side, supplied with bottom-heat for forcing Melons and Cucumbers.

When the latter are cleared out late in the autumn wooden spars are placed over the borders, and upon these plants are arranged until the houses are required for forcing purposes at the beginning of the season. The first house of the block contains plants for furnishing of the following kinds:—Cyperus alternifolius, Aspidistra lurida variegata, Raphis humilis, a variety of other Palms, Crotons, Dracænas, flowering Begonias, Gardenias, Anthericum variegatum, Pilea muscosa, winter-flowering Pelargoniums, Abutilons, hundreds of double Primulas and Ferns, and Selaginellas in large quantities. The second house of the block is of equal height and length, and supported by iron columns. It is partially filled with a useful stock of Camellias, Azaleas, a miscellaneous collection of Ferns, Richardia æthiopica, the so-called Trumpet Lily, flowering Pelargoniums, &c. The third house of the block is used for housing bedding plants, and odds and ends of surplus stock from the other houses. In the Cucumber and Melon season a supply of tepid water is conveyed from another structure in which there are four large tanks capable of holding 2000 gallons of water. The water is conveyed from the tanks by means of pipes communicating with the different houses, and to these a hose is attached, by which arrangement a boy can soak the whole of the borders in a few hours. After leaving the span-roofed houses we entered a lean-to structure 200 feet long, facing the south. This house has been planted with Vines, but is being temporarily used for growing Tomatos. Many private gardeners would be startled to see a house of Tomatos 200 feet long with three rows of plants in the front border and a fourth trained up the back wall. In the front border the first row of plants are trained to the wires and the second and third rows are trained to horisontal trellising supported by stakes. It should have been stated that the plants are plunged in the borders in pots, and that the favourite varieties are Vick's Criterion and Carter's Trophy. This house is used for protecting salading after the Tomatos are over. The next large structure faces the west, and is 150 feet long and 30 feet wide. Tomatos are grown in this house upon the principle already adverted to; not a oot of space is lost: wherever a pot or box containing a plant can be placed the space is utilised, and not a foot of trellising is unoccupied in the whole house. Over 5000 Strawberries in pots are forced in the different houses and pits to come into bearing from the month of March until a supply is forthcoming from the open borders. Vegetables are grown by the acre.

Farming is also carried on extensively, but of course the two departments are worked independently of each other. Gardening is sometimes not successful, but where there is sufficient energy thrown into the work and the resources are elastic enough to bear the fluctuations of business, it very seldom fails to be productive of good results. At any rate Mr. Whiteley's claim to be a universal provider is sufficiently sustained in these not very common offshoots from a draper's business. *Reporter.*

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 592.)

Subtribe iv.—*Dendrobieæ.*

Stems usually pseudobulbous or fleshy. Peduncles lateral or pseudo-terminal, or having leafless scapes distinct from the leaf-bearing stems or pseudobulbs. Column more or less produced below the point of attachment to the ovary in a kind of foot. Pollinia, 2 or 4, one-seriate, equal, parallel, obtuse at both ends, inappendiculate, sometimes solitary in each cell and ovoid or globose and longitudinally furrowed, sometimes in pairs and flattened.

* Peduncles one to many-flowered, lateral or pseudo-terminal on the leafy or leafless stems, or apparently terminal on very short stems or 1—2-leaved pseudobulbs.

16. DENDROBIUM, Swartz, in *K. Vet. Acad. Stockh. N. Handl.* xxi., p. 244.—Labellum more or less contracted at the base into a claw lying upon or adnate to the foot of the column. Pollinia 4.—A very large and well-defined genus, yet offering great variety in the form of the inflorescence, in the number and size of the flowers, and in the shape of the sepals, and especially in the shape of the labellum. Dr. Lindley divided the genus into ten sections, which Mr. Bentham by some modifications reduces to seven. It would occupy too much space to give his definitions in full, but I have extracted, as well as I can, the characteristic features of each group, and given a few of the most familiar examples in order to afford some basis for comparison. Species about 300, mostly inhabiting the Indo-Australian region, a few occurring in New Zealand, South Pacific Islands, and Japan.

Sect. 1. *Aporum.*—Stems more or less flattened, leafy. Leaves distichous, vertical. Flowers small or moderately large, solitary in the upper axils or a fe clustered together. About twelve species: ex. D. ancep

Sect. 2. *Rhizobium.*—Leaf solitary, rather small, thic and fleshy, as in some species of the section *Cadetia*, bu sessile in the axils of the sheaths of the stems or creepin rhizomes. Racemes, few-flowered, proceeding from th base of the leaves. Three species: ex. D. lingua forme.

Sect. 3. *Cadetia.*—Branchlets short, often thickene into a pseudobulb, one-leaved at the apex, produced i the axils of the scarious sheaths of the creeping prostrate stems or rhizomes. Flowers rather smal solitary or few together from the base of the leaf. Abou twelve species: ex. D. cucumerinum.

Sect. 4. *Sarcopodium.*—Branchlets short, often thicl ened into pseudobulbs, two-leaved at the apex, produce in the axils of the sheaths of the creeping or prostra stems or rhizomes. Peduncle one-flowered (rarel several-flowered), arising between the leaves, and sul tended at the base by sheathing bracts. Species five six: ex. D. amplum.

Sect. 5. *Stachyobium.*—Flowers racemose, racen apparently terminating the leafy or more rarely leafle stem, sometimes with a few additional racemes from th upper axils. Species numerous, a few intermediate on connecting this section with the section Eudendrobiun They are grouped as follows:—

a. HUMILES. — Stem very short, thickened into fleshy depressed globose or ovoid pseudobull Leaves usually two, deciduous. Racemes slender flowers rather small; sepals and petals narrow ex. D. humile, Wight, *Ic. Pl. Ind. Or.*, t. 1643.

b. GEMINATÆ.—Stems short or very short, produced fascicles on a rhizome or along a creeping caude Leaves two, very persistent; peduncle arisin between the leaves, one or few-flowered. Sepal and petals usually narrow: ex. D. gemmatum Lindl. (not in cultivation).

c. ERIÆFLORÆ.—Stems dwarf or sometimes elongating rather fleshy, but not bulb-like. Leaves alternat membranous, deciduous, sometimes deciduou during flowering. Racemes slender, besides terminal one often one or more lateral. Sepal and petals thin, narrow, acute or acuminate: ex D. graminifolium, Wight, *Ic. Pl. Ind. Or.*, t. 164 (not in cultivation).

d. ELATIORES.—Stems longer than in the Eriæfloræ and more fleshy, usually leafless during flowering flowers more numerous in the racemes, an usually larger: ex. D. æmulum, ciliatum, canali culatum.

e. SPECIOSÆ.—Stems rather long, several-leaved, or i some few leafless during flowering. Raceme one pseudo-terminal, usually elongated and many flowered, more rarely few-flowered, very rarel reduced to one flower. Flowers usually rathe large; sepals and petals rather broad or narrow sometimes wavy or the petals longer than th sepals: ex. D. speciosum, Kingianum, bigibbum Fytchianum, macrophyllum, tetragonum.

f. RAMOSISSIMÆ.—Stems slender, repeatedly branched. flowers small, racemose: ex. D. ramosissimum Wight, *Ic. Pl. Ind. Or.*, t. 1648.

Sect. 6. *Strongyle.*—Stems usually branched, elon gated and slender, or shorter and stiff, not pseudo bulbous. Leaves terete or subterete, sometimes distan and slender or filiform, sometimes short, distichous, rigid and recurved. Racemes slender, pseudo-terminal o lateral, with small flowers: ex. D. teretifolium.

FIG. 125.—DENDROBIUM AINSWORTHII ×. (SEE P. 625.)

Sect. 7. *Eudendrobium.* — Stems unbranched, leafy at the top only or throughout, often leafless during flowering, not rarely thickened at the base, at the top, or at the nodes, or thick and fleshy throughout. Racemes axillary or lateral from the nodes, many-flowered, or reduced to a fascicle of two or few flowers, sometimes one-flowered. Species very numerous, grouped as follows:—

1. Pycnostachyæ.—Racemes dense, lateral or subterminal; flowers numerous, small or narrow, crowded, spur usually elongated and pointed. stems usually leafless during flowering: ex. D. secundum, purpureum, Mohlianum.

2. Formosæ. — Flowers showy, loosely clustered (fascicled), clusters crowded at the top of the stems. Leaves usually persistent during flowering: ex. D. longicornu, formosum, and perhaps Lowii. (Lindley's section, Pedilonum, contains species belonging to this group and the last.)

3. Calostachyæ. — Racemes lateral, loose, more or less elongated; flowers usually showy. Stems often leafless during flowering, and not uncommonly thickened: ex. D. moschatum, Farmeri, chrysotoxum, dixanthum, Draconis, amethystoglossum, fimbriatum, densiflorum.

4. Fasciculatæ.—Racemes lateral, reduced to loose, few-flowered (sometimes one or two) fascicles; flowers usually showy. Stems often leafless or bearing very few leaves during flowering, not uncommonly thick and fleshy, sometimes leafy at the base, gradually tapering and leafless upwards, with one or two flowers at each node, thus resembling a terminal raceme: ex. D. Pierardi, crumenatum, nobile, Linawianum, aureum, amœnum, lituiflorum, Falconeri.

Lindley's sectional names are often cited below, though not in all cases where they might have been.

The following names of proposed genera are here reduced to Dendrobium:—Aclinia, Aporum, Cadetia, Callista, Ceraia, Desmotrichum, Dichopus, Grastidium, Macrostomum, Onychium, Oxystophyllum, Pedilonum, Sarcostoma, Scaredederis, Sarcopodium, Trichosmoceras, Thelychiton.

1. D. acerosum, Lindl., *Bot. Reg.* 1841, Misc. n. 43; *Walp. Ann.* vi., p. 281. — Singapore. Introduced by Mr. Cuming, and flowered by Messrs. Loddiges. An uninteresting species near D. teretifolium.

2. D. (Onychium) aciculare, Lindl., *Bot. Reg.* 1840, Misc. n., 188; *Walp. Ann.*, vi., p. 281.—Singapore. Introduced by Mr. Cuming, and flowered by Messrs. Loddiges. Small solitary yellowish flowers tinged with pink.

3. D. (Eudendrobium) aclinia, Rchb. f., *Bonplandia*, 1856, p. 329.—India. Imported and cultivated by Consul Schiller, Hamburgh; also at Kew. Flowers small, yellowish-green. This is one of a small number of Dendrobes in which the sepals, petals, and labellum are similar in form and size, and sometimes associated with three stamens. Lindley (*Journ. Linn. Soc.*, iii., p. 9) regarded them as peloric forms of other species.

4. D. acuminatissimum, Lindl., *Gen. and Sp. Orch.*, p. 86; Miquel, *Fl. Nederl. Ind.*, iii., p. 636.—Java. Buitenzorg Botanic Garden, 1866. Insignificant.

5. D. (Stachyobium) aduncum, Wallich; Lindl., *Bot. Reg.* 1842, Misc. n. 62; 1846, t. 15. — India. Introduced by Dr. Wallich for Messrs. Loddiges, with whom it flowered in 1842. Flowers small, white, tinged with rose.

6. D. æmulum, R. Br., *Prod. Fl. Nov. Holl.*, p. 333; *Bot. Mag.*, t. 2906; Benth., *Fl. Austr.*, vi., p. 280. —Eastern Australia. Flowered at Kew in 1825. One of the least ornamental. Hort. Kew.

7. D. (Dendrocoryne) aggregatum, Roxb., *Fl. Ind.*, iii., p. 477; *Bot. Reg.*, t. 1695; *Bot. Mag.*, t. 3643; Paxt., *Mag. Bot.*, vi., p. 145, with a coloured figure.—India. Introduced about 1835. This belongs to the small group with one-leaved pseudobulbs, in which the inflorescence proceeds from the axil of a scale on the side of the pseudobulb. The deep yellow flowers are in a loose raceme, and though pretty are of short duration. Hort. Kew.

8. D. Ainsworthii ×, Moore, *Gard. Chron.*, n.s., i., p. 443, fig. 93; viii., p. 166, figs. 30—32; *Fl. Mag.*, n.s.—A hybrid between D. heterocarpum and D. nobile, raised by Mr. Mitchell, gardener to Dr. Ainsworth, of Broughton, Manchester. A very fine free-flowering Dendrobium. Flowers ivory-white, with a violet-purple centre to the labellum. (Fig. 125.)

D. albiflorum, Hort. = D. crumenatum ex Planch. *Hort. Donat.*

9. D. (Eudendrobium) albosanguineum, Lindl., *Lindl. and Paxt. Fl. Gard.*, ii., p. 93, t. 57; *Flore des Serres*, t. 721; *Jardin Fleuriste*, t. 203—both copied from the first-named work.—Moulmein. Introduced by T. Lobb for Messrs. Veitch in 1851. Flowers in pairs on the stout leafless stems, ivory-white, with a double crimson blotch on the flat lip. Very distinct. Hort. Kew.

D. album = D. aqueum.

10. D. aloefolium, Rchb. f., *Walp. Ann.*, vi., p. 279. Macrostomum aloefolium, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 335, t. 37. Oxystophyllum macrostoma, Hassk, *Tijdschr. Naturl. Geschied.*, x., p. 122.—Java. Buitenzorg Botanic Garden, 1860.

11. D. alpestre, Royle, *Ill. Him. Pl.*, t. 88, fig. 2; *Bot. Reg.* 1844, Misc. n. 61.—Himalayas. I am not sure that this has been in cultivation. A dwarf species, with small white and purple flowers.

12. D. amblyornidis, Rchb. f., *Gard. Chron.*, n.s., ix., p. 332.—New Guinea. Discovered by Dr. Beccari, but whether he introduced living plants of it I have not been able to ascertain. It is a species of little beauty, yet interesting from the fact that it is employed by a bird in building its nest. See the account of this operation in the place cited above.

13. D. amboinense, Hook., *Bot. Mag.*, t. 4937; *Fl. des Serres*, t. 1211 (copied from *Bot. Mag.*)—Amboyna. Discovered by Mr. Henshall, and imported by Messrs. Rollisson, of Tooting, with whom it flowered in 1856. The flowers are white, and their long, narrow petals remind one of a Brassia rather than a Dendrobium. Labellum small, yellow, with brown spots in the centre within, prolonged into a tail.

14. D. (Pedilonum) amethystoglossum, Rchb. f., *Gard. Chron.* 1872, p. 109; 1873, p. 363; *Bot. Mag.*, t. 5968.—Philippine Islands. Imported by Messrs. Veitch through Mr. G. Wallis. Stems 2 or 3 feet high, bearing dense clusters of medium size ivory-white flowers with an amethystine-purple labellum, after the fall of the leaves.

15. D. amœnum, Wallich, Lindl., *Gen. and Sp. Orch.*, p. 78; *Bot. Reg.* 1844, Misc. n. 49; Knowles and Westcott, *Floral Cab.*, iii., t. 117; *Bot. Mag.*, t. 6199; *Gard. Chron.*, n.s., iii., p. 305, figs. 57, 58.—Himalaya, at 5000 feet. Sent by Major Berkeley to Mr. Bull, with whom it flowered in 1875. Flowers scattered along the long slender stems, ivory-white tipped with violet-purple; centre of lip yellow. (Fig. 126.)

Fig 126.—Dendrobium amœnum.

16. D. amplum, Wallich, *Pl. Asiat. Rarior.*, p. 25, t. 29; Paxt. *Mag.*, vii., p. 121, with a coloured figure (bad). Sarcopodium amplum, Lindl., *Fol. Orch.*, n. 1. Bolbophyllum amplum, Rchb. f., *Walp. Ann.*, vi., p. 244.—Khasya Hills, India. Cultivated by Messrs. Loddiges about 1835. A very striking species, having solitary, large, yellowish-purple or greenish-yellow spotted flowers, the terminal part of the labellum dark brown bordered with orange.

17. D. anceps, Swartz, *Bot. Reg.*, t. 1239; *Bot. Mag.*, t. 3068.—India, in Bengal and Pegu. Introduced into this country by Dr. Wallich before 1829. A curious species with short distichous leaves and small greenish-yellow flowers.

18. D. (Dendrocoryne) angulatum, Lindl., *Gen. and Sp. Orch.*, p. 76.—Java. Cultivated by Consul Schiller, Hamburgh, in 1857.

19. D. angustifolium, Lindl., *Gen. and Sp. Orch.*, p. 76; Miquel, *Fl. Nederl. Ind.*, iii., p. 635. —Java. Buitenzorg Botanic Garden, 1866. A small plant, having inconspicuous yellowish flowers.

20. D. (Eudendrobium) annuligerum, Rchb. f., *Gard. Chron.* 1871, p. 675. — Imported by Messrs. Veitch. Flowers singly and laterally, reminding one much of those of D. Ruckeri and lasioglossum, being greenish-yellow; lip white, with purplish veins on the lateral lobes.

D. anosmum = D. superbum var.

21. D. Aphrodite, Rchb. f., *Bot. Zeit.* 1862 (August 1), p. 246. D. nodatum, Lindl., *Gard. Chron.* 1862 (August 2), p. 717; *Bot. Mag.*, t. 5470; *Flore des Serres*, t. 1582 (in both instances the name incorrectly attributed to Reichenbach).—Moulmein. Introduced by Mr. Parish for Messrs. Low & Co. of the Clapton Nursery. Habit of D. aureum, and similar in the coloration of the sepals and petals, but the labellum has a deep orange disc with two purple blotches.

(*To be continued.*)

Onions.—2,256,897 bushels of Onions, of the value of £534,357 were imported in 1880.

FRUIT NOTES.

Taste in the Fruit-room.—A very fitting place for the evidence of taste is the fruit-room, in a double sense, and when we now and then get a peep inside one of these fruit sanctums it is pleasant to get an invite to taste some of the luscious sweets within. But if this kind of "taste" is not too common that of an art sense is far less so, and indeed the last place in which we should look for it is in an ordinary fruit-room. A look—ay, and something more than a look—into Mr. Lee's comfortable-looking fruit store at The Wilderness, near Reading, revealed, however, some evidence of a desire to show off the various fruits, not only to the best advantage, but in such a fashion as to render them doubly attractive. The finest samples of Apples or Pears ever seen laid out upon a shelf in the customary manner may provoke admiration for the quality of the fruit and nothing more. Mr. Lee, however, had striven to obtain more than admiration of this sort, and he had plenty of fruit that deserved it. He had arranged all round the lower shelves samples of the various Apples in neat ridges, alternating the sorts so as to give variety in form and colour, and thus evoke special attention to each individual kind. The ridges were about four fruits in height, the base four fruits wide, rising up to a single row, made of course of the handsomest fruits. An undoubted advantage from this mode of storing is, that any blemish or decay can at once be detected and the damaged fruit removed. Amongst Apples that were in good form and highly spoken of were Annie Elizabeth, Beauty of Kent, Small's Admirable, shining and handsome; the rich-coloured Cellini, and the clear yellow Golden Noble. Those delicious fruits, the Cornish Gilliflower and Aromatic, the handsome striped Blenheim, Ribston and Cox's Orange Pippins, the pretty flaked Jefferson, the fine Frogmore Prolific, Lady Henniker, large and of good shape; the Rosemary, and old Royal Russets, Margil, Cockle Pippins, Dutch Mignonne, and several other kinds, all good and useful either for cooking or dessert. *A. D.*

Pearson's Golden Queen Grape.—Unlike your correspondents, Mr. Barker and "J. S.," I am very pleased with this Grape, as it does remarkably well here, being equal in colour and berry to the finest coloured Muscats and nearly equal in point of flavour; in fact, several first-class Grape growers (Mr. Meredith amongst the number), who have tasted it here, have pronounced it Muscat flavoured. I have a Vine five years old, at the present time bearing sixteen bunches, that will justify all I have said in its favour. It does equally well when forced, but it does not ripen so early by a month as Black Hamburgh, and I find when ripening it does not require so much water at the roots as other varieties. I have seen it of a dull rusty colour at several places, but it is not so here. *J. Wallis, Keele Gardens.*

Winter Pears.—I cannot agree with Mr. Sheppard that Bergamotte d'Esperen and Joséphine de Malines are the only really good late Pears, and my object in writing is to bring under the notice of your readers the merits of a few of the newer varieties, which I can confidently recommend to any one wishing to increase his collection of such. These are Marie Benoist, Nouvelle Fulvie, Prince Napoléon, Olivier de Serres, and Doyenné d'Alençon—all of them being of excellent quality, ripening from January to March, the trees good bearers, very hardy, and growing well on the Quince. The two first are of large size, and the others medium. Though in a warm soil and situation they will all succeed as pyramids. Like other late Pears, they require a south or south-west wall to bring them to perfection. *Progress, Somersetshire.*

Plum Transparent Gage.—Though the varieties of good Plums are so numerous as to render it difficult to select one kind possessing greater merit than several others, yet one variety has this season with us proved so excellent that were we obliged to grow only one sort that one should be Transparent Gage. We have it growing both on north and east walls, on the latter of which it ripened about the middle of September, the tree on the north wall holding its fruit in prime condition till October 18, on which date the last fruit was gathered. The fruit is as large as a moderate sized Orleans Plum, of handsome appearance, the colour being greenish-yellow, mottled with deep red; the flesh is firm and of a

rich aromatic flavour, certainly equal to the best Green Gage. *W. W.*

Quality of Pears.—Your correspondent, "W.W.," must be exceptionally favoured as regards soil or climate, or both, if Pears are with him of the good quality he states, as the complaint with most people this season is that they lack flavour and are keeping badly, which shows that they are more full of watery juices than usual. Marie Louise, so good with us generally, have already gone to a pulp, for although they look fair and inviting on the outside, they are a mass of rottenness within. This has been the case with Comte de Lamy, Brown Beurré, Beurré Superfin, Louis Bonne, and others; and I fear we shall find Bergamotte d'Esperen, Joséphine de Malines, Easter Beurré, and Ne Plus Meuris will come in much before their time, as, being imperfectly matured through the absence of sun and wanting in sugary matter the chances are that they will ripen prematurely, as they do not contain that within them that causes such fruit to keep. As to the size and general appearance of Pears I do not remember to have ever seen them finer, taking one with the other, as they are not only large, but very clear in the skin, and the crop in most places has been something prodigious. Here we thinned severely, and yet our trees were laden, but for all this most of them are again well set with bud, which would not have been the case if we had had a dry autumn, as the energies of the roots would have been taxed to the utmost in feeding the fruit. *J. S.*

Orchid Notes.

Work in the Houses.—As soon as the Pleiones have done flowering, which will now in most places be the case, if it is necessary that they should be shaken out now is the time to do it. I use the word "necessary," for, presuming the soil and drainage are good and the bulbs not overcrowded, they may safely be left over, and only a top-dressing given, which will last them for the next twelve months. Should, however, the bulbs be very close and compact, the soil sour, or the drainage in bad condition, shake them out at once. These little gems I consider are best when grown in pans of medium size, about 8 inches across on the top, slightly elevated in the centre, so that when in flower every bloom can exhibit itself in a free and open manner. As soon as they are shaken out carefully separate the bulbs, bearing in mind that the flower bracts are the commencement of new growth; see, then, that in the dividing of the bulbs these new shoots are not torn away. In making them up in pans use a mixture of sphagnum moss and peat of about equal parts, with a good dash of coarse silver-sand and some small crocks or broken charcoal. This light, open mixture will suit them well, the roots will soon push into it, and the bulbs quickly become established again. The soil should be prepared a day before it is required for use and placed in a warm part of the house, so that it may become of the same temperature as the house, or as near as it is possible to get it; crock the pans half their depth, and make up, regulating the growths so that the new bulbs may be equally distributed over the pan. For the first few weeks only small quantities of water will be needed. As the plants progress, and the days lengthen, and as light and heat increase, much more must be given: since the soil being of a very porous nature will allow of any excess to pass quickly away. These may be grown in shallow pans and hung from the roof, and will do well if well supplied with water. There is, however, a fear that if they get dry once or twice, they may become infested with red-spider; if this should at any time put in an appearance, sponge the leaves immediately with soft-soap and water. P. humilis and Hookeriana will not yet have flowered, and must not therefore at present be disturbed. The Cattleya-house is the one best suited for the growing of the Pleiones. Those who have lately obtained plants of Lælia harpophylla will doubtless be anxious that they should soon get it into a growing condition. Though in many respects this much resembles L. cinnabarina, it will not do at this late part of the season to give it the cool treatment that is often recommended for that plant. The best way now is to fasten them on blocks, and hang them in the Cattleya-house; if there are a number of plants let them be hung near together, so that on a bright day they may be slightly sprinkled overhead about noon, and when the blocks are dry, dip them if necessary every morning. Do not hang them with the leaves downwards, or the new shoots may start away in the opposite direction. Angræcum citratum and Ellisii should be placed in baskets and hung up in the East India-house, dipping them occasionally, so as to keep them just moist; when the roots push freely more water may be given. A. caudatum is a very old species, and should be secured if possible. This should be grown in a pot in the coolest corner of the East India-house, as on the stage it is a little more moist than when it is hung up in a basket. It flowers mostly about July and August, when its curious green and white flowers are very attractive and interesting. *W. Swan, Fallowfield.*

Warner's "Select Orchidaceous Plants."

The sixth part of the third series of this fine pictorial work has just been issued. It contains admirable illustrations by Fitch of three varieties of Cattleya Mossiæ—grandiflora, McMorlandii, and Rothschildiana, which all rank amongst the finest forms of this exceedingly beautiful plant; Odontoglossum Uro-Skinneri, a noble representation of a superbly marked variety; and the always pleasing Cattleya citrina, of which Mr. Williams in his cultural notes observes:—"We should like to see this species fertilised with some of the more showy kinds, such as C. Mossiæ, C. Mendelii, &c., for we have no doubt something good might in this way be produced." Now that the cross-fertilisation of Orchids is so much better understood, thanks especially to the labours of Dominy and Seden, and has been attended with such excellent results, we hope Mr. Williams' suggestion may be taken up, and may lead on to the good results he anticipates.

Phalænopsis violacea.

This remarkable species, so well figured and described at p. 144 of the present volume, is now finely in flower in the nurseries of Messrs. J. Veitch & Sons, Chelsea. There are, as was to be expected, some varieties very much better than others. The rich rosy-purple colour is very rich in some of the varieties. When the flowers open at first they are margined with ivory-white, which changes to yellow. Some of the flowers were of large size. It seems to be one of the freest-growing species in the nursery. The plants are making large lively green leaves, and rooting freely in the baskets or shallow pans used in this nursery. *J. D.*

Cypripedium Spicerianum.

This is also proving itself to be as free in growth as C. insigne. A large plant had eleven flowers of large size. The upper petal is symmetrically formed, and contains a much larger proportion of white than in the best form of C. insigne; the base of the upper petal is green; the lip and sepals yellowish-green; the lip spotted internally with dullish purple. *J. D.*

Miltonia candida grandiflora.

This is yet in flower in a cool Cattleya-house. It usually flowers in September, but the season may be prolonged by growing plants in different temperatures. It is a useful plant to grow in an ordinary stove for cut flowers, and is one of the best of Miltonias. The cultural requirements are much the same as Cattleya Mossiæ. *J. D.*

Trichosma suavis.

This species is also showing flower freely in the cool-house at Messrs. Veitch's. This is not an over-plentiful Orchid, but it would be much sought after if it was better known. Its flowers are pure white, with the exception of the lip, which is marked with purplish lines. They are also very sweetly scented, and loosely placed on short stems. *J. D.*

Cattleyas.

One of the best of Cattleyas for winter flowering has been in good condition for some time. It is the autumn or winter-flowering form of C. labiata, and the true form is very scarce. Our plant had two spikes with four flowers on each. Cattleya guttata is in striking contrast to this grand thing. Its flowers are neither large nor brilliant, but not the less are distinct and pretty. The ground colour of the sepals and petals is of various shades of greenish-yellow and brownish-yellow. They are also freely spotted with reddish-crimson, the rosy-purple tinted lip being conspicuous. Quite a large number of flowers are produced from between a pair of thick leathery leaves on the top of stems 2 feet high. It does best in a pot, and is quite distinct from C. guttata Leopoldii, recently so beautifully figured in the *Orchid Album*. Yet another Cattleya must be mentioned for flowering in October and November—viz., C. fausta ×, one of the first of Mr. Seden's hybrids. There are at least six distinct forms of it, C. fausta aurea being one of the best; the sepals and petals are of a delicate rose-colour; the upper portion of the lip creamy yellow, centre a deeper yellow; there is just a faint tinge of colour on the lip. C. fausta crispa is a fine form, with the faintest pinky tinge on the sepals and petals; the lip veined with crimson, with a yellow base. *J. Douglas.*

The Brentham Park Orchids.

The following Orchids are now in bloom in Mr. Smith's collection at Brentham Park, Stirling:—

Angræcum Chailluanum
Calanthe Veitchii superba
Cattleya Loddigesii
,, labiata
,, ,, Pescatorei
,, marginata (several)
Cœlogyne Massangeana
Cypripedium barbatum grandiflorum nanum
,, concolor
,, Chantinii
,, Harrisianum
,, Hayna'dianum
,, insigne (several)
,, Schlimii
,, Spicerianum
,, Sedeni
,, venustum
Dendrobium bigibbum
Ionopsis paniculata
Lælia autumnalis
,, ,, atrorubens
,, elegans alba
,, Perrinii
Lycaste Skinneri (several)
Masdevallia amabilis
,, Backhousiana
,, Chimæra
,, Davisii
,, Estradæ
,, gongora
,, Harryana cœrulescens
,, ignea
,, ,, aurantiaca
Masdevallia ignea rubescens
,, Lindeni grandiflora
,, nycterina
,, Shuttleworthii
,, Veitchii
,, xanthina
Miltonia Moreliana
Odontoglossum Alexandræ (several)
,, Bluntii
,, cirrhosum
,, gloriosum
,, grande
,, Pescatorea (several)
,, Rossii majus (several)
,, tripudians
,, Uro-Skinneri
Oncidium aurosum
,, crispum
,, cucullatum (several)
,, Forbesii (several)
,, hæmatochilum
,, ornithorhyncum (several)
,, ,, alba
,, Rogersii
Phalænopsis amabilis
Restrepia antennifera
,, ,, fuscatum
,, guttulata
Sophronites grandiflora (several)
Burlingtonia decora picta

Orchids at Glasnevin.

The Orchid-house at Glasnevin is just now very bright, there being no less than fifty-one species and varieties in bloom. Amongst them are several species rarely met with in collections, such as Cattleya labiata vera, Lælia macrostachya, Epidendrum inversum, Lycaste Deppei, Masdevallia coroiculata, M. peristeria, Nanodes Medusæ, &c. The following is a list of them:—

Aerides suavissimum
Calanthe Veitchii
,, picta
,, vestita
Cattleya labiata vera
,, maxima
,, marginata
Cymbidium elegans
Cypripedium Harrisianum
,, insigne
,, ,, Maulei
,, javanicum
,, longifolium
,, Sedeni
,, Stonei
Dendrobium chrysanthum
,, formosum
,, heterocarpum philippinum
Epidendrum alatum
,, inversum
Lycaste Deppei
Lælia macrostachya
Masdevallia corniculata
,, Harryana
,, peristeria
Masdevallia tovarensis
Maxillaria grandiflora
,, picta
,, venusta
Microstylis metallica
Nanodes Medusæ
Odontoglossum grande
,, hastilabium
Oncidium flexuosum
,, Forbesii
,, tigrinum
,, varicosum
,, ,, Rogersii
Phalænopsis Luddemanniana
Pleurothallis plumosus
Pleione maculata
Restrepia elegans
Sarcanthus teretifolius
Saccolabium Blumei
Stanhopea aurea
Vanda cœrulea
,, lamellata Boxalli
,, multiflora
,, tricolor
Zygopetalum maxillare

Garden Operations.

KITCHEN GARDEN.

The work in this department will now be of a general kind, and though the nature of the weather which we have been having during the last few days has been such as to prevent the wheeling of manure on to vacant pieces of ground, together with the digging or trenching, as the case may be, of the same, yet there are plenty of other jobs which can be done when the ground is too wet for proceeding with the above operations, and which are best done during damp weather. In the first place the garden walks should be kept thoroughly free from weeds and fallen leaves, and be subsequently rolled in order that they may again present—what they always should do—a firm and smooth surface, for to my mind there is nothing that adds to or diminishes from the appearance of a garden so much as the good or bad condition of its walks. In the next place there is the turning and re-turning of the manure-heaps, the raking of an adequate quantity of Oak and Chestnut leaves and carting them to the loaf coop,

with which, in connection with stable-dung, to make up hotbeds, &c. Then, again, there is the question of Pea and Bean sticks to be considered: the necessary quantity of new ones being arrived at, they should be ordered from the woodman forthwith, in order that they may be trimmed, sharpened, and tied up in bundles during inclement weather, and put away ready to hand for future use. As a rule, there are plenty of jobs reserved for doing on wet days, such as the making and tying up of labels in different sizes for pot plants, seed-beds, Roses, &c.; mat-tying, where not already complete; the making of crooks for pegging and layering plants, together with the preparing, sizing, and tying-up in bundles of sticks for pot and border plants; also the breaking, sifting, and sizing of crocks for Bean and other pots, and the looking over of seed Potatos and other roots. If the natural condition of the soil is not specially adapted to the growth of some kinds of vegetables, something should now be done with a view to correcting it. If the soil is too stiff much may be done to ameliorate its condition, if the garden is properly drained, by the judicious use of leaf-mould and chalk, which should be well incorporated with it and ridged up roughly during the winter, so as to be fully exposed to the influence of the weather. On the other hand, if the soil is considered too light, recourse should be had to clay, roadside parings, and suchlike materials, which will produce a chemical change in the soil, and thereby render it more suitable to the growth of certain crops. Breadths of Cauliflowers, which are very plentiful, large in size, and fine in quality, should be looked over at short intervals and have all full-sized heads cut and spread out on a shelf in a cool dry shed, and those which are not yet fully developed should have a couple of leaves bent over them as a protection from frost. Globe Artichokes which have been producing "chokes" of good quality up to the end of last month should have the old stems and bad leaves cut away, then give a good surface-dressing of well-rotted manure (to be dug into the ground in the spring), and upon this a good mulching of long litter, the latter to be wrapped closely round the individual plants as a protection from frost. This will be a good time for those who obtain their first gathering of Peas and Beans from seed sown in drills in a warm situation to make their first sowing, but where the accommodation for raising these in heat about the end of December or beginning of January is to be had, it is certainly the preferable mode of procedure.

Forcing Department.—This will be a good time to make a sowing for early work of the Stamfordian Tomato in large 60-pots, two or three seeds in each pot, to be thinned out to one plant subsequently; place them on a shelf near the glass in some of the forcing houses to prevent their becoming drawn; attend also to the thinning and arranging of the shoots, &c., of established plants. A few roots of Mint and Tarragon should now be put in heat, and as the individual pods of French Beans attain proper size pick them, and spread on a shelf in a cool dry room until the necessary number has been gathered for a dish. Asparagus just coming through the soil should have abundance of air on all favourable occasions, to prevent the "grass" making a spindly growth.

Frame Ground.—Owing to the very mild weather which we have been lately and are still having the subjects in this department are, like kindred subjects out-of-doors, making rather a rapid growth for the time of year, which, in the case of young Cauliflower and Lettuce plants, must be prevented as much as possible by persevering with plenty of ventilation (which they are now having) when the weather assumes a colder aspect. Look over the established plants of Endive and Lettuce in this department, and remove therefrom any decaying matter that may be adhering to them, and destroy forthwith any slugs that may be found located amongst them. *H. W. Ward, Longford Castle, Wilts.*

FLOWER GARDEN.

General Work.—As regards flower and open-air ornamental gardening generally, the present is of all seasons of the year decidedly the most dispiriting, particularly to all who are possessed of orderly minds and who love neatness, for, what with constant showers, falling leaves, and worm-casts, the maintenance of the latter is impossible—at least to the extent that one desires, but which till the leaves are all down cannot be accomplished. For the present, therefore, we must strive to be content with partial neatness, but relax no effort to get up all leaves as they fall, or to roll the turf for the double purpose of consolidating it and destroying the worm-casts. The late terrible hurricane has also caused a large amount of extra work, such as cutting away branches of trees that were broken, clearing away those that have been blown down, and grubbing out their roots. In this district, for one of any other kind of tree that was destroyed there were at least a dozen Elms, and on examination into the why and wherefore of this, the cause is glaringly apparent in the upturned roots of the Elms, which appear to be surface-rooters only. Of the few Oaks and Beeches that have succumbed, each has come up with at least twice the depth of soil attached to their roots that the Elms have—an invaluable lesson this to planters, particularly to those that have to deal with exposed situations. Happily, it is but very rarely that we are visited by such a storm while yet the deciduous trees are in full foliage, and to this fact alone must be attributed a very large percentage of the injury done. One may also note in this connection that evergreen trees appear to be better resisters of hurricanes than their deciduous congeners are, when the hurricane occurs whilst they are in leaf, as there were comparatively few of them destroyed. Whilst the weather continues open the transplanting of shrubs and trees should be advanced as speedily as possible, and all that need it, to prevent wind-waving, should be tied to supports as soon as planted, and be given a covering of decayed leaves or litter, for the double purpose of assisting speedy root formation, and the prevention of injury by severe frost. Other, what may be termed extraneous jobs, that can be conveniently done at this season, are the making of new walks and roads, opening old and laying new drains, clearing out ditches and ha-has—indeed, every hitherto neglected job, by the combination of forethought and willing hands, may at this season stand a chance of being accomplished.

Roses and Tender Shrubs.—Having moved Roses at all seasons, I have come to regard November as the best time of the whole year for the operation. In our light soil, to get fine blooms we find it necessary to lift all the plants every alternate year; this we invariably do in November, trenching the beds deeply, and working in plenty of decayed manure and what fresh loam can be spared. The plants are then denuded of suckers and useless roots and again planted, the soil being well trodden about the roots; the beds are then thickly mulched with cocoa-fibre refuse, which is at once neat and protecting. By this procedure early in November last year, notwithstanding the severity of the winter, we did not lose a single plant. The Tea varieties require a little special attention in the way of protection, that is, deeper surface covering, and, when it can conveniently be done, the working of sprays of bracken amongst the branches and round the stems. Roses that are not this season to be lifted should now be well mulched with manure, which if objected to by reason of its untidy appearance should be smoothed down and a light sprinkling of either fine soil or cocoa-fibre spread over it; at any rate, no digging should be done till the spring, the object of the mulching being, not only to feed the roots, but to protect them during winter. The last two winters have proved fatal to several kinds of plants that we had began to regard as quite hardy; among these, in this part of the country, were Eucalyptus globulus, Dracæna australis, and the Phormiums. The two first of these were killed outright and the other to the ground; these, with others of like character, should therefore be afforded protection, the first step ever being plenty of covering round the base and over the roots of the plants. Eucalyptus may in this way be saved, at least the roots; these in spring throw up several stems each, after the manner of coppice plants, and make a very effective bed. Single plants dotted about in shrubberies of evergreens look well, the contrast as to colour being so great. Roses, Ivies, Magnolias, and other climbers on walls and trellises should be securely fastened, or a heavy snow-storm might do irreparable injury.

Work among Bedding Plants.—Damp will now be the greatest difficulty with these; water sparingly, pick over frequently, give abundance of air when the atmosphere is dry, and dust with flowers of sulphur for mildew—Verbenas are very subject to the latter affection, and should be dressed the moment the parasite is perceived. Alternantheras, Coleus, and tricolor Pelargoniums only winter well when afforded a minimum temperature of 60°, and an atmosphere as regards moisture inclining to the dry side. For Violas, Pansies, and Calceolarias that are being struck in cold frames protecting material in the shape of bracken or dry litter should now be got in readiness. As soon as the plants are struck the lights should be drawn fully off, so long as the weather continues open. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Peaches and Nectarines.—Follow up the directions given in my last Calendar, as to preparing the early house for starting by the middle or end of the month. I shall not start ours till the end, as there is not much, if anything, gained by starting so early, and any little time lost now is easily made up after the stoning process is compete. However, if it is desirable to start a house, all that is necessary for the present is to close it, for with the mild weather we are now having this will be quite sufficient excitement for the next two or three weeks. Since writing the last Calendar I have paid a visit to an old gardening friend, whose Peach trees I saw were badly infected with scale. He told me he had tried Gishurst Compound and other mixtures, but could not get rid of it. I advised him to try the following recipe, which is the most effectual I have ever used:—Get 1 lb. of soft soap, 1 lb. of sulphur, 12 oz. of nux vomica, 4 oz. of Scotch snuff, 1 oz. of Cayenne pepper, 12 oz. of white Hellebore powder, and 1 gallon of strong tobacco-water; mix all well together, and dress the trees with a soft brush in the usual way. It may seem a strong dose, but I have never found the buds injured in the least by it if dressed when they are perfectly dormant. Give succession and late houses all the air possible. Go over the trees and remove all leaves that are at all loose, to give the young wood all the light and air possible. Do not allow any trees to get dry at the roots, but give copious waterings whenever they appear at all dry. *J. Wallis, Keele Gardens.*

Melons.

As the season for Melons is fast drawing to a close, and the state of the weather seems to grow less favourable every day for finishing off crops, increased attention will have to be given to those minute details so well known to successful cultivators. The season has apparently passed away for any further development of size as far as the fruits are concerned, and under any circumstances it is hardly advisable—indeed, I do not think it is practicable—to resort to high-pressure in dealing with crops that are not swelling to a satisfactory size. The ripening of late crops depends mainly upon the attention that is given to temperature and atmospheric conditions rather than to any other cultural treatment that can be given at this season. Let the night temperature average a mean of 70°—5° lower will be sufficient in cold weather. In foggy weather a good judge of the elements will, as a rule, be able to tell whether the day will brighten up at noon, and he will adjust his heating apparatus accordingly. The temperature should rise gradually from daylight, and reach its maximum between 1 and 2 P.M. Assist the plants with increased warmth, if only for a few hours a-day, or even in a week, whenever the opportunity occurs. If the borders in which the plants are growing appear to be dry upon the surface examine them carefully before water is given, and in case the roots have been rendered partially inactive from want of water be careful to bring about a healthier condition gradually. Anything like a heavy watering would cause a sudden influx of sap to the roots, which would be rapidly propelled into the stems, shoots, and fruits, and cause the latter to crack and thereby render them useless. The quality of Melons will depend in a great measure upon the skill with which the above details are carried out. High quality can hardly be expected at this season, but a few fruits of moderate quality will be a great acquisition to many a dessert-table during the present month. *W. Hinds.*

Cucumbers.

Those who enjoy the luxury of supplying a French cook with Cucumbers will most likely get rid of superabundant stocks within the next few weeks. If the demand does not far exceed the means of supply, it is often a benefit to get rid of fruits that are draining the plants (unnecessarily), and preventing a succession of fruits from swelling away. To keep a large number of full-grown fruits upon plants at this period is a sure way of injuring them, and an effectual way of cutting off a supply for succession; yet a good supply may be kept up by being wide-awake in time, and conserving the vigour of the plants until the period arrives when the extra demand is made. Most people will have noticed how soon (almost within a few days) Cucumbers will grow from little ones into big ones, even in November; but success depends upon the way the plants have been treated previously. Upon the whole it pays best to crop rather lightly at the start, and to keep cutting the fruits rather undergrown until within a week or two of the time when it is expected that extra quantities will be required. For cooking purposes fruits will keep perfectly fresh for a week in a cellar or other dark place with their ends in water; but for the salad-bowl they should be cut undergrown and fresh. It should also be stated that heavily cropped plants do not produce fruits that are to be compared either in quality or flavour with those that are to be obtained from plants in a free-growing state. At present the weather is mild and genial for the time of year, and even if there is absence of sunshine yet Cucumbers will bear moderate forcing, and no difficulty will be experienced in producing any quantity of sweet well-flavoured fruits for some time to come. Guard against a high night temperature; if a dry harsh smell is felt upon opening the door at the last nightly round, it is a moral certainty that the leaves of the plants will ultimately succumb to it; therefore let the heating surface be warmed only as far as it will give a healthy temperature. Give moisture only when the ventilators are open, and close in early with sun-heat. Fumigate on the first appearance of green-fly, and water the plants with water at a temperature of 85°—90°. *W. Hinds.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 14	Chrysanthemum Shows, at Stoke Newington (two days) ! and Croydon (two days). Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs, at the Auction Mart, by Protheroe & Morris.
TUESDAY,	Nov. 15	Chrysanthemum Shows, at Putney, Walton-on-Thames, and the Brighton Aquarium (three days).
WEDNESDAY,	Nov. 16	Chrysanthemum Shows, at Holloway, and Bristol (two days). Sale of Roses, Hardy Plants, &c., at Stevens' Rooms.
THURSDAY,	Nov. 17	Chrysanthemum Shows, at Kingston (two days); Brixton (two days); and Westminster Aquarium (two days). Sale of Imported Orchids, at Stevens' Rooms Linnean Society, Meeting at 8 P.M.
FRIDAY,	Nov. 18	Sale of Lilium auratum Bulbs, at Stevens' Rooms. Sale of Lilium auratum, Plants from Belgium, and Dutch Bulbs, at the Auction Mart, by Protheroe & Morris.
SATURDAY,	Nov. 19	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

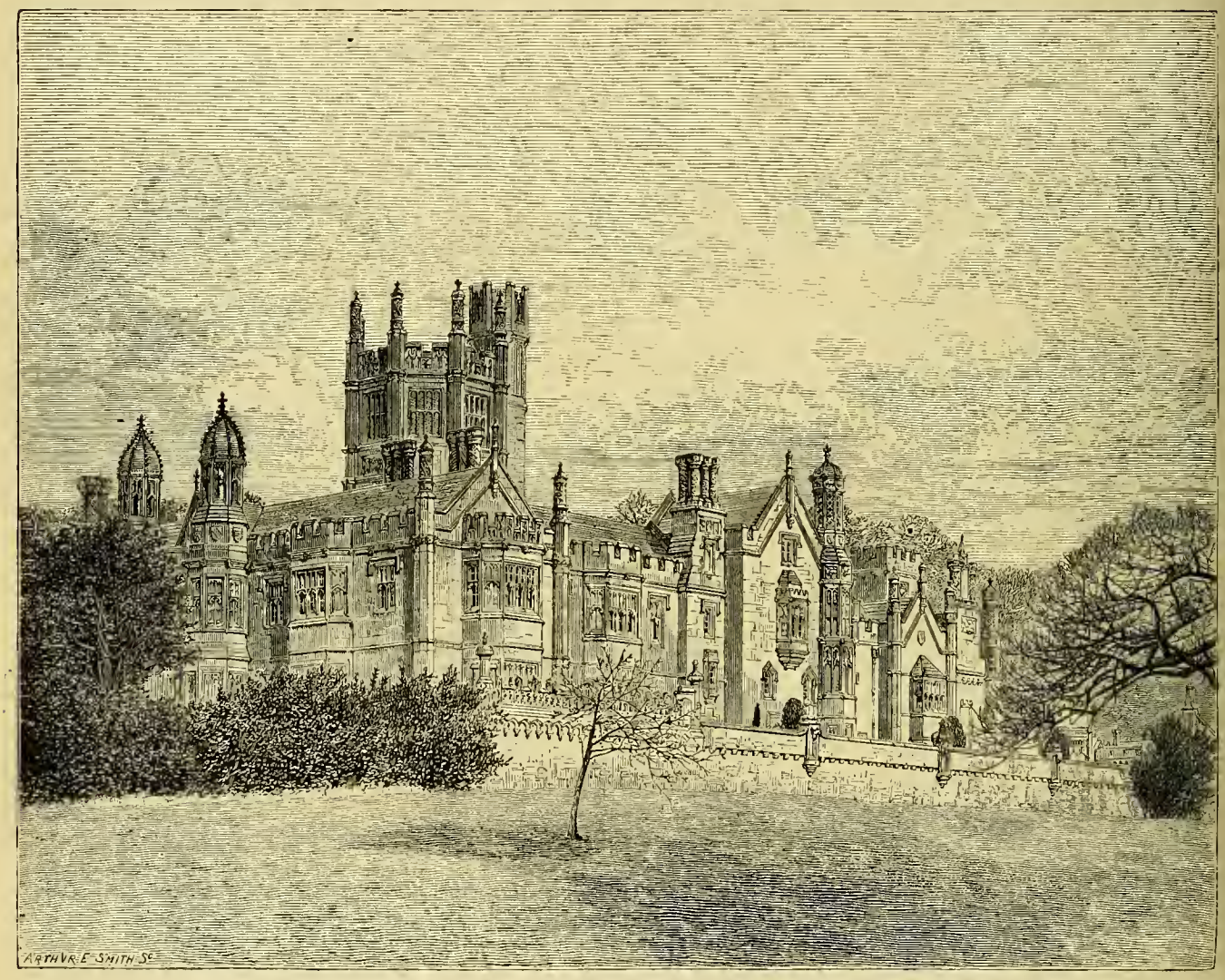

FIG. 127.—MARGAM ABBEY (C. R. M. TALBOT, ESQ., M.P.), GLAMORGANSHIRE. (SEE P. 622.)

WE are indebted to Mr. H. M. JENKINS, the Secretary of the Royal Agricultural Society, for an advanced schedule of the prizes which the Council propose to offer for fruits and vegetables at their great summer show at Reading next July. The sum voted for this purpose is £136, and the prizes, though in all cases limited to first and second only in each class, are yet very liberal, perhaps too much so in some instances, as it is difficult to imagine that the things shown will be at all up to the customary exhibition standard. The competitions are arranged for the purpose of encouraging tenant farmers to embark in the cultivation of fruit and vegetables for sale. Mr. CHARLES WHITEHEAD, who shows much enthusiasm in this matter, is the chief agent in obtaining from the Council of the Society this tangible support to his well-meant efforts.

Fifteen classes, under the heading of fruits are open to farmers only, who pay a *bonâ fide* rent for at least three-fourths of the land they occupy, and who have at least one-half their land under ordinary farming cultivation; and there is one miscellaneous class for market gardeners. Under the heading of vegetables are fourteen classes open only to farmers on the same conditions, and a miscellaneous one to market gardeners; so that it will be seen that efficient precautions have been taken to ensure that only the class intended to be encouraged shall compete.

Market gardeners, we presume, are persons who grow fruits and vegetables as their chief crops, and who may or may not be tenants. Why the small owner class of farmers should be excluded it is difficult to say; but the inference is that the interest of the tenant farmer is as much or more regarded as is the benefit expected to accrue from the wider cultivation of fruits and vegetables. Of course, all the customary exhibitors of these products will at once see that they are excluded from the competitions — the Council not wishing in any way to entrench upon the ground already so well occupied by horticultural societies. Indeed, a suggestion made on behalf of the horticulturists around Reading to the Council, that a horticultural exhibition should be held in conjunction with the Society's grand show next July, has been met with the declaration that the Council certainly would not associate itself with anything outside its proper field of operations. It must be conceded that the time of year fixed for the competition is not the happiest, because it not only is too early for a large portion of the most widely grown field vegetables, but is also out of season for Apples, Pears, and Plums, our chief and most profitable hardy fruits. No doubt this amount of prizes offered in the autumn would have been productive of a far larger and more satisfactory competition, but the Council naturally desire to have the competitions associated with their own show, and specially as the object in view is at once to encourage the growth of these products, and to enlighten and instruct farmers—never too apt to learn or to adopt new modes of culture and cropping. Even if the competition should in the first year prove an indifferent success, they cannot fail to operate actively upon the agricultural visitors. Still, the more successful and satisfactory, the more active and beneficial will be the influence exerted.

Some of the classes are open to criticism, as, for instance, those for 56 lb. of early eating Apples, and the same of cooking Apples.

Surely it is not wise to encourage the gathering of such imperfect and immature fruits as these would be early in July. Still more undesirable is the class for 28 lb. of Pears, for these fruits will not then be one-third natural size; and we can hardly refrain from a smile when we read of classes for 28 lb. of eating Apples, and the same of cooking Apples, kept from the preceding year. If any farmer should happily possess a sample of the old French Crab he may take prizes in both classes, for no one would be too nice as to what were eating and what were cooking kinds at that time of the year. It is still further an odd form of encouragement to farmers to grow for sale and profit, as the holding over Apples for a year is not likely to prove profitable in a business aspect, though it may result in the securing of these odd prizes. That Strawberries, Raspberries, Gooseberries, Cherries, and Currants may be in abundance there is reason to believe, but if the Apple and Pear classes are filled it will be a matter for suprise.

The vegetable classes are less open to adverse criticism, though one marvels that any practical man should have inserted a class for Broccoli in July. That surely must have been a slip of the pen. A bushel of Peas in pod, three bushels of round Potatos, and the same of kidneys (new), a bushel of autumn-sown Onions, two dozen bunches of spring-sown Onions (rather a wasteful class), one dozen of Cabbages, the same of Cauliflowers, one dozen bunches of Carrots, twelve Cos Lettuce, the same of Cabbage Lettuce, basket of salads, half bushel of dwarf Beans, and the same of Runner Beans, are classes not largely open to exception, although the latter will just then hardly be in, and we should have preferred a bushel of broad or long-pod Beans as an alternative class. Bushels of Potatos would have been better than sacks, as these latter are needlessly bulky; and we may well imagine that fresh lifted new Potatos, with the skins still tender, would, after a long journey by rail, present an indifferent appearance.

Where there is exhibited such an earnest desire to promote the culture of fruits and vegetables amongst farmers it is not possible to wish other than the best success for the effort; and therefore in pointing out some of the weak features of the prize list we may, perhaps, strengthen the hands of the promoters in what they have undertaken. It is a well meant effort, which time and experience may eventually develope into important results.

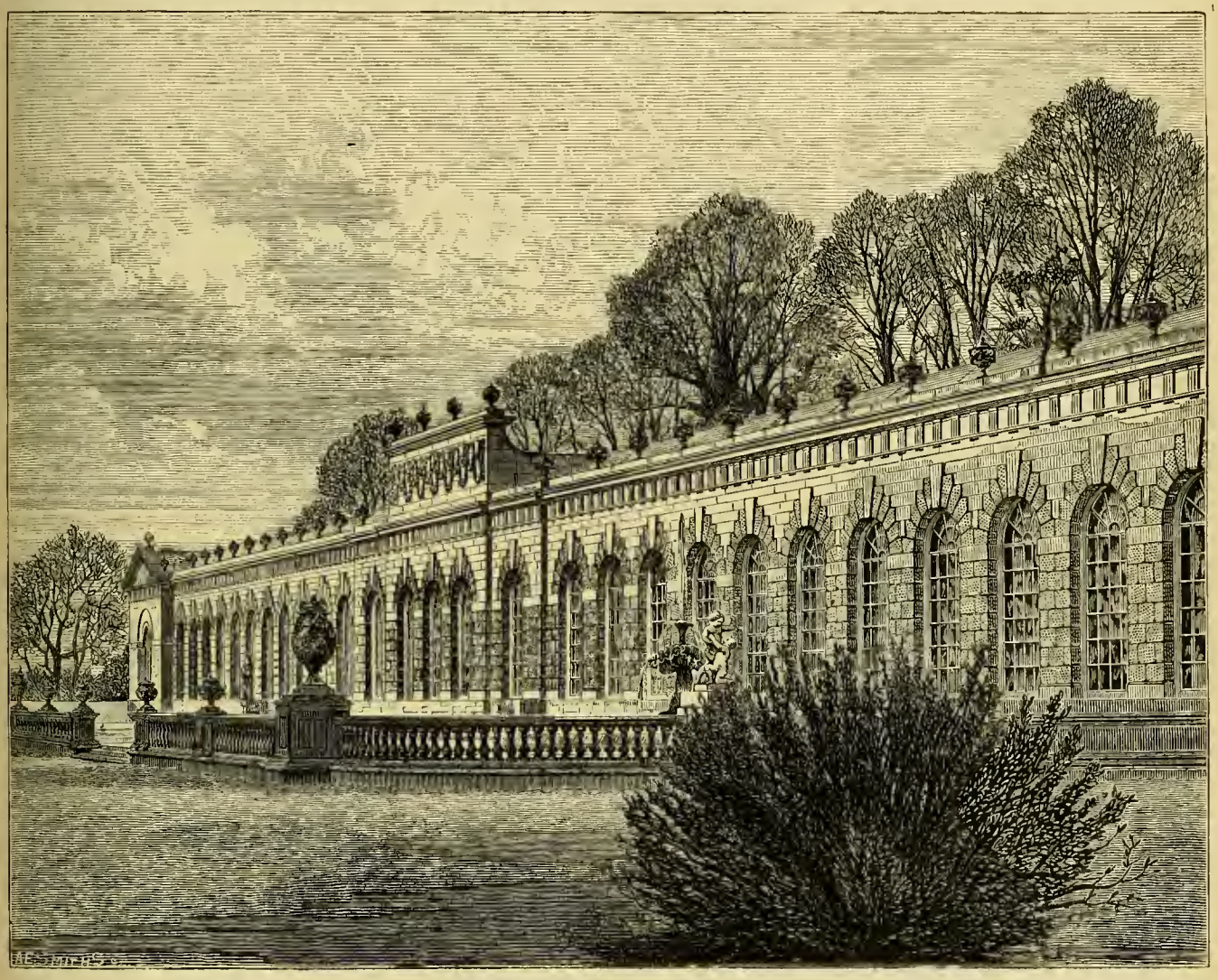

Fig. 128.—The Orangery at Margam Abbey. (see p. 622.)

— The Linnean Society.—At the opening meeting of the present session Sir John Lubbock, President, in the chair, a feeling tribute was paid to the memory of the late Mr. Currey, so long a valued officer of the Society. In addition to what fell from the present President, the late President, Mr. Bentham, expressed in most sympathetic terms his sense of the loss the Society had sustained, and of which he was especially well able to judge. Mr. Bentham's heartfelt testimony was supported by Mr. Stainton, Mr. St. George Mivart, and other of the late gentleman's colleagues in the Society. The principal business of the meeting consisted in the presentation by Mr. Bentham of his memoir on the Gramineæ, a companion paper to those on Orchidaceæ, Compositæ, and other orders monographed by him for the *Genera Plantarum*. Gramineæ, said Mr. Bentham, are so widely diffused, occur in such quantities, and are so easily dried, that a very large number of bad species have been established; thus, whilst newly described species of Orchideæ will probably hold their own, many new grasses must be renamed in accordance with their real character. From a systematic point of view, the great mistake made by Linnæus and his successors was in regarding the whole spikelet as a single flower, with a calyx and corolla to be compared with those of the more perfect Monocotyledons. Robert Brown, with his usual sagacity, pointed out this error, and first set forth the lines on which the order could best be subdivided; but he had the idea that the upper and lower palea represented the three outer segments of the perianth; and his great influence is still felt in the terminology, although Hugo von Mohl has shown the mistake in his ideas. The French botanists, L. C. Richard, Desvaux, and Palisot de Beauvois, published their observations early in this century; the arrangement devised by the last was, however, far too technical to be generally adopted, and his descriptions are often so vague that

the really good analytical drawings attached are quiet necessary for determination of genera. A few years later KUNTH, TRINIUS, and NEES VON ESENBECK worked contemporaneously. KUNTH'S *Revisio Graminum* is not only splendidly illustrated, but remarkable for accuracy of detail; but his first two volumes of the *Enumeratio Plantarum*, containing the grasses, were done hurriedly, as he himself regretted. KUNTH carried out BROWN'S notions of structure to an absurd extent. TRINIUS' *Fundamenta Agrostographia* was founded on insufficient materials, but he worked with energy and zeal, and somewhat modified KUNTH'S terminology. NEES VON ESENBECK never confined himself exclusively to Gramineæ, as did TRINIUS; he published no general conspectus of the order, but he described his species with great care, and his *Agrostographia brasiliensis* is probably his best work. Whilst his divisions are more natural than those of the writers last mentioned he did not sufficiently compare his plants from different parts of the world; for instance, BROWN'S Australian Panicum semialatum is raised by him to a genus in India as Coridochloa, and in South Africa as Bluffia! The last general enumeration of grasses is that of STEUDEL in 1855, the *Enumeratio Plantarum Glumacearum*, the worst production of its kind, Mr. BENTHAM said, ever met with. STEUDEL was an excellent mechanical compiler, but no botanist, and frequently described grasses for new which were correctly given in their proper place without recognition. Much has also been published in local Floras, and some genera have been overlooked, and later genera have consequently become so firmly established in usage that it would be pedantry to revive the earlier names. The more important works on grasses of recent date are those of PARLATORE in the first volume of his *Flora Italiana*, COSSON and DURIEU'S glumaceous volume of the great unfinished *Flore d'Algérie*, DOELL'S Gramineæ in the *Flora Brasiliensis*, and FOURNIER'S grasses for the Mexican *Flora* he has undertaken, printed but not yet published. In recent times we looked to the late General MUNRO to unravel these intricacies; his monograph of Bambuseæ, and detached papers, showed great promise, but he left nothing further behind him than notes in his herbarium and library. Mr. BENTHAM'S preparation for the work consisted in the study of the European grasses for the *Handbook of the British Flora*, and of old-world grasses for the *Flora Hongkongensis* and *Flora Australiensis*, when he was in constant correspondence with MUNRO. The paper met with a reception at the hands of the Society which, if not commensurate with its importance—which could hardly be the case—was yet an expression of admiration at the genius and unrivalled patience of the veteran botanist, and of congratulation that science had once more been enriched by an exhaustive monograph on an order so large, so difficult, and so important as the grasses.—It is announced that the general meeting of the Linnean Society, on Thursday, November 17, at 8 P.M., will be made a special general meeting, for the purpose of electing a member of Council and Treasurer in the room of FREDERICK CURREY, Esq., F.R.S., deceased. For the former post Sir JOHN KIRK is proposed, while for the Treasurership the name of FRANK CRISP, Esq., is proposed. To two such good nominations it is not likely any opposition will be offered. The papers to be read the same evening include the following:—1. "On the Sense of Colour among some of the Lower Animals." By Sir John Lubbock, Bart., M.P., F.R.S.; 2. "On a Hampshire Orchis not figured in *English Botany*." By C. B. Clarke, Esq. 3. "New Entozoon from the Ostrich." By Dr. T. S. Cobbold, F.R.S. 4. "On a Contrivance of Cross-Fertilisation in Roscoea purpurea." By R. Irwin Lynch, Esq., A.L.S. 5. "Observations on Ants, Bees, and Wasps"—Part ix. By Sir John Lubbock, Bart., M.P., F.R.S.

—— THE PELARGONIUM SOCIETY will hold its eighth exhibition in the gardens of the Royal Horticultural Society, South Kensington, on June 27, 1882. The schedule is not yet ready, but it is likely to be or the model of former years. So far as we see at present the Society will stand alone, as the Rose show is fixed for a later date.

—— BRACHYSEMA LANCEOLATUM. — This pretty Cape plant, with its silvery foliage and rather large scarlet pea-shaped blossoms, which open during the dull late autumn and winter months, is well worth growing for the conservatory, in spite of its somewhat straggling habit. Trained as a pillar-plant, or fastened along a rafter or against a wall, its long weak branches cease to be in any way unsightly. There is a fine specimen now in flower in the Winter Garden at Kew.

—— THE ROYAL SOCIETY.—The anniversary meeting will be held on the 30th inst. Professor HUXLEY resigns his post as one of the Secretaries, and it is understood that Professor MICHAEL FOSTER will be proposed in his stead.

—— THE LATE M. BOUCHÉ.—German horticultural periodicals announce the death, on September 27, of CARL DAVID BOUCHÉ, Inspector of the Royal Botanic Garden at Berlin. BOUCHÉ was born in Berlin on June 4, 1809. He had been associated with most of the celebrated German naturalists and gardeners of his time, and on the occasion of the 50th anniversary of his service in the garden, on July 1 last, he was made the subject of a complimentary demonstration on the part of his colleagues and friends.

—— BRUSSELS BOTANICAL CONGRESS.—We have received a copy of the *Compte Rendu* of this meeting of botanists and horticulturists held in Brussels in July, 1880. The most important subjects treated of were the "Phylloxera Question," the "Formation and Maintenance of Lawns," the "Culture of Alpine Plants," the "Method of Teaching Botany in Primary Schools," on the "Hederaceæ Collected by M. ANDRÉ in Equatorial South America," the "Shading of Greenhouses," various papers on "Fossil Botany," on the "Best Methods of Arranging Botanical Museums," &c.

—— HISTORY OF THE WORLD.—Messrs. WARD & LOCK have issued the first part of their *History of the World*—a rather ambitious attempt, but it is well printed and illustrated, while the style is easy, attractive, and based on the results of modern research rather than ancient dogma.

—— "THE JOURNAL OF FORESTRY." — The November number of this magazine is unusually interesting, containing, as it does, an account of Sherwood Forest, a full report of the meeting of the Scottish Arboricultural Society, a report on the effects of the recent gale, and other matters. In a useful paper on the measurement of timber, Mr. BARRY, amongst other things, mentioned a mode of accurately determining the dimensions of timber by immersion in water, and measuring the quantity of water displaced. Apart from the inconvenience and frequent impossibility of carrying out such a method, it may be pointed out that it would afford no clue to the actual dimensions, but only as to its weight. Some strong remarks—not too strong, however—are made as to the condition of the Arboretum at Edinburgh. The desirability of establishing a school of forestry is again discussed, and we trust that by continual pegging away something may eventually be done.

—— THE LEIPZIG NURSERY TRADE.—Under the title of "*Führer durch die Kunst und Handelsgärtnerein von Leipsig*," Mr. WILLHELM MARK has published a Guide or Directory to the nursery trade in Leipsig and its vicinity. Not only are the names and addresses given, but also the specialities for which the various firms are remarkable, together with different items of local information.

—— THE GALE OF OCTOBER 14.—The report of the effects of this gale in various counties of Britain, published in the *Journal of Forestry*, has been reprinted as a separate pamphlet, which will be convenient for reference.

—— CRYSTAL PALACE SCHOOL OF GARDENING.—The Rev. G. HENSLOW delivered the sixth and last lecture on "The Practical Application of Vegetable Physiology to Methods of Propagation," on Wednesday last. Resuming the subject of "Vegetable Multiplication," he continued his observations on the scientific principles to be observed in making cuttings, showing how concentration of sap is attained at points to facilitate the production of roots, and how transpiration should be checked, to avoid too great waste of fluid, &c., while the importance of a due regulation of light, moisture, and heat was shown. Methods of growing cuttings were then described. The subject of grafting and budding was subsequently entered upon; the importance of affinity between scion and graft, their mutual influences, and conditions for successful results pointed out. Various effects of scion on the stock, and *vice versâ*, were described. —Mr. FAWKES, author of *Horticultural Buildings*, has been appointed to give a course of three lectures to the students and the public at the Crystal Palace, at 5 P.M. on November 16, 23, and 30, upon the construction, fitting and heating of greenhouses, conservatories, and other horticultural structures. The lectures will be illustrated by numerous specially prepared diagrams, &c.

—— FRUIT FORCING.—M. PYNAERT has recently published a third edition of his useful treatise, entitled *Les Serres-Vergers*. By this must not be understood orchard-houses in the limited sense of the term, but fruit-houses in general. M. PYNAERT'S book is an excellent compendium, embodying the results of his own personal experience, as well as the recommendations of the best British and Continental gardeners. The directions are both clear and concise, and special care has been taken to acknowledge the sources whence the author has derived his information. To those who read French the work may be recommended as containing an excellent summary of the theory and practice of fruit forcing.

—— FISH VERSUS FRUIT.—Market gardeners and growers of garden produce, and the millions of our metropolitan denizens who enjoy, when they can get them, the fruits and vegetables of the seasons, will find little cause to rejoice at the recent action of the Corporation of the city of London. Old Farringdon Market having become too small and utterly unfit longer to be the city *entrepôt* for the public sale of fruits and vegetables, it was wisely decided to build at West Smithfield a new market for these products, such as should be, not only worthy of the city, but also of the metropolis. That such a market would prove an immense boon to grower and consumer alike there could be no doubt, and its speedy opening to the public was looked forward to with interest and profound satisfaction. But even such a body as the City Corporation is not without its moments of fickle-mindedness; and by a recent vote it has been determined suddenly, and to the public most unexpectedly, to convert the new fruit and vegetable market into one for fish. Why this sudden anxiety on the part of the Common Council to provide space for the sale of fish at the expense of garden products? Is it to be found in the characteristic one that powerful interests intend to make the inland fish market an inevitable failure, and therefore think it is needless to construct a new one. If the fish trade fails, the reputation of the new market will be at once damned; but if it succeeds then fruits and vegetables may wait their turn till the Corporation is able to discern that London wants an abundant supply of garden products as badly as it wants anything. The crying need of the market grower has been more market facilities, readier means of free sale to the consumers. Just as that need seemed about to be met in the city, the hope is nipped in the bud. In the meantime the Mud-Salad interests may rejoice. Covent Garden can smile grimly when it sees its expectant powerful city competitor converted into an inferior Billingsgate.

—— THE "WAMPAPIN" LILY.—The *American Agriculturist*, commenting upon the late correspondence in our columns as to the identity of a Water Lily of the above name, and which was stated to be Nelumbium luteum, says:—"We have known this gigantic Lily (N. luteum) in many different localities, but never heard the name 'Wampapin' applied to it. A very common name is Water Chinquapin, the seeds being in size and shape much like the Chinquapin nut. May not the name Chinquapin, in crossing the ocean, have somehow become transformed into 'Wampapin?'" But what is Chinquapin? Quercus or Castanea?

—— ACCIDENTAL TEACHING.—In the cultivation of plants, as in other matters, it not unusually happens that valuable lessons are taught by unlooked for and accidental occurrences. Amongst plants that are most remarkable for the continuity of their blooming, their beautiful colours, and the fragrance of their flowers, Bouvardias hold a first place. Although a few of the oldest kinds have been long known in this

country, it is only in comparatively recent times that their merits, especially where cut flowers are in regular demand, have been fully recognised or their cultivation rightly understood. In the United States, where such immense quantities of cut flowers are used, their good properties were more appreciated. The most approved method of propagation for a long time was from root-cuttings, consequent upon their shoots not striking freely when treated in the way in which most plants of a like description will; but this difficulty, by a mere accident, was got over. In one of the large London establishments, where Bouvardias are extensively grown, some plants happened to get injured so far as to kill all their leaves and the tender points of the shoots; as would naturally follow in a growing temperature they quickly produced quantities of growth from the old wood. The appearance of these young shoots, and the possibility of their furnishing cuttings that would root well, was noticed by the individual in charge. A trial was made, which resulted in their striking as readily as Fuchsia cuttings taken from an old plant that had been rested. So now the usual method is to half dry the stock plants late in autumn, and then remove the points of the shoots down to the mature wood, after which the plants are watered, and placed in heat, where they quickly produce cuttings that strike freely, such as resulted from the accidental occurrence named. The reason why shoots produced in the above way strike readily, and cuttings made from the ordinary growth do not, is that the latter, from the natural freedom of the plants to flower, is almost always in a semi-blooming condition, in which state, as is well known, the wood of any plant will not root freely. We should add, however, that the "accidental occurrence" has occurred before, and been taken advantage of by other successful propagators.

—— Statice Butcheri.—Independent of their merits as exhibition plants the Statices, on account of their distinct appearance and free continuous habit of flowering, are deserving of cultivation by all who possess a greenhouse, as they require very little training to keep them in shape or for support, and are much less liable than many things to get out of order. The older varieties, such as S. imbricata, S. Holfordii, and S. profusa, are tolerably well known; the last named especially is an excellent habited variety, and well deserves its name for freedom of flowering. But all the kinds must bow to S. Butcherii for the beautiful colour of its flowers, which are a deep purple-blue, and far in advance of the other sorts. It also possesses a good bushy habit of growth, with foliage not larger than desirable. Beside it the others look dull and poor in colour. It is not yet plentiful, but there is no doubt its merits for general cultivation will bring it into more prominence, for as a spring and summer flowering plant continuing to bloom right up to the autumn it has few equals.

—— Change of Crop.—We frequently hear it urged that a complete change of crop in cultivated ground is necessary to success—such, for instance, as the four-course system often provided for in agricultural agreements between landlord and tenant. Yet, although this kind of change has its advantages in the case of some crops, more or less according to the nature of the land, the idea is often pushed much further than there is use in, or, need for. In Messrs. Osborn's nursery at Fulham there is this year, as usual, a considerable breadth devoted to maiden Peaches remarkable for their unusual, strong, even condition; and we understand that on this identical piece of ground maiden Peaches, alternating with Seakale, and nothing else, have been grown for forty years, and Mr. Pitman, so long in charge of the fruit tree department here considers them the best maidens he ever had. Although, doubtless, some plants more than others exhaust the soil of the particular elements they require to build up their substance, yet, at all events, this piece of ground has not had its ability exhausted to grow the plants that without change it so long has borne.

—— The Meteorological Society.—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 16th inst., at 7 P.M., the following papers will be read:—"On the Gale which Passed Across the British Isles, October 13-14, 1881; by G. J. Symons, F.R.S., President. "On the Structural Damage Caused by the Gale as Indicative of Wind Force;" by J. Wallace Peggs, Assoc.M.Inst.C.E., F.M.S. "On the Meteorology of Mozufferpore, Tirhoot, 1880;" by C. N. Pearson, F.M.S.

—— The Arbor-vitæ.—In the "Answers to Correspondents" column of a contemporary non-horticultural weekly, the following is printed for the benefit of "A Seeker after Information.—Arbor-vitæ is commonly known as the tree of life. It is a kind of Cypress, or Yew, and has a very pungent smell." By reason of the extraordinarily wide range of subjects briefly treated in the "Answers to Correspondents" in many popular journals, mistakes and inaccuracies must of necessity be far from uncommon. Considering, however, the large number of good books of reference on subjects connected with horticulture and botany, there hardly seems much excuse for such blunders.

—— Orchard Planting and Culture.—Now that many an acre of wood, hop-garden, pasture, &c., is being converted into orchard, in the belief that fruit growing is one of the best objects to which capital and labour can be employed in these days of agricultural depression, it is well to note that it is most essential that a good deep loamy soil should be selected, and which should rest on a dry subsoil—at least one through which there is natural drainage. Many an orchard has failed for want of attention to these essential conditions. Trees will flourish for fifteen or twenty years, and then decay, and it is a painful disappointment when such a disaster occurs. The farther north the site of the orchard, and the moister and colder the climate, the more neccessary is it to have a proper subsoil. An old cultivator of fruit in orchards has remarked, that if the ground be sheltered it is best to plant each tree upon a small raised mound of earth; by this means the roots are always near the surface, and the trees are uniformly more fruitful in consequence. There are many orchards scattered about the country in which the trees are gradually becoming barren, and decaying for want of proper drainage, and those who plant now should endeavour to avoid the errors committed by their forefathers. In Kent and other fruit-growing districts where orchards are systematically cultivated, the matter of pruning receives greater attention than in some other parts. To have fruitful trees it is necessary to keep them open in their heads, not to allow a great quantity of small and cross branches in the insides, which prevent the wood from properly ripening in autumn, and the sun and air from circulating in summer. With proper pruning the fertility of the tree is promoted and finer fruit rewards the cultivator. Whether the soil should be sown with grass seeds or be kept cultivated is an open question, but modern practice follows the lead of the latter course, as bush fruits are in a large number of cases planted alternately with standard trees. In the case of a Cherry orchard the trees appear to flourish best when the soil is carpeted with grass, and thus it is that Cherry trees are generally planted by themselves and not mixed with others. An open cultivated soil, care being taken not to injure the fibrous roots on the surface, is the best for standard Apple, Pear, and Plum trees.

—— Aphelandra punctata.—In the T-range at Kew this charming Acanthad is now in bloom, and it is certainly a plant which merits general cultivation. The foliage is green, with a more or less irregular central blotch of white, which breaks up into small dots and splashes near the edges. The flower-spikes are large and rather dense; the handsome blossoms a fine bright yellow. The spiny-edged long-pointed bracts are of the same colour as the flowers, with the exception of the tip, which is green, and forms a pleasant contrast to the rest of the inflorescence. A figure has been drawn for the *Botanical Magazine*.

—— Lantanas.—Thanks to the industry of Continental raisers the garden varieties of this useful plant have greatly increased of late. Doubtless the old Lantana Camara was the type from which the first departure was made, and now as a result we have varieties of spreading and compact growth, tall and dwarf, large flowered and small flowered, and of many varying tints of colours. A large number of these are of great value for decorative purposes, and there are indications that the Lantana is rising in public favour. Objection has been taken to them on account of their strongly scented foliage, the peculiar tone of which is not grateful to most people, and hence, as Mr. B. S. Williams observes, they have been much neglected. But they have qualities of a high order which more than counterbalance this defect, if it can be termed so. For three or four summers past Mr. Barron has successfully demonstrated their great usefulness for bedding and pot purposes; indeed, for the former use they are attractive, durable, and particularly pleasing. The dwarf varieties are best adapted for bedding, but they are also most useful for pot purposes. As specimen plants for exhibition they are very effective, and it is not unusual at some country shows to see in August fine specimens of the rich-coloured Lantanas, such as Le Grenadier, grown into large plants, covered with healthy foliage, from amid which rise numbers of large trusses of bloom. Fine fresh specimens of Lantanas are far preferable to the stale Allamandas, Dipladenias, Ixoras, &c., one too often sees at shows at the end of the season. The Lantana can be had in bloom for the space of some eight months in the year, and the plants are rarely, if ever, attacked by insects—recommendations of no mean order.

—— Arundo mauritanica.—This is a South European grass of noble aspect and of the easiest cultivation. Treated as a sub-aquatic it forms a fine object in the conservatory. It grows about 8 or 10 feet in height, its stems being clothed with bold foliage, and terminated by large, lax, reed-like panicles. Now one of the most conspicuous plants in the old Water Lily-house at Kew.

—— Pelargonium Erckmann-Chatrain.—Among the many zonal Pelargoniums bedded out this season at Chiswick by Mr. Barron the variety named above was conspicuous for its excellent qualities as a bedder. Amid sun, wind, and rain, it seemed to stand the brightest and best thing among the whole lot. It has a dwarf, free-branching, sturdy habit of growth, which is yet close and compact, and it throws a large number of fine trusses of rich deep crimson flowers on strong footstalks. As the zonal Pelargonium will be used for bedding purposes for years to come, despite what is said as to its decline, it is well that gardeners who use it should have the best which can be selected for the purpose. It is of Continental origin, but by whom raised or distributed we do not know, as it does not at present appear in any catalogue. But for all purposes to which zonal Pelargoniums are devoted it seems well worthy attention.

—— Bignonia venusta.—From Sir George Macleay we have received some beautiful flowering shoots of this brilliant Bignonia. The flowers are bright orange in colour, and although the plant is not new, as Mr. Green remarks, it is well worth more extensive cultivation, especially in large conservatories. It is now flowering at Pendell Court, covering a space of about 30 feet square. Mr. Green adds that it flowers freely when allowed plenty of room, and is not cut-in too much. It was figured in our columns, 1879, vol. xi., p. 273.

—— The Timber of British Columbia.—Professor Dawson, of the Dominion Geological Survey, in a report on the forests of British Columbia, draws attention to the vast importance of the timber supplies of the province. He states (says the *Colonies and India*) that many first-class mills have been established in various parts of the country, and the total annual product is stated to be about 200,000,000 feet, of which 25,000,000 feet are exported to other countries, 25,000,000 feet used at home, and 150,000,000 feet sent to California. He estimates that 110,000,000 acres (or two-thirds of the whole province) are covered with timber. The Douglas Fir, or Oregon Pine, is the most valuable commercial tree. It frequently exceeds 8 feet in diameter, and rises to a height of from 200 to 300 feet, forming great and dark forests. The western Hemlock and the Red Cedar are the next most important trees of the province, both of them, the latter especially, growing to a great size. The importance of these vast reserves of timber, as well as of the mineral resources of the province, will become more apparent as settlement extends westward from Manitoba towards the Rocky Mountains. The construction of the Canada Pacific Railway will also develope the mineral and timber resources of the province.

—— Stenogaster concinna.—This charming Gesnerad is blooming beautifully in the Cambridge Botanic Garden. Unless carefully managed with regard to moisture, it is liable to die, either from its

excess or deficiency. Here it seems quite at home beneath the Palm-like fronds of two fine plants of Actiniopteris, to which a small case is devoted. In this situation it is preserved from extremes, and requires as little as can be of the necessary evil of artificial watering. It is one of the tiniest of flowering plants that are really beautiful.

—— HISTORIC TREES IN SWITZERLAND.—The *Times* correspondent at Geneva writes:—"All the world has heard of the famous Lime tree of Morat, under the wide-spreading branches of which, according to one legend, CHARLES THE BOLD said his paternosters and conferred with his generals before the battle in which he was so utterly routed, and where, according to another story, the Swiss leaders met after the fight to congratulate each other and thank Heaven for the great victory so wonderfully vouchsafed to them. A branch of this tree, so runs the legend, was taken by the messenger who carried the news of the victory to Fribourg; he ran all the way, and no sooner had he proclaimed the glad tidings than he sank down and died, still holding the branch which served as his credentials in his hand. This branch, it is said, was planted where the brave messenger fell, and in course of time grew into the tree, the trunk of which, 20 feet in circumference, still remains, and is shown to visitors to this day. If this story be true, the Fribourg Lime tree is 405 years old (the battle of Morat having been fought in 1476), and that of Villars-les-Monies (Morat) still older. It would seem, however, from a correspondence that has lately been going on in the *Bien Public* and the *Gazette de Lausanne* that the legend, or at any rate that part of it which concerns the planting of the tree, must henceforth be relegated to the region of myths, not because its years are fewer than those heretofore ascribed to it, but because it is actually older than the tree to which it is supposed to owe its being. There can be little question that the Villars-les-Monies tree was far from being in its first youth, even at the time of the battle. DUHAMEL DU MONCEAU, a member of the French Academy of Science, a great authority in his time on arboriculture, who died in 1782 in his eighty-second year, made a visit to Morat—probably about 1750, though he does not mention the date—expressly to see the tree. It was even then of colossal dimensions, its diameter being 54 inches, and judging by the thickness of its concentric rings, its age, in all probability, considerably exceeds 500 years, and the appearance of the Fribourg tree denotes a still greater antiquity. Another reason for deeming the story of the messenger apocryphal is, that a twig carried from Morat to Fribourg on a hot day in June, would be so desiccated that it could not live. Yet another historic Lime tree is that of Prilly, a village near Lausanne. Thirty years ago it measured, at 5 feet from the ground, 23 feet in circumference, and rose to a height of 90 feet. As the proclamation of the Reformation was posted on its trunk in 1530, it must have been a notable tree 350 years ago."

—— LINNEAN SOCIETY.—The meetings to be held during the current session are fixed for November 17, December 1 and 15. 1882: January 19, February 2 and 16, March 2 and 16; April 6 and 20; May 4 and 24 (Anniversary); June 1 and 15. The chair will be taken at 8 o'clock in the evening precisely at every meeting, excepting on May 24, the day appointed for the anniversary elections, when the chair will be taken at 3 o'clock in the afternoon precisely.

—— SOY BEANS IN CHINA.—The Soy Bean (Soja hispida), as is well known, is very largely used in China as an article of food. A kind of curd is prepared from them, but they are mainly used to manufacture an edible oil, and the refuse pulp after the expression of the oil is manufactured into cakes the size and shape of large cheeses weighing about 60 lb., which are used either as fodder for animals, or more frequently as manure, especially for Sugar-cane plantations in the southern parts. The beans are known under three distinct varieties, black, yellow, and green: the yellow are said to be the best, as producing most oil. It is stated in a recent report from Newchwang that the natives of that place boast that the oil made on the spot is much better than that made from the same beans after their arrival in the South. The harvest takes place in August and September, and the beans from the neighbouring localities are shipped from Newchwang before the river closes, and during the winter, when the roads are hard and the rivers can be crossed on the ice, thousands of carts arrive from the more distant districts with produce that is shipped away the following spring or summer. In fact, the shipment of produce goes on all the year round as long as the port is open. Bean-oil and bean-cake can be kept any length of time without spoiling; the beans themselves are more perishable, but will keep for a year or more if preserved from damp.

—— BROOM CORN IN AMERICA.—In connection with the subject of the more extended utilisation of Broom Corn (Sorghum saccharatum) in America for sugar-making, a correspondent in *Land and Water* gives the following history of its introduction and cultivation in America:—This plant is said to have been introduced into America by Dr. FRANKLIN, who, having accidentally seen a small wisp of it in the possession of a lady at Philadelphia, found, when examining it as an imported curiosity, one little seed left in it, which he planted, and from this has sprung all the present Broom Corn in the United States. The Shakers are the people who chiefly used to cultivate Broom Corn in America, and they did it in the first place for the purpose of manufacturing it into brooms. A little of the seed was sown, like other corn, in some gardens belonging to the Society of Shakers at Watervliet, New York, in 1791, and in the course of four years it began to excite attention. Some brooms were made of it, the handles being of soft Maple timber, and they sold well at 50 cents each; so some machinery was erected of a very simple description, which has of course been gradually very vastly improved. But now a great part of the brush of Broom Corn raised in the valley of the Ohio, together with broom-handles, is shipped to England, it having been found that the brooms can be sold cheaper over here if made by us than if made there and exported to this country. The seed fattens sheep and poultry as well as Indian Corn does, and when ground and mixed with Wheat-bran it is given to milch cows.

—— VEGETATION IN CHINA.—The British Consul reporting on the trade of the port of Wenchow in China, describes a short journey made by him in April, 100 miles westward up the river Ou, on which Wenchow is situated, to the prefectural city of Ch'u Chow. He describes the natives as being extremely amiable all along the route, whereas those to the south are most uncouth and unfriendly. At a distance of 40 miles from Wenchow lies the small and dilapidated city of Ch'ing T'ien, famous for its iron and soapstone; the iron is of excellent quality, but the natives do not understand the art of manufacturing it well, and consequently import a considerable amount of foreign nail-rod iron in preference to it. From Ch'ing T'ien to Ch'u Chow a succession of rapids have to be crossed, which makes it a tedious journey for the traveller, and a most laborious one for the boatmen, who have to get out and haul their flat-bottomed boats by sheer force over the rapids. In times of drought there is not sufficient water for any but the smallest boats to come down, which is a considerable hindrance to the trade of the port. Though it was early in April there were splendid crops of Wheats, fields upon fields of the opium Poppy in full bloom, as well as Peas and Beans, almost ready for gathering. The hills were covered with the valuable Tea-oil shrub (Camellia Sasanqua); the small fruits are abundantly produced, and when ripe they burst, and two or three brown seeds drop out: from these the oil is expressed. There were also quantities of a beautiful flowering tree, which produces another valuable oil, much used for varnish and to oil the native umbrellas. Vegetable tallow trees were also abundant, but not yet in foliage, whereas in the autumn they quite light up the country with their scarlet leaves and innumerable bunches of snow-white seeds. It is from the neighbourhood of Ch'u Chow that the Bamboos and timber-poles are brought down in endless quantities to Wenchow, for export. Ch'u Chow, too, is the principal seat of the Coir Palm, from the fibre of which excellent rain-coats and mats are made. For about 2*s*. a fisherman can get a coat that will last him for years.

—— THE DODWELL PRESENTATION.—We are requested to state that it is proposed to close the list of subscribers to the fund now being raised to make a presentation to Mr. E. S. DODWELL at the end of the present month—November. The object of the presentation, it may be briefly stated, is to show the sympathy of his brother florists with Mr. DODWELL in his present debilitated state of health, which has made it necessary for him to remove from the suburbs of London to a purer country air, while at the same time it may serve to cheer his declining years by an expression of their appreciation of the services rendered by him, during an active life, to the cause of floriculture—the advancement of the Carnation and Picotee in particular—including his successful efforts to bring about in the Southern portion of the kingdom the revival of a taste for floriculture, in some at least of its phases, of which the existence of the Auricula and Carnation Societies is a witness. Those friends who have not yet subscribed, and who intend to do so, are reminded that they should at once send in their contributions either to the Hon. Treasurer, Mr. C. TURNER, Royal Nurseries, Slough; or to the Hon. Secretary, Mr. T. MOORE, Botanic Gardens, Chelsea, London, S.W.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending November 1, issued by the Meteorological Office, London:—The weather has been rather variable; at first it was very cloudy and cold, with a few showers of sleet, snow, or hail, but afterwards very mild, with occasional rain. The temperature during the first few days was very much below the mean, but during the latter part of the period it was considerably in excess, so that the average for the week differs very little from the mean in most parts of Great Britain, but was above it in Ireland and "England, S.W." The maxima, which were generally registered on the 5th, were very high, reaching 64° in London and 63° at Cambridge and Strathfield Turgiss; while the minima—recorded on the 1st or 2d—were as low as 26° at Oxford, 27° at Cambridge and Leith, and 28° at Parsonstown. The rainfall has been rather less than the mean in Ireland and the north-eastern and northern parts of Great Britain, but a little more elsewhere. Bright sunshine shows an increase in Ireland, but a decided decrease in most parts of England and Scotland. The percentages ranged from 51 in "Ireland, S.," to 32 in "England, S.W.," and 10 in "England, E." Depressions observed:—Several depressions—mostly small and shallow—have travelled in a northerly or north-easterly direction over our western coasts. The winds, chiefly from S. or S.W., were strong to a gale on the 1st, but afterwards became moderate or light. During the greater part of the period the barometer was highest over Scandinavia, but on the 6th and 7th pressure was greatest over central and southern France.

—— GARDENING APPOINTMENTS.—We are informed that the flower garden and kitchen garden at Bulstrode Park are under distinct management, and that the recent engagement of Mr. WILKS refers only to the latter department, the former being under the care of Mr. WATERS.—Mr. JAMES SKYRME, late Gardener at Ellergreen, Kendal, has recently taken charge of the gardens at Ham Hall, near Ashbourne, the residence of R. W. HANBURY, Esq.—Mr. FREDERICK ROBERTS, late Foreman at Apley Castle, Salop, has been engaged as Gardener to H. J. W. H. FOLEY, Esq., Prestwood Hall, Stourbridge.—The following appointments (as well as the first fourteen mentioned in our list last week) have been made through Messrs. DOWNIE & LAIRD, Edinburgh:—Mr. WM. WILSON, lately Gardener to Col. WOOD, Stainrigg, Coldstream, to be Gardener to ALEX. HOPE, Esq., Chapel-on-Leader, Earlston, N.B.; and Mr. PETER MELVILLE, late Foreman at Trinity Grove, Edinburgh, to be Gardener to WM. CURRIE, Esq., of Linthill, St. Boswell's, N.B.

BUDDLEIA AURICULATA.

FROM the gardens of Sir Geo. Macleay, through the kindness of Mr. Green, we have received specimens of Buddleia auriculata, a greenhouse shrub, with widely spreading branches, the under-surface of the lance-shaped serrated leaves covered with greyish star-shaped hairs (fig. 129). The individual flowers are tubular, cream-coloured, and with a pleasant Primrose-like fragrance, massed into dense terminal heads. The plant is nearly hardy, doing well in a cool greenhouse. The name auriculata is applied in consequence of the presence of two ear-shaped appendages at the base of each leaf-stalk. The plant is a native of eastern South Africa.

Home Correspondence.

The Buckland Yew.—Since I removed this grand veteran in February of last year, we have had two anonymous criticisms in your journal; each of which has cost me a journey of 400 miles, in order to repel the attacks. This has become a serious matter to have had to travel 800 miles to meet and ward off two most unjustifiable articles calculated to damage the reputation of both my old pet and myself. I court fair investigation by all, but especially by practical men who really understand the habit and growth of trees, and who can at once distinguish between damage done to trees from a continuous hurricane whilst the leaves were frozen and stiff, and injury received from being injudiciously removed from one place to another. The first article I disposed of last year; the second I could not reply to, until I had seen the tree, which I did last week. And now, I must protest against any more such lame tales touching the speedy decay of the Buckland Yew, as both articles referred to betray a thorough want of practical knowledge, and even intelligent observation, on the real condition of the grand old tree, which I truthfully assert is now in a more vigorous condition than it was before its removal. I now quote the portions of the article of which I complain, taken from the *Gardeners' Chronicle* of August 27, 1881:—"This grand veteran, whose removal from the site he had occupied certainly for several centuries was the subject of illustration and comment at the time (p. 556, May 1, 1880), is still alive, though on the northern and eastern side the tree looks in woeful condition. . . . As it is, we must hope on and trust no further experiments will be made on trees of this character." Now I cannot believe that the readers of the *Gardeners' Chronicle* can infer anything from these observations apart from the "woeful conditions" being the result of its removal. That being the case, I now give you incontrovertible evidence that instead of the tree having suffered from its removal, it has added very materially to a more vigorous and healthy root-action. With this you will receive six specimens for inspection, taken from three Yew trees, all growing in Buckland churchyard, a branch from each tree being taken from the north and south sides respectively in my presence, and verified by the Vicar as true specimens—No. 1 being taken from the Buckland Yew, No. 2 being taken from a tree in the south-east corner and of great age, and No. 3 being taken from a tree in the north-east corner near the entrance gate. This tree may be about forty years old. The damage done to all these trees on the north side is well known to have been effected last winter and spring by the continuous blasting of the north and north-east winds, when the leaves of those trees were stiff from frost, so that the branchlets were battered against each other, and caused the leaves to perish. Not only at Dover, but in every county in England, similar effects have been seen, by correct observers, from the severity of last winter. The specimens now sent for your inspection have

Fig. 129.—Buddleia auriculata. (see p. 632.)

been submitted to men skilled in tree lore, and all agree that No. 1—the damaged branch taken from the north side of the "old veteran"—shows more root vitality than either of the other two, which have not been transplanted, inasmuch as the growth of last summer made on the branches which were leafless in the spring of the year, are both longer and more numerous on the damaged branch taken from the transplanted tree than on either of the others. Again, I call your attention to the remarkable fact of the young shoots made on the old tree the first summer after being transplanted, the shoots being shorter and the leaves much smaller than of those of last summer, being the second year's growth after being transplanted. This is proof positive that the tree, if let alone, will long outlive every prophet who has so rashly doomed this grand old warrior to speedy destruction. The specimens of Holly are from a young tree growing near the Buckland Yew, and No. 7 is a branch growing in the centre of the woeful portion. *William Barron.* [Those who are interested in this matter should see the tree for themselves, and compare it, as we have done, with the other trees mentioned by Mr. Barron. Eds.]

The Edelweiss.—Will you allow me to state, in reference to the article in No. 408 of your journal, that Gnaphalium Leontopodium is rather more frequently found on granite, gneiss and mica, than on lime. It abounds, for instance, in the inner valley of Zillerthal (Tyrol), where I have gathered it frequently myself. *O. F., Lehenhof, Austria.*

New Striped Phlox Drummondii. — Some months since there was an inquiry—what had become of Phlox Drummondii Radetzski? As Phlox Radetzski was sent out from this nursery, since I have been with Mr. Cattell, I thought I would send you a few blooms of one I have got this season, which I hope to perpetuate; and as I had something to do with Phlox Radetzski, I think I shall be successful. Although this is not equal in colour to Radetzski, I have no doubt it will be acceptable as a bedding plant as well as a pot plant, for the blooms are much better in shape than those of Radetzski. I hope you will make a little note of this at your convenience. *W. Farmer, The Nursery, Westerham.* [The flowers are of full size and good form; colour rich maroon-crimson, striped after the manner of Radetzski with slatey-grey. Eds.]

Planting Pears on the North Side of Walls.—Allow me to inform Mr. Sheppard the plan advocated by him at p. 593 was practised twenty years ago in the gardens at Bishopthorpe Palace, where good examples may be seen at the present day. The north side of the wall between the stems of the Pears is planted with Gooseberries; and perhaps Mr. McIndoe, Hutton Hall, under whose care the trees were for a good number of years, would give us the benefit of his experience on the subject. *H. Carter, Downhill, Londonderry.*

Winter Moth (Hybernia brumata).—As November is the month for this most destructive pest to make its appearance amongst fruit trees, &c., I should like to bring the subject before your readers. On the extensive fruit plantation of W. F. Gibbon, Esq., Peopleton, Worcestershire, a practice has prevailed of daubing all the trees with a mixture of tar and some fatty substance, applied to the boles a little distance up the stem, put on with a brush, so as to form a band completely encircling the same. When the female moth comes forth from its pupa state to lay its eggs on the trees, it is wingless, so that it must ascend the trees by crawling; she is stopped and caught by this daubing process. I have examined trees that had this mixture applied to them last year, and find that it has killed the bark underneath; it is also very unsightly to look at. Another way is for people to go out in the evenings with lanterns—the light will attract the males—and to search for the females on the trunks of the trees, when they can be destroyed: this is by far the better way of the two. If any of your numerous correspondents know of a more effectual method of getting rid of this insect, it would be considered a great boon to fruit growers in this neighbourhood, where hundreds of acres are planted with fruit trees. The opinion prevails in this locality that the future fruit crop depends to a great degree on the destruction of this moth before it has the opportunity of depositing its eggs on the trees. I have noticed that after a frost in May fruit trees seem to be alive with all kinds of caterpillars feeding on the foliage, &c. *A. T. S.*

Scarlet-flowered Lobelias. — Of how many species are the scarlet-flowered Lobelias of our gardens made up, and under what conditions are any of them hardy? These are puzzling questions, and it is difficult to get a satisfactory answer. Lobelia cardinalis is the only species mentioned in the copious catalogue of ornamental hardy plants native to North America published by Messrs. Woolson, of Passaic, New Jersey. I have the typical species obtained from them, with bright scarlet flowers and green leaves. It is said that in its wild state it is biennial, growing in bogs, and being often covered with water and frozen up for a long time in winter without injury, but dying after flowering: here, however, it is neither biennial nor hardy. It is said to have been introduced into English gardens in 1629. Besides L. cardinalis Loudon, in his *Encyclopædia of Plants*, mentions two similar species—L. splendens, introduced in 1812, and L. fulgens, introduced in 1809, both natives of Mexico: all these three species are mentioned by Loudon as being common in cultivation as tender plants fifty years ago. In our days a packet of scarlet-flowered Lobelia seed produces many forms and varieties, some with green, some with purple leaves, some with downy and some with smooth leaves, and some of them closely resembling L. fulgens and L. splendens as grown in the herbaceous garden at Kew. I have for the last two or three years grown hundreds of these, and left them out, but not one of them has ever survived the winter in the open ground, though planted in all kinds of soil and situation. Still the scarlet-flowered Lobelia is generally believed by gardeners to be hardy, though accounts of its hardiness, like ghost stories, generally refer to some other place and person than the present. The few places (and I have enquired in many parts) where it thrives when left out all winter have not been remarkable for their genial climate, but the plant has generally been grown in a bog border. From what we know of its habit when wild, the genuine L. cardinalis ought to be hardy, though we have no right to expect the Mexican plants, L. fulgens and splendens, to stand our winters. It is probable that the florists' varieties are made up of all three species. *C. Wolley Dod, Edge Hall, Malpas.*

Sequoia (Wellingtonia) gigantea.—Noticing in your columns the dimensions one of these noble trees, I send you the size of one here. It was planted December 10, 1857, being then 2 feet high; it is now 56 feet high; girth of trunk 2 feet from the ground, 8 feet 7 inches; circumference of lower branches 62 feet. It is a splendid specimen, furnished to the base. I shall have great pleasure in showing it to any one who may favour me with a call. *T. Pledger, Gr. to Rev. E. W. Northey, Woodcote House, Epsom.*

The Sycamore.—The Sycamore, or Great Maple, is one of those ambitious trees which affect the upper seats—that is, the high spots on the earth's surface—climbing the mountains of England and other countries to a height of several thousand feet, and forming a break-wind to many a dwelling in the North of England and elsewhere. In Scotland it is often planted in exposed situations in company with the Ash, both having alike strong, stiff spray which is not liable to be broken by wind. It is a good coast tree for the same reason, possessing a constitution capable of enduring strong currents; though I do not think it approaches so near the sea with its large foliage as the tough-leaved Ilex or the small-leaved Elm. The two Sycamores in the churchyard at Goodneston Park, Kent, are the largest and noblest I have seen. The dry soil of Goodneston, whose subsoil is of chalk, suits them, and the fertility of the deep covering of mould fed them up to their present size, as, in fact, it has conferred on all Sir Brook Bridges' numerous specimen trees—Oaks, Yews, Limes, Sweet Chestnuts, Cedars of Lebanon, Box trees, Bays, Hollies, and, above all, the two surprising Maples, 120 feet through their round heads—an unusual growth. Dry land suits most kinds of timber, and more particularly it agrees with the Sycamore, a tree of the hills. The central range of hills known as the Pennine range, terminating in Staffordshire at Wotton-under-Weaver, and extending northwards into Scotland, everywhere bears Sycamores on its highest brows. As you ascend the sides of this range, and leave various kinds of trees behind at the levels suited to them, the Sycamore becomes at length the only timber tree. In Scotland and the North of England the wood of the Sycamore is used for machinery. It works well in the lathe, does not warp or become worm-eaten, and is well adapted for the making of cheese-presses, and for patterns in foundries and many analogous purposes. Both as fuel and charcoal it is of excellent quality. The timber, under ordinary circumstances, is at its best at about a century old, and it will stand another century without decay. It is a good nurse, breaking the wind without over-shading the plants it should protect. In the North—where this tree naturally stands in high estimation—groups of "family" Sycamores surround many residences, like the "family" Oaks or Elms of other neighbourhoods. It is dangerous dipping into the *Arboretum Britannicum*—there is so much of interest [one might be tempted to copy, and so stretch out an article beyond its proper limits. I must mention, however, on the authority of Mr. Loudon, the noble spreading Sycamores in Mitford Park, near Morpeth, Northumberland, and especially a tree 16 feet in circumference at 9 or 10 feet above the ground, containing 327 cubic feet of timber. Fast as this tree grows it could not have attained such dimensions even in 100 years. A growth of 35 feet by 3 feet in circumference has been observed in a specimen twenty-five years planted. I have already had the pleasure of reporting, in the *Gardeners' Chronicle*, my own measurement of remarkable Sycamores in Perthshire and other places. The worst fault attaching to this tree as an ornament among others is that the buds expand early and the leaves fall soon. *H. E.*

Justicia flavicoma and Plumbago rosea.—A plant that merits more extensive cultivation is Justicia flavicoma; at this dull time of the year it makes a good decorative subject, either for stoves or rooms. Plants struck early in the spring, and grown through the summer months in a cold pit, kept close and shaded, are now fine bushy stuff, no more than 1 foot in height, in 48-sized pots, giving a profusion of clear yellow flowers, beautifully set off by its glossy, dark green foliage. Plumbago rosea and its charming coloured companion, P. coccinea superba, are winter flowering plants that find favour here. A number grown in pots are making one of the stoves quite gay. We also use them for other decorative purposes, and find that the flowers in a cut state last longer than is imagined. The same treatment given to the Justicia suits them admirably. *H. S., Stanstead, Emsworth.*

Viola Pilrig Park.—This is a very late and profuse white-flowering Viola. Just now (Nov. 8) there are several rows of it in fine flower in a border in front of one of the plant-houses in the Castle Street Nurseries, Salisbury. The flowers are large, and, as already stated, white, with a yellow eye, and make a very good contrast to Golden Gem and Admiration; but what we still want in this hardy and floriferous class of plants is a Vesuvius—a crimson-flowering variety! Cannot some of our enterprising florists do something in this direction? *H. W. W.*

Veitch's Autumn Giant Cauliflower. — If spring-sown plants are planted out in a piece of good land heavily manured and well dug you have no difficulty in growing—to use our kitchen garden man's phrase—a Cauliflower as big as a scuttle. Last spring he planted some out that had been kept in pots in a cold frame all the winter, in well prepared ground and 3 feet apart. They grew all the summer, and I thought they were not going to flower at all, when at last Nature brought them to bay, and they produced Cauliflowers more like filling a wheelbarrow than a scuttle—certainly the plant altogether would fill a barrow. For my part I like no Cauliflower so well as the old Walcheren, if it is true. My stock is from Messrs. Veitch; we have it in use often up to Christmas by lifting them into cold frames. The little heads are nicely wrapped up in the leaves, and often escape several degrees of frost. In the autumn, when they show the flower, they are tied in a bunch together; in this way ordinary frost does not hurt them. *William Culverwell, Thorpe Perrow.*

The Clove Carnation, "The Governor."—I have no wish to prolong a controversy respecting this flower, but trust you will afford me space for this one letter, in reply to that of Messrs. Cross & Steer. I repeat that some thirteen years ago I purchased from the late Mr. Dowding, then governor of Salisbury Gaol, what he distinctly stated was his "entire stock"—I think about 300 plants—and I have my books to prove payment for them. It was entirely a private transaction. I bought no Cloves or Carnations at Mr. Dowding's sale or sales, but it is quite possible that he offered his plants to Mr. Cross before I purchased them. I remember him saying that Mr. Cross had been there some days before, and I also know that the plants were offered to a Mr. Hinxman previously to their passing into my possession. I removed them myself, and naturally took care not to leave a single one behind; but, of course, I am unable to say that Mr. Dowding had not previously distributed plants amongst members of his family and his friends, from whom Messrs. Cross & Steer say they have purchased "the principal portion of their stock this year.' They do venture to deny that I sent blooms to the Editors of the *Gardeners' Chronicle* five or six years ago, and yet they gravely (?) enquire what the "misapprehension" is that I wish to remove? It is insinuated that I have distributed only a few plants amongst my friends. In reply, I can state, without fear of contradiction, that I have long sold them, not only in Salisbury, but also in other and distant parts of the country. Let the matter be decided by two thoroughly independent men (I will afford them every facility) for the benefit of the Salisbury Infirmary, to the amount of £5. I am not accustomed to circulate printed catalogues—I can do without them—and therefore, I cannot comply with the request to furnish a copy of a document that never existed. The comparatively few plants in my posses-

sion were never obtained either from members of the late Mr. Dowding's family, or his friends. I have always told my customers that I called it the "Governor's Seedling;" believing, as I did, and do still, Mr. Dowding's assurance, that he had raised it from seed. Messrs. Cross & Steer are scarcely justified in stating that the flower is new, and that it is now being offered for the first time. *Geo. Smith, Wilton Road Nurseries, Salisbury.* [Both parties having had their say, we must ask them to settle the matter now between themselves. Eds.]

APPLES AT SOUTH KENSINGTON.

Another feast of Apples greeted visitors to South Kensington on Tuesday last, and it is worthy of remark that, this time, of the 300 or more dishes shown not one was of the same as those shown last month. The chief exhibitors on this occasion were two Kentish growers and one from Berkshire; and though so few in number, yet they were sufficient to show how good Apples are generally this year. The finest collection, and perhaps the best general collection, ever shown at South Kensington, was one of 116 dishes, sent by Mr. William Skinner, of Beresfords, Boughton Monchelsea, Maidstone; and we write of this lot in praise, because the samples, as a rule, were not only fine, but exhibited admirable form. Still further, the nomenclature was good, and served well the useful purpose of enabling learners in Apple lore to get some correct conceptions of what sorts were rightly or wrongly named.

Just lumping the most noticeable kinds into sections, we found of prominent striped kinds the old Beefing, Lane's Prince Albert, Holland Pippin, Beauty of Kent, Lewis' Incomparable, a grand conical though somewhat rugged variety, and a splendid kitchen kind; Cullen, another kind little known or grown, large and solid, and, much like it, the Round Winter Nonsuch; Peasgood's Nonsuch, the handsomest large Apple in the entire group; Emperor Alexander, always good; Mère de Ménage, richly coloured; Lady Henniker, here a fine sample; Hoary Morning, medium-sized and beautifully striped; Colonel Vaughan, richly striped and handsome; and Cox's Orange Pippin. These were the most marked striped kinds, and made the most prominent section. Yellow Apples, or those having skins that assume that hue eventually, made a good show, though less in number. Of these we marvelled to see yet firm and good samples of Lord Suffield. Stone's Pippin was marvellously fine, quite a surprise to many. Belle Dubois was prominent as a ribbed greenish-yellow; Warner's King a good sample, Lord Derby very fine and bright in colour, Minshull Crab in fine form, Tower of Glamis very good, and so was the Codlin-like Lord Grosvenor. Queen Caroline is a somewhat unknown Apple out of Kent, and though not unlike Golden Noble, yet has a prominent open eye. Pott's Seedling, Manks Codlin, and the pretty yellow Ingestre made up the chief in this section.

Red kinds were marked by their rich colouring, and proof was abundant that the warm Kentish soil not only favours size but depth of hue. Not least noticeable amongst these was a very good sample of the old Red Quarrenden, fairly sound, but certainly looking out of season. Vieing with these were the beautiful Worcester Pearmain, Duchess' Favourite, Court-pendu Plat, and Fearn's Pippin, the two latter sorts unusually high-coloured. Ribstons were also so good, indeed so deep hued as to come on this occasion into the red group; Hollandbury, or, as sometimes called, Scarlet Admirable, and Cox's Pomona, were both deeply tinted, and a sort named Windsor Castle, not unlike Cellini, was also richly marked. Of other kinds that would hardly fall into these categories were Wellington or, as Mr. Skinner would have it, Dumelow's Seedling; Winter or New Hawthornden, Bedfordshire Foundling, Reinette de Canada, and a few others. The award of a Silver Knightian Medal was made to this very fine collection.

Another lot from Kent, but far from being peculiarly creditable to the Garden of England, consisted of 20 dishes sent by Mr. Mainwaring, Marl Place, Brenchley; the samples generally were poor. A few were fairly good and the nomenclature not commendable. The most prominent dishes were those of Mère de Ménage, Gloria Mundi, Reinette de Canada, Lord Derby, shown as London Major; Blenheim Pippin as King of the Reinettes, and Queen Caroline as Golden Noble. Many of the samples in this lot rather served to show planters what to avoid than to select. A Bronze Banksian Medal was awarded.

Certainly a very meritorious collection was that staged by Mr. Lees, gardener to Mrs. Marsland, The Wilderness, Reading, and which consisted of about fifty dishes. Unlike the other collections, which were orchard-grown samples, selected literally from acres of trees, these Berkshire specimens were the product of a garden of moderate dimensions, and where fruit culture cannot get more than very ordinary attention. Mr. Lees had the best dish of that somewhat rare Apple, Annie Elizabeth, that we have yet seen. Very good also of yellow-skin kinds were Small's Admirable, Golden Noble, Frogmore Prolific, Stirling Castle, Dutch Codlin, and Wellington. Of striped sorts, Cellini Pippin and Beauty of Kent were both good. Lady Henniker was a capital sample, and Brabant Belle-fleur, Hambledon Deux ans, and Hanwell Souring, were also capital samples. There was rich colour in the pretty Force Apple, also in the handome little Jefferson, Scarlet Nonpareil, Fairy Apple, Norfolk Beefing, and Court-pendu Plat. There were also some admirable examples of King of the Pippins, Court of Wick, Cornish Aromatic, and Blenheim Pippin. A Silver Banksian Medal was awarded tois th collection.

Messrs. Lane & Sons, of Berkhamstead, showed nearly a score dishes of their capital striped Apple, Prince Albert, and a tree-branch, showing its wonderful cropping qualities. Judging by this sample, literally covered with big buds, Prince Albert should be as prolific as the Hawthornden or Manks Codlin, and so it is, at least at Berkhamstead.

FRUIT GROWING AT BARHAM COURT, MAIDSTONE.

Barham Court is situated on the summit of the north bank of the Medway, and within a mile or so of Wateringbury Station, on the South-Eastern Railway. It is in the parish of Teston, and Teston was originally part of the possessions of Odo, Bishop of Bayeux, under the general title of whose lands it was entered in Domesday record. When disgrace overtook this prelate the domain was granted by William the Conqueror to Robert, son of Hamon de Crevequer, whose descendant, Hamon, died possessed of the estate in the forty-seventh year of the reign of Henry III., holding it *in capite* as a member of the manor of Chatham, which was held by the king *in capite* by barony.

Teston House was formerly known by the name of Berham Court, and was once the mansion or residence of the family of Berham, usually called Barham, but whose original name was Fitz-Urse. Randal Fitz-Urse was one of those four knights belonging to the household of Henry II. who undertook to murder Archbishop Thomas A'Beckett, which was accomplished in the cathedral church of Canterbury on December 30, 1170. Barham Court is now the residence of Roger Leigh, Esq., M.P. for Rochester.

At Barham Court Mr. Charles Haycock, the head gardener, has during the six or seven years of his occupancy set down what might be very appropriately termed a model fruit garden. No expense or labour has been spared to provide every convenience and appliance necessary to work out the end in view. The position is unique; the soil, though varying a little, is generally very fertile, and of a nature calculated to induce fruit trees of all kinds to put forth an abundance of fibrous roots, to grow quickly and vigorously, with a symmetry and outline suggestive of being perfectly at home, and subject to the most intelligent cultivation. Whether the trees be against walls or open trellises, or as standards and pyramids in the open ground, or as planted out and in pots in the five new fruit-houses, their condition is thoroughly good; they are well cared for by an accomplished cultivator, who takes great interest and pride in his work. The fact that Mr. Haycock has gained a wide reputation as a highly successful cultivator of hardy fruits, attests to the excellence of his work.

The fruit garden occupies a gentle declivity running from the high ground on which the mansion is situated down to Teston village. It is open to all the balmy influences of the south, and fairly well protected at the other points. It consists of some three or four walled-in gardens, flanked by open gardens on the south and west sides.

Running southwards from the gardener's residence is an open piece of garden, part of it used as a Damson orchard, part for standard, pyramid, and fruit trees, and part for open kitchen garden. This latter portion is backed by a fine wall 12 feet in height with a 6-inch brick coping and having a west aspect. This wall, which is about 250 feet in length, has planted against it some 140 single cordon Pear trees, now from 7 to 8 feet in height. All these are single grafted on the Quince. Generally there were good crops of fruit. Pitmaston Duchess was wonderfully fine, so was Conseiller de la Cour, Beurré Hardy, a good second early Pear for a south wall, fine quality and an excellent cropper: Beurré Diel, Emile d'Heyst, Doyenné du Comice, a variety that is largely grown, there being not less than thirty-five cordons of it: this is a staple Pear at Barham Court, it succeeds well as a cordon, keeps well for a month, and in Mr. Haycock's opinion there is no Pear like it in its season; Beurré Superfin, a fine Pear of splendid quality, quite distinct and keeps well for ten days; Marie Benoist, which comes into use soon after Doyenné du Comice, a good Christmas Pear of excellent quality, and others. The condition of these trees was admirable, and the fruit spurs numerous. Mr. Haycock is very particular in the matter of summer pinching. It is never done till the wood is hard enough, as it is found that, if done while the wood is soft and succulent, it will die back two or three eyes. The first pinching is therefore a very important one; it is done back to five leaves.

The other portion of the wall, which was continued at a right angle, giving a south aspect to this part, is planted with Peaches and Nectarines. This wall is capped with Parham's patent glass coping, 2 feet in width, which can be removed at will. Here are the Dymond Peach, Exquisite Peach, Prince of Wales Nectarine, which fruits well but cracks very much, and no doubt needs the warmest position on a south wall; Albert Victor Nectarine, a fine late variety, a five-year-old tree of which was carrying a remarkably good crop; Dr. Hogg, a fine cropping Peach, and an excellent variety for the open wall; Lord Napier Nectarine, very fine indeed in or out-of-doors, and one of the best Nectarines grown; Sanguine Grosse Peach, a somewhat scarce variety, very good, but too late to be of service out-of-doors; Pourpre Tardive Peach, of French origin, a good Peach, but late: the tree in very fine condition; Rivers' Orange Nectarine, very fine, one of the best; Victoria, a fine Nectarine, but apt to crack; Early Louise Peach, good for out-of-doors; and Lord Palmerston, very good. Mr. Haycock holds the opinion that the Nectarines raised at Sawbridgeworth are decidedly better than the Peaches produced there also. It need scarcely be stated that all the trees are in the best possible condition.

The border is entirely given up to fruit culture, as along the middle of it was a 4-feet wire trellis, to which Apples are trained, mainly Ribston Pippin, producing splendid fruit, and in front a line of low horizontal cordon Apples.

Among the pyramid Apples and Pears in the adjoining ground was Stone's or Loddington Seedling in rare condition and cropping very finely, while other good varieties were equally prominent.

Close by is the fruit-room, an admirable structure, having ten shelves deep round the sides, the top ones sloping to the front so as to enable the fruit to be more readily seen, with thick double walls 20 inches apart and double doors, and a thickly thatched roof. The room is both dry and cool, well ventilated, and it seems impossible that the hardest frost in this country could penetrate to the fruit. In the fruit-room were gathered specimens of Apples and Pears from pyramid trees; of the former Annie Elizabeth, a fine culinary Apple that keeps well; Ribston Pippin from cordons, very fine; Sugarloaf Pippin, a good early market Apple, a weak grower that requires working on a good stock; Ecklinville Seedling, an excellent market Apple for September; Lady Derby, a good early dessert Apple that never fails to crop well; Duchess of Oldenburg, a thoroughly good grower and cropper, and an excellent market Apple, does for kitchen and dessert; Stone's, an excellent culinary Apple that keeps well, and is in use from September till Christmas; and Emperor Napoleon, a very early dessert Apple, ripe at the end of August, rich colour, very handsome on the trees, and a good cropper. Of Pears Fertility, a great cropper and an excellent market Pear at the middle of September, very like Beurré de Capiaumont; Durondeau, a very handsome Pear from pyramids, ready at the end of October; Clapp's Favourite, an American Pear, like

Williams' Bon Chrétien, and ready at the same time, but rather more bell-shaped—a good grower and cropper, and will make a good market Pear; Williams' Bon Chrétien, very fine for open trellises; and Souvenir du Congrès, a good Pear, which does well on a trellis, showy in appearance, rather larger than Bon Chrétien, and a good market variety.

Passing into the upper part of the walled-in fruit garden, we find it wholly given up to the culture of Apples and Pears on horizontal iron trellises at distances of some 5 to 6 feet apart—a double trellis alternating with a single one. These trellises are formed of strong wires with flat supports to hold them together, all held firmly by means of braces and wires running towards the walls on either side. They are very light while strong, and Mr. Haycock asserts that the fruit taken from trellises is of better flavour than that taken from walls. As the wires are carried over the paths at various places, all cordon Apples and Pears are trained over these also. On the borders in front of the walls are pyramid and low cordon trees. Pears are mainly grown in this garden, the majority double worked on the Quince stock. Doyenné Boussoch was very fine indeed—a grand October Pear; Joséphine de Malines very fine, a late or February variety; Beurré Diel, best on a wall, but fine and good on trellises; Souvenir du Congrès, very fine; Beurré d'Amanlis, very good; Beurré Hardy, a strong grower and fruitful bearer; Marie Louise d'Uccle, a French variety, good in many respects, but not equal to Marie Louise in quality — grows largely and is of a more showy character, crops heavily; Colmar d'Aremberg, very good; Zéphirin Grégoire, a good cropper and a useful Pear, coming in with Winter Nelis and as good, not large in size, but a great cropper; Souvenir du Congrès on the Pear stock, very fine; Passe Colmar, a good useful Pear, growth like Zéphirin Grégoire, fruit like it in appearance, but distinct; Baronne de Mello, a good October Pear; Williams' Bon Chrétien on pyramid, very fine; and Beurré Superfin on the same, also superb; Nouveau Poiteau, a large melting Pear, that requires eating as soon as ready, as it goes quickly in the centre, a vigorous grower and a good stock to work on; Soldat Laboureur, like Beurré d'Aremberg a delicious Pear and a good cropper, requires a wall to do it well; Fondante de Panisel, in the way of Doyenné Boussoch, the growth different, ripens later; Passe Crassane, one of the best late Pears, but will not do on the Quince, requires a good Pear stock; Madame Treyve, a good second early Pear, does not keep long; and Rivers' Seedling Bergamot, a very good and delicious Pear, requires working on a Pear stock, being too delicate for the Quince. Of Apples the following were particularly noticeable:—Potts' Seedling, a good culinary Apple, of the type of Hawthornden; Golden Spire, an early Apple, good for dessert or culinary purposes, a fine cropper, and an excellent market fruit; Emperor Alexander, on low cordons, very fine, and taking on a marvellous wealth of colour; New Hawthornden, very good; Ribston Pippin, upon trellis, very fine; Peasgood's Nonsuch, very fine; Welford Park Nonsuch, a very pretty winter Apple, very pleasing on the tree, and a good cropper; Royale d'Angleterre, a culinary Apple, ready at Christmas and onwards, a good cropper; Mannington Pearmain, an excellent Apple, of very fine flavour; Reinette de Caux, a good cropping Apple, sweet and agreeable to the palate; and Golden Pine Pippin, a very good and well flavoured variety.

On the south and west walls of this garden were Peaches, on the east Cherries, and on the north Plums, with here and there Pears. What Mr. Haycock has under the name of the Falcon Peach is a good mid-season, and an excellent outdoor variety, rather long in shape, fine in colour, and of good flavour.

The next walled-in garden is divided from the preceding one by felt walls, cheaply constructed by stretching sheets of felt against a stout wooden framework. In this garden also the trees are trained against trellises as in the previous one. Against the east wall are Plums; amongst them Late Rivers, a very fine late variety, of excellent flavour; a most useful late sort, larger than the Impératrice.

In this garden the following Pears were very fine:—Fondante de Noël, a Christmas melting Pear, requires a wall, or it is apt to come spotted, striking colour, and crops well; old Brown Beurré, very fine; Fondante de Panisel, a good variety for growing as a cordon, as it spurs so freely—should be double worked when used as a single cordon; Emile d'Heyst, better than Marie Louise in flavour, a little later, bright-looking fruit, and a peculiar habit of growth; Beurré Sterckmans, a good late Pear, that requires a wall; Conseiller de la Cour, very fine; Duchesse de Bordeaux, a March Pear, fine russet colour, very late and very good; Nouvelle Fulvie, a very good Pear with a great many—an improvement on Passe Colmar—should have a wall; Passe Crassane, a very fine winter Pear, should be double worked on a Pear stock; Beurré Diel, very fine on the wall; Glou Morceau, very fine on a south wall, requires this position; and Emile d'Heyst, budded on one branch of Glou Morceau, bearing fruit of remarkable quality and finish. The Lady Apple, on upright cordons, was very noticeable; very pretty and a great cropper. Plum Belgian Purple was very fine here, an excellent culinary variety.

Referring again to the felt walls, it may be remarked that the framework is composed of posts and rails, the whole kept well whitewashed. Mr. Haycock finds these walls as good for Pears and Plums as brick walls, but not for Peaches; the felt holds too much moisture for the latter. *R. D.*

(*To be continued.*)

Notices of Books.

Fruit Farming for Profit. *A Practical Treatise on all Matters Relating to that Important Industry.* By George Bunyard, of the Maidstone Nurseries.

This is a small manual on a rather important subject at the present time, when to farm profitably has become almost impossible, and the Land Question is the great topic of the day. Few men can be found so qualified to speak on such a subject as fruit culture as Mr. George Bunyard. Although not a grower of fruit to any extent, but a grower of fruit trees to a very great extent, and living in the very centre of the Garden of England (Kent), and conversant with the management of the finest orchards, &c., in the kingdom, Mr. Bunyard has had opportunities of gaining special knowledge such as few can obtain.

And what is Mr. Bunyard's advice? To plant fruit trees, of course; and this little manual not only recommends their being planted, but tells how to do it, and when and where to do it; the sorts or kind of trees to plant on particular soils, &c., and the prices that may, or can be, and are realised, &c. Mr. Bunyard's figures may be taken to be as nearly as possible correct and trustworthy, and the conviction is forced upon us that fruit growing pays. Mr. Bunyard is very cautious, however, in saying "that a sober view should be taken of the matter; as, although fabulous prices are made, the seasons for two or three years may be adverse, and actual loss may be incurred." But Mr. Bunyard points out that "the average prices realised are very regular, as the higher prices in a scarce year compensate for deficient quantity; . . . and it is curious to note that, in spite of foreign competition, the average price per annum obtained for Kentish Cherries during the last ten years is nearly 1*s.* per sieve higher than the average of the preceding decade."

Fruit growing for profit, as Mr. Bunyard remarks, is very different from growing to please one's fancy. "We have to grow such kinds as will pay, and also, send to market fruit as we think in a very unripe condition; our object being to make it pay, we must throw overboard our old ideas. For instance, if green (unripe) Apples, partly grown, fetch more money than full-grown ones, they must be sent green to market, &c. In Kent many worthless fruits are grown which pay the grower far better than those fine sorts which he prefers for his own eating."

We pass over the Irishism as to how a fruit can be "worthless" that pays, as we do the quaint and somewhat disjointed style throughout. There is a smack of sincerity and honesty about it that we like, and so we heartily recommend its perusal by those who contemplate fruit growing for profit.

PUBLICATIONS RECEIVED:—CASSELL'S *Illustrated Almanac* for 1882.—*Snowtime and Glowtime*, the *Little Folks' Annual* for 1882 (CASSELL).—*Aunt Judy's Magazine:* No. 1 of a New Series (BOGUE).—WARD & LOCK'S *Illustrated History of the World for the English People.*—*Relazione del Professore Teodoro Caruel . . . sulla Sistemazione della Collezioni Botaniche.*—*The New Botany:* a Lecture on the Best Method of Teaching, by W. J. BEAL.—*Anthrax of Fruit Trees*, by J. T. BURRILL.—*The Cinchona Planter's Manual*, by T. C. OWEN (Colombo, Ceylon, FERGUSSON; London, HADDON & Co., Bouverie Street, E.C.).—*Bulbs and Bulb Culture*, vol. ii., by D. T. FISH (*The Bazaar* Office).

Florists' Flowers.

SEASONABLE NOTES ON CHRYSANTHEMUMS.—The brightest of winter flowers will soon be in their full beauty, and for a time we can afford to forget that we are upon the eve of a long dreary winter, the beginning or end of which few people would undertake to foretell after the dismal experience of the past two or three winters. The beauties of the garden are said to be evanescent, and, in a sense, the remark can hardly be disputed. The rapid transitions through which plants and flowers pass in a season are certainly numerous, still they are not without interest at any stage of their existence, and plants that possess so many attractions as the Chrysanthemum are not likely to be without admirers among lovers of flowers. As a class of plants the Chrysanthemum furnishes great variety. The colours are, however, not so distinct as a great many people would like, but in this respect want of experience in selecting varieties of suitable colour for massing is often at the bottom of the dissatisfaction. As a matter of fact it may be broadly stated that the bulk of Chrysanthemum growers do not always make the most of their collections. They are very much treated as a whole, and follow each other in the order of Nature as regards their time of flowering. An experienced grower will have no difficulty in keeping up a fair show from October to February, but it requires some little judgment, and a knowledge of the habits and time of flowering of the different kinds under cultivation.

At the beginning of the season the early-flowering kinds, such as Elaine, James Salter, Mrs. George Rundle, George Glenny, and others will produce a satisfactory display until the general body of the collection comes into flower. I should have stated that for practical purposes those who have a properly organised system of their own will be able to vary the arrangement of the show-house or conservatory by constantly renewing the place of a faded plant by one that is beginning to open its flowers—by drafting a succession from houses set apart as feeders to the show-house proper. This brings me to a very important point in the curriculum of the season's treatment of the plant. There are many who cultivate Chrysanthemums in a very superior manner, as I have already indicated, who do not make the most of them afterwards. At this season of the year, when fruit-houses are, so to speak, unoccupied, there is abundant choice of structures in which to retard a succession of plants to come in at Christmas, which will be the most useful batch of flowers of the season. Let me be distinctly understood: the condition and treatment essential to the production of "show blooms" are not here touched upon. What I desire to point out is that a better knowledge of the habits and time of flowering of useful varieties would be of great utility to the mass of cultivators. Such information may be gathered between now and next February, and may be turned to good account another season.

An ordinary collection made into three lots will accomplish the purpose I have suggested. Even with those who have but a very imperfect knowledge of varieties, the condition of the buds will indicate whether they are early or late flowering varieties. Of course those having a better knowledge of kinds, and who have facilities for keeping plants in a backward state, will succeed better than those of less experience. The latest batch of plants I have usually risked out-of-doors until the buds begin to show flower, after which frost or heavy rains are calculated to seriously injure them. Given a fair selection of late varieties, I would immediately remove them to a house with a north aspect, which should be thrown open night and day, except in case of severe frost. A little ventilation is not sufficient—every ventilator should be thrown open as well as the doors. In wet weather the flowers require protection from damp. In my own experience, and in my travels I have noticed the serious consequences following upon a system of supposed protection, which is infinitely worse than if the plants were standing out-of-doors. Structures, or makeshift houses that are but partially enclosed, and without proper means of drying up the atmosphere at least once a-day, are fatal to the prolonged existence of flowers. In not a few cases where houses are well glazed, but lofty and damp, if plants are crowded into them as the flowers are beginning to open, nearly every leaf is gone before the blooms expand, and even these are of short duration.

Your reference to the collections at the Middle

and Inner Temple in the last issue of the *Gardeners' Chronicle* reminds me of the difficulties under which many cultivators are placed. I availed myself of the privilege, so kindly conceded by the benchers, of visiting both collections, and I think you did not say a word too much in favour of those who, under such adverse circumstances, have produced such a show. The size and health of the foliage is if anything more remarkable than the display of flowers. But the evil effects of the low, damp situation upon the blooms, many of which are a mass of decomposed matter before half the petals are unfolded, was manifest enough at a glance. Exhibitors are alive to the loss of a single petal from this cause, and take care that lurking damp is dried up by warming the hot-water pipes through the day where there is full opportunity of giving abundant ventilation. Where there is no heating apparatus plants must take their chance, but there can be no doubt that more might be acomplished n the cultivation of this queen of winter flowers if we would but be more careful in our treatment, that is, where proper facilities are provided.

I do not know that it is sufficiently recognised that a little genial warmth is beneficial to plants occasionally at that particular stage when the centres of the flowers are unfolding; but as my remarks are of a general nature, I will not touch upon points which are only interesting to a few except to repeat that free ventilation and a dry atmosphere are important elements in producing and maintaining a long succession of flowers. In the matter of arrangement considerable improvement might be effected also. One cannot suggest any code of rules or method of training that would meet with universal approbation; nor, indeed, is it necessary or advisable to do so. I will not, however, be contested that the bush and standard systems are the simplest and best methods of training for producing a graceful and natural *tout ensemble*—a picture for an artist or a show that does not soon fade from the memory. An artistic style of grouping these plants is readily accomplished in the following way:—Given a sufficient number of tall-grown plants with a stout stake placed to keep the stem erect, but "hidden from the eye," and the flower-stem drooping, a bold background formed of these, and the whole space to be filled irregularly dotted with them would break the formal surface of bush plants, which would make up the groundwork. The plants, both tall and dwarf, would of course be selected in order to produce harmony of colour, and the heads of the tall plants would hang loosely among the dwarfer ones with charming effect. Those who have not been in the habit of grouping plants in this way would, I am sure, be pleased after giving the system a trial. *W. Hinds.*

Chrysanthemums Growing at Tunbridge Wells.—It is a well known fact that those who succeed best in Chrysanthemum growing must undertake the greater part of the work themselves, except the mere drudgery connected with the various cultural operations. It is, therefore, not too much to say that the man bearing the lightest burden has the advantage over those whose charge is heavy and of a multifarious nature, although lovers of the Chrysanthemum—and not a few either—who have to direct the management of large gardens, find time to grow show collections of this indispensable and charming winter flower. On a recent visit to Tunbridge Wells I was pleased to find how popular the cultivation of the Chrysanthemum has grown of late years in that neighbourhood, both in large and small gardens. Among the latter honourable mention is due to Mr. Ware, gardener to Mrs. Morgan, Hungershaw Park, who is a very successful cultivator and exhibitor at the Tunbridge Wells shows. His plants are noteworthy, not because of their great vigour, but because of their medium strength, and to the fact that they are grown in smaller pots than is generally used by exhibitors. Nine inches in diameter is the maximum size of the pots used, and some are even less, yet the plants are famous in the neighbourhood for the quality of the flowers they yield, and the fact of Mr. Ware carrying off prizes is the best practical testimony in favour of the system. In a neighbouring garden of about the same extent trained plants are a speciality, some of them measuring 4 feet across, neatly trained, and having fine leaves, which indicate their state of health. This garden is the property of J. Grant, Esq., and a very pretty and interesting garden it is. *H.*

Obituary.

We much regret to announce the death of an old correspondent of this journal, in the person of Mr. Alexander Ingram, gardener to the Duke of Northumberland, at Alnwick Castle, whose demise took place on November 5, after a very short illness. Born in Aberdeenshire in 1821, Mr. Ingram commenced his career as garden boy at Pitcaple Castle, whence he left for the Earl of Aberdeen's, at Haddo House, where he served an apprenticeship of three years. From Haddo House he went, in February, 1847, to Newby Hall, Yorkshire, as foreman, and after two years' service at this place he went (in February, 1849) as foreman to Moor Park, Rickmansworth, Herts; and in February, 1853, entered the employment of Messrs. Knight & Perry, of the Royal Exotic Nursery, Chelsea, whose business was shortly afterwards taken over by the late Mr. James Veitch. In June, 1854, Mr. Ingram was sent to Highgrove, Reading, then the residence of a famous horticulturist and Vice-President of the Royal Horticultural Society—the late John Jackson Blandy, Esq., and in whose service Mr. Ingram proved himself to be a clever cultivator and successful exhibitor of choice plants and fruits, as may be inferred from

the fact that during his stay there (thirteen years) he took 400 prizes at the metropolitan and local shows. At Mr. Blandy's death the place was sold, and in October, 1867, Mr. Ingram became gardener at Alnwick Castle, the princely home of the Percies, and whose gardens he almost entirely remodelled. Mr. Ingram's autobiography will be found in our number for May 20, 1876, whence we reproduce the portrait that accompanies this brief memoir of a highly accomplished gardener and most worthy man.

Reports of Societies.

Royal Horticultural: *Nov.* 8.—Col. Trevor Clarke in the chair. The first group of plants referred to by the Rev. G. Henslow at the afternoon meeting was a fine series of Bouvardias, of Mexican origin, grown and exhibited by Mr. Woodbridge, of Sion. He called attention to the fact that they belong to the same family as the Coffee, Cinchona, Madder, and Galium, which, so different in appearance, had their flowers constructed on the same plan. The lecturer described the various uses of these plants. As illustrations of methods of fertilisation, he also described the Salvia, showing the peculiar oscillating motion of the stamens, which is adapted to insects, so that they may convey the pollen from one flower to another. In certain species with long-tubed corollas, this process has apparently become lost, as the stamens are straight and immovable. He also showed the methods of fertilisation in Primroses and Amaryllis. A Tea Rose exhibited by Mr. Bennett, profusely covered with fruit, showed the beneficial effects of artificial fertilisation, the crop being the second borne this season. A branch of Hippophäe rhamnoides, covered with fruits, gave occasion to describe the different organs utilised in forming fleshy fruits—such being the calyx in this case and in the Mulberry, while in Pears and Apples it was the flower-stalk. A curious illustration was seen in a specimen sent from Dublin, in which the stalk had alone swollen, there being no fruit within whatever. On the other hand in Cycas revoluta, specimens of which were forwarded by Mr. Hudson, of Gunnersbury House, Acton, it was the fleshy coat of the seeds which are borne on the edges of reduced leaves and not within pods.

In alluding to Cycas, Mr. Henslow remarked on the former abundance of Cycadaceous plants in England, as testified by the fossil remains found at Gristhorpe, near Scarborough, and at Portland, Dorset. Trunks of such trees may be seen in the rockery in the conservatory of the Royal Botanic Society, Regent's Park.

Scientific Committee.—Sir J. D. Hooker, K.C.S.I., in the chair.

Substitute for Gravel.—Mr. Pascoe showed samples of crushed granite obtained in the washing of china clay, and available for use on garden paths where binding gravel is not attainable.

Ehret's Drawings.—Mr. Schofield showed a series of beautifully-executed water-colour drawings of plants on vellum by Ehret.

Disease of Elms.—Mr. W. G. Smith exhibited the fungus growth known as Rhizomorpha subcorticalis, the indurated mycelial condition of Polyporus squamosus, and other fungi. It grows under the bark of trees, and is extremely destructive to Elms round London. (See *Gardeners' Chronicle*, July 30, 1881, p. 147.)

Seedless Pears.—Dr. Masters exhibited, on behalf of Mr. Burbidge, College Botanic Garden, Dublin, samples of Pears from a tree which produces a large proportion of its Pears—we cannot call them fruits—without core or seed, destitute, that is, of fruit proper. The normal Pear is a small pyriform variety, while the abnormal Pear is elongated, cylindrical, and solid throughout. Mr. Burbidge finds that the solid-fleshed fruits keep much longer than the normal forms from the same tree, which latter rot at the core three weeks after being gathered. The flavour also of the seedless form is superior to that of the normal form. Dr. Masters remarked that such instances were not uncommon, though he had never seen them in such abundance as observed by Mr. Burbidge. They are interesting as confirming the views now generally held as to the morphology of these fruits, and the points mentioned by Mr. Burbidge are very significant.

Cyclamen Atkinsi.—Mr. Boscawen sent a flower of this in which the sepals had assumed a leafy condition.

Massachusetts Horticultural Society.—A communication from this Society of a flattering character, accompanying a donation of books to the Lindley Library, was read, and a suitable reply directed to be sent.

Objects Exhibited.—Fruiting fronds of Cycas revoluta from Mr. Hudson, Gunnersbury; Tea Rose fruits, mentioned elsewhere; and disease of Portugal Laurel, similar to that now so common in Plums and Almonds.

Floral Committee.—W. B. Kellock, Esq., in the chair. That even in dull November the floral "resources of civilisation" are not exclusively confined to the Chrysanthemum was well illustrated on Tuesday by the display of beautiful Cyclamens, Chinese Primulas, and Orchids that graced the tables of the Council-chamber. Of a group of the lovely Cyclamen staged by Mr. R. Clark, of Twickenham, it would be difficult to say too much in the way of praise, so thoroughly well were the plants "done"—to use an expressive gardening phrase. Each plant in itself was a model of good cultivation, the foliage being stout in texture, and the flowers finely developed, and very pure in colour. Much in the same way may also be said of a group contributed by Mr. H. B. Smith, of Ealing Dean, also a successful market grower. Many as have been the floricultural triumphs of Mr. Cannell, none will probably bring him more renown than the collection of Primulas which to-day came from "The Home for Flowers." Splendidly grown and flowered, and of well selected varieties, it was a group that gained the admiration of all, and higher praise could hardly be gained. Most strikingly distinct, and most attractive of all, was a real red Primula, the Swanley Red, that took the popular fancy amazingly, and of which it may be said that it has no rival. Other sorts of undoubted quality were the Swanley White, Rubra Improved, Swanley Purple, and Swanley Carminata—all represented by a number of plants, each in a 48-pot, in all respects remarkable for their stout leathery leaves and robust trusses of beautiful flowers, thrown suffi-

ciently above the foliage to show every pip to the best advantage. Another most remarkable example of the skill of a grower and hybridist was a specimen of the Tea Rose, Madame de St. Joseph, with clean, healthy foliage, and above 200 pods of seed, all set by manual fecundation, and the second crop that the plant has carried this season. Mr. Bennett, of Shepperton, the exhibitor of the plant in question, had before shown us what he could do in the fertilising and setting of Roses, but this eclipsed all his previous efforts; and its like, at least from his hands, is never likely to be seen again—the long and close attention required to develope such a specimen being a greater strain upon the operator than the results warrant. Yet another example of cultural skill, and we shall have done with the "remarkable" features of the meeting. This was a handsome plant of Chamædorea glaucifolia, about 10 feet high, with four branching spikes of flowers in various stages of development, and growing in an 8-inch pot! The plant was in perfect health and vigour, and was shown by Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, Acton. To Mr. Woodbridge, Sion House Garden, the credit is due of having exhibited a specially fine group of a dozen Bouvardias, each measuring about 2 feet through, clothed with good foliage to the pots, and carrying a profusion of most useful flowers. From Mr. H. James, The Castle Nursery, Lower Norwood, came a very bright little group of Orchids, which included, amongst others, the bright yellow Oncidium varicosum, which enlivened the group very attractively. Near to these were some very good new tree Carnations, all of rich colours and fine form, a rich scarlet named Nonpareil being specially distinguishable. Mr. King brought from Wray Park another of his brilliantly coloured Coleuses, a variety named Columbine, with the ground colour of Naples yellow, heavily blotched with rose-pink, and more lightly with various tints of green and maroon. From Chiswick came a small well-flowered batch of the lovely cobalt-blue Salvia Pitcheri, and from Mr. Wiggins, gr. to H. Little, Esq., came a group of plants of a white Pompon Chrysanthemum that providers of cut flowers, should make a note of, the variety, Sœur Melanie, being "a real good thing." In Croton Laingii Messrs. John Laing & Co. had a useful decorative variety, with the stems of a rich yellow colour, as also the basal half of the long narrow arching leaves, the other portion being deep green and the petioles crimson. Mr. Hudson had also some seeds of Cycas revoluta, which are not often seen in this country. Heliconia aureo-striata, an ornamental Musad, with the Canna-like leaves thickly marked with short lines or bars of golden yellow; Dracæna Lindeni, a variegated variety, at first sight resembling D. fragrans, but unlike that having the golden bands along the margin instead of the midribs of the leaves; and a handsome plumose form of the fine Davallia fijiensis came from Mr. Bull. The Messrs. Veitch & Sons showed, for the first time, Professor Balfour's pretty introduction from the island of Socotra—the Begonia socotrana, figured and described by Sir J. D. Hooker in our first number this year. Mr. Roberts showed, by good examples, the value of the dwarf Scabious as a winter decorative plant, his specimens being well grown and nicely bloomed.

The following are the awards made:—

First-class Certificates.

To Mr. W. Bull, for Davallia fijiensis plumosa.
To Mr. W. Bull, for Masdevallia Chimæra (true).
To Mr. W. Bull, for Dracæna Lindeni.
To Mr. W. Bull, for Heliconia aureo-striata.
To Messrs. Veitch & Sons, for Begonia socotrana.
To Messrs. Veitch & Sons, for Chrysanthemum Rex rubrum.
To Mr. King, for Coleus Columbine.
To Mr. C. J. Salter, for Chysanthemum Lady Selborne.
To Messrs. John Laing & Co., for Croton Laingii.
To Mr. C. Herrin, for Primula sinensis variegata.

Cultural Commendation.

To Mr. R. Clark, for Cyclamens.

Votes of Thanks.

To Mr. J. Wiggins, for Chrysanthemum Sœur Melanie.
To Mr. H. B. Smith, for Cyclamens.
To Mr. J. Hudson, for Chamædorea glaucifolia, and fruit of the Sago Palm.
To Mr. Woodbridge, for Bouvardias.
To Mr. H. James, for Orchids.
To Messrs. Heath & Son, for Lapageria rosea florepleno.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. As on the last occasion, a considerable variety of fruits and vegetables came under the cognisance of this body; and, as at the October meeting, collections of Apples formed the most attractive feature. The exhibitors of these were Mr. Skinner, Beresfords, Boughton Monchelsea, near Maidstone, whose display of over 100 dishes was one of the best we have ever seen, every variety shown being of a high order of merit—size, colour, and other characteristics being admirably brought out, and the nomenclature more than usually satisfactory; Mr. Lees, gr., The Wilderness, Reading, who had about sixty dishes, also of fine quality; Mr. Thomas Mainwaring, of Marl Place, Brenchley, Kent, who put up 113 varieties, for the most part represented by samples of only second-rate quality, and very faulty as to their identification; and Messrs. Lane & Son, of Berkhamsted, who had about twenty dishes of their Prince Albert, a valuable culinary variety of the first size and quality, that has now been before the public for some years, and the merits of which were to-day officially recognised by the award of a First-class Certificate. Seldom, indeed, has such a fine lot of Apples been shown at a committee meeting, and further comments on them will be found in another column.

Next in importance was a show of vegetables, originated by the Messrs. Sutton & Sons, of Reading, who gave prizes for the best collections of twelve distinct kinds, also for single dishes of various specially named sorts of Potatos and Onions. The four prizes in the former class brought out eleven competitors, a smaller number than was anticipated, and, what was more remarkable, considering the fine quality that vegetables generally exhibit this autumn, not a single collection staged could be called first-class, as judged by the high standard of the winning productions staged by such growers as Mr. Miles, Mr. Gilbert, and others. The 1st prize was won by Mr. Austin, gr., Ashton Court, Bristol, with Sutton's superb Brussels Sprouts, Sutton's King Cauliflower, Hollow-crowned Parsnips, Beet, white Spanish Onions, Leicester Red Celery, Hathaway's Excelsior Tomatos, Scarlet Intermediate Carrots, Sir J. Paxton French Beans, Snowball Turnips, St. Patrick Potatos, and a white-spined Cucumber named Devoniana (a name that we do not remember to have seen before), all fairly good, but the Potatos a very weak dish. Mr. Phillips, gr. to Captain Jackson, The Deodars, Meopham, took the 2d prize; Mr. W. Mead, The Gardens, Beckett Park, Shrivenham, the 3d; and Mr. Wildsmith, The Gardens, Heckfield Place, the 4th. The two last awards should, in our opinion, have been reversed, Mr. Wildsmith's products being all round of a better table size than his more successful rival's. The sorts of Potatos invited were Sutton's Magnum Bonum, Reading Abbey, Reading Hero, and Woodstock Kidney, and there was a good competition in each class, the most successful competitors being Messrs. Millen, gr., Henstead Park, Newbury; Meads, The Gardens, Beckett Park, Sevenoaks; Donaldson, The Gardens, Keith Hall, Inverary; Howard, Canterbury; and Haines, The Gardens, Coleshill House, Highworth. Ten dishes of Sutton's Improved Reading Onion were brought out, and the best were sent by Mr. Wildsmith, the other winners in the same class being Messrs. Howard, Haines, and Ross. The Messrs. Sutton themselves exhibited an extensive assortment of Potatos, curled Kales and Savoys, the varieties of the former being numerous and the quality generally first-rate; while amongst the Kales were two sorts of special merit, these being very fine types of Giant Green Curled, and Purple Curled. A Silver Knightian Medal was their reward. From Messrs. James Veitch & Sons came a collection of Turnips, fourteen sorts, well represented, and a capital collection of Celery, consisting of some eighteen samples. Mr. Ollerhead, gr. Wimbledon House, again submitted a good bunch of his white Grape, which was generally considered by the committee to be not sufficiently distinct from Foster's Seedling to merit an award. Mr. Roberts, of Gunnersbury, contributed a good batch of seven Queen Pines, and a sample of White Tokay Grapes. Mr. Hudson, gr. to J. Atkinson, Esq., Gunnersbury House, Acton, exhibited for N. J. Vivian, Esq., Sion House, Longueville, Jersey, some extraordinary fine fruits of Chaumontel and Doyenné du Comice Pears; a single specimen of the former weighed 1 lb. 13 oz., and half-a-dozen of them turned the scales at 7 lb. 6 oz.; while six fruits of the Doyenné du Comice weighed 5 lb. 10 oz.—samples that in a marked degree merited the Cultural Commendation awarded. Mr. Hudson also showed two finely finished bunches of the Alnwick Seedling Grape, which in a late house he easily sets with the pollen of Lady Downe's, but which sets freely of its own accord in a Muscat temperature. Fruits of Musa Champa came from Mr. Woodbridge, Sion House; and Lady Downe's Grapes from Mr. Read, Moat Mount, Mill Hill, Hendon. Messrs. Carter & Co. exhibited fine samples of a large silver-skinned Globe Onion, a production of the South of Europe. Mr. Allen, Gunton Park, sent two very good brace of Cucumbers, and examples of a fine type of white Spanish Onions. Mr. Robert Fenn, of Sulhamstead, Reading, exhibited some fruits of Ribston Pippin Apples, to show the effect of the stock upon the scion, the Ribston having been grafted on the Blenheim Orange, with the result that the shape of the fruits of the Ribston had been altered in character, and its fine flavour destroyed. A number of Apples were shown either for identification or for the opinion of the committee, but none calling for any comment.

—— A meeting of the Fruit and Vegetable Committee was held at Chiswick on the 3d inst., Mr. John E. Lane in the chair. The collection of Potatos grown in the gardens was again examined. Several sorts were selected as good cropping, very handsome, and distinct varieties, and on being cooked the following awards were made:—

First-class Certificates.

Fortyfold White (Farquhar) ..	Large round white
Vermont Champion (Bliss) ..	Large round white
Queen of the Valley (Bliss-Hooper)	Large and oblong pale pink
Adirondack (Bliss-Hooper) ..	Medium round white tinged with pink
Brownell's No. 11 (Bliss) ..	Large roundish white
Victoria Kidney (Edwards) ..	Large flat white
Rands' No. 30 (Bliss)	Large oblong white
Rands' No. 12 (Bliss)	Long large flat white

Second-class Certificates.

Criterion (Ross)	Round white.
Sir Walter Raleigh (Ross) ..	Large round white.
Trophy (Bliss)	Large kidney-shaped red
Vicar of Laleham (Dean) ..	Large round purple.
White Elephant (Daniels) ..	Large long flaked.
Victoria alba (Donaldson) ..	Large round white, purple eye.
St. Patrick (Daniels)	Large long white.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 9, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°			In.
3	29.61	−0.17	51.0	36.0	15.0	42.8	− 3.0	42.2	98	E: N.E	0.11
4	29.73	−0.01	60.0	47.0	13.0	54.3	+ 8.7	52.9	94	S.: W.	0.12
5	29.56	−0.23	61.5	53.0	8.5	56.8	+ 11.4	52.8	85	S.W.: S.S.W.	0.00
6	30.00	+0.21	57.0	44.5	12.5	50.0	+ 4.9	47.5	92	W.	0.19
7	30.01	+0.21	54.5	44.0	10.5	49.6	+ 4.9	49.0	98	W.: S.E	0.02
8	30.03	+0.23	52.5	48.5	4.0	50.9	+ 6.6	49.7	96	S.E.: S.S.E.	0.02
9	29.89	+0.09	53.0	43.0	10.0	46.9	+ 3.0	44.0	91	N.E.: E. N.E.	0.00
Mean	29.84	+0.05	55.6	45.1	10.5	50.2	+ 5.2	48.3	94	Var.	0.46

Nov. 3.—A gloomy, overcast, very damp day and night.
— 4.—A dull, overcast, gloomy day; close, warm night.
— 5.—A fine, overcast day; strong wind. Warm day and night.
— 6.—A dull, gloomy, overcast day; fine night
— 7.—A fine but overcast, dull, very damp day and night.
— 8.—Overcast; humid atmosphere day and night.
— 9.—A very fine, bright day. Fine night. Partially cloudy.

LONDON: *Atmospheric Pressure.*—During the week ending November 5, the reading of the barometer at the level of the sea increased from 30.23 inches at the beginning of the week to 30.25 inches by midnight on the 30th, decreased to 29.81 inches by 3 P.M. on November 1, increased to 29.89 inches by 9 A.M. on the 2d, decreased to 29.77 inches by 3 P.M. on the 3d, and was 30.11 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.94 inches, being 0.02 inch lower than last week, and 0.01 inch below the average of the week.

Temperature.—The highest temperature in the shade during the week was 61°.5, on the 5th; the next in order was 60°, on the 4th. On November 1 the temperature did not rise above 38°.5. The mean of the seven high day temperatures was 48°.3.

The lowest temperature in the week was 28°.5, on October 31; on November 5 the lowest temperature was 53°. The mean of the seven low temperatures was 37°.4.

The greatest range of temperature in one day was 15°, on the 3d; the least was 7°.5, on the 1st. The mean of the seven daily ranges was 10°.9.

The mean daily temperatures were, on the 30th, 34°.7; on the 31st, 33°.8; on the 1st of November, 34°.3; on the 2d, 37°.5; on the 3d, 42°.8; on the 4th, 54°.3; on the 5th, 56°.8. On the 4th and 5th the temperature was above its average by 8°.7 and 11°.4 respectively; while on October 30 and 31 and November 1, 2, and 3 it was respectively 11°.8, 12°.6, 11°.9, 8°.5 and 3° below the average. The mean temperature for the week was 41°.9, being 1°.5

lower than last week, and 4° below the average for the week.

It will be seen that the temperature during the first two days of the week was very low, being 12°.6 and 11°.9 below their averages, whilst the temperature on the last two days was very warm, being 8°.7 and 11°.4 above their averages. The mean temperature of the second day of the week was 33°.8, and that of the last day was 56°.8, or 26° of higher temperature.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 106°.5 on the 5th; the highest on the 1st was 41°.5. The mean of the seven readings was 78°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 24°.5 on the 31st. The mean of the seven readings was 32°.8.

Rain.—Some fell on two days, to the amount of 0.23 inch.

ENGLAND: *Temperature.*—During the week ending November 5 the highest temperatures were 64°.2 at Cambridge, 61°.5 at Blackheath, and 60°.8 at Nottingham. The highest temperature at Leeds and Sunderland was 57°; at Plymouth, Hull, and Bradford was 58°. The general mean was 59°.5.

The lowest temperatures in the week were 25° at Truro and Bristol, and 25°.7 at Wolverhampton. The lowest temperature at Brighton was 36°.2, at Leicester 30°.5, and at Nottingham 30°.2. The mean from all stations was 28°.7.

The greatest ranges of temperature in the week were 37°.4 at Cambridge, 35° at Bristol, and 35° at Truro. The least ranges were 23°.3 at Brighton, 27° at Sunderland, and 28° at Hull and Leeds. The mean from all stations was 30°.8.

The mean of the seven high day temperatures was greatest at Truro, 55°.7; at Plymouth, 52°; and at Cambridge, 51°.2; and was the smallest at Bradford, 43°.4; at Leeds, 44°.3; and at Wolverhampton, 45°.8. The general mean was 48°.4.

The mean of the seven low temperatures was 41° at Brighton, 40°.5 at Plymouth, and 40°.1 at Truro; and was only 33°.1 at Bradford, 34°.1 at Sheffield, and 34°.8 at Wolverhampton. The mean from all stations was 36°.9.

The mean daily range was 15°.6 at Truro, 13°.9 at Bristol, 12°.9 at Sheffield, and was 7°.7 at Brighton, 8°.2 at Leeds, and 10°.3 at Bradford. The mean from all stations was 11°.5.

The mean temperature for the week was greatest at Truro, 47°.2; at Plymouth, 45°.5; and at Cambridge, 44°.8; and was least at Bradford, 37°.6; at Leeds, 39°; and at Wolverhampton, 39°.6. The mean from all stations was 41°.9.

Rain.—The largest falls were 1.74 inch at Leeds, 1.45 inch at Truro and Plymouth. The least falls were 0.23 inch at Blackheath, 0.33 inch at Sunderland, and 0.42 inch at Cambridge The mean from all stations was 0.88 inch.

SCOTLAND: *Temperature.*—During the week ending November 5 the highest temperature was 59°, at Edinburgh. The next in order was 58°, at Leith. At Aberdeen the highest temperature in the week was 51°, and at Greenock 51°.5. The general mean was 45°.1.

The lowest temperature in the week was 20°, at Paisley; at Greenock the lowest temperature was 22°.2. The general mean was 27°.6.

The mean temperature for the week was highest at Aberdeen, 42°.1, and lowest at Greenock and Paisley, 39°.1. The general mean was 40°.2.

Rain.—The largest falls were 1.78 inch at Greenock, 1.10 inch at Paisley, and 1.05 inch at Dundee. The least falls were 0.18 inch at Glasgow, 0.33 inch at Edinburgh, and 0.34 inch at Leith. The general mean was 0 80 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

EHRET.—Can any reader refer me to any account of his excellent botanical artist? *O.*

PICTURES OF DRIED FERNS. — *Gardener* writes:—"I have a valuable collection of dried Ferns, and want to make a Fern picture of them. Could any of your readers inform me as to the best method of doing so?"

Answers to Correspondents.

OTHY: *W. H. D.* It would serve no useful purpose to publish such a letter as yours. Disgracefully bad bothies there are at some places we know full well; but young men who possess any self-respect are not obliged to go to such places. A little "boycotting" of the bad bothies would have a wholesome effect.

FRUITS: *Thorne.* Apricots, Moorpark and Hemskirk; Cherries, Black Tartarian and Bigarreau Napoléon; Plums, Coe's Golden Drop and Jefferson; these would be our choice.

GARDEN APPOINTMENTS: *F. B.* You may rest assured that no unworthy imputations were made, and your explanation is quite satisfactory.

GRAPES SHRIVELLING: *W. H.* We can only suggest that the slight shrivelling apparent on your berries of Lady Downe's may be caused by over-dryness at the root.

INSECTS: *A. H. W.* There certainly was no worm or other insect on the Grapes or leaves sent. Every berry was separately examined and put into water to dislodge any intruder, but nothing appeared, alive or dead. In the little box, which contained some gnawed Azalea leaves, were three small larvæ and the chrysalis skin of a small moth. *I. O. W.*

NAMES OF FRUITS: *Camjee.* The same as we named last week—Yellow Ingestrie. — *W. H. B.* 1 and 2, Duchesse d'Angoulême; 3, Napoléon; 4, Louise Bonne of Jersey; 5, Fondante d'Automne; 6, Beurré d'Amanlis.—*L. Bryan.* 1, May be Besspool; 2, not known—a very distinct and pretty Apple.—*S. Pullman. Apple:* Blenheim Orange—*S. T., Penrith.* Your Apples are not recognised.—*J. C. Apple:* Cellini. —*C. B., Besborough, Cork: Pears:* 1, Doyenné d'Alençon; 2 and 12, Beurré Diel; 5 and 6, Bergamotte d'Esperen; 9, Verulam; 11, Ne plus Meuris. *Apples:* 1, Carlisle Codlin; 2, Dumelow's Seedling; 3, Rymer; 4, Hanwell Souring; 5, Dr. Harvey; others not recognised.—*R. Fryer.* Claygate Pearmain, as we stated last week.

NAMES OF PLANTS: *S. Pullman.* 1, Juniperus tamariscifolia; 2, Cupressus torulosa.—*J. Drury* must send a better specimen of his Begonia. Two withered leaves and a dry colourless flower are not sufficient materials. —*W. C. Beetham.* Eucomis punctata, a native of South Africa.—*W. H.* We cannot definitely name such scraps—1 appears to be a striped Hemerocallis; 2 is a Nidularium; 3, Begonia Comte Alfred de Limminghe.—*F. A. B,* 1, Pteris longifolia; 2, Goniophlebium subauriculatum; 3, Gymnogramma Massoni; 4, Selaginella pubescens; 5, Mesembryanthemum barbatum; 6, Aloe variegata (the Partridge-breast Aloe).—*Aigburth.* It looks like a starved flower of Epidendrum cochleatum, but we cannot say for certain from such materials.—*J. Sutton.* 2, Leycesteria formosa; 3, Laurus nobilis, the Sweet Bay; 4, Cupressus torulosa probably; 5, Thuya occidentalis; the other not recognised.

NORFOLK BEEFINGS: *G. N.* The question was asked through our columns a few weeks ago, but failed to elicit a reply.

PRIZES: CUP OR CASH: *Baron.* We cannot answer the question from a legal point of view. It is outside our province. Reading the quotation from the schedule as you send it, we should conclude that the prize was meant to be optional on the part of the winner; and we believe that when schedules are so worded this is generally understood.

SEEDS: *W. Webster.* Catalogues of the principal seedsmen should give you the information you seek. Who they are you will see from our advertising columns.

STIFF SOIL: *F. W. E.* We should give the plot a dressing of lime, and have it trench-dug at once. The frost will do no good if the ground is not dug and left in the rough.

STOCKS: *Constant Reader.* You must continue the shelter of the frame throughout the winter.

VARIEGATED PRIMULA: *T. C. H.* Its worth would depend on the style and colouring of the variegation; and, of course, supposing it to be really good, it would be greatly increased in value if it was found to come true, or nearly so, from seeds. Very pretty forms have occasionally cropped up, but from the limited supply to be obtained by division they have not made much way in the estimation of the public. Much the same considerations apply to the Celery. If it is handsomely marked it might be acceptable in a collection of variegated plants, but if it cannot be increased by seeds it would soon die out. Neither of them are common.

COMMUNICATIONS RECEIVED.—J. A. C.—G. S.—H. E.—J. W.—J. D.—R. C.—E. L.—W. H D.—J. Sutton.—D.—G. B.—T. J.—H S. I.—H. W.—T. P.—E. Jones.—W M.—F. B.—J. W.—G. N.—F. W. B.—C. G.—M. C. C.—J. S. B.—W. C.—J. T. B.

Markets.

COVENT GARDEN, November 10.

The supply of common Apples is now beginning to fall off, and samples are confined to the better sorts, which are selling freely at somewhat higher prices. Kent Cobs dull. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0-42 0	Evergreens, in var., per dozen	6 0-24 0
Asters, per dozen	6 0-12 0	Ferns, in variety, per dozen	4 0-18 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ficus elastica, each	1 6- 7 0
— (common), dozen	6 0-12 0	Foliage Plants, various, each	2 0-10 6
Begonias, per doz.	4 0-12 0	Fuchsias, per dozen	6 0-12 0
Chrysanthemums, per dozen	6 0-12 0	Myrtles, per doz.	6 0-12 0
Cissus discolor, doz.	18 0-24 0	Palms in variety, each	2 6-21 0
Cyperus, per dozen	6 0-12 0	Pelargoniums, scarlet, per dozen	3 0- 6 0
Dracæna terminalis	30 0-60 0	Solanums, per dozen	9 0-12 0
— viridis, per doz.	12 0-24 0		
Euonymus, various, per dozen	6 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3- 0 4	Marguerites, 12 bun.	4 0- 6 0
Asters, 12 bunches	9 0-15 0	Mignonette, 12 bun.	3 0- 6 0
Bouvardias, per bun.	0 9- 1 0	Pelargoniums, 12 sprays	1 0- 1 6
Camellias, 12 blooms	4 0- 6 0	— zonal, 12 sprays	3 0- 6 0
Carnations, 12 blms.	1 0- 2 0	Primula, double, per bunch	1 0- 1 6
Chrysanth., 12 bun.	6 0-12 0	Roses (indoor), doz.	1 0- 3 0
— 12 blooms	2 0- 4 0	— Tea (French), per dozen	1 0- 2 0
Eucharis, per doz.	6 0- 9 0	Stephanotis, 12 spr.	6 0- 9 0
Gardenias, 12 blms.	4 0- 9 0	Tropæolum, 12 bun.	1 0- 3 0
Heliotropes, 12 sp.	0 6- 1 0	Tuberoses, per dozen	2 0- 3 0
Hyacinths (Roman), 12 sprays	2 6- 3 0	Violets, 12 bunches	1 0- 1 6
Lapageria, white, 12 blooms	2 0- 4 0	— (Fr. Parme), bun.	4 0- 5 0
— red, 12 blooms	1 0- 3 0		
Lilac (Fr.), p. bunch	8 0-10 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0- 4 6	Melons, each	2 0- 3 6
Figs, per dozen	0 6- 1 0	Peaches, per dozen	6 0- ..
Grapes, per lb.	0 6- 3 6	Pears, Eng., ½-sieve	2 6- 5 6
Kent Cobs, p. 100 lb.	75 0-77 6	— French, per doz.	1 6- 2 6
Lemons, per 100	4 0- 6 0	Pine-apples, Eng., lb.	3 0- 5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0- 6 0	Herbs, per bunch	0 2- 0 4
Asparagus, French Sprue, per bundle	1 6- ..	Horse Radish, bund.	4 0- ..
— New Fr., bundle	5 0- ..	Lettuces, Cabbage, per doz.	0 6- 1 6
Barbe de Capucin, per bundle	0 8- ..	— Engl. Cos, score	1 6- ..
Beans, French, p. lb.	1 0- ..	Mint, green, bunch	0 4- 0 6
Beet, per doz.	1 0- ..	Mushrooms, p. baskt.	1 6- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bushel	5 0- ..
Carrots, per bunch	0 4- 0 6	— Spring, per bun.	0 6- ..
Cauliflowers, English, dozen	2 0- 4 0	Parsley, per bunch	0 4- ..
Celery, per bundle	1 6- 2 0	Potatos (new), punnet	1 6- ..
Cucumbers, each	0 6- 1 0	Radishes, per bun.	0 2- 0 6
Endive, per doz.	1 0- 1 6	Salsify, per bundle	1 6- ..
Garlic, per lb.	1 0- ..	Seakale, per punnet	3 0- ..
		Small salading, pun.	0 4- ..
		Spinach, per bushel	2 6- ..
		Tomatos, per lb.	0 9- 1 0

Kent Regents, 10*s.* to 11*s.*; Roses, 8*s.* to 9*s.*; Myatt's, 100*s.* to 120*s.*; Magnum Bonums, 9*s.* to 11*s.*

SEEDS.

LONDON: *Nov.* 9.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that the seed market to-day presented quite a holiday appearance, and transactions were few and unimportant. As regards red Clover seed the position is without alteration; for 200 bags New American put up yesterday at auction in Liverpool no bid was obtainable. The new English Alsike meets with increasing favour. White and Trefoil are steady. The new Cambridgeshire crop of brown Mustard seed is proving very variable both in yield and quality. For Canary seed values are firm, but the demand is languid; blue Peas and Haricot Beans realise full rates. The Board of Trade returns give the imports last month into the United Kingdom of Clover and grass seeds as 18,825 cwt. against 16,069 cwt. for October, 1880.

CORN.

At Mark Lane on Monday the grain trade was quiet in every department. English Wheat was in small supply, but supplies of foreign large; all descriptions sold slowly, and prices realised 6*d.* to 1*s.* per quarter under those of Monday se'nnight. Inferior grades of flour sold with difficulty at rates in favour of buyers; good qualities were not materially altered. Grinding Barley was dull, at late rates; prime malting qualities supported late value. Oats remained as on this day week, with a very quiet trade. Maize was 3*d.* dearer on the week.—On Wednesday trade was too restricted to influence quotations appreciably; Monday's rates were consequently nominally unaltered.—Average prices of corn for the week ending Nov. 5:—Wheat, 46*s.* 9*d.*; Barley, 35*s.* 2*d.*; Oats, 20*s.* 8*d.* For the corresponding period last year:—Wheat, 43*s.* 4*d.*; Barley, 35*s.* 2*d.*; Oats, 20*s.* 9*d.*

CATTLE.

At the Metropolitan Market on Monday only moderate supplies of stock came to hand, but the heavy arrivals at Deptford, the close weather, and the dull state of trade in the dead meat market depressed values very generally. Sheep with a difficult sale declined 2*d.* per stone on the better qualities and 4*d.* on inferior. Quotations:—Beasts, 4*s.* to 4*s.* 6*d.*, and 4*s.* 8*d.* to 5*s.* 6*d.*; calves, 4*s.* 8*d.* to 5*s.* and 5*s.* 4*d.* to 5*s.* 8*d.*; sheep, 4*s.* 8*d.* to 5*s.* 4*d.*, and 5*s.* 10*d.* to 6*s.* 10*d.*—On Thursday trade was very quiet. Supplies were short, and consisted entirely of English stock. Beasts and sheep sold heavily, at barely Monday's rates, and calves were quiet.

POTATOS.

The Borough and Spitalfields Markets reports state that home supplies are a good deal blighted, and sell irregularly in consequence. Foreign arrivals are liberal. Good samples generally were in fair demand. Quotations:—Victorias and Regents, 60*s.* to 109*s.*; Champions, 55*s.* to 70*s.* per ton; German Reds, 2*s.* 9*d.* to 4*s.* 6*d.* per bag. —The imports into London last week consisted of 35,509 bags from Hamburgh, 31,547 bags Rotterdam, 1216 bags Bremen, 102 bags Stettin, 10 bags Antwerp, and 217 tons Roskoff.

Government Stock.—Consols closed on Monday at 100⅛ to 100¼ for delivery, and 100 5/16 to 100 7/16 for the account.—Tuesday's figures were, for delivery, 100⅜ to 100½, and 100 9/16 to 100 11/16 for the account. The Stock Exchange was closed on Wednesday. Thursday's final quotations were 100⅝ to 100¾ for delivery, and 100⅞ to 101 for the account.

RICHARD SMITH & Co. WORCESTER

SEVENTY-FOUR ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for a penny stamp.

TWELVE ACRES of ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea-scented and Noisette Roses in pots; extra strong, Roses in pots for immediate forcing. See Descriptive Price LIST, free for a penny stamp.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1*d.* stamp. R. S. & Co.'s selection of 100 good showy varieties for 25*s.*

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3*s.* 6*d.* to 5*s.* each; extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1*d.* stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for 1*d.* stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

SEAKALE.—Extra Strong, for Forcing, 2*s.* 6*d.* per dozen, 16*s.* per 100.

RICHARD SMITH & Co. WORCESTER

All the Season. Come and See.

OUR CHRYSANTHEMUMS, PRIMULAS, SALVIAS, and ZONAL PELARGONIUMS.—The former now presents a continuous bank each side (7 feet wide) of a house 320 feet by 16 feet wide, consisting of 600 distinct kinds, varying from the wild species to the latest new varieties. These are grown and flowered specially for testing, to be quite sure that our stock is perfectly correct and true to name, and for the supply of cuttings, 2*s.* per dozen, 10,000 in 60's, plants 6*d.* each, 5*s.* per dozen, mostly set with flower-buds. These occupy a quarter of an acre, each variety is plunged in their respective beds of cocoa-nut fibre, and arranged as per Catalogue, which is elegantly and practically illustrated, and minutely describes every kind worth cultivating. It also contains a mass of most valuable information, and "how to grow them to perfection," and is acknowledged to be the best guide ever published on this family. Sent post-free.

"Dear Sirs.—At the Northampton Chrysanthemum Show I exhibited very fine blooms, and gained the following prizes:—

Special Prize for 12 Cut Blooms	First
12 Cut Blooms, incurved..	First
6 Cut Blooms, incurved..	First
6 Cut Blooms. Japanese, Anemones and reflexed..	First
6 varieties, three in a bunch, large flowers	Second

The above were all cut from plants I got from you

"Yours respectfully, H. HARRIS,
"Gardener to Capt. G. Ashby Ashby,
"Naseby Woolleys, Rugby."

H. CANNELL & SONS,

THE HOME FOR FLOWERS, SWANLEY, KENT.

RHUBARB, Victoria and Albert, strong, per 100, 16*s.*; cask and packing included.
T. EVES, Gravesend Nurseries.—Established 1810.

To the Trade—Special Offer in Quantity.

TRANSPLANTED FOREST TREES, stout, excellently rooted stuff. Send for Trade Offer and samples.
R. HARTLAND, The Lough Nurseries, Cork.

PHEASANT-EYED NARCISSUS.—Bulbs of this sweet-scented Narcissus, 10*s.* per bushel, 6*s.* per half bushel, 3*s.* 6*d.* per peck; also Double White Narciss, 5*s.* per peck. Terms cash with order. Package free. Post-office Orders payable Walton-on-Thames.—J. E. ALDERSON, Bell Farm, Hersham, near Walton-on-Thames, Surrey.

FOREST TREES, &c.—Many millions to offer, LARCH, SCOTCH, SPRUCE, AUSTRIAN PINES, &c., of finest quality, grown thinly, and major part twice transplanted. Special offers to buyers of large quantities, and price LISTS and Samples on application to
R. HARTLAND, The Lough Nurseries, Cork.

5000 Border Carnations. 5000

TWELVE good, distinct, named varieties, 6*s.*; twelve ditto, newer, 9*s.*; twelve ditto, best new, 12*s.*; Old Crimson Clove (guaranteed the true variety), 1*s.* each, 7*s.* 6*d.* per dozen. Forcing PINKS, in six best named sorts, 7*s.* per dozen. All strong, sturdy stuff, in 60-pots. Plants can also be packed out of pots by rail or by post. Special prices by the 100. Carriage free to London.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,
3*d.* per bushel; 100 for 20*s.*; truck (loose, 250 bushels), 30*s.*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*; 12 for 45*s.*, or 36*s.* per ton.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; 12 for 40*s.*, or 34*s.* per ton; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* half ton, 26*s.* per ton; in 1 cwt. bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1*s.*; 15 bags, 12*s.*; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3*s.* (truck-load free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1*s.* each; 15 Sacks, 12*s.*; 30 Sacks, 20*s.* (all Sacks included); Van-load at Works, 4*s.*; ditto delivered within 5 miles, 10*s.*; Truck-load (equal to about 300 bushels when dry), free on rail, 25*s.* Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,
CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per truck. Sample bag, 5*s.*; 5 bags, 22*s.* 6*d.* 10 bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per bag.
SILVER SAND, Coarse or Fine, 52*s.* per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 tons. GRAVEL, good colour, 25*s.* per truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

Special Offer.—Trade Only.—Cash.

THIRTY SACKS of PEAT, containing 4 Bushels each, free from waste, ready for potting, and from which may be selected Peat suitable for any kind of plants, £3 cash, on rail here—Ringwood; 15*s.* extra charged for bags not returnable. Own sacks filled if sent carriage paid. This quantity comes under the two-ton rate for minerals.
Excellent Peat for Rhododendrons and common purposes, £3 per truck of 4 tons, on rail here, Cash.
F. G. GATERELL, Manager, Chief Depôt and Office, Ringwood, Hants.

SOLUBLE FIR TREE OIL INSECTICIDE.

Royal Botanical Gardens, Stretford, Manchester, October 22, 1879.

DEAR SIR.—We have used your Fir-tree Oil, and find it a most effectual destroyer of all kinds of pests to which plants are subject. I have a very strong impression that it will be very extensively used, at any rate it ought to be.—I am, yours very truly, BRUCE FINDLAY.
To Mr. E. G. HUGHES.

Sold by Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.*, 7*s.* 6*d.*; *Gallons,* 12*s.* 6*d.* *each.*
Manufacturer, E. GRIFFITHS HUGHES, Operative Chemist, Victoria Street, Manchester.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6*d.* and 1*s.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

TRANSPLANTING TREES.—A Patent, Expeditious, Economical, Labour-saving Powerful Implement, £2 2*s.*, removes large trees in a few minutes, with large section of earth and roots uninjured. Extracts sent from *Gardeners' Chronicle*, March 5; *Chambers' Journal*, May 2; *Field*, June 2; *Design and Work*, Aug. 20, 1881.—Agent, Mr. J. CHARLTON, Landscape Gardener, Tunbridge Wells.

REIGATE SILVER SAND.—Owing to the original caves having been closed for many years, Earl Somers has been induced to break into the same fine vein on another part of his estate, and can now offer Silver Sand of the best quality at 7*s.* 6*d.* per Ton, on Rail at Reigate Station. Apply to H. SIMS, The Priory, Reigate, Surrey.

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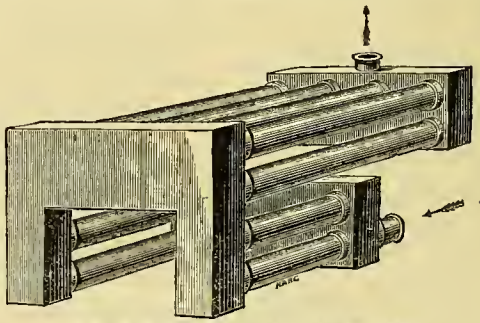
Hot-water Boilers, PIPES, and Connections, *and all Castings for Horticultural purposes.*



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PRICE LIST on application free.

"EARLY SUNRISE PEAS" (DAY'S).

The best time for planting this variety, for early podding, is *November*, *December*, and *January*, as they will stand a severe winter, and are *as hardy as a grey Pea;* and this for a *grand, prolific Marrow variety, specially adapted for Field Culture,* renders them invaluable to Market Gardeners and others. One Market Gardener this year returned £50 for *Half an Acre,* sown in November, and podded, commencing to pick June 4. "SUNRISE" is also adapted for succession and *late sowings.* Seedsmen can obtain their Stock and every information on application to

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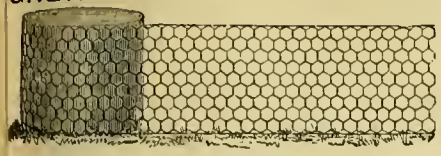

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FIRST PRIZE AWARDS
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and every International First Prize Award during the last 12 years.
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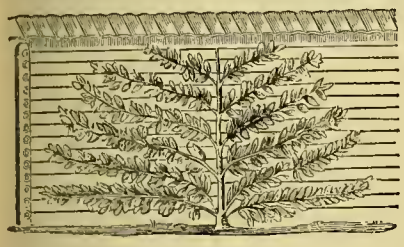

Strong Wiring, suitable for good Garden Wall, by Estimate.

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VINE TRELLISES, and other Internal Wiring made and fixed in a substantial manner.

ESPALIERS, for Garden, with Circular Tops.
STRAINED WIRE FENCING.
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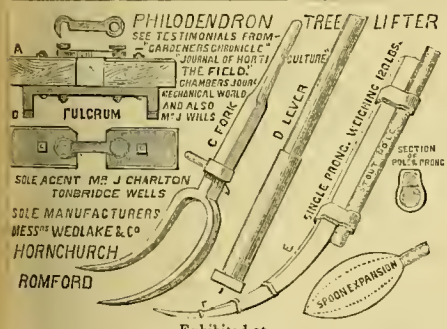

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HYGIENIC GAS or OIL STOVES, to heat 1000 cubic feet for ¼d. an hour, £3 5s. complete; pure, warm air, and perfect condensation of injurious vapours.
COPPER BOILERS fitted in these Stoves with small Hot-water Pipes for 16 feet long, £5 10s.
The above are portable and self-contained, and require no inlet or outlet flues or other fittings.
"ALEXANDRA" GAS BOILER, strong Copper Tubes, to heat 50 feet of 2-in. pipe, £3; 100 feet, £5; 200 feet, £9.
CHEAP GAS BOILER and small Pipes for 15-feet house, £4 5s.
CONICAL "STAR" BOILERS, to heat 300 feet 2-in. pipe, £3 3s. complete; requiring no brick setting; can be built in a wall. SMALLER SIZE, with portable jointed Pipes for 20-feet long house, £6 10s. complete.
B. W. WARHURST, 33, Highgate Road, LONDON, N.W.

Price 14s.
Petroleum Greenhouse Stove.
26 in. high, portable, and requiring no flue; will burn 24 Hours without attention.
No Smoke, no Smell, no Injury to the most delicate Plants.
Packed in case, for sending by rail, 1s. extra.
Oil, 1s. per Gallon, supplied by Deane & Co.
DEANE & CO. provide and fix Hot-water Apparatus for all Horticultural purposes.
Factory, 21, Jacob Street, Deckhead.
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The Best System of Heating is by Hot Water.
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HOT-WATER JOINT.

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SIMPLE, DURABLE, NEAT, CHEAP.

Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c.

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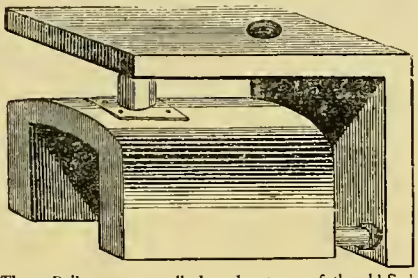
Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Healthy Heat twenty-four hours or longer for about 1d., without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,
112, Victoria Street, Westminster, S.W.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1000	16	0	0
24 ,,	24 ,,	48 ,,	1400	20	0	0
28 ,,	28 ,,	60 ,,	1800	25	0	0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May 29, 1873.*
"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.
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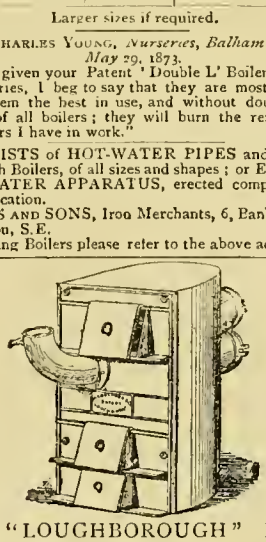

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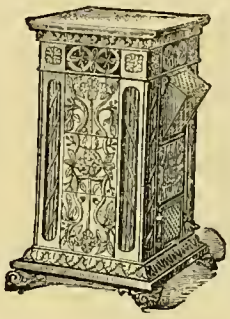

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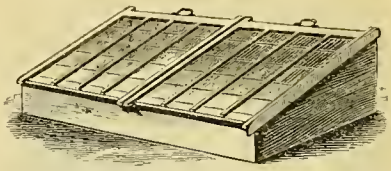

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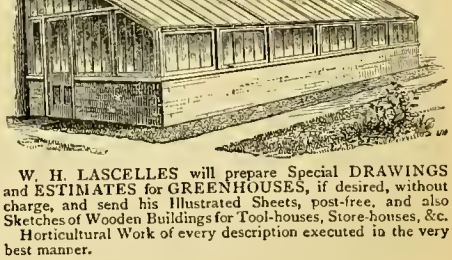

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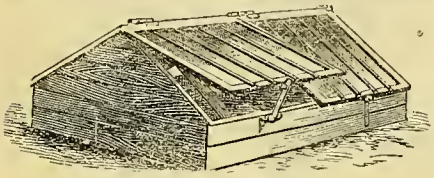

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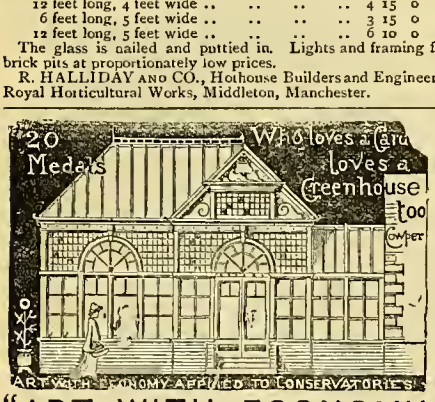

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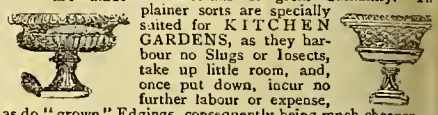

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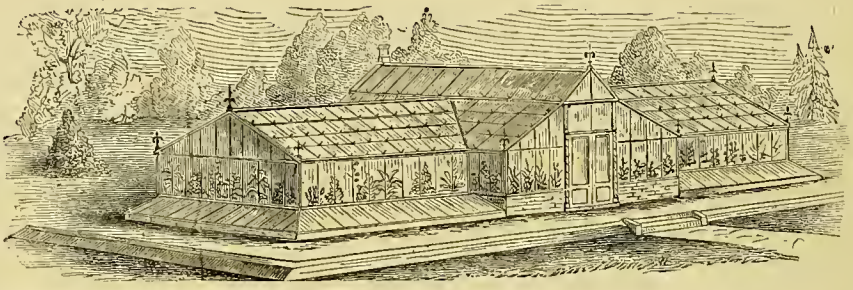

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THE

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ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

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MAHONIA AQUIFOLIA.—Twice transplanted, bushy, 35s. per 1000; 2-yr., 2-yr. transplanted, 30s. Fine healthy stuff.
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GARDEN POTS—GARDEN POTS.—From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

SALES BY AUCTION.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consigoments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.
On view the mornings of Sale, and Catalogues had.

10,000 Lilium auratum from Japan, in fine Condition—(Sale No. 5995.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 24, at half-past 12 o'Clock precisely, 10,000 fine Bulbs of LILIUM AURATUM, just reeeived from Japan in fine condition; also Rare English-grown LILIES, including extra fine roots of L. giganteum, L. Liechtlini, L. pardalioum, L. Bloomerianum, and others; some fine Bulbs of CALOCHORTUS (the Butterfly Tulip), CHIONODOXA LUCILLÆ, the beautiful Spring-flowering bulbous plant; a fine collection of RARE HARDY PLANTS, including many new and rare species; a consignment of BULBS and PLANTS from Germany, DUTCH BULBS, &c.
On view the morning of Sale, and Catalogues had.

Every Monday.
UNRESERVED SALES OF DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL, at the Auction Mart, Tokenhouse Yard, near the Bank, E.C., every MONDAY, at half-past 11 o'Clock precisely, large consignments of First-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other Roots from Holland, lotted to suit all buyers.
Catalogues at the Mart, and 8, New Broad Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.
CONSIGNMENT from GHENT, for Absolute SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, November 22, at 12 o'Clock precisely, a choice collection of about 200 Double CAMELLIAS and AZALEA INDICA, compact plants, 1½ to 3 feet, beautifully set with bloom-buds; about 300 Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, with a collection of DUTCH BULBS, Winter Blooming ERICAS, PRIMULAS, &c.
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Richmond.
Without Reserve.—Important Three Days' Sale of well-grown NURSERY STOCK, the ground having to be cleared and raised for drainage purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. G. & W. Steell to SELL by AUCTION, on the Premises, the Gas Field Nursery, Sandy Lane, ten minutes' walk from the Richmond stations, on TUESDAY, November 29, and two following days, at 12 o'Clock precisely each day, 100,000 EVERGREENS and CONIFERÆ, of all sizes, and in endless variety, including 1000 great Silver HOLLIES from Messrs. Steell's noted stock, 7000 THUYAS of sorts, 3000 RHODODENDRONS, 10,000 English YEWS, 2½ to 5 feet; 8000 fine LIMES, 8 to 10 feet, and other ORNAMENTAL TREES; 5000 Tea and other ROSES, on their own roots, &c.
May be viewed. Catalogues of Messrs. STEELL, Kew Road, Richmond, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

Caen Wood Towers, Highgate, N.
HIGHLY IMPORTANT THREE DAYS' SALE of the remaining VALUABLE and COSTLY HOUSEHOLD FURNITURE, MAGNIFICENT CHAMBER ORGAN, WORKS of ART, PICTURES, ARTICLES of VERTU, FARMING STOCK, and the whole of the STOVE and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the owner (E. Brooke, Esq., J.P., who is leaving the Mansion) to SELL the above by AUCTION, on the Premises, on WEDNESDAY, November 30, and two following days.
Admission to view by Catalogues only, price 6*d.* each, to be obtained of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.
N.B.—A separate Catalogue of the plants will be published, and can be had gratis on application.
The exceptionally valuable FREEHOLD ESTATE, of 12 acres, with the splendid MANSION and OUTBUILDINGS, TO BE SOLD. Particulars of the Auctioneers.

12,000 Lilium auratum.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY, December 2, an unusually large consignment of LILIUM AURATUM, comprising 12,000 Roots, just arrived in fine condition.
Catalogues at 8, New Broad Street, E.C.

Whitecross, Hereford.
Important TWO DAYS' SALE of Splendid Specimen EVERGREEN TREES, from 3 to 10 feet high; also 650,000 LARCH, SCOTCH, and other FOREST TREES.

MR. F. H. MERRICK will SELL by AUCTION, at the Whitecross Nurseries, Hereford, ¾ of a mile from the Barton Station, on THURSDAY and FRIDAY, November 24 and 25, at 12 o'Clock each day, NURSERY STOCK, consisting of fine Specimen Abies Nordmanniana (grand trees), nobilis, Pinsapo, Douglasii, Cryptomeria, Pinus austriaca, &c., all frequently transplanted, and in the best possible condition; thousands of Dwarf Roses, Portugal and common Laurels, &c.; 350,000 fine transplanted Larch, from 1½ to 3½ feet, and 3-yr. and 4-yr. old; 200,000 Ash, Scotch, Spruce, and Sycamore; 100,000 Spanish Chestnuts, 1 to 2 feet.
May be viewed. Catalogues by post, or at the Nurseries, or on application to the Auctioneer, Broad Street, and Library Buildings, Hereford.

WANTED, a SEED BUSINESS.—The ADVERTISER is open to Purchase an established Seed Business (only) in England. Large town in the Midland Counties preferred. Apply with full particulars, rent of shop, &c., to FRANK YATES, G. & W. Yates, Market Place, Manchester. Applications will be treated with the strictest confidence.

TO BE DISPOSED OF, a good MARKET NURSERY, within 4 Miles of Covent Garden, about 1 Acre, nearly covered with Glass; Dwelling-house, Stable, &c. W. W., 41, Wellington Street, Strand, W.C.

TO BE DISPOSED OF, a SEED and NURSERY BUSINESS—Good Premises, Good Trade, Long Lease, and low rent. This is an opportunity seldom to be met with. Price £500.
Apply to Messrs. FLOOD AND SONS, 8, Westbourne Grove, London, W.

TO BE LET, a Small NURSERY, situated at Highbury. Apply
7, Beaconsfield Terrace, Castle Lane, Battersea, S.W.

J. CROUCHER, F.R.H.S., having given up all connection with Sudbury House Gardens, is open to engagements with Gentlemen, as GENERAL HORTICULTURAL ADVISER, respecting the Management and Construction of Gardens and Garden Structures, on scientific principles.—The Excelsior Nurseries, 64 and 65, Brook Green, London, W.

LANDSCAPE GARDENING.—ALEXANDER SHEARER, many years Head Gardener to the Marquis of Tweeddale, Yester, having COMMENCED BUSINESS as LANDSCAPE GARDENER, is prepared to give Plans, Specifications, &c., for Laying-out Ornamental Grounds, Parks and Plantations, and the Erection of Vineries, Conservatories, and other Horticultural Buildings, on the most approved system of construction and heating. From wide experience and practical knowledge of the best mode of carrying out such operations, A. S. confidently anticipates being able to give satisfaction to all who may favour him with their patronage.
4, Marchmont Street, Edinburgh.

SUTTONS'
POLYANTHUS NARCISSUS.

100 in 12 choice sorts	25*s.* 0*d.*
50 in 12 choice sorts	14*s.* 0*d.*
25 in 12 choice sorts	7*s.* 6*d.*
12 in 12 choice sorts	4*s.* 0*d.*

Fine Mixed, 2*s.* per dozen, 15*s.* per 100.

From Mr. GEO. GREEN, *Smeeth.*—"The Bulbs I had from you are magnificent, and could not be surpassed."

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

WHITE EVERLASTING FLOWERS. First quality. Immense stock of same.
CHARLES AYRES, Wandel Street, Cape Town, South Africa.

LARCH — LARCH — LARCH.
Rare Bargains for Cash.
9 to 18 inches, transplanted, 26 guineas per 100,000.
6 to 9 inches, transplanted, 19 guineas per 100,000.
All with leaders. Post samples free by request.
WM. WISEMAN, The Nurseries, Nairn, N.B.

CHOICE SPECIMEN STOVE PLANTS. For Sale, a Fine Collection of Stove Plants. List on application. Apply, Mr. POWELL, Pickhurst, Godalming, Surrey.

ROSES — DWARF ROSES.
H.P.'s, the best sorts in cultivation, 45*s.* per 100.
TEAS, the best sorts in cultivation, 65*s.* per 100.
Mr. WILLIAM CORP, Oxford.

CHRISTMAS TREES. — A quantity of SPRUCE FIRS, from 3 feet to 10 feet high, for sale. Well branched and selected to suit the purpose. Price per dozen or 100 on application to
Mr. A. DUDLEY CLARKE, Blenheim Estates Office, Woodstock.

FERNS from Devonshire, Cornwall, and Somerset. Best time to plant. Instruction Book for Making Rockery, Planting Ferns, &c., with each 5*s.* order. 14 named varieties, 7*s.* per 100; small (post) 30, 2*s.* Fine ASPLENIUM FONTANUM, SEPTENTRIONALE, and HOLLY FERNS, 1*s.* each; the three for 2*s.* 6*d.* 1000 varieties, British and Exotic. CATALOGUE 2*d.* Established 25 years.
E. GILL, Lodging-house Keeper, Lynton, Devonshire.

To the Trade, Builders, &c.

GREEN EUONYMUS, 10,000, 9 inches to 3 feet, and a large quantity of the following Hardy Climbers and Plants:—AURICULAS, DELPHINIUMS, PANSIES, PYRETHRUMS, POLYANTHUS, DAISIES, HEPATICAS, Scarlet LOBELIAS, VIRGINIAN CREEPERS, HONEYSUCKLES, HERBS of all kinds, and many other things. Prices on application to
J. THOMAS, Elm Grove Nurseries, Brighton.

SEAKALE—SEAKALE.—Magnificent roots for Forcing. None to excel them for size in growth. Price on application to
ALFRED ATWOOD AND SON, Market Gardeners, 12, Chaldon Road, Fulham Fields, S.W.

Grape Vines.

H. LANE AND SON have a very large stock of well-ripened Canes to select from. The numerous Gold Medals awarded for collections of Grapes is a guarantee that our mode of growing them is right.
The Nurseries, Berkhamsted, Herts.

KENTISH FRUIT TREES.—One of the largest and best stocks of every description, in 300 Varieties, including the most profitable kinds for Market Growers, at 25 to 50 per cent. under usual prices. Immense stock of AUCUBAS, 1 to 5 feet, very cheap.
T. EVES, Gravesend Nurseries.—Established 1810.

FOREST and ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, FRUIT TREES, ROSES, &c. Thoroughly transplanted, very hardy and well rooted. Immense Stock to select from.
New Priced CATALOGUE on application to
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.
Plans and Estimates furnished.

Special Offer to the Trade.

POTATOS.—50 tons Magnum Bonums, at £4 per ton; 50 tons Myatt's, at £5 per ton; 50 tons Ashleaf Kidney, at £5 5*s.* per ton, free on Rail, in quantities not less than 1 ton. Cash with Order. Other varieties at equally low prices.
Apply to C. FIDLER, Potato Grower, Reading.

NOTICE OF REMOVAL TO No. 12, EXETER STREET, STRAND, W.C. (Immediately at back of Exeter Hall.)
We beg to intimate that we have now removed to our New Premises at above address.
The continued increase of our business has made it compulsory for us to go into larger and more commodious Warehouses, where we shall now be able to execute all Orders entrusted us with greater despatch and facility.
WATKINS AND SIMPSON,
Seed and Bulb Merchants, late of 1, Savoy Hill, Strand.
Seed and Trial Grounds at Feltham and Twickenham, Middlesex.

Notice of Removal.

SANDY AND SON beg to inform their Customers and the Trade generally that their address for the future for all purposes will be
THE NURSERIES, STAFFORD.
S. & Son have REMOVED their Seed Warehouse from Vine Street to the NURSERIES.
Nurseries and Seed Warehouse, Stafford.—November, 1881.

SUTTONS' CHOICE CROCUS.
FOR OPEN GROUND.
FOR IMMEDIATE PLANTING.

1000 in 5 varieties	17*s.* 6*d.*
500 in 5 varieties	9*s.* 0*d.*
250 in 5 varieties	5*s.* 0*d.*
100 in 5 varieties	2*s.* 0*d.*

From Mr. R. S. WHALE, *Windsor.*—"I bought a quantity of your Crocuses when at Reading, and am surprised at the number of very fine flowers thrown from each Bulb."

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

Cash Only.

ROSES—ROSES—ROSES.

	Per dozen.
Standard Hybrid Perpetuals, best sorts ..	21*s.*
Standard Tea Scented, best sorts	24*s.*
Dwarfs	12*s.*

FIR, Larch, fine stuff, 2 to 3 feet, 35*s.* per 1000; 3 to 4 feet, 45*s.* per 1000.
PEAT, good Fibrous, put on South Eastern or London, Chatham and Dover Rail here, 14*s.* per yard.
Post-office Orders payable to
C. F. CATTELL, Sevenoaks, Kent.

TO THE TRADE.
50,000 SEAKALE, extra strong, for forcing, 80*s.* per 1000.
70,000 SEAKALE, strong, fit for forcing, 60*s.* per 1000.
40,000 SEAKALE, planting, good, 40*s.* per 1000.
60,000 ROSES, Dwarf, on Manetti, fine, 40*s.* per 100; £17 10*s.* per 1000, my own selection.
40,000 MANETTI STOCKS, 45*s.* per 1000, fine.
White Cut BLOOMS, Chrysanthemums, fine, 2*s.* per dozen blooms. For cash with orders only.
RICHARD LOCKE, The Royal Alexandra Nurseries and Rose Farms, Red Hill, Surrey.

STANDARD CHERRIES.—By the 100 or 1000, of all the best kinds for Marketing Purposes. Lee's Prolific and Baldwin BLACK CURRANTS. Prices on application to
EDWARD THOMAS, Harold Nursery, Sittingbourne.

All intending Purchasers should send for a Copy of

W. M. CROWE'S CATALOGUE of Azaleas, Camellias, Ericas, Epacrises, Bouvardias, Cyclamens, Tree Carnations, Roses in pots, and other winter flowering Plants; 5000 Border Carnations, and other Hardy Plants; Clematis, and other Climbers, and general Nursery Stock, as cheap as any in the Trade.
W. M. Crowe's CATALOGUE of Hyacinths, Tulips, Spiræas, Lily of the Valley, &c., of first-class quality, may also be had free on application.
Boleyn Nursery, Upton, Essex.

STRAWBERRIES.—Strong roots for fruiting next year, 4*s.* per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

To Landscape Gardeners, Gentlemen engaged in PLANTING, and OTHERS.

ENGLISH and IRISH YEWS, a large quantity of, from 4 to 7 feet and upwards, all recently transplanted and well rooted. No reasonable offer will be refused.
HENRY GODFREY, Nurseryman, Stourbridge.

THORN QUICK, fine 4-yr. transplanted; LARCH, 1½ to 2½ feet, stout, twice transplanted; Austrian PINE, 2 to 3 feet, twice transplanted. Price (low) on application.—W. JACKSON, Blakedown, near Kidderminster.

COMMON HOLLIES.—150,000 1-yr. 1-yr. Price and Samples on application to
THOS. HOLDFORTH AND SON, Saunders Lane, Woking Station.

THE PLANTING SEASON.—Fine transplanted Spanish CHESTNUTS, ASH, POPLARS, and Scotch FIRS. Prices on application. Address
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

LAPAGERIA ALBA, well-rooted plants, 10*s.* 6*d.*, 15*s.* and 21*s.* A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7*s.* 6*d.*, 10*s.* 6*d.* and 15*s.* A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS, IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.
Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

PHEASANT-EYED NARCISSUS.—Bulbs of this sweet-scented Narcissus, 10s. per bushel, 6s. per half bushel, 3s. 6d. per peck; also Double White Narciss, 5s. per peck. Terms cash with order. Package free. Post-office Orders payable Walton-on-Thames.—J. E. ALDERSON, Bell Farm, Hersham, near Walton-on-Thames, Surrey.

SPECIAL NOTICE.
PLANES, 10 to 14 feet, stout and good.
AUCUBAS, 3 to 4 feet, fine specimens.
ROSES, Dwarf Hybrid Perpetual, extra fine.
Prices on application to
WM. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

FOR SALE, RASPBERRY CANES.—100,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 100 for 5s. Also a few Thousand Fastolf, at £1 per 1000 on rail. The Canes are small, but being well rooted are equally as good as large grown ones. Payments to accompany orders. Postal Orders on Koockholt. Apply to A. AND E. BATH, Colgates Farm, Sevenoaks, Kent.

To the Trade.
CAPE FLOWERS.—A large Consignment just received in first-class condition. Prices and sample sent on application to the importers. CORRY, SOPER, FOWLER AND CO. (Limited), 8, Finsbury Street, London, E.C.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded free by post on receipt of three 1d. stamps.
CATALOGUES of ROSES and ORCHARD HOUSE TREES, post-free on application.
THOMAS RIVERS AND SON, Nurseries, Sawbridgeworth, Herts.

LARCH and QUICKWOOD PLANTS for SALE,—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet; 1,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, 3 to 4 feet; 100 Weeping Ash, Elms, Poplars, Pears, &c.; also Scotch Fir, Weeping Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply, FRANCIS BELL, Nurseryman, Easingwold.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CARNATION, GLOIRE DE NANCY.—The largest White Carnation. First-class Certificate this year. For full description and price, see New List of Hardy Florist's Flowers for immediate Planting, containing also Single and Double Pyrethrums, Pansies, Pæonies, Pinks, Yellow and Border Carnations, &c., free on application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

Seakale—Seakale—Seakale.
To NURSERYMEN and OTHERS.
FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,
Mr. WILLIAM BAGLEY, Millshot Farm, Fulham, S.W.

To the Trade.
SEED POTATOS.
H. AND F. SHARPE, having secured their Crops of SEED POTATOS in fine condition, are prepared to make special offers of all the leading varieties worthy of cultivation. The Prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

To Planters.
J. SCOTT begs to offer an exceptionally fine assortment of FOREST TREES and ORNAMENTAL SHRUBS, which are this season in excellent condition for removal. He also begs to make an especial offer of fine STANDARD PEARS, 6 feet stems and good heads, 18s. per dozen; PYRAMID PEARS, 15s. per dozen; fine WALNUT TREES, 6 feet stems, 18s. per dozen; PLUMS, 6 feet stems, and 3-yr old, 12s. per dozen; GOOSEBERRIES, Black, Red, and White CURRANTS, fine plants, 25s. per 100.
JOHN SCOTT, Merriott, Somerset.
The Merriott Nurseries contain the finest collection of Hardy Fruit Trees in the World. See *Orchardist*.
CATALOGUES free on application.

Parsley-leaved Bramble.
JOHN CARTER, NURSERYMAN, Keighley, has a fine lot of strong Fruiting Plants of this prolific and useful Fruit. They are very ornamental trained round stakes or trellis, or against a wall. 6s. per dozen, or 40s. per 100.
J. C. has also a large Stock of FOREST and FRUIT TREES, DWARF ROSES, and HARDY SHRUBS, which he has every confidence would give satisfaction.
Wholesale and Retail CATALOGUES on application.

JOHN TUCKER, The Nurseries, Bridgwater, has to offer:—
PINUS AUSTRIACA, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
,, LARICIO, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
LARCH FIR, 3 to 4 feet, 2 to 3 feet.
Well transplanted and in quantity.

Forcing Seakale.
CHARLES TURNER has extra strong at 15s. per 100, and good planting at 7s. 6d. per 100.
The Royal Nurseries, Slough.

Deutzia gracilis.
WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty inches in each plant. Very cheap. Price on application.
Ottershaw Nursery, Chertsey.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both true Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

PAUL & SON,
The Old Nurseries, CHESHUNT,

Respectfully ask for the Orders of Planters of any of the following well-grown

TREES AND PLANTS.

ROSES, Standards of the best Hybrid Perpetuals.
,, Standard Teas, for Rose or Orchard-house or Conservatory decoration.
They hold the largest Stock of Standard Roses in Europe.
ROSES, Dwarfs, of all the finest varieties, of both Hybrid Perpetuals and Teas, Ground Plants.
,, Pot, in large and very select varieties.
DWARF-TRAINED FRUIT TREES of the best Apples, Pears, Plums, Cherries, Peaches, and Nectarines.
STANDARD APPLES—the finest trees in the country of the best sorts.
PYRAMID FRUIT TREES, all carefully formed and pruned.
CURRANTS, GOOSEBERRIES, STRAWBERRIES, and all the small fruit in variety and in large quantities.
VINES, Fruiting, all from eyes this year.

EVERGREENS.

ARAUCARIA IMBRICATA, 2 feet, 3 feet, and 8 feet to 9 feet in height.
BOX, Green and Variegated, in large quantities, 5 feet, 6 feet, and 7 feet in height.
CEDRUS DEODARA, 2 feet, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet to 9 feet in height. Splendid specimens.
CUPRESSUS LAWSONIANA, in some twenty varieties, 1 foot to 6 feet in height.
AUCUBA JAPONICA, extra bushy and fine colour, 1 foot, 2 feet, and 3 feet in height.
HOLLIES, common Green, 1 foot, 2 feet, 3 feet, and 4 feet in height. A splendid lot, in fine nursery condition.
,, Variegated, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet, 4 to 5 feet, 5 to 6 feet, 6 to 7 feet, in very large quantities.
,, Green varieties, 6 feet, 7 feet, 8 feet, and 9 feet in height; splendid specimens.
,, Golden Queen, by the 100 or 1000, in various sizes.
PINUS EXCELSA, extra fine specimens, 10 to 16 feet in height.
,, JEFFREYI, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet in height.
RHODODENDRONS, best named varieties, by the 100; 1 foot, 2 feet, and 3 feet in height.
KALMIA LATIFOLIA, handsome specimens, 3 feet, 4 feet, and 5 feet in height.
PICEA NORDMANNIANA, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 8 feet, and 9 feet in height; fine pyramids.
,, PINSAPO, 2 to 3 feet, 4 to 5 feet, and 5 to 6 feet high.
YEWS, splendid pyramidally-cut plants, 5 feet, 6 feet, and 7 feet in height.

DECIDUOUS.

LIMES, 10 to 12 feet (extra scented), 12 to 14 feet, 14 to 16 feet in height.
PLANES, 12 to 16 feet in height.
CHESTNUT, Horse, 10 feet, 12 feet, to 14 feet in height.
,, Scarlet, 10 feet, 12 feet, 14 feet, and 16 feet in height.
Deciduous Ornamental flowering and fine-foliage Trees in splendid variety.
,, Shrubs, in over 500 sorts.

We advise an Inspection of the above.

THE OLD NURSERIES, CHESHUNT

Orchids a Speciality.

The stock at the Clapton Nursery is by far the largest hitherto seen in Europe, and is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

On Sale by the Dozen or Hundred.
ANGRÆCUM CITRATUM,
,, ELLISII,
ONCIDIUM KRAMERIANUM,
,, WELTONI,
LÆLIA PURPURATA.

CLAPTON NURSERY, LONDON, E.

Roses! Roses! Roses!

The Finest Lot of Plants in England,
STANDARDS and DWARFS.
For DESCRIPTIVE CATALOGUE apply to
BENJAMIN R. CANT,
ROSE GROWER, COLCHESTER,
The holder of the Champion Cup of the National Rose Society.

Large Ornamental Evergreen Shrubs,
FOR IMMEDIATE EFFECT.
W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester, has a very extensive collection of the above, all recently transplanted and in fine condition for removal, are now offered at greatly reduced prices to effect a clearance.
FRUIT TREES, the largest and best stocks in the Kingdom. Prices on application.

New Seedling Apple "The Queen."
Awarded a First-class Certificate by the Committee of the Royal Horticultural Society.
SALTMARSH AND SON, The Nurseries, Chelmsford, are now Booking Orders for this splendid variety, which they feel confident must become the most popular Apple for either Market or Exhibition purposes.
For description and Testimonials, see advertisement in this Journal on October 1, p. 452.
Maiden Plants ready in November, 10s. 6d. each, with the usual discount to the Trade.
A Supplementary List of Nurserymen ordering "The Queen," will shortly be advertised.
A correctly and beautifully coloured Plate, by Severeyns, of Brussels, will be sent to any address on receipt of seven stamps.
N.B.—The Stock being limited, early orders are requested.

Raspberry Canes.
MR. R. BATH has now a quantity of his noted FASTOLF for disposal. In consequence of prolonged drought during the earlier part of the past fruit season, young Raspberry Canes have not reached their usual height, but, being excellently rooted (guaranteed such), are equally as good as those sent out during more prolific seasons. Price 7s. per 100, 50s. per 1000, packed and put on rail. P.O.O. or cheque with order. Crayford, Kent.

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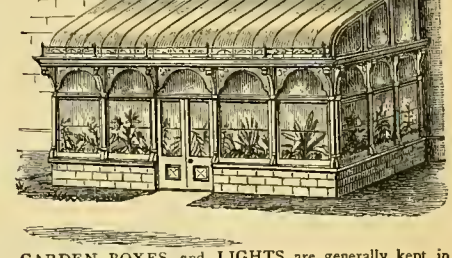

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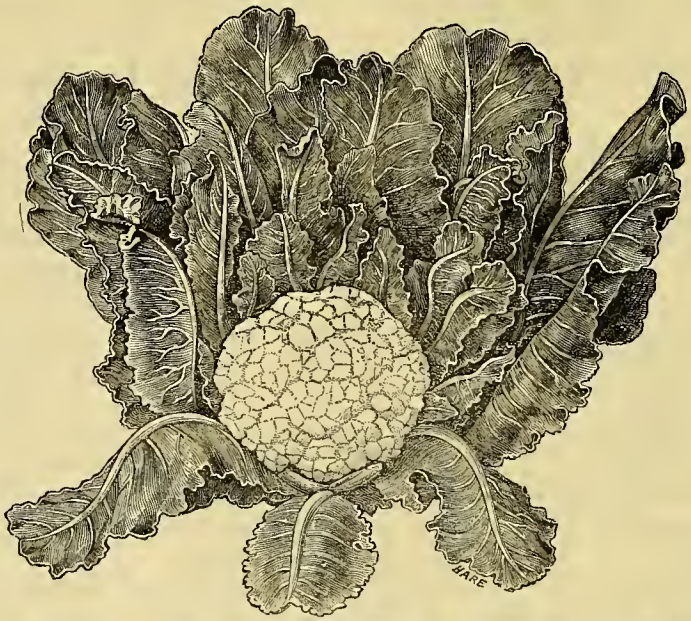

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Mr. SAMUEL LEDSHAM, Chester.

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The above Illustration (taken from a Photograph) gives a fair idea of its form and size, but the necessary removal of the leaves for the purpose of photographing, prevents its true character, as **THE BEST SELF-PROTECTING VARIETY** extant, being shown. As the Testimonials appended will show, this is the "**LATEST OF ALL**" Broccolis, lasting well until the time that the early Cauliflowers are ready. Its robust constitution enables it to withstand the most severe winters, while the mass of leaves by which it is protected prevents the heads from being injured by the summer sun. This variety has been famous in the neighbourhood of Chester for several years, and it is now with the greatest confidence offered for the first time to the general trade.

The following Testimonials speak for themselves:—

Extract from a Letter from Mr. LEWIS SOLOMON, Centre Row, Covent Garden.

"May 14.—Your Broccoli came safely to hand this morning. I have shown it to several good judges. They say, without exception, they are the finest they have seen. I have also been to one of the Committee of the Royal Horticultural Society, who also says they are the very best. If you have fifty dozen ready now we could dispose of them for you."

Extracts from Letters from A. F. BARRON, Esq., Royal Horticultural Society's Gardens, Chiswick.

"June 2, 1880.—After the Committee dispersed, the examples of Cattell's Eclipse arrived, and were compared with yours by myself and several others, and proved to be quite distinct."

"June 23.—I brought forward yesterday the subject of your Broccoli. The Committee commend it highly as a very excellent sort."

"October 12, 1881.—The Committee considered the Broccoli to be a very fine late white variety."

Extracts from the GARDENERS' CHRONICLE.

"May 15, 1880.—Mr. Ledsham, Green Lane, Tarvin Road, Chester, sent examples of a very promising variety of late Broccoli. The heads range from small to medium size, the *beau ideal* of a first-class Broccoli in size, shape, and whiteness, and, as we can affirm, of very delicate flavour."

Extract from the GARDENERS' CHRONICLE.

"May 29.—Mr. S. Ledsham again sent a fine sample of his late white Broccoli, which, considering the winter the plants have passed through, and their fine quality as shown, is a variety of great merit."

Extracts from JOURNAL of HORTICULTURE.

"May 13, 1880.—We have received from Mr. Samuel Ledsham, Market Gardener, Boughton, Chester, some heads of late Broccoli of considerable merit. The heads are extremely solid, and almost as white as early Cauliflowers. They are not large, but quite large enough for a gentleman's table, being 4 inches across, and the same in depth, and they are, we think, the heaviest for their size we have noticed. Their whiteness is due to the marked, self-protecting character of the variety, the heads being deep down in the plant and closely enveloped with leaves, these not having the twisted form of the Knight's protecting type. This Broccoli is a very good one, and if of dwarf habit and hardy it will prove highly worthy of cultivation, especially if, as we are informed, 'it will continue producing heads for three or four weeks longer.'"

"May 27.—We have received further specimens from Mr. Ledsham, Green Lane, Tarvin Road, Chester, of his late protecting Broccoli. The heads are larger than those referred to on p. 374, and are close, white, heavy, and of excellent quality."

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DOGWOOD, Red-twigged (Cornus alba)—Stout bushes. This shrub gives a fine effect in winter. 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100.
ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000; 6 to 8 feet, 25s. per 100, 200s. per 1000.
POPLAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 160s. per 1000; 8 to 10 feet, 5s. per dozen, 30s. per 100, 240s. per 1000.
WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
,, Cœrulean, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet 4s. per doz., 25s. per 100; 10 to 12 feet, 6s. per doz.
ACER—Negundo variegata, fine bushy plants, 2 to 3 feet, 9s. per doz., 50s. per 100; 3 to 4 feet, 12s. per doz., 75s. per 100.
ASH—(Fraxinus excelsior) atrovirens, 3 to 4 feet, 12s. per dozen; aucubæfolia, 4 to 6 feet, 12s. per dozen; 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
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,, Weeping, 4 to 5 feet, 12s. per dozen: 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100.
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ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
,, Giant or Huntingdon (macrophyllus), 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100; 12 to 15 feet, 18s. per dozen.
,, Silver Variegated, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
,, Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 8 to 10 feet, 18s. per doz.; 10 to 12 feet, 24s. per doz.; 12 to 15 feet, 36s. per doz.
POPLAR—Golden-leaved Canadian, 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
,, Ontario Balsam (P. candicans), 6 to 8 feet, 4s. per dozen; 8 to 10 feet, 6s. per dozen; 10 to 12 feet, 9s. per dozen.
SYCAMORE (Acer Pseudo-Platanus)—Very fine, extra transplanted trees, 8 to 10 feet, 9s. per dozen; 10 to 12 feet, 12s. per dozen; 12 to 15 feet, 24s. per dozen.
THORN, or MAY TREE—Paul's Double Scarlet, fine Standards, 18s. per dozen; fine Pyramids, 12s. to 24s. per dozen.
WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100; 6 to 8 feet, 4s. per dozen, 20s. per 100; 8 to 10 feet, 6s. per dozen, 40s. per 100; 10 to 12 feet, 12s. per dozen.
EUONYMUS—radicans argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2s. per doz., 12s. per 100; 4 to 6 in., 3s. per doz., 16s. per 100.
ELDER—(Sambucus nigra) variegated: a beautifully variegated plant, which thrives close up to the sea; 6s. per dozen, 40s. per 100.
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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 19, 1881.

ROYAL GARDENS, KEW.

THE Report on the progress and condition of the Royal Gardens at Kew, during the year 1880, has just been issued. The delay in its publication is, as it seems to us, sufficiently accounted for by the vast amount of executive and clerical work thrown upon those whose main duty should be that of administration. Be this as it may, however, the annual Reports have grown from a mere record of work done to a treatise on Economic Botany. The present Report occupies over seventy pages, and gives an abstract of the work done in the garden, arboretum, the laboratory, herbarium, and museums, including the laborious details connected with the transfer, arrangement, and distribution of duplicates from the India Museum. It gives a list of the new and interesting plants which flowered in the garden for the first time in 1880; supplies copious details as to the interchange of plants and seeds, and furnishes a variety of very interesting information concerning the various colonial gardens, which look up to Kew as the central authority. It is a question whether the very important information given with regard to the cultivation of economic plants in the colonies, such as Cinchonas, india-rubber, and the like, would not be more generally useful if published separately, and so made available for a larger number of persons than are likely to see this Report, and the same remark applies even more to the valuable list of Aloes, Yuccas, and Agaves, printed as an appendix to the Report. From the great length to which this document has run, we can now only give sundry condensed extracts from it, but we may from time to time lay before our readers further extracts on points of cultural and economic interest. [EDS.]

THE NUMBER OF VISITORS.

(723,681) to the Royal Gardens during the past year is very nearly the same as that of 1878 (the largest hitherto recorded) being only 1741 less.

The number of visitors on the Whit-Monday Bank Holiday (61,831) was the largest admitted on any single day in the year.

The following figures give the total numbers admitted during each Bank-holiday, and also the number of persons who on each occasion entered before 1 A.M :—

	Total number during day.	Number before 1 A.M.
March 29	32,753	2893
May 17	61,831	4703
August 2	32,412	1679
December 27	864	348

It may be interesting to give in one instance (May 17) the figures showing the rate of arrival of the morning visitors :—

From 10—11 o'clock	887
,, 11—12 ,,	1475
,, 12—1 ,,	2341
Total	4703

LESSONS TO THE YOUNG GARDENERS.

These are given in the evening twice a week through about nine months of the year by members of the staff, and have been well attended and continue to give satisfactory results. The demonstrations in elementary meteorology, physics, and chemistry have, as before, been given in the large room of the Jodrell Laboratory,

BOTANIC GARDENS.

The plant-houses in the Botanic Gardens are in an entirely satisfactory state both as to repair and heating, and though tried severely by the unusually long continuance of cold weather with high winds, no accident of any kind occurred in the furnaces, boilers, pipes, or flues. The new apparatus supplied to the Palm-house in 1877 continues to hold the first place in point of efficiency and economy of fuel, the whole of the gigantic structure being kept at a tropical heat in ordinary weather by two of the four boilers, together with the small accessory one now provided for the flow and return pipes round the gallery; the whole six were, however, required during several weeks of last winter and the beginning of this, so rapid was the abstraction of heat due to the cold, the wind, and iron-work. I have no besitation in saying that had the Palm-house been constructed (like the Temperate-house) mainly of wood, with stone or brick piers, an average tropical heat would be provided by two of three boilers, together with a small one to heat the gallery pipes.

The condition of the collection in all the sections of the new range has greatly improved of late. That of economic plants, now a very valuable one, and, indeed, quite unique in point both of numbers and specimens, requires further accommodation both in height and in space, to render it at all an adequate representation of the vegetable resources of India and our colonies. The Victoria Water Lily in the tank was a failure this year, which is attributed by the Curator to the absence of sunlight, as it had flowered profusely every year under the same treatment and in the same tank ever since this was constructed.

In the Palm-house the whole of the collections have been again re-arranged, an operation of great labour, and frequently needed, owing to the rapid and unequal growth of the plants, and to the fact that in the case of those in the transepts and wings one side of them alone is exposed to the light. Cross alleys have been made in the wings, and various of the larger and more umbrageous plants destroyed, with the view of bringing more of the medium-sized specimens to the light.

In the propagating department more space is urgently needed for growing on in a better cultural style than has hitherto been possible specimen plants of tropical species of all kinds. Such kinds as the Mangosteen, Durian, Gutta-percha, and others of the Malayan Peninsula and islands require, especially when freshly imported, as well as in their youngest state, a maximum of heat and moisture, and a closeness of personal supervision, which it is impracticable to give them in the houses open to the public. The collections in the Economic-house and on the shelves of the Palm-house must unavoidably become disfigured by the presence of overgrown and worn-out plants which need periodical renewing to keep the general appearance and average condition up to the level which is fitting in a public establishment. Hitherto there has been no accommodation for carrying on work of this kind, the need of which has not failed to strike the eye of every practical horticulturist who has visited Kew. By a re-classification and structural improvement of some of the existing propagating houses and frames, for which provision has been made in the forthcoming estimates, I trust that at no great expense, at any rate, a step will have been made in the direction of this much needed reform.

THE ARBORETUM.

The Arboretum suffered very much through the frosts and gales of last winter, and the premature snow of the month of October, which, falling on the old and brittle Oaks, laden with foliage and with an unusually heavy crop of acorns, in many cases so broke them up that they will have to be removed. Of other trees damaged some young Liquidambars were the most so. The great White Lime in the old Arboretum of the Botanic Gardens (to the left of the broad path leading from the main gates) had its top branches broken, and, others being already quite dead, it is evident that it, too, is on the eve of breaking up.

The more important trees and shrubs in the Arboretum that suffered from the inclemency of the winter, are the Pinus insignis, of which few remain alive, Abies bracteata, of which one plant is uninjured and two severely hurt. Of Pinus muricata three fine plants were killed, as is P. Elliottii. Of P. Sabiniana most of the plants are browned more or less. Some of the more tender Hollies lost many of their leaves. The Hydrangeas, Escallonias, and Cistuses were for the most part killed, and Arbuti a good deal hurt.

Great progress has been made in the arrangement of the classified collection of trees. The number of species and varieties in these collections is given below, and there are several (and in most cases three or more) specimens of each. The positions which the majority occupy are permanent ones; but it is impossible to foretell that this will be so in the case of all; for the rate of growth being very different in different specimens of even the same variety of trees, some will no doubt be required to be transplanted for their own full development, or that of their neighbours. Though all are forest trees, a small proportion only can be expected to obtain full dimensions as such; many, even of the most distinct and most desirable for the embellishment of parks, &c., or the most interesting in a scientific point of view, being sports that have originated under cultivation, or appeared as solitary specimens in a native state; such can be increased and perpetuated only by grafting, and of such grafted varieties few attain the dimensions of trees.

Estimate of species and reputed varieties now in Arboretum:—Oak, 220; Chestnuts, 24; Beech, 34; Hornbeam, 17; Planes, 12; Alder, 24.

A catalogue of the Arboretum is in preparation, which will give the names of the principal species and varieties, with their native countries and synonyms.

SUPPLY OF TREES FOR LONDON PARKS.

During the past year 3669 trees and shrubs of various kinds have been supplied for the London parks under the direction of Her Majesty's Office of Works, besides upwards of 300 clumps of herbaceous plants. Permission having been given by Her Majesty's Office of Works to the residents to plant the Mortlake Road, the necessary trees have been supplied by the Royal Gardens.

INTERCHANGE OF PLANTS AND SEEDS.

The receipts have been during the past year 3513 living plants of all kinds, and 2752 packets, bags, and boxes of seeds from 226 contributors.

SUPPLY OF SPECIMENS FOR SCIENCE AND ART DEPARTMENT, &C.

A supply of cut plants for the Art schools and of specimens for the examinations in botany of the Science and Art Department, have been regularly furnished. A large number of specimens of flowering plants, as well as other botanical materials, have been supplied for the various examinations of the University of London as well as for some of those of the Civil Service Commission.

INDIAN AND COLONIAL BOTANIC GARDENS.

The remarks made in the Kew Report for 1878 on the relations of this establishment with the botanic gardens of our various dependencies have to a considerable extent anticipated the actual course of events. A great increase of activity, arising from a variety of causes, has characterised almost all these institutions with which we are in regular correspondence, entailing a very great extension of the official work transacted at Kew independent of the purely administrative work of the establishment itself. I may refer to a paper read by the Assistant Director at the Colonial Institute on May 11, of last year, on the Botanical Enterprise of the Empire [see *Gardeners' Chronicle*, 1880, vol. xiii., pp. 615, 624], as giving some idea of the extent to which the ramifications of the foreign relations of Kew have extended, and of the growth of the demands of all kinds which are now made upon its resources. Two of our most important botanical departments, those of Ceylon and Jamaica, have been to a large extent reorganised under new Directors within the last two years. I trust that in the future these will become more and more the head-quarters of botanical enterprise for our eastern and western tropical colonies respectively, and will not be content with the limited scope of departments strictly confined in their operations to their own local spheres.

MUSEUMS.

The revision of the collections in Museum No. 2 has been continued, attention having been given principally to Palmaceæ, Cyperaceæ and allied orders.

The magnificent collection of forest produce received from the Government of India in 1878 (see Kew Report, p. 50) has been examined, selected from, and incorporated in the permanent collections, and the duplicates distributed. The whole collection comprised 98 packages, and consisted of "1113 specimens of timber, as well as of a number of large rounds, planks, bark-pieces, specimens of trees grown in plantations, Bamboos, canes and other Palms, gums, fibres, fruit, and other miscellaneous forest produce."

This collection, important as it was, was completely overshadowed by the transference to Kew of the entire economico-botanical collections forming part of the India Museum at South Kensington. These were unreservedly handed over to the Royal Gardens, the India Office undertaking to pay all the expenses of removal, to expend a sum not exceeding £2000 in an extension of Museum No. 1, so as to provide the increased space required for the intercalation of a complete set of specimens of Indian vegetable products, to make a grant of £200 a year for the efficient maintenance of the Indian collections, and to place at the disposal of the establishment, three days a week for a period of five years, the services of Dr. Cooke, one of the Curators of the Museum under the India Office.

The chief difficulty which presented itself in carrying out the transfer arose from the fact that, besides a large exhibited collection, there were extensive store accumulations which had been sent from India in connection with a scheme at one time contemplated of systematic distribution of arranged collections to provincial museums. There being no adequate store accommodation at Kew for the reception of this mass of material, some difficulty at first presented itself as to how it was to be dealt with. As soon, however, as the breaking up of the India Museum was decided on, numerous applications for a share of its contents were addressed to the India Office, who communicated them to Kew with the intimation that the Secretary of State would be glad that, as far as possible, they should be acceded to. Further requests from other institutions were subsequently made to Kew.

In addition to the economico-botanical collections Kew was allowed to select from the Art section of the Museum an additional number of objects of suitable size to illustrate as completely as possible at Kew the industrial application of Indian vegetable products.

The Science and Art Department very courteously placed at our disposal their large vans for removing collections to different parts of the country. The economico-botanical collections other than those specified above filled twelve of these, while eight more were filled with cases which the India Office also transferred to us.

The two large temporary sheds erected for the shelter of the workmen during the hailstorm repairs (Kew Report, 1876, p. 6) were fortunately still standing. One of these was boarded in and heated with hot water, and formed during the winter a convenient packing and sorting room. The first step was to select a full and complete series for the Kew Museum. The detailed labour involved in this may be judged from the fact that of Rice alone there were about 2000 samples from the most widely distributed districts of India, and weighing in the aggregate about 3 tons. Every one of these was carefully examined and compared, and a series was separated showing every type of variation to which Indian Rice is subject. The amount of this variation in form, colour, and texture is almost inconceivable, and the trouble and expense which must have been involved in the accumulation of the specimens is amply justified by the clearness with which this fact is now brought out.

In form the individual Rice-grains vary from elongated to ovoid, in texture from translucent to pearl-white opacity, in colour from white to pink, brown, mottled, and even black. In fact the natives of each district of India appear to have their specialised local variety, and this fact is a source of administrative difficulty in the case of famine, as the natives of a given district are by no means always prepared to accept other Rice, such as Carolina, as a substitute for that to which they are accustomed.

After the separation of the Kew series the distribution of the duplicates was proceeded with. In all twenty-five places and institutions received a share, the total number of boxes and packages sent away amounting to 146, besides two van-loads of specimens sent to the Food Museum at Bethnal Green.

The set of vegetable products reserved for Kew has been carefully intercalated in the exhibited collections. It is far more extensive and complete than

that which was originally open to the inspection of the public at South Kensington, and the comparison of the specimens in the process of incorporation has led to a great improvement of the botanical determination of the individual samples and of their nomenclature. Every specimen from the India Museum bears a small blue distinctive label. The number of specimens so distinguished is about 4000.

The India Office also sent to Kew about 36 tons of wood specimens, which had been lying for years at the India Office stores in the Belvidere Road, Lambeth. These specimens, the existence of which had long been known, had been vainly asked for for Kew many years before. They consisted of 3358 specimens suitable for museum purposes, being mostly of commodious size, and evidently collected at considerable expense and with a good deal of care. Comparatively few were identified in any way, but the majority bore impressed numbers corresponding probably to lists and catalogues now no longer in existence, or at any rate not forthcoming.

Of these specimens 2318, being without names, history, or information regarding them of any kind, were destroyed. Their loss is the less regretted as Kew is now in possession of good specimens of Indian woods from the Forest Department collection already referred to and accurately determined by its scientific officers.

Of the remainder 51 specimens are preserved in the timber collection of the Royal Gardens; 121 specimens were sent to the Botanical Department of the British Museum; 281 were sent to the museum of the Arboretum of Harvard University, United States; 557 specimens, expensively mounted on brass tripod stands, forming the Schlagintweit collection, but much deteriorated and useless to Kew on account of the loss of labels and catalogue, were eventually sent through the India Store Department to the Forest School at Dehra Doon.

The nett result of a somewhat laborious transaction is that the Kew Museum has been very greatly enriched by the intercalation of a series of specimens illustrating the vegetable resources of our Eastern empire, far exceeding in completeness anything in our possession before. The Indian Government is benefited by having its collections exhibited in a more commodious and accessible way than had been hitherto possible, and kept in good order by experts trained to the work, while the members of the public who visit the museum for scientific or commercial purposes have the advantage of comparing the Indian products with others exhibited alongside of them from the colonies and foreign countries.

The India Museum grant has enabled me to retain as museum *préparateur* George Badderley, who held a similar position under the India Office. This supplies a want which has long been felt, as hitherto the whole of the work incidental to museum management, such as mounting specimens, &c., was performed by the museum attendants, who had no special qualification for the task, during hours when the museums were not open to the public.

Jodrell Laboratory.

The principal researches conducted in the laboratory during the past year have been those of Dr. Pfitzer, Professor of Botany, University of Heidelberg, on the morphology of the vegetative organs of Orchids. A preliminary account of the results of Dr. Pfitzer's researches is published in the *Gardeners' Chronicle* for December 11, 1880.

F. O. Bower, Assistant to the Professor of Botany, University College, on the germination and histology of the seedling of Welwitschia mirabilis, published in the *Quarterly Journal of Microscopical Science* for January, 1881.

The laboratory has also been employed for the experimental demonstrations given to the *employés* of the Royal Gardens, and for the examination of the University of London for the degree of Doctor of Science in the subject of physiological botany.

"North" Gallery.

A building has recently been erected in the pleasure grounds, at the expense of Miss Marianne North, from designs prepared by James Fergusson, F.R.S. It is situated opposite the Temperate-house, and consists of a gallery measuring 50 feet long by 25 in breadth, with a small studio and caretaker's house attached to it.

It is intended to exhibit in it an extensive collection of coloured sketches in oil made by Miss North in nearly all the tropical and sub-tropical regions of the world for the purpose of illustrating the various aspects of the vegetable kingdom, and the forms of flowers and fruits in the countries she has visited.

Herbarium.

As already recorded, the arrangement under which the economico-botanic collections of the India Museum were removed to Kew, included the transference to this establishment of the services of Dr. Cooke, the well-known mycologist, for three days a week. Dr. Cooke, besides being at hand to give information in respect to any matter connected with the Indian collections lately under his charge, has undertaken the arrangement of the collections of Thallophytes in the Herbarium, as well as the duty of reporting upon questions connected with plant-diseases produced by fungoid organisms which are submitted to Kew. Dr. Cooke has at once attacked the arrears of the section of the Herbarium devoted to fungi, which, owing to the press of work in keeping the Phanerogams and Ferns constantly worked up, has been somewhat neglected. The services of Dr. Cooke are a most welcome aid to this department.

Mr. R. A. Rolfe, an advanced gardener in the Royal Gardens, was appointed Second Assistant in the place of Mr. N. E. Brown promoted, after a public competition, conducted by the Civil Service Commission.

India Office Collection of Botanical Drawings.

As the sequel to the transference to Kew of the economico-botanical collections from the India

Fig. 131.—Fourcroya longæva: inflorescence bearing bulbs and capsule. (see p. 654.)

Museum, the collection of drawings of Indian plants in the India Office library, 3359 in number, have been deposited, under the direction of the Secretary of State for India in Council, in the library of the Herbarium of the Royal Gardens.

This very extensive collection will be intercalated with the general collection of Icones plantarum at Kew, which is certainly the largest in existence, and which it will enormously enrich and extend.

New Garden Plants.

TACCARUM WARMINGIANUM, *Engl.** (fig. 134, p. 661).

A fine plant of this very distinct and remarkable Aroid is now to be seen in good flowering condition at Mr. W. Bull's nursery at Chelsea, and which, although not quite new to science, is, so far as I am aware, not only new to cultivation but quite unlike any other Aroid at present to be found in our gardens. In habit it resembles an Amorphophallus, having a solitary long-petioled branching leaf, as in many of the tuberous Aroids, but the inflorescence is very different from anything else. Horticulturally, it is a very fine plant, of noble appearance, and very ornamental; in the class to which it belongs it is decidedly a plant of first-rate merit. It has been introduced by Mr. Bull from the province of Minas Geraes, in Brazil, where it was first discovered by Dr. Warming at Lagoa Santa, and from his specimens it was described and figured by Professor Engler at the place quoted in the footnote. Dr. Warming states that it is a very rare plant, growing in shady woods, and flowering during the rainy season (October to January): from which fact cultivators should take a lesson, and give the plant a liberal allowance of water during the period of its flowering. It is, moreover, stated that when in fruit the spadix resembles a spike of Maize or Indian Corn, only thicker, being densely covered with yellow berries, the pulp of which is eaten. Mr. Bull's specimen is a very fine one, with two breaks, each with one leaf and one inflorescence; from it the following description has been compiled:—

Rootstock tuberous. Leaf solitary; petiole 3 feet to 3 feet 8 inches long, and about 2 inches thick near the base, nearly terete, and quite smooth, of a light and slightly glaucous green colour, beautifully marked with very numerous clearly defined white lines; lamina with a spread of 2—2½ feet, with three principal bipinnatifid divisions, the middle division with three oblong pinnatifid segments on each side, the basal divisions with about three pinnatifid segments on the front side and one or two on the hinder side; the lobes of all the segments are oblong-lanceolate, or lanceolate-oblong acute, and slightly falcate; the colour is bright green.

The scape is about 8 inches long, ¾ inch thick, slightly compressed, coloured in the same manner as the petiole. Spathe 15 inches long, convolute at the basal part, open above, recurving towards the apex, the open part measures about 10 inches round from edge to edge, with a gape of about 5 inches, inside it is of a uniform light coppery-tinted brown, thickly sprinkled with minute dull green dots, outside it is distinctly ribbed, of a light brown, with the spaces between the ribs variegated with light green in a close and somewhat reticulate manner. The spadix is cylindrical and obtuse, 13 inches long, and about 1½ inch in diameter, everywhere covered with flowers, but not densely, the basal 4 inches being female, the upper 9 inches being male. Female flowers with 4—6 thick fleshy staminodia 2½ lines long, dirty-brown at the slightly thickened apex; ovary green, globose, 4—6 celled, with one ascending anatropous ovule in each cell; style nearly or quite ½ inch long, projecting far beyond the staminodia, green; stigma very large, green, somewhat tabuliform, 4—6 lobed, stigmatose around the margin. Male flowers less closely packed than the females, each consisting of a thick fleshy cylindric column, bluntly rounded at the apex, about ½ inch long and 2 lines thick, of a pinkish colour, bearing a ring of 8—12 yellow anther cells at about ⅓ of its length below the apex. Pollen emitted in strings, nearly globular, smooth, yellow. *N. E. Brown.*

TRIPHASIA TRIFOLIATA. — A nice bush of this pretty member of the Orange family is now bearing an abundant crop of its pellucid reddish fruits in the Victoria-house at Kew, and is a decidedly attractive object. Its fruits, preserved in syrup, are now and then imported into this country for sale under the name of Lime berries. This species must not be confounded with another and totally different plant belonging to the same natural order (which in many establishments is grown under its name)—viz., Citrus trifoliata, a figure of which appeared in a recent volume of the *Botanical Magazine.*

* *Taccarum Warmingianum*, Engler, in *Videnskabelige Meddelelser fra den naturhist. Forening i Kjobenhavn*, 1879-80 p. 362, t 4; Warming's *Symbolæ ad floram Brasiliæ centralis*, pt. 26. p. 760, t. 4.

FOURCROYA LONGÆVA.

SOME time since (*Gard. Chron.* 1876, vol. v., p. 81) we figured a fine specimen of this plant, which flowered in the open air in the rich collection of T. A. S. Dorrien Smith, Esq., at Tresco, Isle of Scilly. The flowers are usually mixed in the inflorescence with small bulbs, which drop off and serve to propagate the plant as effectually as by seed. Owing to the abundant production of leaf-buds, perhaps, or it may be from the want of the right insect at the right moment, the fruit is not often set, but this year Mr. Vallance has kindly sent us a specimen, wherein, as will be seen from our illustration (fig. 131, p. 653), both bud and capsule have been produced on the same inflorescence. Five plants flowered this year in the gardens at Tresco Abbey.

PERMANENT PASTURE.

[THE following article has been furnished in reply to a question asking for information as to growing season of the different varieties of grasses, &c., sown in mixtures for permanent pastures.]

In laying down land to permanent pasture the object of the grazier is to sow such seed that he may obtain a succession of the most productive and nutritive grasses, and of those which have a tendency to form leaf rather than stem and seed. In the first place we know that whatever kind of seed is sown soil and season have a great deal to do with the growth of pasture plants, as of all other descriptions of vegetation. The greater the depth of soil the better will be the character of herbage, and the richer the pasture. Seasons with an excess of heat force the coarser and more rank grasses, which have little undergrowth or leafy matter, whereas cold and wet seasons produce a preponderance of bottom-grass, which has a very small tendency to come to maturity.

In answer to "J. R. H." we will endeavour to condense a few observations upon the characteristics of some of the principal plants which make up the mixed herbage of our pastures in hope that they may not only be instructive, but useful to those who wish either to lay down arable land in grass-seeds, or to improve that which is already under grass cultivation.

Lolium perenne (common Rye-grass) is a very valuable grass to the grazier, not only on account of its nutritive qualities, but because it produces abundance of root-leaves throughout the season until checked by frosts. It is moderately early, and succeeds best in wet and warm seasons, and is a very prevalent grass in the fine old ox pastures of Leicestershire.

Lolium italicum (Italian Rye-grass). — This is generally considered a bearded variety of the common Rye-grass, but it arrives sooner at maturity, has a greater abundance of foliage, which is broader, considerably taller and less inclined to spread out. Its comparatively limited duration fits it well for sowing in mixture with other grasses intended for permanent pasture, or for renovating bare places, as it dies out and gives place to the more slowly maturing perennial sorts, which are destined to fill the ground.

Phleum pratense (Timothy or Cat's-tail grass).—This species thrives best on moist loamy soils. It is unsuitable for chalk, or stiff clay lands, but can withstand extremes of temperature. It yields an early and productive growth on first laying down, but appears to die out after a few years. Some authorities state that this variety is more agreeable to cattle than any other grass, and in America it is cultivated almost exclusively where the soil is favourable.

Alopecurus pratensis (Meadow Fox-tail grass).—One of the earliest and best of grasses for continuous cropping, because it yields a very large proportion of leaf to the stems, which are broad, long, and soft, and grow rapidly when cut or eaten down. It succeeds best on rather superior soils of medium texture, and requires about two years after sowing to arrive at full maturity.

Dactylis glomerata (Rough Cock's-foot).—A perennial grass with stiff fibrous roots, descending often to a considerable depth into the soil. Its habit of growth is tufty and rather unsightly when on very rich soil, but it is a very valuable grass in most pastures on account of the great quantity of produce which it yields, and the rapidity with which its leaves grow after being cut or grazed down. It prefers good moist soils and is one of the first to start in the spring, but if allowed to stand too long its leaves get hard and coarse.

Festuca ovina (Sheep's Fescue).—A densely tufted perennial grass, growing plentifully on dry elevated pastures where there is but little struggle or competition. It will thrive on a variety of soils, and will resist the effects of severe drought in summer better than some of the larger growing and deeper rooting species. Its leaves are narrow and fine, and produce a soft towy herbage. It is moderately early, and yields a fair share of later growth, especially if the autumn rainfall is not deficient.

Festuca duriuscula (Hard Fescue).—Apparently a variety of Sheep's Fescue, and upon some soils the two kinds blend one into the other in such a manner that it becomes almost impossible to mark the distinction. Like F. ovina its leaves are rounded and wiry, but longer, more luxuriant and earlier. It thrives on a great variety of soils but prefers those which are light and dry; it is therefore recommended for most pasture lands, particularly as it yields a greater amount of fodder than might be expected from its comparatively dwarf habit of growth, and retains its verdure during winter in a remarkable degree.

Festuca pratensis and *F. elatior* (Meadow Fescue and Tall Fescue).—These plants have a slightly tufted habit of growth, with broad lively green coloured foliage. They are moderately early and are very partial to moist soils. They form excellent pasture grasses, well liked by all kinds of domestic herbivorous animals. Although their root fibres descend to a greater depth into the soil than those of F. ovina, or F. duriuscula, yet they can with difficulty withstand the effects of a very dry season, requiring shade and abundance of moisture; whereas the former species are generally the most conspicuous grasses under defective soil and climatic conditions.

Poa annua (Annual Meadow-grass).—This species is one of the most common grasses in all temperate climates, and is usually considered as a very troublesome weed. In some parts of Suffolk it forms whole fields, to the exclusion of all other grasses, being a very early and rapid grower. It is greedily eaten by cattle, consequently is recommended as a meadow-grass, and especially for making good thin or blank places.

Poa trivialis (Rough-stalked Meadow-grass).—A very valuable grass in a mixture for pasture lands, particularly on damp soils. Its stoloniferous shoots begin to grow tolerably early in spring; as the season advances these shoots are dried up by the effects of the sun, but they start again towards the end of the summer, when the weather becomes moist, and continue green during the greater part of winter.

Poa pratensis (Smooth-stalked Meadow-grass).—A perennial grass with a powerful root-growth. It is generally recommended for sowing in pastures from its yielding a large quantity of herbage at a very early period of the season; but it is not a great favourite with agriculturists, owing to its thickly matted, creeping roots, which are considered to impoverish the soil, and its foliage ceases in a great measure to grow after the month of June; it is also very liable to be injured by the disease called "rust." It flourishes naturally in dry situations, producing rather long, narrow leaves, which are of a coarse and hardish nature.

Agrostis vulgaris (common or creeping-rooted Bent-grass).—A most variable perennial grass, having a kind of subterraneous creeping stem. Owing to the extensive root-possession, especially in the upper or richer layers of soil, which this plant acquires, and the consequent difficulty of extirpation, it is usually considered as a troublesome pest in any light arable soils, being one of the grasses known as "twitch" or "couch." It is naturally distributed in pastures and waste places, wet or dry, and will grow on gravelly soils where more valuable grasses fail. It is a very late grass, but continues to yield its foliage far into the winter.

Agrostis spica-venti (Silky Bent-grass).—A useful grass for sowing in blanks of grass fields, or on first laying down pasture, as it quickly produces a supply of luxuriant foliage, much relished by cattle. It, however, entirely disappears after about two years.

Avena pubescens (Downy Oat-grass).—A very early and hardy grass, natural to dry pastures, especially in chalky or limestone districts; foliage rather narrow, not attaining to any considerable length. It succeeds in meadows best where the herbage is thinnest.

Avena flavescens (Yellow Oat-grass).—A late variety,

yielding a considerable bulk of fine herbage. It deserves a place in all mixtures for light, dry soils.

Anthoxanthum odoratum (Sweet-scented Vernal-grass).—This grass is very early, but produces a scanty portion of herbage. It is remarkable for giving out a pleasant smell during the process of drying, and it is principally to the presence of this species that hay from natural meadows owes its peculiar fragrance. It is said that pastures where this grass abounds produce the finest quality of mutton.

Cynosurus cristatus (Crested Dog's-tail).—A late grass that will grow on the poorest soils, and in seasons when many other species can with difficulty exist—due most probably to its penetrating roots, which draw up moisture from the lower depths of the subsoil, and insure the herbage against suffering from drought. It has fine light green foliage, and forms a close, dense turf, being therefore well suited for lawns and grazing pastures to fill up the places between the larger growing species.

Trifolium pratense (red Clover).—A perennial plant of many varieties, and of longer or shorter duration, that which is usually found in permanent pasture being sometimes termed by agriculturists the Pratense perenne. It is very valuable for feeding, and should find a place in all good pastures.

Trifolium repens (white or Dutch Clover).—A low-creeping and much more dense and leafy species than the red Clover. Grows naturally in meadows and on a great variety of soils and situations, being in great repute in all the better class of grazing lands. In fact, it is to the prevalence of this species that the goodness of the herbage is often attributed. It is a late variety, but continues to produce a continuous supply of fresh foliage far into the autumn.

Trifolium filiforme (yellow Clover, or Trefoil).—This is a small Clover, recommended for growing on very gravelly or rocky places, which are incapable of supporting the more valuable grasses and Clover.

Lotus corniculatus (Bird's-foot Trefoil).—A plant well suited for growing on dry elevated pastures and healthy soils. It gives a bulk of short herbage, and from the depth to which its roots penetrate it is not liable to be injured by drought, and is thereby enabled to retain its verdure when other plants are dried up.

Achillea Millefolium (Milfoil, or Yarrow).—A perennial plant that will grow in the poorest, driest, and most sandy soil, being capable of bearing extreme drought without injury. It gives abundance of leafy herbage throughout the season, which is well liked by cattle.

A mixture of grass-seeds in the following proportions per acre would give about the necessary quantity to form a good pasture, and such as would supply a fairly continuous growth of cattle food :—

	Lb.
Lolium perenne	5
,, italicum	3
Phleum pratense	3
Dactylis glomerata	2
Festuca pratensis	1½
,, duriuscula	2½
Agrostis vulgaris	2
,, spica-venti	1½
Poa annua	2
,, trivialis	2½
Alopecurus pratensis	1½
Cynosurus cristatus	1
Anthoxanthum odoratum	0½
Avena flavescens	0½
Trifolium pratense	3
,, repens	5
Lotus corniculatus	2
Achillea Millefolium	1½
	40 lb. per acre.

There are many excellent varieties of the above species now sent out by the various seedsmen, but the preceding list will be a guide in the selection. *J. Willis, Rothamsted.*

MARGAM PARK.

(*Concluded from p. 612*)

On the lawn, to the left of that described as being so unique with its central fountain, rows of large Orange trees, and circular outline surrounded by lofty trees, is the gravel tennis court, which must have a great advantage over those on grass during showery weather. Just beyond the tennis court, and within the banks of shrubs that bound the lawn, a path leads to an old gravel pit, which is being converted into a hardy fernery by Mr. Muir, who expects to make of it an interesting feature, and doubtless he will succeed, as the position is everything that could be desired, and with so mild yet humid a climate as that of Margam, it is to be hoped that many species will flourish that are not considered hardy sorts. Crossing the lawn to the conservatory a large and very perfect fossil tree-trunk is passed, which was taken out of the coal only 30 feet below the surface of the ground in a cutting made in forming that portion of the Great Western Railway which passes through the estate. The fossil is 28 feet long, and is regularly covered over its entire length by the distinctive markings of the Sigillaria. The conservatory is an old lean-to structure of 120 feet in length, and with a height of back wall of 18 feet, which is entirely covered by a magnificent lot of Oranges, Lemons, and other members of the Citrus family. Conspicuous above all were the Lemons, which hung in such large quantities and of such fine size as to prove them the most ornamental and useful of fruit bearers for covering lofty walls. The whole of the fourteen trees upon this wall are in the most robust vigour, and carrying fine fruits of their respective varieties. The sorts are Citrus Limonum, C. Limetta, C. madurensis, C. aurantium, C. medica, C. nobilis, C. nobilis minor, C. decumana vulgaris, C. Nicuse, C. racemosa, and the Maltese. We may here mention that besides many duplicates of the above amongst those in tubs, which are annually wintered in the large orangery, there are such other varieties as C. Margarita, C. bergamotta, C. myrtifolia, C. japonica, &c. Of the several varieties the most appreciated for its quantities of beautiful flowers for cutting, and which load the atmospbere of the house in which they grow with the most delicious perfume, is the common, or Seville Orange. The Lemon gives the largest crops of fruit, and is the most effective in that respect; while the bergamotta is made the most use of, as being the best for preserving in syrups and for similar purposes.

The centre bed of the house is principally filled with Camellias well set with bloom-buds, and with the foliage of a deep green, indicating that the full exposure to the sun's rays which they receive—Mr. Muir informs us that he does not shade at all—has not detracted in the least from their healthy appearance. A large plant of Brugmansia arborea at one end of the bed well exhibits its free-flowering character, while here and there other plants interspersed amongst the Camellias relieve the sameness; the pillars that support the roof being covered with Tea Roses, Fuchsias, a Lapageria, &c. The ends of the house are covered with plants of Habrothamnus rosea, and H. elegans—plants that, considering their effective flowers and the free and continuous manner in which they yield them, are too seldom seen in modern structures. In the front bed are planted more Tea Roses amongst a general collection of small plants in pots. Single Dahlias in variety are represented by several distinct and effective colours, and nice plants were noticed of such useful white flowers for cutting as Matricaria inodora fl.-pl., and Nicotiana fragrans. On the lawn in front are several beds of Roses growing in the most vigorous manner, but owing to the state of the weather previously referred to, the blooms were things of the past and of future promise only.

Leaving the pleasure-grounds we cross the kitchen garden, and reach the principal range of houses, which are lean-to's, and behind which are the potting and other sheds and offices. The first house entered was a cool Peach-house, 36 feet long, from which most of the fruits were gathered. The back wall is covered with three dwarf standards, one of which still carried a fair crop, while a space of about 2½ feet at the base of the wall under the trees is devoted to a Maréchal Niel Rose, the branches being taken along horizontally from one end of the house. A curved trellis in front is planted with Peaches and Nectarines, one of which—Princess of Wales Peach—was carrying a good crop of fine-looking fruits, but with the inferior flavour frequently noticed in this variety. The wood of the trees was ripening nicely, and promises well for another season. A shelf in front close to the glass was occupied by a row of Gilbert's double Primulas, which were flowering freely, and which will be useful either for cutting or for house decoration for some time to come. The next house is a Hamburgh-house, 40 feet long, where the Grapes were just finishing colouring. This, like all the houses of the range, is very inefficiently heated by an old flue running round it. The Vines are old, but are fairly robust, and the canes are carrying a crop of from twenty-five to thirty small bunches each, which are beautifully finished. Mr. Muir finds that his employer prefers a quantity of small bunches to a less number of heavier weight, and certainly the smaller bunches are calculated to keep better. A quantity of Ferns are here grown on a stage underneath the Vines; these are principally Adiantums and Pteris for furnishing vases and supplying cut fronds, and will be removed shortly to other quarters. A Pine-stove of the same dimensions is next entered. The centre bed is principally filled with a most healthy and promising batch of Smooth Cayennes and Queens, which ought to throw up very strongly early next spring. The curbs are filled with a nice lot of plants suitable for table decoration, including palms, Dracænas in variety, Caladiums, &c. On a back shelf are some Orchids, with a nice batch of Calanthes coming on vigorously. A plant of Bougainvillea glabra covered with bloom furnishes one end of the house, and at the other is a healthy lot of Gardenias in boxes. Finishing this range is the early vinery, from which all the fruit were cut with the exception of a few bunches of Black Hamburgh, which were well coloured and of good size of berry. This house has the advantage of hot water, but this is limited to a single pipe running round the house; so that in hard winters it is a difficult task to keep tender plants in any of the houses, as all labour under the same want of effective means of heating.

Passing a batch of Strawberries on the ash-beds—about one half of which are Black Prince, which is here preferred to any for early forcing—we reach a quantity of pits stored with plants intended for blooming during the winter months when the family are in residence at the mansion. We here noticed pits of Salvias, Primulas, Cineerarias, Bouvardias, Poinsettias, Spiræas, Deutzias, Eupatoriums, zonal Pelargoniums, and Tea Roses; while close at hand was a healthy batch of Chrysanthemums, which will prove equally useful. At the end of some pits filled with a healthy lot of successional Pines, we noticed three lights devoted to a lot of seedling Coleus, which were equally as attractive as a batch of named varieties would have been, and the whole were raised from one packet of seed, which, we are informed, cost but 1*s.* 6*d.* Next comes a pit filled with Ferns and Crotons, &c., followed by others devoted to a collection of Cucumbers. Behind these is a pit with a sunken pathway, a front bed planted with Telegraph and Pettigrew's Cardiff Castle Cucumbers, and the stage at the back filled with a general collection of small stove plants. In the next compartment the bed is occupied by a collection of Tomatos, numbering thirty-six varieties, of which Mr. Muir considers the Glamorgan, and one selected at Drumlanrig, as much the best; while two of the ornamental sorts—Yellow Plum and Red Currant—are very pretty and effective. The front shelf of the stage in this house is converted into a box filled with Ferns and Mosses, and the other shelves are filled with rows of Celosias, Fuchsias, Abutilons, and Amaryllis.

Entering the kitchen garden from the higher end next to the gardener's house, one of the first objects to attract attention was a very beautiful border of choice Phloxes, which were not only fine as a mass, but were carrying individually large spikes of flowers of good form. The kitchen garden is of considerable extent, bounded on the south by belts of trees and shrubs separating it from the pleasure grounds, and on the north by the fruit walls, beyond and above which tower the wooded heights, previously spoken of, to an altitude of 500 feet. This great elevation to the north gives a considerably increased temperature to the garden at its foot, and wards off to a great extent the mischievous effects of late spring frosts by radiation from its seemingly almost perpendicular sides.

The soil of the garden varies considerably in character, but is generally good, being deep, and at the same time free from stagnant moisture. Soil that grows the common brake to the height of 9 feet, as it does here in several places, cannot be other than suitable for most vegetables, and the high character of the crops fully bears out this statement. Along the sides of the walks are borders filled with pyramidal Pear, Apple, and other trees bearing good crops of fruit. These trees have all been lifted during the last few years, and root-pruned in order to check their gross growth, and the result fully justifies the means. The green crops are most luxuriant, and the system of cropping heavy, even the breaks of unlifted Potatos being filled with Broccoli, Savoys, &c. Amongst the newer vegetables Jersey Lily Turnip is much esteemed here, also a new dwarf Celery, which struck us as being exceedingly like an old variety named Dewar's Dwarf. Amongst other distinct vegetables on trial may be mentioned the Turnip-rooted Fennel, and the Redbraes Cabbage, the latter appearing to be a useful large Cabbage, of most distinct appearance. In another garden, situated beyond the bothies for

the young gardeners, were quantities of Peas of many varieties, conspicuous amongst which were Culverwell's Giant Marrow and Stratagem, while John Bull is here quite a failure, which is also our own experience of it. The whole of the kitchen garden is scrupulously free from weeds, and the walks as well cared for as those in the ornamental departments. Crossing a portion of the park the orchard is reached, and is found to contain heavy crops of Hawthornden, King of Pippins, and Keswick Codlin Apples, a fair supply of Ribstons, and of Pears. With this brief account of the useful departments of the garden we close our notice of a place quite unique in its way, and replete with ancient relics and associations. *R. Crossling.*

LIST OF GARDEN ORCHIDS.

[By an oversight the commencement of the genus Dendrobium, which the portion now printed should have preceded, was given last week. This portion of the list is, then, the continuation from p. 592 to the beginning of Dendrobium at p. 624. The genus Dendrobium should have been numbered 23 instead of 16.]

Subtribe iii.—*Liparideæ.*

31. L. SAUNDERSIANA, Rchb. f., *Gard. Chron.* 1872, p. 1003.—Jamaica. Cultivated by W. W. Saunders. "Quite a little gem, mimicing an Australian Cyrtostylis."

32. L. SELLIGERA, Rchb. f., *Linnæa*, xli., p. 42.—India. Cultivated by W. W. Saunders. Flowers small, green. Hort. Kew.

33. L. SPATHULATA, Lindl., *Bot. Reg.* 1840, Misc. n. 189.—India. Imported by Messrs. Loddiges. Long racemes of minute green flowers. Hort. Kew.

34. L. STRICKLANDIANA, Rchb. f., *Gard. Chron.*, n.s. xiii., p, 232.—Assam? Imported by Mr. Bull about 1875, and flowered by Sir. C. W. Strickland in 1880. Flowers small, greenish.

35. L. TRICALLOSA, Rchb. f., *Gard. Chron.*, n.s., xi., p. 684.—Borneo. Imported and flowered by Mr. Bull in 1879.

36. L. WALKERIÆ, Graham, *Bot. Mag.*, t. 3770.—Ceylon. Sent by Mrs. Colonel Walker to the Botanic Garden, Edinburgh, where it flowered in 1834. Purple and green inconspicuous flowers.

16. PLATYCLINIS, new genus; Bentham, in Benth. and Hook. *Gen. Plant.* iii., ined.—Stems with very narrow pseudobulbs, 1-leaved. Flowers small, racemose. Column short, furnished with two erect lateral branches or arms. Tufted, epiphytal herbs, with elegant, graceful racemes of small, yellowish flowers.—Eight species, inhabiting India and the Malayan Archipelago, and previously referred to the genus Dendrochilum.

1. P. ABBREVIATA, Benth., in Benth. and Hook. *Gen. Plant.* iii., ined.; *Dendrochilum abbreviatum*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 398; Lindl., *Gen. and Sp. Orch.*, p 35.—Java. Cultivated in the Buitenzorg Botanic Garden in 1866.

2. P. BRACHYOTA, Hemsley; *Dendrochilum brachyotum*, Rchb. f., *Bonplandia*, 1857, p. 43.—Java. Cultivated in the Botanic Garden, Buitenzorg.

3. P. COBBIANA, Hemsley; *Dendrochilum Cobbianum*, Rchb. f., *Gard. Chron.*, n.s., xiv., p. 748.—Philippine Islands. Discovered by Mr. Boxall, and introduced for Messrs. Low. Allied to P. longifolium.

4. P. CORNUTA, Benth., in Benth. and Hook. *Gen. Plant.* iii., ined.; *Dendrochilum cornutum*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 398; Lindl., *Gen. and Sp. Orch.*, p. 34.—Java. Cultivated in the Buitenzorg Garden, in 1866.

5. P. EDENTULA, Benth., in Benth. and Hook. *Gen. Plant.* iii., ined.; *Dendrochilum edentulum*, Blume, *Bijdr, tot Fl. Nederl. Ind.*, p. 398; Lindl., *Gen. and Sp. Orch.*, p. 34.—Java. Cultivated in the Buitenzorg Garden in 1866.

6. P. FILIFORMIS, Benth., in Benth. and Hook. *Gen. Plant.* iii., ined.; *Dendrochilum filiforme*, Lindl., *Bot. Reg.* 1840, Misc. n. 113; Regel, *Gartenflora*, xviii., p. 33. t. 604; *Ill. Hort.* 1878, t. 323 (glumaceum in the text).—Manilla. Discovered by Cuming, and first flowered in Europe by Mr. Bateman. Flowers small, pale yellow, in long thread-like racemes.

7. P. GLUMACEA, Benth., in Benth. and Hook. *Gen. Plant.* iii., ined.; *Dendrochilum glumaceum*, Lindl., *Bot. Reg.*, 1841, Misc. n. 58; *Bot. Mag.*, t. 4853.—Philippine Islands. Cuming discovered it, and Messrs. Loddiges were the first to flower it, about the year 1841. This is one of the most elegant and graceful of Orchids. The small flowers are ivory-white, and arranged in conspicuously bracteate racemes, pendulous from an erect scape.

8. P. LATIFOLIUM, Hemsley; *Dendrochilum latifolium*, Lindl., *Bot. Reg.* 1843, Misc. n. 74.—Manilla. Imported by Messrs. Loddiges. Flowers green.

9. P. LONGIFOLIUM, Hemsley; *Dendrochilum longifolium*, Rchb. f., *Bonplandia*, 1856, p. 329.—Native country unrecorded. Introduced and first cultivated by Consul Schiller, Hamburgh.

17. CALYPSO, Salisb., *Parad. Lond.*, t. 89.—Stems usually thickening into pseudobulbs, 1-leaved, 1-flowered. Labellum longer than the sepals, the lateral lobes cohering in their upper part over the saccate central one, which is usually bifid at the tip. Column short, broadly winged. Limited to the following species:—

C. BOREALIS, Salisb., *Parad. Lond.*, t. 89; Hooker, *Exot. Fl.*, i., t. 12; *Bot. Mag.*, t. 2763; *Cypripedium bulbosum*, Linn.; Smith, *Spicileg. Bot.*, t. 11; *Orchidium boreale*, Swartz, *Svensk. Bot.*, t. 518; *Calypso americana*, R. Br. Ait., *Hort. Kew.*, ed. v., p. 208.—This elegant little terrestrial Orchid is widely dispersed in Northern Europe, Asia, and America, and was cultivated at Mill Hill as long ago as 1806. The rather large flowers are delicate rose and brown with a yellow crest on the lip. Messrs. Backhouse, of York, flowered it in 1879. (See fig. 132.)

18. APLECTRUM, Nutt., *Gen. Pl. N. Am.*, ii., p. 197.—Stems pseudobulbous, 1-leaved. Flowers racemose, borne on a naked scape after the leaves have died down. Labellum as long as the sepals.

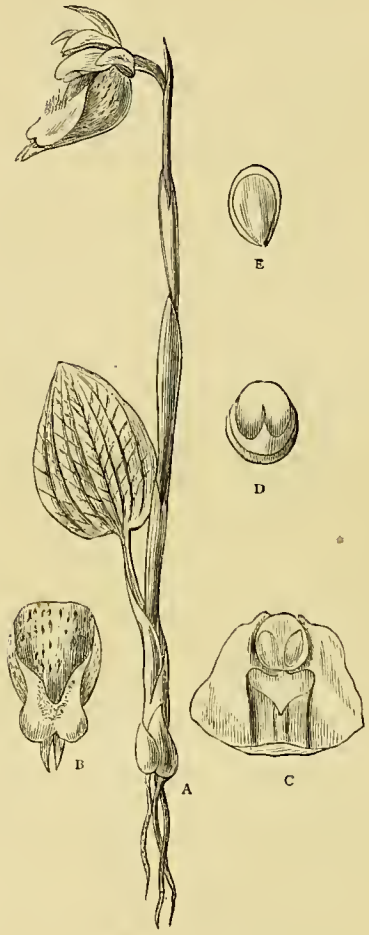


FIG. 132.—CALYPSO BOREALIS.

A, A plant natural size; B, Front view of the lip; C, Upper portion of the column, showing the stigma and anther; D, Empty anther removed; E, Two of the four pollen-masses, enlarged. (Copied from Hooker's *Exotic Flora*, t. 12.)

Column sessile, rather long, not winged. A monotype.

A. HYEMALE, Nutt.; Lindl. *Gen. et Sp.*, p. 536; A. Gray, *Man. Bot.*, ed. 5, p. 510; Torr., *Fl. N. York.*, ii., t. 1217.—Eastern States of North America. Flowers dingy greenish-brown. Cultivated by Thos. S. Ware at the present time.

19. CORALLORHIZA.—Stems leafless (or leaves scale-like), proceeding from a branching coral-like rhizome. Flowers racemose. Column stalked, narrowly winged at the base and apex. Terrestrial herbs inhabiting Europe, extratropical Asia, and North America, southward into Mexico. C. innata is a native of Scotland.

1. C. MULTIFLORA, Nutt., *Journ. Acad. Sc. Philad.*, iii., p. 138, t. 7; Hook., *Exot. Fl.*, iii., t. 174.—Common in eastern North America. A handsome species, introduced by Mr. Cleghorn, and very successfully cultivated by Mr. Murray in the Glasgow Botanic Garden, 1827. Whole plant rosy or purple.

2. C. ODONTORHIZA, Nutt., *Gen. N. Am. Pl.*, ii., p. 197; Lindl., *Gen. and Sp. Orch.*, p. 534.—North America, New York to Michigan, and southwards. Introduced in 1825.

20. TIPULARIA is an allied genus, comprising one North American and one Himalayan species, neither of which has been in cultivation, to my knowledge.

21. OREORCHIS is a Central and Eastern Asiatic genus of four species; and

22. HEXALECTRIS (Bletia aphylla) is a North American monotype. These complete the subtribe *Liparideæ*. *W. B. Hemsley.*

(*To be continued.*)

GRIMSTON PARK.

IN the account of Grimston Park which appeared at pp. 300—302, vol. xiv., mention is made of the Emperor's Walk; we now give an illustration of it (fig. 133), as seen from the end opposite to the temple. There are many well-founded objections to the introduction of statuary to an English garden, but when concentrated as here, it is very different; the practice of placing groups here and there, as frequently done, without any definite object beyond the seeming reason that they happened to be on hand, and that there was no place exactly suitable for the presence, for want of which they were consigned to the garden. The fine examples of Irish Yew with which the busts are associated harmonise with them as to form, and contrast with them effectively in colour, the marble standing out in bold relief from the dark green foliage of the Yews. The background of thriving trees, happily disposed so as to give an irregular outline, takes off the stiff formality of the Yews. This walk is a delightful promenade on a still summer evening.

Florists' Flowers.

THE CHRYSANTHEMUM SHOWS: *Victoria Park.*—The display of Chrysanthemums in Victoria Park, now approaching their best, promises to be unusually fine this season, Mr. MacIntyre having by common consent quite exceeded all his previous efforts. The exhibition (for exhibition it is) is arranged under canvas inside the gates of the principal entrance, opposite the Prince of Wales' feather-bed, so well known to the inhabitants of the East End and the general public. The space enclosed by canvas is over [illegible] yards long, and from 3 to 4 yards wide. The plants are grouped bank fashion, and the first sight upon entering the gates presents a striking contrast to the outside surroundings. Without an unhealthy leaf they are a glowing mass of all colours, from white to rosy-crimson, purple, lilac, and red. They are fully exposed upon one side, in order to give the public the fullest opportunity of enjoying and admiring the different colours of the flowers. The collection is a very comprehensive one, and includes the finest varieties of Japanese, large Anemone-flowered and incurved; also an extensive variety of the small flowering kinds, which are useful for making up the front rows. The group is tastefully arranged, the idea evidently being to diversify the colours as much as possible, for the gratification of the public. Taking the back rows of the group, the most striking flowers as regards quality are Novelty (a variety always difficult to do well even under glass), Queen of England, Golden George Glenny, Jenny Lind, John Salter, Sidoni, Gluck, Fair Maid of Guernsey, Prince Alfred, James Salter, Crimson Velvet, Lady Slade, George Sands, Mr. Brunlees, Prince of Anemones, Julia Lagravère (indispensable for its colour), Beauty, Annie Salter, Lord Derby, Fulgore, Abbé Pasaglia, Cassandra, Jardin des Plantes, Prince of Wales, and Plenipo. Of the dwarfer and small flowering kinds there is an attractive display of the white and golden Cedo Nulli, Model, Madame Marthe (so largely used for market purposes), Brilliant, Bob, Mustafa, Mrs. Dicks, Mr. Murray, Madame Raleigh, Sportsman, Garb d'Or, Purpurea elegans, and President de Cassaine. Violet-scented variety, which should be largely grown for cut flowers. Mr. MacIntyre has a very good sport upon a plant of Brown Cluster—a yellow flower differing in no material way from the characteristics of its parent, except in the matter of colour only. The shoot upon which the yellow flowers are p

duced is right in the centre of several others, in fact it is the central shoot of the plant, which is a neat little bush, and rather a curiosity in the collection. The exhibition upon the whole is a great success, and when the gales of last month are remembered, as well as the 12° of frost registered when the plants were fast swelling their buds, no small meed of praise is due to those who have so successfully battled against the elements and produced a display of flowers in November under a slender canvas covering which must be a pleasure to visitors and an example to all who have the means to go and do likewise.

Finsbury Park.

Of all the winter shows provided for the inhabitants of the great metropolis few are equal in extent and general excellence to the display of flowers now on view at Finsbury Park in a long span-roofed structure recently erected as a show-house, and which has been patronised by thousands of visitors during the past week. A short journey by rail from Liverpool Street to Stamford Hill, on the Great Eastern Railway, takes the visitor to within a few minutes' walk of the Park. The show-house is on the east side, and within sight of the gates of what is commonly known as the Manor House entrance. The traffic is well ordered, the ingress and egress to the exhibition being so arranged that a block is impossible, and the thousands who avail themselves of the opportunity of visiting the show must in itself be a high compliment as well as a pleasure to Mr. Cochrane, the superintendent-in-chief, and Mr. Mardlin, his deputy. The structure is 100 feet long and 18 feet wide, with a path 3 feet wide all round, leaving a clear space of 12 feet in width for standing the plants. The sides are substantially made of wood, 6 feet high, and ample provision is made for ventilation along both sides from end to end, the roof only being of glass. There is plenty of light and full scope for giving air whether the weather be wet or dry, which is a considerable advantage in the treatment of Chrysanthemums at this particular season. A flow and return 3-inch pipe, heated by hot-water, is put round the house, in order that severe frost can be kept at defiance and a healthy atmosphere maintained during London fogs or drizzling wet weather. Of the show itself it may be said to be rather exceptional in its way. Not that there is anything novel in the style of arrangement, but the cultivation gives evidence of high cultural skill not to be met with every day even among professors in the art of Chrysanthemum growing. The plants are all grown upon single stems, with from four to five shoots to each stem, each bearing fine heads of bloom of such uniform size and quality as to elicit the highest praise from practical cultivators. The foliage is of fine substance, each variety bearing its true characteristic, which facilitates recognition when there is neither time nor opportunity to examine a whole collection individually. The collection is for the greater part legibly named, but in a large mass of plants of course it is next to impossible to secure that each plant shall be named. The arrangement of the plants follows the rake of the roof, a tall row in the centre falling gradually to the walk or path upon either side. The incurved section is largely represented by the very finest show kinds in cultivation. These are very cheerfully intermixed with the brightest of the Japanese and large-flowered Anemone varieties, which, taken as a whole, give a mass of colour so harmoniously blended that the most fastidious taste can hardly fail to be satisfied. The finest flowers of the collection are of the following kinds, leaving specialities out of the list:—Empress of India, Prince Alfred, Triomphe du Nord, a very popular Japanese kind; The Sultan, Jardin des Plantes, Harlequin, Refulgence, Bronze Dragon, Peter the Great, John Salter, Venus, Dr. Sharpe, Mr. Corbay, a sport from Prince of Wales; Prague, a grand variety for massing; Abd-el-Kader, Grand Turk, Mr. Bunn, an improvement on Golden Beverley; Bismarck, Diamond, Mrs. Heale, Lady Margaret, a fine Anemone variety; Madame Rendatler, Rifleman, Fleur de Marie, The Sultan, and a great many others. The varieties deserving special cultural notice are grand blooms of Princess Beatrice, seldom seen in perfect form; Princess of Wales, uniformly large and very fine; General Slade, a fine old show variety; Cherub, well up in the centre; and Barbara, also very good. In addition to these, one or two new kinds, notably Triomphe de la Rue de Châtelet (Jackson) and Constance, sent out by Mr. Cannell, appeared to be of more than general merit. Angelina, certificated last year, and a sport from Lady Slade, will hardly realise the hopes that were entertained of it; and a yellow variety, said to be new, has a suspicious look of close affinity to Golden Beverley in appearance, which should suggest an inquiry into its history before it is called by any other name. The group is bordered by dwarf grown

Fig. 133.—The Emperor's Walk at Grimston. (see p. 656.)

plants of Anemone Pompons, and altogether the display of flowers, and the healthy condition of the plants, leave no room to doubt that their requirements are thoroughly understood, and all their wants assiduously attended throughout the year.

Orchid Notes.

Mr. Schofield's Orchids.—There are at present in the Orchid-houses at New Hall Hey, Rawtenstall, the residence of G. W. L. Schofield, Esq., several plants in flower of exceptional interest and beauty. This is one of the many places where the culture of this class of plants has recently been entered upon with zeal and spirit, and Mr. Schofield must be congratulated upon the large measure of success that has thus far attended his enthusiastic labours. When I say that only about two years ago a range of houses in three divisions was specially erected for their culture—that last summer a new Odontoglossum-house was added, and that at the present time two more span-roofed houses are nearly finished—it will be readily understood that ample preparation is being made for considerable additions to what is already a nice collection. The following were in flower:—Vanda cœrulea, a fine healthy plant with eighteen leaves, and which had two spikes, producing respectively twelve and seven blooms of unusual size and substance. It is always a pleasure to see this well done; its pale blue sepals and petals veined with colour of a slightly darker shade, and its labellum, though small, still of a much darker hue, stamp it as one of superior excellence and beauty. Vanda lamellata Boxallii, a stout and stiff plant, has also two spikes, on one of which twenty-four buds are ready to burst, and on the other ten buds are coming nicely on. Aerides Leeanum is represented by a fine piece, with a strong shoot from the base. Saccolabium giganteum promises to be good in about a week. Vanda suavis tricolor and various Aerides are well represented, and growing vigorously. Phalænopsids are in splendid condition, P. Schilleriana showing flower-spikes, and several amabilis and rosea being in bloom. Dendrobium bigibbum, with its bright rosy-pink blooms, is also very showy. In the Cattleya-house I noticed a splendid example of Oncidium hæmatochilum. This plant, which much resembles O. Lanceanum, was in a pot, under which condition it had been grown for several years, and invariably bloomed. This year it is very strong—one spike, 4 feet long, had eight laterals, and had produced forty-four of its rich chocolate and crimson flowers; the other spike had over twenty. It is, without doubt, one of the finest Oncidiums grown. O. crispum and its variety marginatum, Forbesii, varicosum, tigrinum, &c., are also numerous and good. Many spikes of Lælia albida, autumnalis, and anceps are showing, and will shortly be very gay and attractive. Dendrobium Jamesianum, grown in a cool house, had been flowering very freely. Many other Dendrobiums, notably crassinode, have made excellent growths, whilst useful plants of most of the Lælias, Cattleyas, Zygopetalums, Trichopilias, &c., are to be met with in their respective houses. In the Odontoglossum-house a capital lot of Alexandræ, Pescatorei, madrense, and the many other useful sorts of this noted genus, as well as a good number of plants of the leading varieties of Masdevallias, are growing vigorously and flowering freely. Mr. T. Wise is managing the whole exceedingly well, and when the new erections are ready, will have a nice group of houses, and a good collection of plants on which to exercise his skill. *W. Swan, Fallowfield.*

Raising Orchids from Seeds.

There is probably no ardent admirer of any class of plants, and who has also a good chance to cultivate them, but has a longing desire, at some time or other, to raise seedlings that will excel their parents in form, colour, or quality, or be distinct from them. Every one who has given attention to this branch of horticulture, and has also been tolerably successful, knows well that the greatest success has been attained when the plant from which it has been intended to produce seeds has been fertilised by another species or variety of the same genus, carefully selected to bring about certain results previously determined in the mind of the cultivator. Future success or failure depend much upon his perseverance or patience in the work. Mr. John Dominy was one of the first to raise hybrid Orchids, and he brought to bear a large amount of skill strengthened by patience. His work in this direction has been fully appreciated, and fitly acknowledged, by his numerous admirers and friends. Although some of the results of Mr. Dominy's labours have but recently been developed, it is probably a dozen years or more since he hybridised any Orchids. That important work, so far as the Royal Exotic Nursery, Chelsea, is concerned, has been in the hands of Mr. John Seden. Since the year 1866 he has been unceasingly at work hybridising Orchids, until it now requires a large range of hot-houses to contain the specimens, large and small, that have been raised by him. Just a word in passing on the method of raising Orchids from seeds. It is pretty well known that most Orchids will not produce seeds unless they are artificially impregnated either by human or insect agency. The pollen masses can be easily removed on the point of a quill-pen, and readily adhere to the stigma of the seed-bearing variety. In about twelve hours the sepals of the impregnated flowers will collapse, and the seed-pod will rapidly swell. When the seeds are ripe, as they will be in a little less than twelve months, they should be sown on the surface of pots or baskets in which some allied species may be growing. It takes many months for the seeds to germinate, and several years, sometimes as many as a dozen, before the plants produce their flowers. The first year or two of the plants' existence is the most critical, and many are lost during that time; and it is the careful watching and attending to the wants of these interesting Orchid babies that tries a man's patience. The work must be a labour of love. I have known Mr. Seden for twenty years, and have watched his experiments in this field since the beginning. I know it is a real labour of love to him, but at the same time nothing gives a man so much encouragement to persevere in such a course than to know that his work is appreciated by others like-minded with himself. The results of Mr. Dominy's labours have been recently published in the *Gardeners' Chronicle*, and thinking it would be of some interest if the results of Mr. Seden's labours were also published, I obtained a list of hybrid Orchids raised by him at Chelsea, which is appended, with the parentage of each:—

	Seed Parent.	Pollen Parent.
Cattleya Chamberlainii	C. Leopoldii	C. Dowiana
,, Mardelli	C. speciosissima	C. Devoniana
,, Mastersoniæ	C. Loddigesii	C. labiata
,, fausta	,,	C. exoniensis
,, ,, alba	,,	,,
,, ,, aurea	,,	,,
,, ,, crispa	,,	,,
,, ,, delicata	,,	,,
,, ,, radicans	,,	,,
,, ,, superba*	,,	,,
Calanthe Sedeni	C. Veitchii	C. vestita
Chysis Chelsoni	C. bractescens	C. aurea
,, Sedeni	C. Limminghii	C. bractescens
Cypripedium Sedeni	C. Schlimii	C. longifolium
,, Marshallianum	C. venustum	C. concolor
,, selligerum	C. barbatum	C. lævigatum
,, ,, major	,,	,,
,, euryandrum	,,	C. Stonei
,, tesselatum	,,	C. concolor
,, ,, porphyreum	,,	,,
,, œnanthum	C. Harrisianum	C. insigne Maulei
,, superciliare	C. barbatum	C. Veitchii
,, marmorophyllum	C. Hookeræ	C. barbatum
,, porphyreum	C. Roezlii	C. Schlimii
,, calanthum	C. biflorum	C. Lowii
,, porphyrospilum	C. Lowii	C. Hookeræ
,, vernixium	C. Argus	C. villosum
,, Morganiæ	C. Veitchii	C. Stonei
,, calurum	C. longifolium	C. Sedeni
,, grande	C. Roezlii	C. caudatum
,, nitens	C. villosum	C. insigne Maulei
,, pycnopterum	C. venustum	C. Lowii
,, lucidum	C. villosum	,,
Dendrobium endocharis	D. japonicum	D. heterocarpum
,, rhodostoma	D. Huttoni	D. sanguinolent'm
,, splendidissima	D. heterocarpum	D. macrophyllum
,, micans	D. Wardianum	D. lituiflorum
Lælia flammea	L. cinnabarina	L. Pilcheriana
,, Sedeni	Cattleya superba	L. Devoniana
,, Philbrickiana	,, Aclaudiæ	L. elegans
Masdevallia Chelsoni	M. amabilis	M. Veitchii
Phaius irroratus purpureus	P. grandiflora	Calanthe Veitchii
Zygopetalum Sedeni	Z. maxillare	Z. Mackayii

* This, and the above distinct varieties of fausta were from one seed-pod.

The above list may also be useful to others engaged in hybridising Orchids, as it is not worth while for any one else to manipulate the varieties already operated upon by Mr. Seden. *J. Douglas.*

Notes from Messrs. Veitch's.

In the cool-houses in Messrs. Veitch's nursery are many plants of Oncidium Forbesii in bloom. It is a Brazilian species, and very handsome. The flowers are of many different shades of brown, and are very prettily and irregularly edged with gold. They succeed well on blocks or in baskets. It is one of the best of this section of Orchids for flowering at this season. Odontoglossum tripudians is a fitting companion to it for producing flowers at this season. The sepals and petals are yellow with brown blotches; lip white with brown blotches, and a pale purple base. Although this is not the season for Odontoglossum Hallii to flower, there is also a fine form of it in flower in this nursery. The sepals and petals are yellow, with rich maroon blotches. Some very beautiful hybrid Cypripediums are also in flower. C. calurum, between C. longifolium and C. Sedeni; the sepals and petals are delicately rose-tinted; lip red, spotted internally. C. œnanthum, between C. Harrisianum and C. insigne Maulei; the upper petals beautifully spotted and tinged with purple. C. porphyreum, between Roezlii and Schlimii, is a distinct and fine species; the upper petal is rose-coloured, the sepals, peculiarly twisted, are of a delicate rose-colour, and the lips reddish rose. In one of the Cattleya-houses in the same nursery the recently imported Mormodes Wendlandii is in flower. The flowers are of a beautiful clear yellow colour. Dendrobium rhodostomum is also very pretty at this season. It is a cross between D. Huttonii and D. sanguinolentum. The flowers are white, the sepals and petals beautifully tipped with rosy-crimson. A free-flowering little thing is Dendrobium longicornu, which may be taken in growth and flower for a miniature D. infundibulum. The flowers are white, the labellum marked with deep orange-red lines. *J. Douglas.*

Garden Operations.

HARDY FRUIT GARDEN.

Take every advantage of fine weather to push on the pruning and nailing on fruit walls. Fig trees have been stripped of their leaves for some time by the early frosts, and pruning can be proceeded with at once, in order to have them in readiness for bundling closely together when the protecting material requires to be applied. Before using the knife on Fig trees on the open wall, it is necessary to understand exactly the mode in which a crop is produced out-of-doors, or much more harm than good will result from the operation; and it is not at all unusual to see a totally unpruned tree more flourishing and fruitful than those tended with anxious but misdirected care. What may be called the main crop of fruit, or that formed on the summer growths, never ripens in the open air in England, and it is only such few buds as do not advance beyond the embryo state in the autumn, and that consequently remain dormant during the winter, which can yield any produce that can reach maturity. Therefore, in proceeding with the pruning at this time it is necessary that shoots upon which such buds can be detected should be scrupulously preserved; while any buds that are at all developed beyond the embryo state, and that can be discerned to be Figs by their shape, are useless by being too advanced to stand the inclemency of our winters. When a sufficiency of wood is secured for the due furnishing of the space allotted to the tree, all other growths that do not afford the above-described evidences of fruitfulness may be closely spurred-in. The strong sucker-like growths can be removed, and also a portion of the branches and larger limbs, should there be any appearance of crowding anywhere. It will greatly facilitate matters when the trees are protected for the winter to have as much as possible of the useless growths cut out now, so that the branches may be brought into less compass. As soon as the pruning is completed, let the branches be secured firmly to the wall with strong cord, drawing in and securing the central branches first, when each set of side branches can be successively brought up with greater ease and less danger of breakage than if it is attempted to bring the whole of them in at once. Pack closely with any suitable dry material that is obtainable, and finish off by covering with mats closely drawn over all to prevent the material used from being blown out, and also to present a neat appearance. In preparing to plant out Figs it is necessary that provision against any possibility of excessive moisture be made, by the site selected being thoroughly drained. The soil of the position chosen should be of as dry a nature as possible and not too deep. Light fibrous loam and lime rubbish may with advantage be added before planting, but any addition of stable manure would have a decidedly injurious effect on the fruitfulness of young trees. The Brown Turkey appears to be the only variety that can be recommended, or that can be depended upon for regularly affording a supply of fruits in the open air. Recent seasons have made its superiority more than ever evident. On a long Fig-wall here, planted with White Marseilles, Brunswick, and Brown

Turkey, only the trees of the latter variety have perfected their fruits for three seasons past. The foliage of Vines on walls has been destroyed by the frosts of last month, and in many districts the fruit also has been caught and spoiled before it had time to ripen, as although the summer proved to be fairly sunny, and the heat great at certain times, yet the spring was too late, and the frosts lingered too long with us to give Vines a fair start and a chance to mature their fruits, which were, nevertheless, well forward and promising when the early frosts prematurely put an end to any prospect there might be of their ripening. As the injured leaves can be of no further assistance in swelling the buds, pruning may be proceeded with at once if time permits, and tidyness is an object of first importance, which it certainly ought to be in private establishments: especially should this be the case when the Grapes happen to be grown on a wall bounding the ornamental grounds or separating the flower gardens from the fruit departments. Grape Vines perfect their fruits in the open air in certain favoured localities, and in such places many uses may be found for them. Palatable wines and useful conserves may be made from them, and such varieties as the Muscadine occasionally ripen sufficiently well to yield a passable dish for dessert, but the ornamental effect of their foliage, and the pleasing appearance of the clustered fruit hanging on the walls is the general, and sufficiently good, reason for devoting space to their cultivation. The Muscadine being somewhat shy in bearing when too closely spurred in, will be assisted by having its shoots merely cut back to a promising and plump bud. If the young canes that were recommended in a former Calendar to be carried up to replace the older ones, have become sufficiently firm and well ripened, the others may be cut out; but should they prove insufficiently matured, it will be well to cut them back to the portion that is in good condition, and to retain the old canes another year. Generally speaking, it is not advisable to prune hardy Grapes so closely as is done in houses, as their growth is rarely sufficiently well ripened to promise fruitfulness when pruned in to the lowest and least developed buds. If the Vines have been affected with mildew, or if insects have been troublesome, a dressing such as that recommended for Cherry walls in the last Calendar may be applied, carefully painting the canes after any loose bark is removed. *Ralph Crossling, Castle Gardens, St. Fagan's.*

FRUIT HOUSES.

Vines.—The earliest vinery started as advised in my last Calendar can still be kept at a night temperature of 55°, with a rise of 10° by day. During the late mild weather the having fermenting material on the inside border has kept the internal temperature sufficiently high without applying fire-heat. Turn the fermenting material over every morning, which will liberate the ammonia and give a healthy growing atmosphere; add a little fresh dung and leaves as the heat declines, mixing the old and new well together, which will keep the heat steady. If on bright days the temperature reaches 70°, admit a little back air for a short time to sweeten the atmosphere, closing the house early and syringing the rods with tepid water whenever they become dry. If the border was watered before starting, as previously recommended, no water will be required at the roots for some time yet. Examine the fermenting material on the outside border, and, if necessary, add a little fresh to the old to keep the heat steady; and still keep on the shutters to throw off the rain. Hamburghs that are wanted to be kept as long as possible will keep equally well in the fruit-room as on the Vines, and then the house can be thrown open and the Vines will get a thorough rest. Do not prune them for some days after the fruit is cut, but let them be kept cool for some time before pruning. Where the Grapes have to be kept on the Vines keep a dry atmosphere, with abundance of air on all favourable occasions. Succession-houses can be pruned as the leaves fall off, and the houses thoroughly washed and the Vines cleaned and tied down ready for starting: in pruning always make a clean cut and apply a styptic a few hours after to prevent bleeding. If young Vines have to be pruned that have not yet reached the top of the house shorten the main stem back to a good sound eye; let them go about 8 feet each year or say three years to fill a lofty house; after pruning keep the house as cool as possible, only closing the ventilators in very severe weather; do not let the borders become dust-dry even when the Vines are at rest, but give sufficient water to keep the roots healthy. Muscats can this mild weather be kept at a night temperature of 55° with very little fire-heat, so great care must be taken to use it with caution to keep the berries plump without shrivelling. On bright days give abundance of air, avoiding cold draughts as much as possible, and only give sufficient water at the roots to keep the berries plump. Late varieties of thick-skinned Grapes must have the bunches examined every few days for decayed berries, and keep all the corners of the house clear of spiders with a hair broom to prevent them from spoiling the appearance of the bunches. If the outside border is not covered with shutters let it be done at once before the rain thoroughly saturates the border, or it will be no use putting them on afterwards; keep the atmosphere dry and give air freely on the back and front ventilators on bright days, reducing the air early in the afternoon; while the outside atmosphere is light and dry, give only sufficient fire to keep the atmosphere dry, and a night temperature of 50°, or on cold, trosty nights a few degrees lower. Newly-planted vineries must have plenty of air night and day, and they can be pruned as the leaves fall off; but if they have made extra strong growth, defer pruning for a short time longer. When pruning, cut them back to a good eye, and shorten them according to the growth they have made. If strong, a few branches may be taken from each rod, and if they have made only weak growth cut them down to four or five eyes, and when they break select the strongest one for next year's fruiting, and stop the rest a few joints from the main stem. The earliest pot-Vines can be kept at a night temperature of 55° to 60°, according to the state of the weather, with a rise of 10° by day. Keep the rods well syringed with tepid water, and add fresh dung and leaves as the bottom-heat declines below 75°. Keep them well supplied with water at the roots, and a moist, healthy, growing atmosphere. *Joshua Atkins, Lockinge Gardens, Wantage.*

Pines.

Examine recently made up beds, and if the heat rises above 90° lift the pots, so as to allow the rank heat to escape. Attend to the linings of pits or frames, by adding a little at frequent intervals, instead of putting too large a body of fresh fermenting materials at one time. By the former plan the top-heat is kept more regular, and the generation of too much rank heat in the beds prevented. Where plants are plunged over hot-water pipes, it is very important that the tan or other plunging material should be kept well up to the rim of the pots, and the latter should be level at all times so that the water may be equally distributed through the ball. During the winter months a covering over the glass during the night is of great assistance in keeping up the temperature without having recourse to hard firing, and it also prevents the radiation of the heat. Frigi Domo is an excellent material for this purpose, being light, pliant, and a non-conductor of cold, and may be worked on the same rollers as are used for summer shading, which is an expeditious mode of covering. It should not be moved when frozen to the glass, which would tear it in pieces, but allowed time to remain until properly thawed. It is an essential matter that any covering over the glass should be securely fastened against the wind, or it is liable to be blown off at the time when most required; and another danger to be guarded against is, that it does not break the glass. The plunging material should be kept in a medium state as regards moisture; if it becomes saturated with water the plants absorb too much moisture through the pots, thereby causing the soil to become soured, with the result that many of the best roots rot, and the plants present a sickly appearance. Keep the glass thoroughly clean both inside and out. If the structures are in close proximity to the chimneys, the outside of the glass should be washed down at least once a fortnight. When covering is used over the glass it necessitates extra attantion in cleaning, for during the winter the plants should have all the light possible. *D. Wilson, Castle Hill, Devon.*

PLANT HOUSES.

Stoves.—Where the fragrant flowers of the Cape Jasmine are much in request at this season of the year the stock of the same for flowering now should be grown in a close pit or other structure where the additional warmth required for their well-being can be applied with the least possible waste of fuel. The same kind of structure would also come in serviceable for forwarding other stove plants that may be wanted earlier than they would otherwise flower if grown in the stove proper. This department should not be unduly excited during the next two months; the occupants will start all the more readily in the spring if kept somewhat quiet now. During this mild spell of weather that we are having ventilation may be given rather more freely; this will aid in keeping down damp, which must be guarded against with a reduced temperature, which for a minimum may range from 58° to 60°, rising to a maximum of 78° to 80° on bright sunny days only. Any spare time may be advantageously filled in now in tying into closer compass any plants that are become somewhat straggling, and also in making every effort to subdue and eradicate our insect pests, especially mealy-bug and white-scale. Attention given now to this latter subject will save a deal of trouble and annoyance when work becomes more pressing. Nothing, I think, detracts more from the pleasure that ought to be derived from a collection of exotic plants than the insects with which they are so often found to be infested. On beginners especially who are ambitious and desire to excel, I would particularly impress this subject. The advantage to be derived in the saving of labour only is considerable in the long run, let alone the satisfaction both to employer and employed when the collection of plants is in a healthy and thriving condition. It will be advisable to keep an eye on all stove bulbous plants that are stored for the winter. See that they do not suffer from excessive drought, or from drip. Gesneras, as they go out of flower, should be gradually dried off. Poinsettias will now be making a good display with their showy bracts. Keep them somewhat elevated above the other plants to show them off to greater advantage, and still keep them liberally supplied with water till they begin to fade. They will last a long time in a warm conservatory or intermediate-house when they are fully developed. Dwarf late-struck plants should be kept near the glass, these will come in most serviceable for Christmas festivities. Small plants of Rivina humilis, with their Currant-like racemes of berries, are useful at this season to enliven the foreground of groups of stove plants. No difficulty need be apprehended in keeping a stock of this plant, seedlings come up freely wherever there is the smallest chance of growing. Eucharis amazonica, treated for blooming along now, are producing abundance of spikes. After flowering it will be a good opportunity to increase the stock by division of large plants that have become overcrowded with bulbs. In doing this it will be better to assort the bulbs into about three sizes before repotting, this will give them all a fair chance to develope themselves. I find good turfy loam with the addition of a little fibrous peat and leaf-mould a very good soil in which to grow them, allowing, of course, sufficient sand to keep the soil open; over the crocks a sprinkling of ½-inch bones would be beneficial. The new Jasminum gracillimum appears to be a free-growing variety; it is doing well with me, having already produced some of its trusses of sweet-scented flowers. I intend to turn it out of pot into an open border and train up the roof; in this manner I think it will thrive better than under pot-culture.

Greenhouse and Cold Pits.—The mild and somewhat damp weather we are now having is favourable to the spread of mildew. Heaths are often attacked with it, especially dense growing kinds, as Cavendishii; sulphur will check it at once. Cinerarias will become infested also, soon disfiguring the foliage. Pelargoniums should be kept as near the glass as possible; they will do well on a swing shelf; it will be well to keep them rather on the dry side till after the turn of the days. If it is desired to increase the stock of Coprosma variegata, it can be done readily from old straggling plants by layering, which, by the spring, would make nice dwarf stuff. This is a useful conservatory or decorative plant; so is Eurya latifolia variegata: this latter plant will thrive in unfavourable positions that would be death to some more tender subjects. Any large plants of Chorozemas that have been trained on balloon trellises for some time, thereby causing them to have extended themselves somewhat considerably, may be turned to good account as climbers for pillars or arches in the greenhouse or cool conservatory. Planted in an open border with suitable soil (chiefly peat) they will thrive amazingly, and last longer in flower than when under pot culture. Where Rhynchospermum jasminoides has become too large for a trellis it may also be treated in the same manner. Such plants as these are an advantage where it is desired to produce an immediate effect in the conservatory. Chrysanthemums that may have been grouped together thickly in this latter structure should have constant attention in removing decaying foliage as much as possible; remove also the earliest flowers that have become faded, and endeavour to keep the atmosphere as dry and buoyant as possible by abundant ventilation. In a pit with a little heat in the pipes I find Tree Carnations are doing well: I hope to get a better return in this manner than under pot-culture. Mignonette and Stocks in cold pits should be exposed to all the air possible on favourable occasions. Herbaceous Calceolarias will do best in pits yet a-while, watching sharply, however, if a change to colder weather sets in. *James Hudson, Gunnersbury House, Acton, W., Nov. 15.*

Euphorbia splendens.—The handsome scarlet bracts which form the involucre in this species, and the fact that it flowers freely during the dull winter months, render it a favourite in many gardens. It is a native of Madagascar, and decoctions, or infusions, are used by the Malagasy as a remedy for indigestion. Dr. G. W. Parker (a medical missionary sent out by the London Missionary Society), from whose paper on the Malagasy Materia Medica lately published in the *Pharmaceutical Journal*, the above fact is taken, also states that the Euphorbia is poisonous in any but very small doses, and that these are given by guess. Some fine old specimens are nicely in bloom in the Succulent-house at Kew.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 21	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Bulbs at the Auction Mart, by Protheroe & Morris.
TUESDAY,	Nov. 22	Sale of Camellias, Azaleas, Roses, Fruit Trees, and Bulbs, at the City Auction Rooms, by Protheroe & Morris. Manchester Chrysanthemum Show (two days). Southampton Chrysanthemum and Fruit Show (two days). Northampton Chrysanthemum Show (two days).
WEDNESDAY,	Nov. 23	Maidstone Chrysanthemum Show. Birmingham Chrysanthemum Show (two days). Wimbledon Chrysanthemum Show. Sale of Roses, Fruit Trees, &c, at Stevens' Rooms.
THURSDAY,	Nov. 24	Sale of Lilium auratum Bulbs, at Stevens' Rooms
FRIDAY,	Nov. 25	Royal Horticultural Society of Ireland's Winter Show. Wellingborough Chrysanthemum Show (two days).
SATURDAY,	Nov. 26	Sale of Hardy Plants, &c., at Stevens' Rooms.

OWING to several causes THE PLANTING SEASON has come upon us earlier, and is also likely to prove rather busier than usual. The gale made short work of the leaves—where it neither tore them off nor shattered them to fragments, any little life left in leaf or branchlets was destroyed by the frosts that followed on the heels of the gale; so that practically planting was begun at once with benefit to rather than injury to the trees. For experience has taught us that the best of all times to plant is immediately before the natural fall of the leaf, or just before the active life of the tree has subsided into its semi-dormant, winter state. The disturbance inseparable from planting appears to quicken the roots into an abnormal activity that results in fastening the plants in their fresh homes almost at once by the best and surest of all holdfasts—new roots. This result is no doubt hastened by the remnants of autumnal warmth still in the soil throughout November. To gain the full benefit of these forces the soil should be well prepared, and the work of planting or transplanting carefully performed. Too often, however, planting is done in haste. The pressure of other work is so great, and few or no fresh hands are available, that the planting is hurried through, and the work sadly scamped in consequence. Never, however, is the adage, "the more haste the less speed," more often true than in planting. Unfortunately the speed cannot in this case be measured till months or years afterwards. It seems so easy to stick the trees in, and all look alike for a time, that the temptation to undue haste is very great. As if these did not afford sufficient inducement to scramble through the work, some let out their planting by piecework, at so much a hundred. This should never be done, unless under the most skilful supervision. Planting was one of those things that our fathers did, as a rule, better than we. It seems almost impossible, for example, to improve on their plan of preparing the ground. Thorough drainage, double digging, manuring if poor, a year's fallow, or a crop of Potatos planted a yard apart, to afford space for perfect and continuous summer culture, was the general mode of preparing the ground for forest or other trees in the olden time. What thus seemed too long a season often in the end actually gained two or three.

The Potatos or other green crops—for sometimes one of Turnips, Carrots, or Beet was taken—were always cleared off early in October. The land was then forked, dug, or ploughed over, or a cultivator run through it. So treated and prepared it was found sweet and mellow as an ash-heap by November 1. Not only could the trees be inserted more rapidly in such mellow soil, but the roots took to it at once, and long before the new year the transplanted trees were furnished with as many, or more and better roots than they had before their disturbance. It is impossible, in fact, to exaggerate the importance of a sweet, mellow soil to the roots of forest or other trees. It seems singular that while every one seems alive to the importance of such conditions of soil for such annual crops as vegetables and flowers so many should practically ignore its importance in the growth of timber and ornamental trees and shrubs. Because such plants live long, it seems thought by many that they can well afford to lose time at starting; but time is emphatically money in the growth of timber, and it is more than money in the planting of trees and shrubs for ornament. How many in regard to the latter never are, but always to be blest by the shade, form, and shelter of splendid trees and shrubs? For it is a fact that cannot be too prominently enforced, that errors of judgment and faulty practice in planting cannot be corrected. Trees and plants so treated are doomed to become useless abortions or unprofitable cumberers of the ground. A good deal may be done by skilful culture and liberal top-dressings, but the preparation of the soil is to the trees and plants what a solid, massive foundation is to a house; the latter may be battened or propped up and strengthened from above, but nothing can compensate either for sterility or shakiness of base.

Nothing saves time in the growth of trees and other plants like the careful cleaning, culture, and nourishment, if need be, of the soil in which they must perforce spend their whole lives. The longevity of the trees, their value in a state of maturity, and the worth of the prunings and thinnings at various stages, all appeal to planters to give them a fair and liberal start in good, sweet, clean soil. To plant choice trees or shrubs in sour soil, already full to repletion with the roots of Brambles, Briers, and coarse weeds, is to court failure. In the struggle for life which the plants are thus forced to engage in, the survival of the fittest seldom proves that the trees were the fittest for the position selected or preparation provided for them. Next to the wholesale culture of the soil here advised was the old plan of digging out the holes for the plants several months or a year before the planting takes place. If the holes and the earth on their sides be kept free from weeds, and frequently broken up during the season, sufficient mellow, sweet, warm soil will be available to allure the roots to a fresh start and vigorous growth in their new quarters. Where no such preparations have been nor can now be made a third mode of fostering rapid rooting in new quarters is still available. This consists in giving each tree a few spadefuls of good soil or compost immediately under or over the roots. This will give them a good start, which will not only save time, but ensure an augmentation of growing force at starting. The latter is of the greatest importance, for a vigorous start often ensures a healthy growth throughout the whole, or the major part, of the life of the tree or plant. Not only is a good preparation the surest means of insuring a vigorous, healthy, and rapid growth of timber or other trees, but it is also the best antidote to accidents from such storms and gales as we have had this autumn. A practical survey of hundreds of trees prostrated by the gales reveals the fact that it is those on shallow or unprepared soils that have been destroyed by wholesale, whereas trees on deeper land have either withstood its force, or broken off sharp rather than give up their root holdfasts. Nothing fosters deep root growth so much as a vigorous start immediately after planting in good well prepared soil. As far as resistance to storms and the formation of fine timber is concerned, there can be no doubt that the best mode of all is to sow the seeds where the trees are to grow. Each tree would then be perfect with its tap-root intact, and hence virtually storm-proof in this country. In many cases there would also be a gain of time by thus sowing on the permanent site of the timber, provided the sets were properly prepared, and the seedlings kept clean from the first, and thinned in time. When this is impracticable, small and healthy trees should be chosen in preference to larger, and the shorter the interval between nursery beds and permanent quarters the better for the well-being of the trees.

—— ST. MARTIN'S SUMMER.—After all the present season has shown us that St. Martin's summer is not a myth. We have read of it in books and dreamt of it in dreams, but have seldom realised it. To the denizens of the Far West St. Martin's summer is an established institution, coming with all the regularity that spring and autumn do; but there it is the gentle recurrence of warmth and sunshine helping to gild the gold and purple hues of the woods with life and beauty for a few short days, ere the snows of winter fall and bury all Nature for a time in a dense glistening carpet. With us it comes only to find the woodlands bare, the leaves carpeting the soil, and only where the Cedar and the Pine lift their giant heads aloft do we see the green leafage, or foliage of any kind; yet bright as the sun has shone during the past few days, and warm and pleasant as the temperature has been, we have not needed leafy shade to protect us from the sun's rays. We could have endured more of them with pleasure, for if bright they have been tempered by distance, and if the leaves have fallen and strewn our paths as with a carpet, there is something about the crisp, rustling made as we pass over them that is not unmusical and in strict accordance with Nature's operations. If no garden broom intervene—and leaves seem to be the delectation of the gardener—the fierce winds of winter will sweep them away to quiet spots where they shall fertilise the soil on its surface with rich vegetable mould, or the worms shall draw them into their tiny burrows, and cause them to serve in the economy of Nature the purpose of food for the insects, and manure for the soil. But not the least pleasure incidental to a St. Martin's summer is the additional life it gives to gardens and the length of our enjoyment of them. Only the other day, and the winds and frosts played havoc, and left behind in their course what seemed to be desolation and ruin; yet a little longer, and the traces of evil are almost obliterated, and though yet on the verge of the coming winter the flowers push up in modest beauty, the birds twitter in the leafless trees, the air is soft, and the sun shines warm and bright. It is not spring, though so much like it, but it is a delicious foretaste of what spring will be when a few short months of winter shall have passed away.

—— COTONEASTER FRIGIDA.—Every one admires the Mountain Ash (the Rowan-tree) when in early autumn it is seen laden with glorious bunches or clusters of bright scarlet berries, but how few know this other plant, the Cotoneaster frigida, which rivals if it does not surpass the Rowan for its profusion of coral and wealth of scarlet tresses; and it is a winter-berried plant, coming into beauty through the dull months of November, December, &c., and vieing with the Holly at Christmas. A plant of this we lately saw in Mr. BARRON'S nurseries, Sketty, Swansea, was charming in the extreme. Some 15 to 20 feet in height, it formed a big bush; and every branch, some of them 3 feet in length, was laden with bunches of bright scarlet berries of about the size of Currants. The plant is a semi-evergreen of the hardiest description, remarkably quick and free of growth, and will grow anywhere. It should be largely planted both for ornament in the shrubberies and for game cover.

—— THE PRESERVATION OF SUBURBAN TREES.—The *Richmond and Twickenham Times* puts in a strong plea for the preservation of large trees by builders when in the course of their work they cut up properties on which good trees exist. We fear the plea is addressed to deaf ears, for the builder is gifted with little sentiment, and cares less for trees, let them be ever so ancient or noble, if they stand in his way. Certainly the sight of a noble tree growing within some confined back garden, looking not unlike a caged elephant, is somewhat incongruous, and barely commands admiration; besides, as the recent storm has shown, old trees, and even large younger ones, have their dangers, and they are best where they have plenty of elbow-room. Our suburbs, however, show that newly planted trees of suitable kinds grow apace, and soon furnish the needful arboricultural accessories to the speculative builder's brick terrace and stucco villa.

FIG. 134.—TACCARUM WARMINGIANUM; MUCH REDUCED; SPATHE (WITHIN) AND SPADIX PALE PINK. (SEE P. 654.)

—— BOUVARDIAS AS EXHIBITION PLANTS.—At the great Manchester show the value of the Bouvardia as an exhibition plant was perhaps for the first time realised. The groups of plants there shown were so good and so finely flowered as to evoke the highest admiration. That, however, was in August, but Mr. WOODBRIDGE has shown us what can be done with the Bouvardia in November. The grand plants shown at South Kensington lately were examples of those mentioned some time since as having been grown all the summer on a spent dung-bed without protection, and then lifted into large pots. This plan is so simple that any one might grow them easily. Promoters of Chrysanthemum and other autumn exhibitions may take a hint from these, and in the future insert in their schedules a class for six Bouvardias in pots; these would make an attractive and very interesting variety.

—— THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The friends of this Institution will be glad to learn that the committee have decided to place on the list at the next annual meeting, in January, eight pensioners, who will be selected without the trouble and expense of an election, all the candidates being subscribers of many years' standing. They have also invested an additional £200 in Consols, making £500 during the present year, independent of any increment arising out of the Augmentation Fund and the Arthur Veitch Memorial Fund. The funded property of the Society now amounts to £13,900. During the present year we understand that a sum of £1209 6*s.* 8*d.* has been paid over in pensions.

—— THE KINGSTON CHALLENGE VASE. — At the Kingston and Surbiton Chrysanthemum Society's show, held on Thursday last, the Champion Challenge Vase, value 25 guineas, and £3 in money, for forty-eight Chrysanthemum blooms, distinct, was won by a new exhibitor, Mr. FAULKNER, Wooton Hall, Liverpool; Mr. TUNNINGTON, gardener to CHARLES MACIVER, Esq., Calderstone, Liverpool, last year's winner, being 2d; and Mr. C. GIBSON, Mordan Park, Mitcham, 3d. Between the two first-named exhibitors the competition was very keen, the flowers of both being of splendid quality. Mr. TUNNINGTON laboured under the misfortune of having one of his blooms bruised in transit, but his Japanese flowers were superb, and a good match for the incurved blooms staged by Mr. FAULKNER. The Vase was won in 1879 by Mr. HARDING, gardener to J. GALPIN, Esq., Putney Heath; in 1880 by Mr. TUNNINGTON, as before stated; so that the competition next year will be confined to these gentlemen, and to this year's winner.

—— PRIMROSES IN NOVEMBER. — The mild weather has brought forth the usual crop of paragraphs in the papers concerning late Strawberries and other things out of season. On Thursday morning Mr. G. F. WILSON brought us a beautiful bunch of Primroses, gathered in his "wild garden" at Oakwood, Wishey, and in which the various shades of yellow are fairly well represented.

—— CRYSTAL PALACE SCHOOL OF GARDENING. —On Wednesday last, Mr. F. A. FAWKES delivered the first of a series of three lectures to the students and public, upon the construction, fitting, and heating of glass structures. The lecturer opened by giving a number of general hints which should be borne in mind when planning glass-houses, and analysed generally the parts applicable to most houses. He then, with the aid of a large number of diagrams, models, and the black board, showed the position of the sun, its apparent path and altitude all the year round, deducing from these astronomical data the practical facts connected with the sun's rays and glass-houses. The various forms of houses—the lean-to's, span, three-quarter span—the reasons for these forms, and the changes which may be rung with each, were then described, and elaborated; the dimensions of each house, and the uses to which it might be put being very clearly explained. A consideration of "sites" and aspect led up to many questions relating to levels, and how uneven ground, upon which houses were to be placed, could be best treated. Some illustrations of both correct and incorrect levelling were shown. The best pitches of roofs for ripening purposes in every latitude from Land's End to Sutherlandshire were given, as well as the inclinations most suitable under other besides astronomical reasons. Tie-rods and modes of preventing lateral thrust were next considered, and the dimensions of some of the scantling given. Next the claims of iron to form the framework of horticultural structures was discussed, and, lastly, the desirability of all the materials and workmanship being of the best quality, to resist the exceptionally trying conditions under which glass-houses are used, was enforced.

—— SPECIMENS OF A DISEASE IN CARNATIONS, which is said to be very common, have been forwarded to me on more than one occasion by my friend Mr. T. MOORE. It appears in the form of pallid spots on the leaves, especially towards the crown of the plant, which in decay acquires a rusty tint. On examination of numerous spots in the different samples, I find, without exception, one or more examples of a Nematoid worm, belonging clearly to Dr. BASTIAN's genus Tylenchus. There is not room for large cysts, as in the Melon disease, but I find amongst the intercellular passages, which are very large, single cysts, wider than the adjacent cells and in one case containing a single nematoid. I do not find the worms anywhere except in the pallid spot. I have examined the root in vain. They seem of various sizes, sometimes so long as to traverse the whole discovered spots, many dead, but some in active motion. More might doubtless be made out from specimens gathered at once. I have not seen fully developed females with eggs, but I believe that I have here and there found groups of oblong eggs, some ruptured at one end, as if the parasite had escaped. The only remedy is clearly death by burning, and not planting in the soil, which may be infested by the worm. This is the more probable, as so many of Dr. BASTIAN's numerous nematoids occur in soil about the roots of plants. *M. J. B.*

—— Mr. HERMAN WENDLAND, who has so long been at the head of the gardens at Herrenhausen in Hanover, and who is well known to most lovers of Palms in this country, has been transferred to the post of Director of the Botanic Gardens of Carlsruhe.

—— GERMINATION AND DEVELOPMENT IN THE GENUS STREPTOCARPUS.—In April, 1860, a communication on this subject by the late CHARLES CROCKER, who was at that date a foreman in the Royal Gardens, Kew, was read before the Linnean Society. We are reminded of this fact by a recent memoir on the same subject in COHN'S *Beiträge zur Biologie der Pflanzen*, the author of which, Dr. T. HIELSCHER, appears to have been unaware of the existence of CROCKER'S paper in the *Journal of the Linnean Society*, vol. v., p. 65, plate 4. CROCKER, however, was not the first to publish an account of the singular mode of development exhibited by some species of Streptocarpus, though, as he states himself, he had observed it some two years previously. The first account which we have seen, and to which Dr. HIELSCHER refers, is in the *Verhandl. des Nat. Ver. der Preuss. Rheinl. und Westfalens*, for 1858, communicated by Professor CASPARY, and reproduced in several other German serials. The peculiarity in the development of Streptocarpus, or at least of S. polyanthus, the species investigated by all the authors named, is that the embryo has no plumule, and one of the cotyledonary leaves grows out and attains a very large size, and is indeed usually the only leaf the plant possesses. The seed is exceedingly small, being little more than half a millimetre, or about one-fiftieth of an inch long. In germination, one of the cotyledons soon ceases growing, then decays, and finally falls off, whilst the other goes on enlarging, ultimately attaining as much as a foot in length, and from its basal part proceed the flower-scapes, which are sometimes associated with one or more quite small leaves. Dr. HIELSCHER'S investigations corroborate those of his predecessors in all particulars, and largely supplement them, inasmuch as he studied the anatomical development of the plant from germination to the complete formation of the embryo. This is illustrated by three plates of microscopical sections. Until recently the development of Streptocarpus and Welwitschia was supposed to agree in so far that, in both genera, no plumule was produced, and only the cotyledonary leaves, both of which grew out in Welwitschia and only one in Streptocarpus polyanthus. As some of our readers will remember, it has been ascertained within the last two years, from seedling plants of Welwitschia raised at Kew, that a second pair of leaves succeeds the cotyledons, and the latter perish. On the other hand, Dr. HIELSCHER'S investigations seem to have placed it beyond doubt that the enlarged persistent leaf of Streptocarpus polyanthus is really cotyledonary.

—— CALLICARPA PURPUREA.—Mr. LATHAM, the able curator of the Birmingham Botanical Gardens, has obligingly sent us a shoot of this plant, about 3 feet long, completely clothed with long lanceolate, serrate leaves, in every axil of which are cymes of lovely rosy-purple fruits. For a warm conservatory there are no plants more useful or attractive at this season, yet how seldom is it met with! Mr. LATHAM grows the plant as a standard, and the shoots they have made this season are quite a yard in length. For decorative purposes they last for about twelve weeks, and are very beautiful.

—— THE CORNFLOWER IN WINTER. — This (Centaurea Cyanus) is a most useful subject at this season of the year with Mr. ROBERTS, at Gunnersbury Park. It is something to have a fine flower of a striking colour produced in abundance on the approach of winter, but this is what Mr. ROBERTS secures with this homely favourite. The seed is sown at the end of June in 32-sized pots, and when large enough the plants are thinned out to four or five at most. Kept in a warm plant-house, the plants flower with amazing freedom; and as soon as a crop is cut, another takes its place. "Cut and come again" plants are most useful to the gardener in the winter months, and this character is strikingly exemplified in this Centaurea. What a lovely hue of blue the flowers take on! It is a true bright blue, and all the more valuable because so bright in tone and so lasting in character.

—— MONOLÆNA PRIMULINA. — In one of the stoves at Kew the subject of the present note is now finely in flower. It was figured and described in the *Gardeners' Chronicle* for 1870, p. 309. The leaves, which are produced in clusters from a short rootstock, are deep green above and purple below; the handsome flowers, of a deep bright pink colour, are borne two or three together on short peduncles, and measure about an inch across. It is a native of New Granada, from whence it was introduced to cultivation by Mr. W. BULL.

—— CHRISTMAS ROSES.—The best way to have early blooms of this plant is to plant the roots under a west wall in a good bed of deep loam enriched with manure, and when, in November, the buds appear above the surface, place hand or other lights over the plants to protect them from wet and frost. Plants treated in this way, and which have become fully established during the past two years, are now throwing up twenty to thirty flower-stems each, with more to follow. This is a better method than lifting the plants, potting them, and placing them on a shelf in a warm house near the glass. The latter is a quick method of getting blossoms, but the plants are sorely tested, and require time to recoup their strength.

—— TRADESCANTIA FUSCATA. — This is a pretty and rather singular species, which was introduced to this country from Brazil about sixty years ago. It is a stemless species with broad leaves, whose entire surfaces are clothed with rusty red hairs. The pretty blue flowers, about an inch in diameter, nestle on very short stalks amongst the clusters of leaves. No great skill is required for the successful cultivation of this charming little stove plant. Now in flower at Kew.

—— CULTURAL PRODUCTS AT THE PARIS EXHIBITION.—Somewhat late in the day, considering that the Exhibition was held in 1878, the report on various agricultural products other than those used as food has been issued. It is from the pen of M. VILMORIN—a sufficient guarantee for thoroughness and fairness. About 2000 "exhibits" were passed in review, but the reporter complains, and with justice, of the manner in which the products in question were dispersed throughout the Exhibition, and placed in classes and groups where, according to the classification adopted in the programme, they should not have been. Cotton, Flax, Hemp, Jute, and other fibrous substances; wool, silkworms, oils, wax, Tobacco, Hops, tanning materials, dyeing substances, drugs, teazles, and forage plants—these several substances are reported on as to their quality and the quantities furnished by the several countries taking part in the exhibition. A large mass of very valuable statistical information is here got together, which will be ser-

viceable for reference, but unfortunately no index or table of contents is supplied.

—— Rubus rosæfolius coronatus. — This charming double-flowered Bramble, with its elegant rose-leaved foliage, is now in bloom in one of the houses at Chiswick. The flowers are white, large, and full, and resemble a mammoth white Banksian Rose. The fact that it is blooming now on quite small plants is perhaps no proof that it is an autumn flowering subject; but it is undoubtedly a worthy subject for the greenhouse, let it bloom at whatsoever period of the year it will.

—— Label for Plants.—The Council of the Society of Arts, on the recommendation of the judges in the late competition of plant labels (a report of which was given in our columns), are prepared to renew the offer of a Society's Silver Medal, together with a prize of £5, which has been placed at their disposal for the purpose by Mr. G. F. Wilson, F.R.S., for the best label for plants. The object of the offer is to obtain a label which shall be cheap and durable, and which will show legibly whatever is written or printed thereon; the label must be suitable for plants in the open border. These considerations will principally govern the award. The award will be made on the recommendation of the committee appointed for the purpose by the Council. Specimen labels, bearing a number or motto, and accompanied by a sealed envelope containing the name of the sender, must be sent in to the Secretary of the Society not later than May 1, 1882. The Council reserve to themselves the right of withholding the medal and prize offered if, in the opinion of the judges, none of the specimens sent in are deserving.

—— Escallonia macrantha.—How well this beautiful evergreen seems to succeed in South Wales! The front of Mr. Barron's house, The Nurseries, Sketty, Swansea, is almost covered by it, and in several other places did we note its peculiar bright and glossy green foliage, ever fresh and growing, with its beautiful spikes of pretty rose-coloured flowers. The Escallonia macrantha is one of those plants that seem to be never at rest—the shoots are always growing and flowering. It is always more or less in flower, but it is more especially so in early spring. Then, as Mr. Barron informs us, after a few weeks of mild weather, the plants are covered with their spikes of rose-coloured flowers, which must be very beautiful. It only succeeds well in mild, sheltered situations, like those at Sketty near the seashore. About London it was killed to the ground last winter.

—— The Agriculture of the World.—A carefully compiled and comprehensive agricultural chart, by the well-known agricultural writer, Mr. H. Kains-Jackson, showing the comparative food production of the chief countries of the world, is published with the *Graphic* for this date. By means of coloured diagrams the yields of the various cereals, such as Wheat, Rye, Maize, &c.; the Wheat and flour imports into the United Kingdom for the past five years; the Hop and Grape average harvest; the amount of live stock, including horses, cattle, pigs, and sheep, for the current year, are strikingly compared. This chart affords an admirable survey of the subject with which it deals, and at the present time, when the question of foreign and home agriculture is so universally under discussion, it will prove of great value for reference purposes, and of the highest interest to all concerned in agricultural operations.

—— New Ideas on the Phylloxera.—"A well known Professor of Physiology" has published in the *Wine Trade Circular* a statement to the effect that the Phylloxera does not move from one vineyard to another, but that it is only an insect produced by the consumptive state of the Vine. He attributes the consumptive state of the Vines to the impoverishment of the soil, caused amongst other things by the removal of the Vine prunings, which should be returned to the soil as manure. So far good, but will the Professor maintain that a well made Vine border is destitute of "azotic" matter, or that the Vines in British vineries are in a consumptive state as a rule; and yet they are not exempt from the Phylloxera. For a well known Professor of Physiology to publish the notion that such an insect as the Phylloxera is generated in themselves, *i.e.*, in the Vines, is to advocate spontaneous generation with a vengeance! The juice of the Vine does certainly undergo wonderful transformations, and does certainly produce extraordinary results, but to convince us that it generates Phylloxera we should require the testimony of very many Professors of Physiology.

—— Hooker's "Icones Plantarum."—The last issued part of this publication, specially useful to botanists, contains some twenty-five lithographic illustrations of plants, taken from the Kew Herbarium. Among them is a species of the curious genus Begoniella, B. Kalbreyeri, which has a tubular perianth. Phyllobotryum spatulatum is a most remarkable Bixaceous plant, in which the flowers proceed actually from the midrib of the leaf. Several grasses are figured, and which will illustrate Mr. Bentham's monograph of the order in the forthcoming concluding volume of the *Genera Plantarum*.

—— Germination of Lupinus microcarpus.—Dr. Philippi describes in Regel's *Gartenflora* the germination of this Lupin, which is very common in the province of Concepcion, Chili. In this species he states the cotyledons remain confluent.

—— Autumnal Tints.—The present autumn has not been by any means remarkable for the brilliancy of the autumnal tints assumed as a rule by the decaying leaves of many deciduous trees and shrubs. Parottia persica and many others which are wont to put on a very gaudy livery have this season refused to change from a dull green tinted with copper colour. Even the Maples (except the Norway and some of the Japanese ones) have shed their leaves without these exhibiting those fine shades of colour which do so much to render the landscape in autumn so strikingly beautiful. The Norway Maple and the Beeches have in some districts been exceedingly beautiful; so also, judging by specimens sent us, have been the leaves of Messrs. Saltmarsh & Son's new Apple, The Queen, the colour in which vies with the scarlet Oak and the Liquidambar.

—— Publications Received. — *Routledge's Christmas Number* (Routledge & Sons).—*St. Nicholas' Magazine* (Warne & Co.).

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending November 14, issued by the Meteorological Office, London:—The weather during this period has been of a very unusual character. The sky has been generally densely overcast, with mild, damp south-westerly winds, but except at our extreme north-western stations the amount of rain has been very small, scarcely any being experienced over the greater part of England. Temperature has been greatly above the mean in all districts; in Ireland the excess was as much as 9° or 10°, and over Great Britain 7° or 8°. The maxima were again very high, the thermometer rising to 65° at Nottingham on the 13th, and to the same height at Leith on the 14th. In London and at Hereford a reading of 64° was registered. The thermometer was generally lowest on the 8th, when it fell to 34° at Aberdeen. On most other days the minimum varied between 45° and 50°. The rainfall, except in "Scotland W." and "Ireland N.," has been much less than the mean. Bright sunshine has been exceedingly deficient in all parts of the kingdom, percentages varying from 6 in "Scotland, W." to 21 over central England. Depressions observed:—At the commencement of the period an area of high pressure lay over Denmark and Germany, but on the 10th it had moved south-westward to France, and continued over that country for the remainder of the week. The barometer was lowest to the westward and northward of our islands, and several depressions passed in a northerly or north-easterly direction over our western and northern coasts, causing the wind—which was generally moderate from S.W. or W.—to freshen at times in the extreme west to a strong breeze or moderate or fresh gale.

—— Gardening Appointments. — Mr. John Middleton, lately Foreman at Ribston Hall, Wetherby, Yorkshire, has been appointed Gardener to Lady Hanmer, Weston Hall, Towcester, Northampton.—Mr. T. W. Dell, Gardener at Wyfold Court, Oxon, and late Gardener to the Earl of Dartmouth, at Patshull, has been appointed Gardener at Tedworth Park, Marlborough, Wilts, the seat of Sir John Kelk.

GRAPE GROWING AT MR. ROCHFORD'S.

It may be said that the gardens of all the countries of Europe, and some still more distant, are represented in Covent Garden, for there is to be met with the produce of every country that has got anything to offer in the way of fruit, or other commodities that find a market in the great London emporium. From time to time a new trade springs up that has more or less influence upon our home-grown produce, such as Pines from the Azores, or Grapes from Jersey. The former have done much in causing the home-market growers to discontinue the cultivation of this, the king of fruits; whilst the Grapes from the Channel Islands have caused home growers to alter their practice not a little. Early Grapes that used to fetch a price that did something to remunerate the grower for the heavy coal bills and continual watchfulness attendant on early forcing, have of late years sold so indifferently, that they have left little for labour and fuel.

Mr. Rochford at one time stood as one of the first amongst the market Pine growers, but has now given them up completely. Of early Grapes he also was usually one of the few first in with new fruit, but he is now, like many others, altering his practice by going in for late crops. Within two or three years a good many more houses have been added; the last of a dozen devoted to Grapes is about to be put up. Four—each 80 feet by 25 feet—were finished in the spring of last year; the Vines to fill them were struck from eyes during the winter, and planted about midsummer along each side of the houses, 6 feet apart, headed back, and two rods to each taken up this season. One is filled with Black Alicante, two with Gros Colmar, and one with Muscat of Alexandria. The progress they have made may be judged from the fact that the Muscats are carrying five good bunches each, and notwithstanding this the canes are so remarkably strong that they do not seem to have felt in the least the effects of the fruit they have borne. Next season they will be cropped two-thirds of their length. The black kinds are equally promising, but have not been suffered to bear anything, except a few of the Alicantes, that were older when planted than the rest, and which have been allowed to carry two or three bunches each. Next summer these three houses, filled with Gros Colmar and Black Alicante, will be cropped half the length of their rods.

These houses stand in pairs side by side, with a narrow space separating each pair, the object of which was to admit of a more equal distribution of the air entering by the side shutters than would have been possible if the whole four had stood with no space between them. The seven remaining houses are not so large as those described, being 65 feet by 18 and 21; the whole are span-roofed. Of these, two that have been recently planted were, when built, intended for plants, and are not high enough to allow sufficient head-room under the Vines; they are to be raised by lifting entire the whole fabric of woodwork and glass, so as to admit of the side walls being heightened.

The large quantities of foreign Grapes which now reach this country, and the untold numbers of private gardens that help to swell the market with more or less of their produce, have no doubt had considerable effect upon the price even of late Grapes, especially in regard to such as are not up to the mark in colour and general finish. For, admitted as is the necessity of these properties being present ere Grapes will bear the stamp of first quality, it is still obvious that many more are deficient in these essentials than reach the required standard. Consequently, those who, like Mr. Rochford, grow their fruit up to the highest point, in colour and general condition, can always command a very different figure to that obtainable for such as are even only a shade short in colour. There were remaining a few bunches of the crop in one of the Muscat-houses, excellent examples of this finest of white Grapes.

In another house one side is occupied with Muscats, the other with Gros Colmar; both are bearing an extraordinary weight of fruit, the Muscats as even as possible in bunch and berry—and possessing the right shade of colour; the Gros Colmar, as is usual with this variety, still getting blacker. A similar house, all Black Alicante, contains as fine a crop of this favourite late variety as could well be imagined, medium-sized bunches, such as have the preference at market, jet black, and blue with thick bloom.

Standing as the houses here are, either in pairs or singly, with a narrow space between them, the borders are necessarily nearly all inside, or rather it would be more correct to say the whole space is border, for where the side walls are deep enough to interfere with the progress of the roots they are pigeon-holed so as to let them pass through the intervening spaces and into the adjoining houses, which they do freely. This obviously entails no small amount of watering. To meet this, arrangements are made to catch and store all the roof-water, for which tanks are provided. A description of one will suffice; this runs right across immediately outside one end of the four large new vineries already described. It is made of concrete, and holds 15,000 gallons. In the middle of each house adjoining is a tank some 8 or 9 feet square made of the same material; these are connected by a pipe with the large tank outside, which keeps them supplied. The water is got out by dipping, pumping being too slow work for market gardeners. The borders average 2½ feet in depth, with about 6 inches of clinkers underneath. At each watering one gallon to every square foot of surface is given.

Plant growing is confined to a few things; several long houses are filled with Solanums, of which immense numbers are grown, laden with quantities of bright red berries, many of them ripe by the end of September. The plants are unusually large for the small pots (6-inch) they occupy, bushy, and covered with berries as dense and deep in colour as if they had been planted out; but when their roots are confined in such a limited space they require very close attention with water, otherwise the foliage gets a sickly hue, and the fruit does not set freely. During dry, hot weather, when the pots get full of roots, they are gone over with the watering-pot three or four times a day. Several others of the long span-roofed houses are occupied by India-rubber plants and Selaginella denticulata [S. Kraussii] in pots, which acts as a carpet for the Ficus, and has a nice appearance, the broad leaves of the latter giving the requisite shade to the Selaginellas. Dracænas of the few different kinds which meet with a demand in the market are also grown, as well as Pteris serrulata. Three houses, each 106 feet long by 14 feet wide, and another 50 feet by 14, are all filled with Adiantum cuneatum; these are grown on until they get too large for 16-size pots, and are then cut up and placed in smaller ones. The houses devoted to this Fern have about 2500 feet of 4-inch piping in them.

Mr. Rochford's boilers, about which something has been said in the *Gardeners' Chronicle*, have now supplanted the other different forms in use here; the last of the old ones has just been removed. Two of the new ones have recently been put in, four doing the whole of the work. They stand in pairs, side by side; the last two are the same length as those first made, that is, 15 feet, composed of a 9-feet and a 6-feet length of 4-inch pipe. The new ones are a little wider; the double rows of pipes which form the top are composed of six and five pipes respectively. Now, when sufficient time has elapsed to show their capabilities more fully, their superiority in giving a maximum amount of heat for the fuel consumed, added to their low price, and the amount of work they will do, seems destined to make them supersede most of the boilers going. Their unusual power is simply a consequence of their construction and sufficient length, absence of the latter being the great defect in nearly all the boilers hitherto made that come under the head of saddle-shaped.

What extent of piping one of these boilers will heat up to the point required for a stove temperature has not yet been tested, but Mr. Rochford attaches 3000 feet of 4-inch pipe to each, and finds that they will keep this length as hot as hot-water can make it without driving the fire. Another advantage they possess is their comparative little cost in setting. A 4-foot stokehole is deep enough for them where the houses they have to heat are on the same level as the ground where they are set. Their merits were not badly summed up by an eminent hot-water engineer recently, who in speaking of them remarked, "They are the boilers for a poor man: their only fault is, they do too much work for the money they cost!" A qualified recommendation, no doubt, from one point of view, but not one which purchasers are likely to look upon with disfavour. At all events, not a few of those engaged in the same branch of gardening as Mr. Rochford are adopting these boilers to the exclusion of others that they had hitherto been satisfied with. *T. B.*

FRUIT GROWING AT BARHAM COURT, MAIDSTONE.

(*Concluded from p. 636.*)

The next garden was filled with pyramid Apple and Pear trees of various shapes, and low cordons fronting them; on the walls were Peaches, Pears, &c. Here Crawford's Early Peach has proved itself a good outdoor variety, growing and cropping well, so that it is well worthy of a place in a collection. A variety under the name of Belle de Vatry is also a good late Peach. Belle du Bois (Gloria Mundi) Apple was very fine on cordons and comes very large indeed. Petite Mirabelle Plum does well here; a small September variety that does well for tarts and preserving, a good cropper, apparently well worth growing as a standard for ornamental purposes.

South of this garden is a wall covered with cordon Apricots, having a glazed sloping roof 9 feet in width, but open in the front. This border is raised some 2½ feet from the ground level, with a low wall in front. The Moor Park, Large Peach, and Kaisha Apricots produce large crops of very fine fruit. Small Apple and Pear trees worked on the French Paradise stock, growing in pots, stood in a line along the border. Ross Nonpareil Apple was very fine; Easter Beurré, Beurré Diel, Beurré Bachelier, General Todtleben, and Brockworth Park Pears were very fine indeed grown in this way, the latter being especially fine. On the Apricot wall Belle Imperial and Lord Palmerston Peaches were very good, the former a fine late variety.

On a west wall, running southwards for some distance, and dividing the plant-houses from the open garden, some Pears were in very fine condition, among them Vineuse, a delicious and richly flavoured variety, like Duchesse d'Angoulême in appearance, but smaller, green when ripe. General Todtleben was very fine also. Here in front of the Apricot wall are the two fine new span-roofed orchard-houses, each 64 feet in length by 22 feet in width; these houses are in the form of a double span, and while strongly, are lightly constructed, and admirably adapted for the purpose in view. There is a raised bed down the centre of each, with a raised border round the sides. All the trees are in pots, and their fine condition and large crops attested to the rare cultural care bestowed upon them. Apples in pots were represented by those that do not do well in the open, such as Keddleston Pippin, a first-rate dessert variety; Melon Apple, very fine; Lodgemore Nonpareil, Cornish Aromatic, Cornish Gillyflower, &c. Of Pears in pots there were to be seen excellent fruiting specimens of the following:—Bergamotte d'Esperen, Baronne de Mello, Durondeau, Brockworth Park, Easter Beurré, Duchesse d'Angoulême, Beurré Diel, &c. In the adjoining house were Peaches and Nectarines also in pots, and in very fine condition. In this house the centre border, as well as the side border, is some 18 inches in depth, and is filled with rare fibry loam and decomposed manure. The trees are all in perforated pots, through the side holes of which the fibrous roots can grow and derive benefit from the soil in the bed. In this house Mr. Haycock commences to gather fruit early in July and onwards till October—fine fruit, and remarkably well coloured. One advantage derived from using the perforated pots is that repotting is not frequently necessary; indeed, only at intervals of three or four years. When the pots are lifted from the beds after fruiting all tap-roots put forth through the openings are cut away. It is scarcely necessary to state that the plants in pots are top-dressed in winter and spring, and plenty of manure given at the proper time, and when it can be done with safety the trees are plentifully syringed with clean water.

It is impossible that an intelligent and observant man can be so much engaged in the cultivation of fruit as is Mr. Haycock at Barham Court without gathering information of a valuable character. In reply to a question as to the best Pears for stocks Mr. Haycock recommends Beurré Hardy, Beurré d'Amanlis, Triomphe de Jodoigne, and Beurré de Capiaumont. He recommends that Marie Louise be double worked on Beurré d'Amanlis, Winter Nelis on the same; for the Marie Louise type, Huyshe's Victoria will also make a good stock; Clapp's Favourite, a fine early Pearlike Jargonelle, should be on Louise Bonne of Jersey, a stock on which it does finely; Emile d'Heyst on Beurré de Capiaumont, sold as Laboureur, also makes a good stock—intermediate between strong and weak. Passe Crassane and Napoléon do not succeed well on the Quince; they require a Pear stock.

It may be mentioned that the pleasure-grounds and park are rich in fine deciduous trees, but there is a lack of evergreens, and especially of coniferous plants. Nevertheless it is a noble domain, finely wooded, and well kept.

The vineries and plant-houses are all in excellent order, the former carrying good crops of useful Grapes, nicely furnished. Improvements are constantly being worked out, which materially tend to raise the place up to higher levels of ornamental perfection; but it is the fine fruit garden which lends such lustre to Barham Court; a fruit garden that is yearly being extended, as witness the laying down of 40 acres of orchard, on a site formerly occupied in a great measure by woods. To this fine piece of workmanship attention shall be called later on. The successes recently gained by Mr. Haycock at Manchester attest to the quality of the fruit he cultivates; and, were a September or October show of hardy fruits held on a large scale in London, there could be sent to it from Barham Court specimens of such size and finish as would prove beyond dispute that Kent, and especially that portion of it watered by the Medway, has just claims to be regarded as the Garden of England. *R. D.*

SUMMER VALE NURSERY.

This nursery, the property of Messrs. John Charlton & Son, is situated at the bottom of Hungershaw Park, Tunbridge Wells, and within short walking distance of both railway stations, one of which is but a very short distance from the entrance to the nursery. The Summer Vale Nursery is of recent growth, and has been considerably enlarged and extended during the past seven years, since the accession to the firm of Mr. Charlton, junior, who entered the business with a London experience, and whose energy and perseverance have assisted largely in developing its resources. With one especial branch of gardening he has conspicuously identified himself, viz., in promoting a Chrysanthemum Society, which is second in importance to no other provincial exhibition in the kingdom. The Society is managed upon the same lines as the Stoke Newington (London) Society, which is tantamount to saying that there is not much wrong with the rules and regulations. Mr. Charlton had a lengthened experience in cultivating and exhibiting Chrysanthemums at the Stoke Newington exhibitions, and so quickly did the local growers at Tunbridge Wells follow his example that there is hardly a garden in the neighbourhood that cannot now boast of a choice well-grown collection of Chrysanthemums.

At my own request I was first taken into the show-house—a spacious span-roofed structure at present filled to a great extent with trained Chrysanthemum plants and others grown for producing exhibition flowers. The tall plants are grown with from three to six shoots to a plant, each stem being clothed with fine healthy leaves, but without that grossness which all good cultivators know is essential towards securing flowers of the highest quality. The trained plants are models of their type as regards the mechanical arrangement of the shoots and the symmetry of the plants. The Messrs. Charlton are the leading prize-takers at the Tunbridge Wells exhibitions, but I was assured that the contests are growing keener and keener every year, and to the credit of all concerned those who are Messrs. Charlton's stoutest opponents at the exhibitions are their warmest personal friends. In the same house are some fine Camellias, well set with buds, in an advanced state, and collections of Richardias, Azaleas, the finer sorts of Fuchsias, and a variety of other plants. Under the side stages there are soft-water tanks, which hold several thousand gallons of water. The tanks run the whole length of the house, and the water is conveyed from them by pipes into an ordinary sized tank under each path, so that it is only necessary at any time to turn a tap in order to fill the smaller tank from the larger ones as long as there is a supply of water in the former. Another span-house in two divisions contained a stock of the lovely Nerine Fothergillii, with fine large trusses or heads of its scarlet-coloured flowers, which are so useful for decorative purposes and so lasting as cut flowers. The majority of the plants grown in these houses, or, for the matter of that, in the whole nursery, are of the useful type, such as early Azaleas for forcing, Cytisus, and a fine collection of the better

kinds of Salvias. The varieties that appeared to me to be the most showy and useful are Salvia rutilans, S. Schimperi, which is of German origin; S. formosa, lavender-blue; Salvia Bethellii, and S. grandiflora. There is, in addition, a rather large stock of Habrothamnus, in small pots; Primulas, Tree Carnations, and a good collection of Bouvardias coming into flower. Bouvardia corymbiflora I have not seen better flowered in a small state, and Bouvardia rosea oculata, a variety with a tinge of rose in it, and a deep eye, and propagated late in the season, is coming on to succeed the early flowering plants. Such plants grown in a small way, in good health, and smothered with flowers, cannot fail to draw admirers, so chaste are they in habit and so useful for furnishing windows arranged among Ferns and other dwarf growing plants.

The Messrs. Charlton possess a fine stock of Poinsettia pulcherrima major which is earlier than the old pulcherrima, and which produces large showy bracts under ordinary cultivation. The ingenious way in which the plant-houses in this nursery are constructed and arranged would surprise not a few and be instructive to many. As an example of the internal fixtures, it may be mentioned that the staging is made of concrete slabs, the material for which is procured at a nominal cost, and they are supported by upright concrete columns. The supply of water is obtained in the same way as that already referred to in these remarks, and where there are stages raised above one another in the centres of the houses the spaces are used for storing roots and plants at rest. Two or more structures are devoted to the cultivation of Ferns for cutting and furnishing purposes. Adiantums are largely grown for the former purpose and in small pots for general furnishing.

In the plant stove a thriving Stephanotis covers the roof, and the collection of plants are, generally speaking, of the kinds usually found in warm plant-houses. I noticed particularly a batch of Poinsettia pulcherrima major, which had branched (naturally) into three or more shoots from each plant, but I doubt if the habit can be retained. Flowering Begonias, Abutilons, and Tropæolums are grown extensively for furnishing flowers for bouquet making, which is an important branch of the trade of this nursery. There are pits filled with Pelargoniums, Ericas, Violets in pots, and general nursery stock of a useful character to come into flower at all seasons of the year. Other pits and houses are filled with hundreds of dwarf grown Chrysanthemums propagated last June, Cyclamens and bulbs for early flowering; and the miscellaneous stock consists of Vallotas in flower, standard trained Chrysanthemums, a small collection of Orchids, including strongly grown Calanthes, Eupatoriums, Euphorbias, Plumbagos, Sparmannia africana, Epiphyllums, Eucharis amazonica, Tabernæmontana coronaria fl.-pl., Gloxinias, Dracænas and Crotons, of furnishing size and a large stock of winter flowering Pelargoniums.

The most attractive department in the nursery out-of-doors (to me at all events) is that which contains the florists's flowers. The collections of Violas, Pansies, Pinks, Carnations, Auriculas, Primroses, and other spring flowering plants are of the healthiest description, well managed and cared for. Herbaceous and alpine plants are grown to meet the increasing demand for them, and several pits are employed for forwarding a good assortment of Christmas Roses which are fully exposed to all weathers until the flowers appear, when they are hastened or retarded according to circumstances. A pond within the grounds of the nursery surrounded with Tritomas in flower I thought very pretty, and no doubt a show of Irises in the same position will be a much better sight next May. There is a fine hedge of Deutzia crenata plena in one portion of the nursery, which as any one can imagine will be a charming sight in flower and is also useful for supplying cut flowers at that season. The nurseries contain many things of interest to the horticulturist, and the management of the different branches is carried on with such spirit and energy as cannot fail to insure success. *W. H.*

Almonds.—86,763 cwt. of Almonds, of the value of £334,713, were imported in 1880.

Potatos.—The imports of Potatos in 1880 amounted to 9,755,514 cwt., of the value of £2,847,027.

Oranges and Lemons.—The total number of bushels of Oranges and Lemons imported in 1880 was 3,658,799, the value being £1,463,019.

LILAC FUNGUS.

Mr. A. S. Wilson, to whom we are indebted for some excellent observations on Lolium temulentum and the different forms of Ergot, has just sent us an account of a disease which affects the common Lilac, which is the more interesting because it is dependent on a fungus very nearly related to that which attacks different kinds of Lilies, and which we referred to Saccardo's genus Ovularia. We said that it was related to Peronospora, and Mr. Wilson is of the same opinion with regard to that on the leaves of Lilac. P. obliqua, Cooke, evidently belongs to the same genus. We cannot identify Mr. Wilson's parasite with any figured by Saccardo; we, therefore, feel bound to give it a name and diagnosis.* It produces large brown patches, sometimes occupying almost the whole of the leaf. "It proceeds," writes Mr. Wilson, "in its evil work very nearly in the same way as Peronospora infestans, with a watery-green border pioneering the dark spot." Like that it makes its way through the stomata, in the case both of the barren and of the fertile threads. The acrospores are much larger than those of the Potato mould, and probably, as in that species, ultimately give birth to zoospores. Figure 135 represents:—A, a group of young flocci protruding through a stoma with subglobose acrospore; B, a more advanced condition; C, some of the threads producing minute conidia; D, a mature acrospore. All more or less magnified.

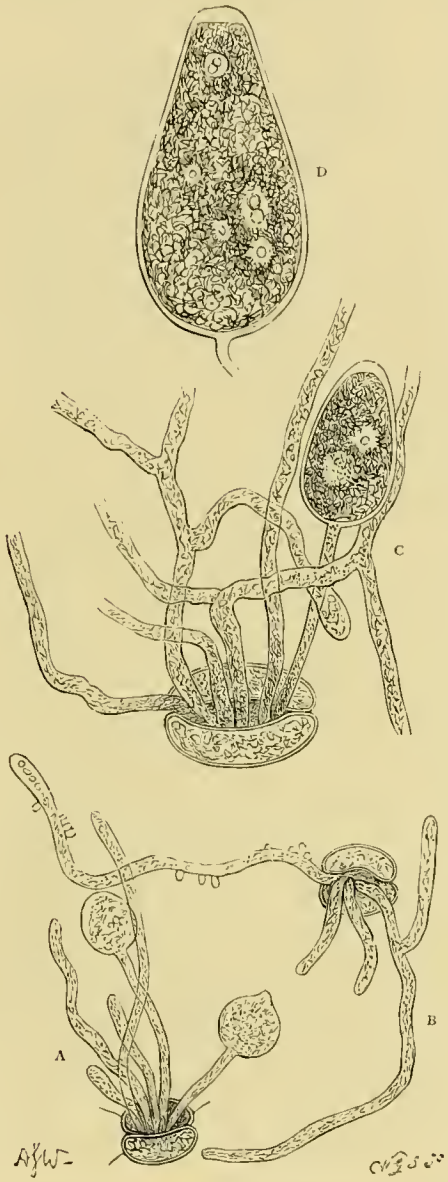


Fig. 135—Ovularia syringæ.

The length of the decumbent threads is .012 inch; that of the acrospores, 1.002—.003 inch; of Peronospora infestans, .921—.0014 inch. *M. J. B.*

* *Ovularia Syringæ.*—Floccis ut plurimum decumbentibus, acrosporis primum subglobosis papilla terminali, dein ellipticis, demum ovatis, maximis.—Flocci for the most part decumbent; acrospores at first nearly globose, with a distinct, terminal papilla, then elliptic, at length ovate, very large on Lilac, Aberdeenshire.

NOTES ON VEGETABLES.

Vegetables in March.—Can ordinary garden vegetables—Carrots, Turnips, Peas, and Potatos—be slightly forced in a glasshouse with bottom and side-heat, so as to have them in March and April for family use? French Beans of course force well, but I have doubts about Carrots. Please mention best varieties, and mode of culture. *I. M. H.* [Yes; all the vegetables mentioned can be forced so as to be ready for use in March and April, providing your glass accommodation is good, with top and bottom-heat at command, and the whole under the direction of a practical man, and that you are prepared to defray the cost. Preparations for this ought to have been made at the end of last month. However, no time should now be lost in getting the seeds of the respective kinds sown. For the forcing of Potatos, Carrots, and Turnips we should prefer good light, water-tight pits facing due south. Assuming that the bottom-heat is supplied by hot-water pipes the latter should be covered with 9 or 10 inches thick of old brickbats or any old rubble through which the heat will ascend to the soil, and then be covered with turf, the grassy side down, to prevent the soil getting among the drainage, over which 9 or 10 inches of light garden soil and leaf-mould (about three parts of the former to one of the latter) should be spread, making the bed of soil as near to the glass as will admit of the respective crops completing their growth without coming in contact with it. This soil (to which a few shovelfuls of new dry soot should be added when being mixed) and depth will be suitable for the growth of Potatos, Carrots, and Turnips, out of which the roots will turn clean and perfectly free from blemish, their cultural details having been properly attended to. Of Potatos, the Ashleaf and Hammersmith Kidneys are about the best early varieties, and of which medium-sized entire tubers should at once be put in shallow boxes in leaf-mould, and put in heat to start while the pits are being got ready, and when they have made shoots 2 inches long, plant in rows 1 foot apart and 7 or 8 inches in the row; when the haulms are about 9 inches high, put 3 inches deep of soil between the rows as a top-dressing. Carrots (Early Shorthorn and Early Nantes Horn) and Turnips (Early Purple-top Munich and Early Snowball) may be sown in drills 9 inches apart or broadcast, covered with ½ inch of sifted mould, patted with the back of the spade to compress the soil and seed, and watered through a fine rose. When the seedlings appear through the soil they should be thinned out to a couple of inches and subsequently every other plant can be drawn for use. The Turnips should have a dusting over of lime and soot occasionally which will have the effect of saving the plants from the attacks of slugs and damp. Peas we would advise you to grow in No. 10 pots (8 inches in diameter inside measurement) and the following varieties:—Sutton's Bijou, 18 inches high; Maclean's Little Gem, 12 to 18 inches high; and William I., 3 feet—some of these varieties which we have in pots will soon be coming into flower, when the points of the shoots will be pinched out with a view to hastening the podding process, during which time the atmosphere will be kept rather dry and airy. Sow ten or twelve seeds in each pot in light sandy loam to which has been added a little well-rotted manure, and when the haulms have made 7 or 8 inches of growth support them with some twigs. Any light structure in which the plants can have the full benefit of light and sun and be ventilated freely when occasion renders it necessary to prevent the haulms making a weakly growth, will suit them. But a low span, running north and south, with a path down the middle, and a raised stage on either side, with three 4-inch pipes close to the front ventilators, would be specially adapted to the forcing of Peas or Beans in pots, or a good lean-to with a step-shaped stage fixed within a few feet of the glass will also answer the purpose well. A temperature of from 50° to 60°, with 10° or 15° higher with sun and plenty of air after the seedlings have appeared through the ground, increasing it, moreover, progressively with solar heat as the crops advance in growth, will be a suitable degree of heat for each and all of the vegetables above-named. However, in a matter of this kind the temperature and other conditions under which the subjects in question flourish in the ordinary way out-of-doors throughout their various stages of growth, should be imitated in the forcing of them as much as possible; as also in the matter of water—its

application must in every case be guided by the condition of the soil and plants: the latter also should be ventilated in accordance with the nature of the weather and their growth. *H. W. W.*]

Early Peas.—One of the most important crops grown in the kitchen garden is the Pea; and taking into consideration the fact that there are annually some candidates for popular favour added to the large number we already possess, it is of some importance that we find out and grow only the best varieties. We have grown most of the earliest Peas, old and new, including all that have been raised by Mr. Laxton, and for several years have depended entirely upon William the First and Alpha. They are both excellent first early Peas, the first-named being the earliest; a dish of it can generally be gathered about a week before Alpha. It is not a very good-flavoured variety, but bears a good crop of fairly handsome deep-green pods. Alpha is an early wrinkled marrow; the pods are not large, but they are freely produced. Last year Mr. Laxton sent me a packet of a new variety, named Earliest of All. This season our Peas did not succeed well, but I formed a favourable opinion of the new variety. It is, I believe, from Ringleader crossed with Little Gem. It is rather earlier than William I., quite as fruitful, and I counted eight Peas in a pod, whereas there were no pods of William the First with more than six. I shall certainly give this a good trial next year. We have grown another early white wrinkled marrow of Mr. Laxton's, named The Shah. It is as early as Alpha, and it bears a good crop of small well-filled pods, but it is not good enough to replace Alpha. For a main crop Pea, and one possessing the properties of excellent quality and also a first-rate cropper, we have selected Dr. McLean, but we have usually a sowing of Dr. Hogg, another excellent wrinkled marrow, to follow after Alpha before Dr. McLean comes in. Fortyfold, a tall-growing marrow of the Ne Plus Ultra type, is grown by the market gardeners in this neighbourhood. We have grown it for two seasons, and think very highly of it as a main crop variety. It requires long pea-sticks to support it. Telephone is one of the best tall-growing exhibition Peas. We grow this and Stratagem, which is a dwarf variety, and shall continue to do so. The pods are very large, and well filled. To grow Peas well they must have a deep rich soil to root into, or the plants will not be able to resist the drought of summer; and in light soils, which more speedily show the effects of drought upon the crops, it is best to make a shallow depression in the ground abou 3 inches deep and 6 inches wide the whole length of the drill, and in this depression sow the Peas. Plenty of water should be applied to them when dry weather sets in. *J. Douglas.*

Veitch's Autumn Giant Cauliflower.—For several years past I have sown the Autumn Giant in August, at the same time as our Early London and other Cauliflowers for autumn or spring planting, and about the middle of October, for some time past, we have been in the habit of planting out a thousand plants of various sorts, and last spring, after such a severe winter, they certainly looked more promising than the Cabbages, all the difference as to situation being that the Cabbages were planted upon an open quarter, and the Cauliflowers had the benefit of a south border. In the usual way for spring planting we prick out a lot of all sorts in store frames for a succession, and to make up for any that may have gone blind. We plant them in drills 3 or 4 inches deep, which to a certain extent protects them from the cutting winds, and the periodical covering is all they get until the plants are sufficiently high for a mulching of manure in the spring, this plan giving a great deal less trouble than that of protecting them in frames. This year we commenced cutting the following sorts in succession, viz. (of autumn planted), Early London, Erfurt, and Walcheren, and upon the heels of the spring-sown Early London came in the first lot of the Autumn Giant, some of the best or heaviest of them weighing 15 lb. The next in succession was spring-sown Eclipse, belonging to the same "ilk" as the Autumn Giant, and likewise a fine variety. We are now cutting from later sowings fine heads of both the Autumn Giant and the self-protecting sort, and will do so for some time if the weather keeps open. But, to my way of thinking, the earliest of all Cauliflowers when early sown is Snowball, as I have cut nice little round heads sown in the spring, with the help of a frame and a little bottom-heat, fully a fortnight before any of the above. *J. Miller, Clumber.*

Peas for Early Cropping.—At this time of the year, when the thoughts of the gardener are being directed to his winter-cropping, a few practical observations on this subject may be of some service. On November 29, 1880, I obtained 4 quarts of William I. Peas from the Eastgate Nurseries, Peterborough, also some of Early Prolific, and sowed them on an early border. William I. came up strong and stood the winter best, and although I was able to pull from both sorts on the 29th, William I. produced fully double the quantity of Peas which were of a fine green colour and splendid flavour. This Pea is undoubtedly a great acquisition for early crops. *J. H., Orton.*

Home Correspondence.

Encephalartos latifrons.—Mr. B. S. Williams, of the Victoria Nurseries, Holloway, has with very great liberality presented to the Royal Gardens, Kew, the fine specimen of Encephalartos latifrons which has been for many years past one of the treasures of his fine collection. As far as this country is concerned, I believe this plant is unique; but judging from a frond which Dr. Regel has very kindly sent me (under the name of Encephalartos lanuginosus), there must be a similar specimen in the St. Petersburg Botanic Garden, and Lehman's type-plant is still in existence in the Botanic Garden, Hamburg, whence Professor Reichenbach has sent me, with spontaneous kindness, a magnificent frond. These are the only other individuals with whose existence I am acquainted. Mr. Williams' plant has itself a history; it was purchased at the sale of Mr. Yates' collection, and as Mr. Yates died in 1871 it must have been in Mr. Williams' possession for the last ten years. It is a most desirable addition to the extensive collection of Cycadeæ at Kew, which was much enriched by the bequest of many of the plants formerly belonging to Mr. Yates. Encephalartos latifrons has been referred to E. horridus by Miquel and Alphonse De Candolle as a variety. As far, however, as I can see it has about as much claim to specific rank as many other unchallenged species. As a matter of fact it stands between E. horridus and E. longifolius, and about equally distant from either. E. horridus differs in the beautiful glaucescence of its foliage and in its more upright fronds recurved at the apex. Nothing, in fact, can be more different than the habit of this and E. latifrons; it is only in herbarium specimens that a relationship in the detail of the flattened fronds suggests itself. E. latifrons agrees with E. longifolius in the spreading arrangement of its fronds and their dark green colour. It is distinguished by the great breadth of the lower pinna (often as much as 2 inches across) and the stout teeth, one to three in number, with which their lower margin is furnished. In Mr. Williams' plant the top of the short stem is clothed with a woolly tomentum. This is, however, a variable character in the genus. Its occurrence may however have led Dr. Regel to identify E. latifrons with E. lanuginosus of Jacquin which Miquel considers as scarcely distinct from E. longifolius, and Alphonse De Candolle treats as a species altogether dubious. I have seen no authentic specimen, but judging from Jacquin's figure I have little doubt that Miquel is right and that E. lanuginosus, Lehman, is a young state of a dentate variety of E. longifolius. The narrowness of the lower pinnules is markedly different to their extraordinary breadth in E. latifrons. Mr. Williams' plant is a male, and produced a cone in 1877 which was photographed by Mr. Worthington Smith. *W. T. Thiselton Dyer.*

Old Plants.—In looking into the past what a number of fine old plants I now miss from our gardens! A life longer than generally allowed to man, and that devoted to plants, permits me to look back many years. Perhaps some named below may yet exist; if so, I should be glad to hear of them:—Primula suaveolens fl.-pl., with its double pendent flowers, I have not seen for fifty years. Fuchsia lycioides is another I have lost; F. conica and F. coccinea I believe yet exist. Leucojum vernum fl.-pl. is another old favourite which I fear has passed away. Calceolaria polyantha and C. arachnoidea, I fear, are also wanting. The grand old double Siberian Larkspur, seen in many farm gardens and cottagers' plots in my boyish days, where its place is now occupied by a fine, but at the same time comparatively poor substitute in Delphinium Barlowii. What has become of the grand old florist Polyanthus Kingfisher, Beauty of England, &c., and who will swear to their identity now? *Alpha.*

Effective Winter Climbers.—The most charming and cheerful looking climbers for the winter garnishing of cottage walls and garden arches are Cratægus Pyracantha and Jasminum nudiflorum The profusion of large clusters of the orange-scarlet berries of the former contrast strikingly with the bright lemon-coloured flowers of the latter, which are borne in great profusion throughout the whole length of the pliable green stems from this date onward, let the weather be ever so inclement. We have a few of these easily cultivated climbers occupying such positions as those above indicated, which are very cheery and effective just now. Especially noticeable are they since the deloliation of the trees—a circumstance which tends to illustrate the true value of two climbing plants which are not so extensively grown as they deserve to be. *H. W. W.*

Veronica Andersoni variegata. — For the edging of flower beds or borders, where a bold outline is required, there are few plants so well adapted as Veronica Andersoni variegata. I have used it extensively, and with gond effect, during the past season. The whole length of the front border here, which is nearly 300 yards, has been edged with it. It was planted in two rows, 9 inches in the rows, and 4 inches between rows, forming a band 8 inches wide. It was planted in the third week in April, and in the middle of May was pegged down, and when it had well met it was stopped at the terminal points, which caused the plants to break at each back joint; hence, by the time the generality of the summer bedding plants were planted (June 3) it formed one continuous unbroken line of white and green, which was greatly admired by every one who saw it. One of the great advantages that this plant has over many edging plants is, that it requires but little attention to keep it in order after the first time of pegging and pinching. It is also a very easy plant to propagate, requiring only a cold frame to propagate it in and to keep it through the winter. The mode I adopt is very easy, although some 4000 to 5000 are propagated each year. In the first place, 4 inches of brickbats are placed upon the ground, with 2 inches of finer drainage on the top, making in all 6 inches of drainage; on this is placed two or three or more light boxes (as required): in these we put 6 inches of sandy soil. In the first week of September the cuttings are put in, after which a good soaking of water is given to them, to settle the soil round the cuttings, and by the middle of October they will be struck, and fit to stand through a hard winter with a little covering. *Wm. Gibson, Royal Hospital Gardens, Chelsea, S.W.*

The Grape Stealing Case. — Notwithstanding the observations attributed to Mr. Forrest Fulton in the letter of your correspondent, J. Douglas, published in your number of October 29 last, your correspondent may feel relieved by referring to the 24th and 25th Vict., c. 96, ss. 36 and 37. Under s. 36, "whosoever shall steal . . . any . . . fruit or vegetable production growing in any garden . . . hothouse, &c., shall be punished on conviction before a justice either by commitment with or without hard labour for not exceeding six months, or forfeiture (above the value of the article stolen or the injury one) of not exceeding £20." The 37th section, which applies to roots or plants growing elsewhere than in gardens, does not use the word "fruit;" so that a question may arise under this section whether the offence of stealing Grapes, and not rooting up the plant, would be punishable; but as to Grapes growing in a vinery there seems to be no question that section 36 would apply. *J. D.*

Cattle Poisoned by Laburnum. — It is not generally known that the Laburnum, which is the favourite food of hares and rabbits, is occasionally highly poisonous to cattle. During the high gale of Friday, October 14, a large Laburnum tree, about sixty years old, and richly clothed with foliage, was overturned at Huntfield, Lanarkshire, and fell across the fence into a grass park in which nine heifers were feeding. The cattle, who seemed as fond of the Laburnum as the hares, immediately began to devour the leaves, pods, and tender branches, and when discovered shortly afterwards were all found to be more or less violently affected with those poisonous symptoms caused by Laburnum. Two were so seriously ill that they could not walk, and had to be carted to the farm, and died before the veterinary surgeon could be sent for. Three others were with difficulty got to the farm, and notwithstanding active medical treatment, several days elapsed before they were pronounced out of danger, and all the rest shared in a less violent degree the peculiar symptoms caused by Laburnum poisoning. That the Laburnum is not always poisonous to cattle is proved by what I have myself seen, viz., cattle in a wood, where Laburnum was freely grown to keep hares and rabbits from attacking the other trees, browsing on the Laburnum yet never receiving damage therefrom. And besides, a marked example of this occurred the other day here. A large quantity of Laburnum branches, covered with leaves and pods, were thrown

into an old quarry on the roadside, and half a dozen cows discovering the tempting morsels cleared the whole of the leaves, pods, and tender shoots, yet never exhibited the slightest symptoms of poisoning. *James Stark, M.D., Underwood, Bridge of Allan, Nov.* 10.

Hydrangeas.—In the excellent account of Margam Abbey gardens by "R. C.," which appeared at p. 622, mention is made of the beautiful appearance these fine old-fashioned shrubs present at this season in the gardens there, and having myself had the pleasure of seeing them a few days after the late hurricane, I may be permitted to add my testimony to the fine effect produced, as here and there they are placed as single specimens on the lawn, or grouped with Rhododendrons, &c.; indeed, as Rhododendrons in spring, so are these noble Hydrangeas in autumn. Noticeable also was the fact, that plants on the higher grounds had the flowers of a pretty pale blue—due, we believe, and as Mr. Muir stated, to the iron ore in the soil—those in the lower grounds were mostly all of the normal pink colour. In South Wales, where the soil is largely incorporated with iron ore, it is more rare to find a pink than a blue Hydrangea. It seems a pity this fine old plant is not oftener planted in shrubberies. It is fairly hardy in the Royal Horticultural Soiety's Gardens at South Kensington; there are several large masses of them which have flowered profusely for the past fifteen years without any protection or care in winter. At Chiswick, however, which is a little damper, the buds are annually destroyed. *A. F. B.*

Anthurium Warocqueanum.—This is a very distinct plant, and will form a very good fine-foliage plant for exhibition. I measured one leaf 42 inches long by 20 inches across; they are of a deep olive-green colour, with prominent whitish veins. *J. Douglas.*

Caladium Tubers.—Too much attention cannot be devoted to these really useful fine-foliaged stove plants throughout the winter months. If their foliage (as will be the case in the generality of places) has already become exhausted, and the tubers indicate the appearance of having lost this season's vitality, exercise any amount of discretion in regard to their future treatment. A most suitable and healthful position for preserving the tubers is the surface of a board run along the hot-water pipes in the Pine-stove. Where this cannot be very well adopted, a hanging or suspended shelf proves equally as satisfactory, if in the same temperature. Many complaints are sometimes made against the Caladiums not keeping; but the fault lies not so much with the tubers as the position which they occupy. No Caladium tubers will keep in a healthy and fresh condition when subjected to a cold and damp atmosphere—they succumb to those influences in the shortest of time. The more airy and warm the tubers are kept throughout their resting period, the greater and more satisfactory will the results be in the spring of the succeeding season. Placed above the hot-water pipes, the tubers will be subjected to various extremes of heat, more especially during severe frosty weather, but I am confident no injury will result to the tubers. Withhold water from them, and as the soil in the pots will become excessively dry, prudence and practical treatment will suggest the necessity of it being in such a state. Nothing proves so ruinous to Caladiums, after they have done their duty in the stove, as placing them in position in the stokehole, or some moderately heated out-of-the-way place. Whatever position they may occupy—which should always be a dry one—no water should be applied to the tubers until the spring of the following season, and not until after they have been repotted, and have made more or less growth, and even then with discrimination. *G. Drummond, Broxmouth Gardens, N.B.*

Scale on Peach Trees.—The recipe given by Mr. Wallis, of Keele Gardens, for the extirpation of scale on Peach trees may be a very good one, and no doubt answers the purpose well, but the cost of the mixture, independently of the labour of putting it on, is against it, as it takes some little time to paint over a tree. The best remedy for those insects and the cheapest is paraffin, a quarter of a pint of which put into about 4 gallons of water, and syringed over, so as to wet the branches and stems all over, will kill every scale, and cleanse the bark so effectually as to render it quite bright and polished-looking. Not only will paraffin quickly settle accounts with scale, but it destroys black aphis, red-spider, and most of the pests that infest fruit trees, and I always make a practice now of giving all our walls that are liable to these parasites a dressing either from the garden engine or syringe as soon as the pruning and training are done. Our early Peach-house has just had a syringing, and every scale has left its hold and vanished. Besides its cheapness, and the easy and quick way in which it may be used, paraffin has other recommendations, as, unlike most insecticides, it does not disfigure or injure paint, and the slightly unpleasant smell it has soon goes off if air is given to the house in which it is used. We applied it some time since to our Lapagerias in the conservatory which had thrips on them, and it freed them of these insects at once, and they have remained clear ever since. In using the paraffin it is necessary to be particular in keeping it well mixed with the water, for, being of an oily nature, it otherwise floats on the top. *J. Shepard.*

The Cuckoo.—In one of your critiques in the number for November 5 you impliedly took exception to the spelling of the word "cuckow" by adding *sic* after it. [*Sic*, as a reference to the dictionary will show, does not necessarily imply disapprobation—it was used only to call attention to the fact. Eds.] At the time I read the article I remembered having seen this spelling in one of our old poets, but could not recall where. Here, however, is the piece in which it occurs—a sonnet of Spenser's, and I send it to you entire. Doubtless at one time the word was pronounced cuckō, though it may be affectation to adopt the old spelling at this time of day. You will see there is authority for its being so spelt. *J. A. Crawford, Nov.* 9.

"The merry *cuckow*, messenger of spring
His trumpet shrill hath thrise already sounded,
That warnes al lovers wayte upon their king,
Who now is coming forth with girland crowned.
With noyse whereof the quyre of byrds resounded,
Then anthems sweet devized of love's prayse,
That all the words theyr ecchoes back rebounded,
As if they knew the meaning of their layes.
But mongst them all, which did Love's honour rayse,
No word was heard of her that most it ought;
But she his precept proudly disobayes,
And doth his ydle message set at nought.
Therefore, O Love, unlesse she turne to thee
Ere *cuckow* end—let her a rebell be."
Sonnet by Ed. Spenser.

Greenhouse Rhododendrons.—How very useful these are for furnishing choice flowers for the decoration of the greenhouse or conservatory is well illustrated in Messrs. Veitch's nursery at present. Princess Alexandra is well furnished with trusses of its pretty pinky-white flowers. R. Taylori, rosy-pink, with a white tube, is very free and fine; Princess Royal is pale pink, and Duke of Edinburgh deep red. Their culture is so simple that they ought to be found in every garden. Sandy turfy peat is the best material to pot them in, and they require a goodly supply of water during the growing season. Amongst a houseful of Bouvardias the old B. triphylla has again come to the front. It is not such a fine species as B. leiantha, but it forms a dense, bushy plant, on which the clusters of small scarlet flowers are freely produced. *J. Douglas.*

Lobelia fulgens.—The capacity of this plant for enduring our winters depends much on situation. In the year 1879 I had some in a garden at Brighton which survived the winter, but yielded to the severity of that of 1880-81, and my plants perished. But a neighbour who has a bed of them in an exposed situation on the downs has left them undisturbed from year to year, save for the purpose of potting some; and those left in the open ground, though roughly treated by the frosts of this year, have flowered well, and are still in beauty. The Lobelia fulgens, with crimson flowers and purple leaves, appears to suffer more from damp than cold. I may add that the plants I allude to must have been exposed in the open ground to at least 20° below freezing (of Fahrenheit). The Lobelia cardinalis (with bright scarlet flowers and green leaves) has not proved so manageable with me, though it is, no doubt, generally quite hardy. *W. E. Heathfield, Nov.* 16.

Lobelia cardinalis.—I have about two dozen plants growing in the herbaceous borders here, and for the past two years all the protection I have given them has been a little ashes placed over the crowns, and a slate or tile on the top of all to prevent the rain going down the cut part of the stem to rot them. They have been much admired by all who have seen them, with their fine scarlet flowers and dark crimson stems and leaves, and have a fine effect among other herbaceous flowering plants. *A. Walker, The Beeches, Guildford, Nov.* 15.

Scarlet Lobelias.—I have two varieties which are quite hardy here, having stood uninjured out-of-doors for several winters' past. Of course they are perennials. I believe one to be cardinalis, having green leaves and green stalks slightly shaded with purple; the other fulgens, having green leaves and deep purple stalks. There is no perceptible difference in the flowers. They prefer damp places. Another variety grown in this neighbourhood has deep bronzy-purple foliage, and flowers rather deeper in colour, I think, than the two first-named. I have lost it, not, I believe, from the severity of the weather, but from the persistent attacks of slugs, who have a special love for these Lobelias. The first plants of scarlet Lobelias which I put out, all disappeared, and on searching the ground I found a host of slugs embedded in the remains of the roots and stems. I have seen the scarlet Lobelia (fulgens?) growing magnificently in the swampy ground near the city of Mexico; and in the same neighbourhood the Chelone (barbata?), but on drier ground. The latter is quite hardy here, and I see no cause why its relation the Lobelia should not be so too. *G. H. W., St. Mary Church, Devon.*

Replanting Large Trees.—By the hurricane of October 14 last, amongst other trees that were uprooted in the park at Highfield, the residence of Mrs. Marson, near here, were two magnificent Limes, and being both together, and part of an avenue containing 150 trees and upwards of half a mile in length, a very ugly gap was made, indeed so objectionable did the broken line appear, and so hopeless did it seem likely to mend the same by planting young trees, that the idea of attempting to raise the old veterans—130 years planted—was determined on, after consultation with the Duke of Wellington—Highfield being a part of the Strathfieldsaye estate. His Grace not only readily consented to the experiment being attempted, but desired his gardener, Mr. Bell, to undertake the same, in which labour he was ably seconded by Mrs. Marson's gardener, Mr. Davidson, and a record of how successful the experiment has been will, I am sure, not only be interesting, but may tend to the preservation of other fine trees that are or may be in like condition. Of course, by the fact of raising being first entertained, it will be surmised that the trees had large balls of earth adhering to them, certainly of not less weight than from 2½ to 3 tons, and the whole being held together, as it were, by a piece of conglomerate that had been formed by the roots matting together in their vain attempt to pierce the hard, half-gravelly, half-conglomerate ground formation on which they had been growing. The trees averaged from 10 to 12 feet in girth, and being upwards of 90 feet high it will be seen that pollarding was a necessity; this was done at a height of 30 feet from the ground, the weight of timber thus remaining to be raised being calculated at a little over 2 tons. The holes bring duly prepared by breaking up the pan of gravel, adding a dressing of fresh loam, the work of raising was started by a common screw-jack, and as each few inches was gained, supports, each held by a separate man, were placed so as to secure the advantage obtained. When the end of the trunks had in this way been raised about 15 feet a strong rope attached to a crab fixed on the other side of the avenue was brought into play, and gradually raised the trees until they assumed their natural positions in the beds prepared for them, the only drawback to the entire success of the operation being that the trunks of the trees are about 1 foot out of the line of the other trees—a condition unavoidable, owing to the striking out of the roots by the force wherewith they went down. How simple were the appliances for raising will be seen when it is said that only a common 2½ feet screw-jack, a crab calculated to raise 5 tons, a 1½-inch rope and some common cart-ropes for stays and guides were used. Having witnessed this gigantic replanting operation, and being struck with the simplicity of its performance, and feeling confident that the trees will grow and flourish as of yore, I look upon it as a duty to record the experiment in the hope that others in like circumstances may be induced to do likewise, and so save valuable trees. *W. Wildsmith, Heckfield.*

—— The hurricane of October 14, which swept over the Berwickshire coast with such fatal results to human life, was equally disastrous to trees and plantations further inland. When the storm was at its height many of the fine old trees for which the policies around Dunse Castle have long been celebrated were levelled like ninepins before the fury of the gale, and, among numerous other noble specimens, about a dozen of the Limes which form the grand Lime-tree avenue were upset. The loss of these fine trees was greatly regretted by the proprietor, Mr. Hay, of Dunse Castle, and after making inquiries as to the possibility of raising them into their former position he decided upon doing so, and entered into arrangements with Mr. Alexander Shearer, landscape gardener, Edinburgh, for carrying out the operations. After surveying the trees and finding them nearly all in a tolerably sound state, with plenty of roots and large balls of earth attached to them, he at once set about making the necessary preparations. The tops of the trees, falling against the row on the opposite side of the avenue, were so much broken that it was necessary to cut the branches well back—so much so in some instances as to leave nothing but bare stems. Having pruned and dressed the tops, attention was directed to the roots, the broken and torn ends of which were cleanly cut, and prepared for laying hold of the soil in the best manner possible. The holes from which the roots and ball of earth had been raised was then cleared

out to a width of about 18 inches more than the radius of the roots, the bottom being also deepened a few inches. All was now ready for the raising of the trees. In the meantime a powerful winch with block and tackle had been got in readiness, with a plentiful supply of squared beech blocks, from 3 to 12 inches thick and about 4 feet long; strong hempen guy ropes, seven-strand wire ropes for stays, and a couple of powerful screw jacks. The lifting tackle was laid out and fastened to the stem of the tree about 40 feet from its base, and the winch placed in a convenient place about 50 yards back from the trees, so as to allow of a good leverage. The guy ropes and stays were securely fixed to the stem a little above the tackle, and good care was taken that nothing chafed or rubbed the trees. The screw-jacks were now applied near to the base beneath the prostrate stems, which were raised block by block with the jacks till they were at an angle of 30° to 35°, when the winch and tackle were put in motion, and in a few minutes the tree was raised to the perpendicular, the guy ropes being gradually paid out from two or three adjoining trees during the process, and bringing the tree by careful handling into an exactly upright position, when the guys were made fast till the earth was filled in around the roots. A few active hands soon accomplished this—carefully laying out the roots in the fresh soil and closely packing it in among them and around the ball, raising a basin around the trees the full width of the hole, to take water during the ensuing season, should the trees at any time require it. The wire rope stays were now made fast to strong posts driven into the ground some 25 yards or more back from the tree, and the guy ropes and tackle detached. The trees stand firm and erect, and have every appearance of growing and thriving for many years to come, and thus retaining to future generations the symmetry and grandeur of the magnificent avenue. The efficient manner in which the work was performed reflects great credit on the skill and ingenuity of Mr. Shearer, and, so far as it is possible to foretell, his efforts are sure to command success. Mr. Hay provided every requisite that was required for carrying out the operations, and took the greatest interest in them, for which we hope he will be amply rewarded by the vigorous growth of the reinstated trees. *D.*

Reports of Societies.

Gloucester Root, Fruit, and Grain Society.—One of the best exhibitions ever held by this Society took place in the Corn Exchange on Wednesday, the 9th inst., and much praise is due to the Hon. Sec., Mr. A. C. Wheeler, and his assistants. Unlike the sister society in the adjoining cathedral city of Hereford, this older body takes in agricultural roots, for which numerous silver cups are given, including several by the firm of A. C. Wheeler & Son; grain of different kinds; cider and perry in bottle and wood, while the fruit from which these delicious and wholesome beverages are prepared forms one of the most interesting features of the show. To many people the name of cider, from the simple fact that they have never tasted the genuine article, is followed by a shudder; but let them get a tasting order, and proceed to the cellars of growers like Mr. D. Phelps, Tibberton; Mr. Thomson, Newent; Mr. C. Ford, Dymock; and scores of others who can defy American competition in this particular branch, and they will acknowledge that the rich produce of our alluvial valleys is far superior to ordinary claret. It is our opinion, however, that still better results would be obtained if, in the majority of holdings in cider districts, the orchards were better drained, pruned, and cared for. But to proceed with our report: our attention will be directed to Apples, Pears, and Potatos, the sections in which readers of the horticultural journals are most interested. Although the Kentish growers who carried away the blue ribbon at Hereford were absent, the statement that the noble President of the Society, Earl Ducie, and the veteran pomologist, Sir H. Scudamore Stanhope, of Holme Lacey, were amongst the prize-winners, will show that the exhibition was a good one. For a collection of dessert Apples, four entries, Mr. J. Watkins, Marden Court, Hereford, was 1st, with a clean, well-grown selection, Sir S. Stanhope coming in a close 2d. In a corresponding class for tenant-farmers Mr. H. Organ, Breadstone, Berkeley, won the 1st place, Mr. O. Ford, Dymock, taking 2d honours. For Ashmead's Kernel, always a strong class at this show, B. St. John Ackers, Esq., Prinknash Park, Painswick, and Mr. Charles Roberts, Gloucester, took 1st and 2d in the order named. The old Ribston Pippin was well shown by ten competitors, Mr. Roberts coming in 1st, with clean, highly-coloured fruit, Mr. Aplin, Hasfield, 2d. Brandy Apples brought Mr. Aplin to the front, closely followed by Mr. E. Davies, Burlton Court, Hereford. The Nonpareil class included several varieties, the old one from Mr. Aplin being placed 1st for flavour, while a more enticing dish of the newer Scarlet won for Holme Lacey the 2d place. In a large class, including twenty entries, for any other variety, Earl Ducie took 1st honours, with Cox's Orange Pippin, Mr. E. Davies being placed 2d, with a beautiful dish of the old Margil. Every dish in this class was highly meritorious, and well worthy of the general commendation of the judges. For collections of culinary Apples Sir H. S. Stanhope and Earl Ducie were awarded 1st and 2d prizes. The Tortworth collection included the greatest number of kinds, but the twelve distinct varieties from the Holme Lacey cordons were heavier and finer in colour. In the tenant-farmers' class Messrs. Organ and Ford were again 1st and 2d. We now come to the finest class in the room, the Blenheim Orange, sixteen dishes — most of which were worthy of a 1st prize: but the judges having only two to dispose of, Mr. John Aplin and Mr. D. Phelps have much reason to feel proud of the first and second awards. In the class for any other variety Mr. Aplin was again 1st, with Hanwell Souring; B. St. John Ackers, Esq., 2d, with a large heavy Apple, named Glory of the West. Mr. H. Organ took the premier prizes in the two large collections of cider Apples, Messrs. Watkins and Ford being placed 2d. For a single variety Mr. Ackers and Mr. Phelps took 1st and 2d places.

Dessert Pears were well shown: the collection of twelve varieties with which Sir H. S. Stanhope took first honours being remarkably fine, while Earl Ducie's 2d prize exhibit was little inferior. In the single dishes the Earl took first place with a magnificent dish of Huyshe's Bergamot, and Mr. Onslow Deane, Boyce Court, Dymock, secured the second place with a very fine dish of Marie Louise. A few dishes of nice Grapes were shown, but they do not call for special remark.

The show of Potatos was an exhibition in itself. The twenty-four varieties which brought Tortworth to the front were in every way perfect. Messrs. Smith & Sons, Cheltenham, were a good 2d. In this class a very fine collection was spoiled by being smeared with oil. Ash-leaf kidneys: 1st, G. Viner Ellis, Minsterworth; 2d, E. Smith & Sons. White kidneys—a fine class: 1st, Mr. Barnes, Hucclecote; 2d, Mr. Ackers. Red kidneys: 1st, Mr. Ackers; 2d, Mrs. Bennett, North Nibley. Schoolmaster: 1st, Mr. Aplin; 2d, Earl Ducie. Snowflake: 1st, Mr. Aplin; 2d, E. Smith & Sons. Paterson's Victoria: 1st, D. Long, Whaddon; 2d, Mr. Ackers. Champions: 1st, Mr. Aplin; 2d, Mr. Ackers. White round: 1st, Mr. Ackers; 2d, G. O. Deane. Purple round: 1st, J. P. Bennett, Ross; 2d, Mr. J. Matthews. Red rounds: 1st, Mr. Blakemore, Highnam; 2d, Mr. C. Roberts. Wheeler's Gloucestershire kidney—a fine class: 1st, Earl Ducie; 2d, Mr. St. John Ackers. In conclusion we venture to suggest to the committee the advisability of limiting the number of dishes in the collections of Apples and Pears, the same as they now do in the Potato class, to, say, twenty-four varieties, and we think judges, exhibitors, and the public will be pleased with the result. (*From a Correspondent.*)

Scottish Horticultural Association: *Nov.* 1.—The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew Square, Edinburgh, the President, Mr. John Downie, in the chair. Mr. D. P. Laird, West Coates Nursery, read a paper on "Ceylon Coffee Estates," in which he described these productive plantations as personally seen by himself in the years 1874 and 1875. The island was 270 miles long by 140 miles in breadth at its widest point, containing 24,700 square miles in area. The highest mountain is 8295 feet in height, and the longest river 140 miles long. The rainfall throughout the island varies very considerably; in one district there is an average of 30 inches, and in another—the western slopes of the Adam's Peak range—as much as 250 inches per annum. In the month of October, 1868, there was the unprecedented rainfall of 35 inches in Colombo. In the Coffee planting districts from 90 to 100 inches is about the average rainfall. The temperature in these districts is about 74°, while on the coast it rises to 80° to 95°. The indigenous species of plants number 2832, said to be double the flora of Britain, and one-thirtieth of all described in the world. In the year 1827 Coffee plantations were regularly opened, the export for the first year being about 16,000 cwt.; however, it was not till about ten years later that the enterprise really commenced, when the year's exports increased to 34,600 cwt. Since that time this important industry has steadily increased with giant strides, and in the year 1878 263,000 acres were under Coffee culture, which gives an average production of 55,000 tons per annum. The world's production of this invaluable article of commerce is over 713,000 tons per annum, which in an average year would amount to about £50,000,000 sterling.

Mr. Laird then went on to describe the work as performed by the natives on a Coffee estate in the central provinces, from the time of felling the jungle to an estate in full working order. The work he divided into four main heads, viz., pruning, manuring, picking crop, and weeding, the last a most important operation. The variety of Coffee principally grown is the Coffea arabica, but of late years the Liberian variety has been planted; it grows well at a much lower elevation, and, being of a more robust growth, was thought more likely to withstand the ravages of leaf-disease, but it is to be regretted that this variety has also become affected. He also shortly referred to the Tea and Cinchona cultivation of the island, the former being of very recent introduction, and it is only within the last fifteen years that its commercial value has begun to be appreciated. There are now several thousand acres under cultivation, thriving well at almost any elevation from sea level to 7000 feet altitude. To Dr. Thwaites, late Director of the Ceylon Botanic Gardens, we are indebted for the prominence that Cinchona now takes in Ceylon commerce. It was he who first attracted attention to the probability of Ceylon, as well as India, being adapted for the cultivation of the quinine plant. The progress made in its cultivation has been rapid—from about 50 acres, planted in 1867, to nearly 7000 acres in 1877.

Mr. Hugh Fraser, Leith Walk Nursery, originated a discussion on the electric light as applied to horticulture and agriculture. The subject of his remarks was based upon a recent paper read by Dr. Siemens at York to the members of the British Association.

Messrs. Downie & Laird received a Certificate for a new seedling black Grape, named John Downie. The same firm also exhibited Rhododendron Duchess of Connaught; it had fine dark red flowers and foliage. Messrs. Dicksons & Co. again exhibited a basket of Primula capitata in flower, it having flowered with them since the month of June. Mr. A. McIntosh, Paxton House, exhibited a collection of Apples. There was also a collection of Pears and Apples exhibited which were grown under glass in the South of Scotland. The Lawson Seed and Nursery Company (Limited) exhibited two fine plants of double Primulas, named respectively the Earl of Beaconsfield and the Marquis of Exeter.

Richmond Horticultural: *Nov.* 10 *and* 11.—Amidst the legion of Chrysanthemum exhibitions which are now held in and around the metropolis, Richmond has this year occupied almost the first place.

Groups of Chrysanthemums in pots, arranged for effect, usually constitute one of the most prominent features of these winter exhibitions. In this instance there were not less than ten semicircular groups arranged in one of the big rooms of the Castle Hotel, made up in the usual sloping form, by which, if little is seen that is artistic, the blooms are shown to the best advantage, and that is important. Mr. C. Bond, Orford House, Ham, who was placed 1st, had great variety in colour, and fairly good blooms. The second group, which was staged by Mr. W. Brown, of the St. Mary Nursery, Richmond, was just a mass of tall plants, faced by dwarfer Pompons — big heads of bloom, without style or quality; whilst the 3d prize group, shown by Mr. Sallows, gr. to J. J. Flack, Esq., Twickenham, had the best plants for foliage and flowers—all remarkably good, but hardly enough of them to produce the desired effect. Some of the other groups well deserved extra prizes. Groups for miscellaneous plants of similar extent were well represented, but in the customary form—a prominent centre tapering down to a dwarf edging. Mr. F. R. Kinghorn, of Richmond, who was placed 1st, had in his group a handsome Todea that attracted much attention. Mr. Munro, gr. to Lady John Chichester, Twickenham, had a bright group of Crotons, Dracænas, and a few flowering plants; Messrs. Fromow & Sons, of Chiswick, taking 3d place. Dr. Francis, of Richmond Hill, had a similar group, in which a fine Dendrobium nobile, covered with bloom, was a good feature; and Mr. Brown had a bright show of Palms and scarlet Pelargoniums—these two latter were not for competition. Of other miscellaneous groups Mr. Clarke of Twickenham, had the grand lot of Cyclamen shown at South Kensington last week. Mr. H. Cannell, of Swanley, sent a varied collection of his most superb Primulas and cut blooms of Pelargoniums; and Messrs. C. Lee & Sons had a good collection of Cyclamen also.

Trained plants of Chrysanthemums were not largely represented, the best six coming from Mr. Sallows, with really good specimens of Mrs. Dixon, Mrs. G. Rundle, Mr. G. Glenny, Julia Lagravère, St. Patrick, &c. Standard large-flowered kinds were very good indeed, the three from Mr. E. Beckett, gr. to J. P. Currie, Esq., Esher, consisting of Mrs. Dixon, Mrs. Rundle, and Mr. Glenny, being remarkably well done. The three of same kinds from Mr. Sallows, though well bloomed, had been too recently tied down. In the class for single specimen trained plant Mr. Beckett was 1st, with a good Mrs. Haliburton. In the Pompon classes the standards were better grown and flowered than were the trained plants, those from Mr. Wm. Brown being remarkably good. Table plants were very largely shown, the great sameness running through these rendering them a somewhat monotonous class unless broken up by Solanums or other plants. Messrs. Hooper & Co., Twickenham, took 1st prize, a somewhat novel feature being a plant of Carnation Brilliant, in good bloom, the others consisting of Dracæna Sydneyi, Croton Disraeli, Cocos Weddelliana, Phœnix rupicola, and Pandanus Veitchii. Mr. Kinghorn was 2d, with handsome plants. In the class for berried plants, in which Solanums were prominent, Mr. G. King, gr. to R. Few, Esq., Esher, with three good flat-headed Prince of Wales yellow Capsicum, and three red-podded Tom Thumb Capsicums, was 1st. Chinese Primroses were well represented, but this year the judges put single-flowered kinds first—Mr. E. Coombes, gr. to F. A. Browne, Esq., Teddington, having good well-bloomed plants of the white and purple kinds; Mr. E. Beckett taking 2d place with double white and carmine varieties. Cyclamens were not particularly good. Some large round flat baskets, well filled with decorative plants were an interesting feature, Mr. Beckett and Mr. King horn taking the prizes.

Cut blooms of Chrysanthemums were unexpectedly strong, but it was noticeable that so distant a grower as Mr. Molyneux, gr. to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham, should have been placed 1st in the two leading classes, with thirteen incurved kinds, that included very good blooms of Prince Alfred, Prince of Wales, Mrs. Heale, Princess Beatrice, Mrs. Mary Morgan, and Inner Temple—the latter a very striking flower. Mr. E. Berry, gr. to the Countess of Severn, Roehampton, was a good 2d, having, amongst others, Empress of India, Lady Hardinge, Queen of England, and Mr. Brunlees. In the class for twelve trusses, Mr. R. Strong, gr. to Mrs. Reid, Virginia Water, was 1st with fine blooms of Golden Queen, Empress of India, Beethoven, Guernsey Nugget, Alfred Salter, &c.; Mr. Combes coming 2d, also with fine flowers. Mr. Strong was again 1st with six capital blooms of sorts already named; and Mr. Coombes was 2d. Japanese kinds were very strongly represented, Mr. Molyneux taking 1st place in the class for 24 blooms with some fine flowers of Peter the Great, Mdlle. Moulin, Cry Kang, Red

Dragon, and others. Mr. J. Sallows, who was 2d, staged good Brown Dragon, Elaine, Baron de Prailly, and Alba plena; and in the 3d prize lot, put up by Mr. Strong, were some grand blooms of Père Delaux, rich deep chestnut—a superb flower. With twelve kinds of Japanese flowers, Mr. G. King was 1st, having some splendid blooms of Magnum Bonum, Oracle, M. Ardene, Soleil Levant, and Baron de Prailly; Mr. Strong coming 2d with some excellent blooms, and was 1st in the class for six blooms, Mr. Molyneux being placed 2d. Some good blooms were shown in the special classes, and of Anemone flowers. Bouquets were very good, the best a most charming make up from Messrs. Smith & Larke, florists, of High Street, Kensington, showing capital taste. It had a base of white Chrysanthemums and Eucharis, from which projected buff Rosebuds, yellow Marguerites, and white Bouvardias, dressed with Maidenhair Fern. Mr. W. Brown had the 2d prize bouquet, which had a base of double white and pink Pelargoniums, from out of which came single blooms of Dendrobium nobile. Messrs. Smith & Larke exhibited an elegant wreath of Chrysanthemum blooms, and also had three baskets for table decoration, very attractively dressed with white and yellow, and white and crimson flowers, dressed with Fern fronds. Mr. Brown exhibited some beautiful wreaths and crosses made from white flowers. There were several stands for dinner table decoration of the usual type, but particularly noticeable was the one dressed by Mr. Tipping, of Richmond, with hardy variegated and coloured foliage and berries. It was, if less gay, far more pleasing than some of the flower-dressed stands.

In the fruit classes the competition was remarkably good. In the class for four dishes of Apples there were fifteen exhibits, and as the prizes amounted to the total of 12*s.*, and each entry was charged 1*s.*, the committee got their very liberal (!) prizes back again, with interest. Mr. Beckett was put 1st with handsome Blenheim Pippin, Emperor Alexander, Court of Wick, and very richly coloured Cox's Orange Pippin. Mr, Kinghorn was 2d with good Alfriston, Blenheims, Court-pendu Plat and Ribston Pippin. In the class for four Pears, Mr. G. King was 1st with Catillac, Beurré Diel, General Todtleben, and Marie Louise d'Uccle, a handsome kind. Mr. Fanning, The Convent, Roehampton, was 2d with handsome samples of Beurré Clairgeau, Beurré Diel, Duchesse d'Angoulême, and Vicar of Winkfield—Mr. Hudson, Gunnersbury, coming 3d, with some capital fruit. In the collections of six dishes of fruit Mr. Hudson was a good 1st, with capital Alnwick Seedling and well finished Muscat of Alexandria Grapes, Beurré Superfin and Beurré Diel Pears, and King of the Pippins and Hollandbury Apples. With two capital bunches of well-finished Alicantes Mr. Hudson was 1st in the class for black Grapes, and with equally good Muscats in the corresponding class for whites.

Vegetables made a capital show, as, in addition to some ten or more collections from cottagers, there were fifteen lots of six kinds from gardeners, and the quality throughout very good, Mr. Hill, gr. to A. Savory, Esq., Chertsey, taking the 1st prize, with good Giant Cauliflowers, Schoolmaster Potatos, Excelsior Tomatos, Snowball Turnips, excellent Brussels Sprouts, and a handsame brace of Model Cucumbers. Mr. J. Edy, gr. to P. Adie, Esq., Worton Hall, Isleworth, was 2d, having Onions, Sulham Prize Red Celery, Conqueror Tomatos, &c., Mr. Morrell taking 3d place. Several of the other collections were well worthy extra prizes.

Stoke Newington Chrysanthemum Show: *Nov.* 14 *and* 15.—The annual exhibition of this Society, which is the oldest in the kingdom and one of the most important of its kind held this season, took place in the Assembly Rooms, Church Street, Stoke Newington, under favourable circumstances. The exhibition was not so large as it has been on some former occasions, nor the competition so keen in many of the leading classes, but what it lacked in quantity it more than compensated for in quality throughout. The building was well filled, and its interior presented a very gay appearance. The orchestra was filled with a choice collection of foliage plants and Ferns, kindly furnished by Mr. Oubridge, nurseryman, Stoke Newington, and other local exhibitors. This group was margined with Solanums, Primulas, and other plants, together with a display of cut blooms, which had a very pretty effect. The centre table in the hall was arranged with dinner-table plants of the usual kinds, and the cut blooms upon either side, where they were seen to full advantage. This was an excellent arrangement, and a satisfactory one to the public. The trained plants were grouped upon the right and left of the hall, and it is not too much to say that finer specimens have seldom been exhibited. Two Silver Cups, one for trained plants and the other for the best twenty-four cut blooms in the show, were offered by the Society, and of course the attraction of the show centred in these exhibits. For the best collection of ten Chrysanthemums in pots not to exceed 12 inches in diameter, quality and general effect to be the leading feature, Mr. H. Langford, gr. to J. Barnet, Esq., Coleraine House, Stoke Newington, was 1st, with grand specimens of Fair Maid of Guernsey, Lord Derby, George Glenny, Julia Lagravère, Mons. Charles Hubert, Roseum pictum, President, Christine, Madame Marthe, and Barbara—Mr. W. Monk, gr. to W. Fowler, Esq., Forest House, Leytonstone, being a close 2d, but losing somewhat in effect by mixing his collection with standards; the plants were, however, splendidly grown and well flowered, notably a fine plant of Golden George Rundle. In class 2, Mr. H. Langford took 1st for six plants, large-flowered varieties, equally meritorious; and Mr F. Wells was successful in the class for four plants.

In the class for four standard trained plants, which according to schedule must be 2 feet 6 inches from the surface of the soil to the bottom of the hood, Mr. Gilby, Upper Clapton, and Mr. Wells were the only exhibitors, and took the prizes in the order named with moderate samples. In the classes for Pompons only one exhibitor (Mr. Wells) put in an appearance with six plants which however fully deserved a 1st prize. In class six (open to gardeners and amateurs), the 1st prize for four plants was again taken by Mr. Wells, the 2d and 3d respectively going to Mr. H. Langford and Mr. S. Gilby. The 1st prize in class 26, for the best single specimen, was obtained by Mr. H. Langford, with a magnificent specimen of Peter the Great, no restriction as to size or variety. This prize is given by Mr. Elliott, of Stamford Hill, who only stipulates that exhibitors for the prize shall not show standards. The display of table plants was very good, and in a smart competition Mr. W. Monk, Forest House, Leytonstone, succeeded in winning the 1st prize with six well grown plants of Croton Prince of Wales, C. Disraeli, Grevillea robusta, Pandanus Veitchii, Dracæna terminalis, and Thrinax elegans; the 2d and 3d prizes were taken by Mr. Young and Mr. Payne. In the class for six fine-foliage plants the latter exhibitor took 1st, with an exceedingly well grown collection, Mr. Young, of Stamford Hill, being a good 2d, and Mr. G. Archer, The Grange, Highbury, 3d.

The cut flowers were, if anything, more admired than the plants. The exhibitors were divided into three classes, viz., nurserymen and gardeners residing in the boroughs of Hackney or Finsbury only, and amateurs who do not keep a permanent gardener, residing in the same districts, and the open classes. The chief honour of the show in cut blooms was won by Mr. S. Gilby, gr. to B. Booth, Esq., who well sustained the local reputation by not only winning the 1st prize for twenty-four cut blooms in class 10, but also by winning the 5-guinea Silver Cup for the best twenty-four blooms in the exhibition. The varieties exhibited were Queen of England, John Salter, Mrs. Heale, Golden Empress, Nil Desperandum, Princess of Wales, Golden Queen of England, Empress of India, Lady Hardinge, White Beverley, Barbara, Hero of Stoke Newington, Jardin des Plantes, Refulgence, White Globe, Princess Beatrice, Golden Eagle, George Glenny, Cherub, Eve, Mr. Brunlees, Princess Teck, Golden Beverley, and Antonelli. Mr. Martin, gr. to F. Appleford, Esq., The Cedars, Woodbury Down, was the 2d prize-taker in class 10, with very good blooms. In the classes for twelve and six blooms equal honours were shared in the former class by Mr. E. Young, gr. to G. Thompson, Esq., Stamford Hill; and Mr. G. Langdon, gr. to Drs. Monroe and Morris, Brook House, Clapton. Mr. E. Young was again successful in the class for six, closely followed in the order of rotation by Mr. F. Wells and Mr. G. Langdon. The prizes in the amateur classes were well won by Mr. Goldsmith, Grove Road, Stamford Hill, and Mr. Broughton, Stoke Newington. The open class for twenty-four cut blooms did not bring out a strong competition, and to many good judges the equal 2ds awarded to Mr. Monk and Mr. Fowler will remain a puzzle. Mr. D. Monk, gr. to H. P. Leschalles, Esq., The Highams, Bagshot, Surrey, cleverly won the 1st prize with fine blooms, fresh and neat. There was uniformity of size, good form, and fair colour in this exhibit—three essential qualities in exhibition flowers. Mr. D. Monk again took the 1st prize for twelve blooms, and also for six. Mr. Strong, gr. to Mrs. Reid, Kenwold Court, Virginia Water, was awarded 1st prize for twelve Japanese blooms, and a similar award was made to Mr. Payne for twelve Anemone Pompons, distinct varieties in bunches of three flowers, each with foliage as grown. Mr. Cochrane, Superintendent, Finsbury Park, contributed a grand stand of twenty-four cut blooms, incurved, not for competition, which were a great acquisition to the show, and were much admired. Several special prizes were offered, among them one by Mr. Ware, of the Hale Farm Nurseries, Tottenham, for six blooms of his new Chrysanthemum Angelina, of which several good blooms were exhibited by the different competitors. The bouquets exhibited by Miss Annie Oubridge, of Church Walk Nursery, Stoke Newington, were also much and deservedly admired.

Putney and District Chrysanthemum: *Nov.* 15.—The fourth annual exhibition of this Society took place in the Assembly Rooms, High Street, Putney, and was of fair average merit, some of the exhibits, indeed, gave evidence of high cultural excellence, notably the scarlet Pelargoniums, Primulas, and table plants, which were numerous and well grown. Several groups of Chrysanthemums were also of high merit, if their arrangement was not so artistic as could have been desired. The lion of the hour at Putney is evidently he who wins the Silver Cup in class 1 for the best collection of Chrysanthemums, not less than twenty varieties, in a space not to exceed 40 feet super, and this much-coveted prize was easily secured by Messrs. S. Mahood & Son, nurserymen, Lower Richmond Road, Putney, with magnificent blooms of all the most popular kinds, both of the incurved and Japanese sections. Mr. G. Stevens, St. John's Nursery, Putney, was a good 2d, also showing plants with fine blooms; and Mr. J. Bennet, gr. to F. Rodwald, Esq., Wimbledon Common, 3d. For six large-flowered Chrysanthemums (trained), distinct, Mr. G. Stevens was 1st, and Mr. J. Hoskins, gr. to S. Williams, Esq., The Laurels, Putney, 2d. In the class for three large-flowered kinds, pots not to exceed 12 inches, Mr. Bentley, gr. to Dr. Thomas Gabriel, Edgecombe Hall, Wimbledon Park, was 1st, with well-grown plants, and Mr. G. Stevens 2d. For the large-flowered single specimen the competition was very keen: Mr. Bentley secured the 1st prize with a fine plant of Mrs. Dixon; Mr. Stevens was 2d, and Mr. J. Hoskins 3d, with a good sample of Triomphe du Nord. The single specimen standard brought out three competitors, viz., Mr. Hoskins, Mr. Lyne, gr. to Mrs. Reid, Heathcroft, Putney Hill, and Mr. Bentley, who took the prizes in the order named. For six Pompons, distinct, on single stems, pots not to exceed 8½ inches, Mr. Hoskins and Mr, D. Ansell, gr. to G. Reid, Esq., were 1st and 2d respectively. For three Pompons the same exhibitors were 1st and 2d, and Mr. G. Stevens, St. John's Nursery, 3d. And for a single specimen Pompon the same trio again held their respective positions, all showing well-grown plants, and very well flowered. It is a strange fact that at nearly all exhibitions a few exhibitors take the lead and keep it; it is therefore pleasant to find fresh names carrying off first honours for the cut blooms, which were a fair average show throughout. For twenty-four cut blooms, incurved, distinct kinds, Mr. A. Holmes, gr. to A. B. Hill, Esq., Clapham Park, was 1st, with a good stand of the leading kinds; Mr. Berry, gr. to the Countess of Leven and Melville, Roehampton House, was 2d; and Mr. T. Handley 3d. And in the class for twelve incurved flowers, Mr. Handley took a leading position with excellent flowers, Mr. Bentley and Mr. Holmes being 2d and 3d respectively. For six flowers, Mr. Bentley had 1st, Mr. Lyne 2d, and Mr. Berry 3d. In the class for six Anemones, Mr. Berry, Mr. Bennet, and Mr. J. Holmes were successful with neat flowers of well known kinds. For twelve Japanese cut blooms Mr. G. Stevens was 1st, showing some fine flowers of Red Dragon, Meg Merrilees, The Sultan, and Gloire de Toulouse. Stove and greenhouse plants were well shown by Mr. G. Stevens and Mr. Woodhams, gr. to R. Davis, Esq., Earlsfield, Wandsworth Common, and Mr. Martin, Wimbledon Park; Ferns by Mr. J. Budal, gr. to R. B. Evered, Esq., Wandsworth; table plants by Mr. J. Bennet, Mr. Hoskins, and Mr. Lyne; Primulas by Messrs. Woodhams, Newall, and Ware; and finely grown Pelargoniums from the garden of Miss Joppin and others. Fruit was not largely shown. Among the plant exhibitors Mr. Hoskins' name deserves especial mention for a fine plant of Dendrobium nobile, and among the special prizes the bouquets of Mr. Curtis and other successful exhibitors deserve a meed of praise.

Borough of Lambeth Amateur Chrysanthemum Society.—This Society held its annual exhibition in the Borough Hall, Lambeth, on the 14th ult., and the room was well filled and tastefully arranged. The stage in the centre of the room, about 6 feet wide, was the great attraction—the centre of the stage was very neatly arranged with Palms, Yuccas, Ferns, and Mosses, which were bordered with the stands of cut flowers and had a very pretty effect by gaslight. The plants were arranged upon either side the room and bordered with dwarf foliage and flowering plants which hid the pots of the taller plants from view. Upon the platform Messrs. John Laing & Co., of the Forest Hill Nurseries, made a fine display of choice plants which came in for a large share of praise, and their presence certainly enhanced the general appearance of the show. The front of the group was composed of Solanums, Heaths, and other flowering plants, margined with well-grown plants of Isolepis gracilis. In class 3, Mr. Tracy, who has been a very successful exhibitor, carried off a Silver Cup for six standard trained plants, wonderfully well-grown, and profusely flowered; and also won the 1st prize for three standards with two plants of Mrs. George Rundle, and one of George Glenny. In class 5, another Silver Cup was offered for a "block of uprights" (a technical description unknown to your reporter), and in this class there were four competitors. Mr. Clark was the winner of the cup, Mr. Ball 2d, and Mr. Tracy 3d. The groups were all very well grown, Mr Ball having a splendid Guernsey Nugget in his collection. For six pyramid Pompons Mr. Fill won a third Silver Cup, with good plants, very well trained, and in good condition generally.

In the classes for cut flowers the competition was much keener. For twelve incurved blooms Mr. Ball won the Silver Cup with nice flowers of Guernsey Nugget, Prince of Wales, Hero of Stoke Newington, Mr. Bunn, Bella Donna, Nil Desperandum, George Glenny, Angelina, Golden G. Glenny, Mr. Corbay, Mrs. Halliburton, and Golden Beverley; Mr. Little was a good 2d, and Mr. Tracey 3d. Mr. Ball was the winner with six incurved blooms, and Mr. Tracy was successful with the same number of one variety. All the members of the Society appear to be strong in the Japanese varieties, and considerable interest was manifested in this department of the show, the stands being very equal in point of merit, and generally good. Mr. Tracy, Mr. Ball, and Mr. Crisp were the chief prizetakers. A fine stand of cut blooms of Fair Maid of Guernsey were exhibited in memoriam of two deceased members of the Society—Messrs. Thomas Summers and James Wilshire: the plants from which the flowers were cut had been partly grown by the deceased members. Three flowers of the variety Mr. Bunn, grown in good style, were shown by Mr. Ball; the variety was raised by a member of the Society.

Walton, Weybridge, Oatlands, and Hersham Chrysanthemum: *Nov.* 15.—This Society held its exhibition on Tuesday at Walton, and considering that as a rule, at least in the metropolitan area, the Chrysanthemums are scarcely up to the average, the show was a good one. The principal prizes were awarded to specimen plants of large-flowered varieties; and though a number of them were not quite up to the mark, there were some really first-rate productions—notably the six plants from Mr. Cornhill, gr. to E. Pettit, Esq., Oatlands, who gained the 1st prize (a silver watch), with handsome specimens of Mrs. Dixon, Venus, Baron Beust, George Glenny, Prince of Wales, and Eve. In this class Mr. Laney, gr. to Mrs. Wilson, Walton, was a good 2d, but his Venus was weak, and Golden

Christine is not a good variety to grow for specimens, always looking rough. Mr. Cornhill also gained a 1st prize with a handsome specimen of Mrs. Geo. Rundle, which had over fifty fully developed blooms on it. Mr. Polley, of Oatlands, was also a prominent exhibitor; he gained a 1st prize with four nice specimens—amongst them Baron Beust was fine; he was very closely pressed by Mr. Mellican, gr. to Mrs. Cobbett, Walton, who had a well-flowered example of Mrs. Dixon in his collection. Mr. Polley was 1st with four beautiful standard Pompons—Marie Stuart and Marguerite de Coi, two varieties very similar, were exceedingly well flowered and pretty; Antonius and Madame Montels were the others—all Anemone-flowered Pompons. Mr. Laney was also a 1st prize winner in a class for standard Japanese. Elaine and Red Gauntlet were very pretty and finely flowered. Standard large-flowered Chrysanthemums are not usually pleasing features in any exhibition, nor were they so on this occasion, although the 1st prize lot from Mr. Mellican were good; and he had a well trained and flowered plant of Prince Alfred. Mr. Cornhill was also 1st here for six dwarf-trained Pompons, and very clean, healthy plants they were: Judy, yellow; Aurora Borealis, Marie, Miss Nightingale, and Mr. Astie were the sorts exhibited. The best Japanese blooms in the exhibition were in the stand of twelve from Mr. Strong, gr. to H. Sweet, Esq. They were really splendid examples of good culture—Elaine, very fine indeed; M. Delaix, Meg Merrilees, Kry Kang, Nuit d'Hiver, Sultan, Oracle, Bronze Dragon, Fair Maid of Guernsey, Hiver Fleur, Harlequin, and Alba plena. Mr. Burns, gr. to H A. Rigg, Esq., Hersham, had some fine blooms also, and gained the 1st prize for twenty-four. Mr. Strong, gr. to D. Reid, Esq, of Virginia Water, exhibited best for cut blooms of the incurved section; they were very fine and worthy of high honours at any exhibition: some of the blooms were of the largest size and fine in quality. Empress of India, Golden Empress of India, Princess of Wales, Cherub, and White Venus were the best of them. There were also some very well arranged epergnes with Chrysanthemums and Maidenhair Ferns, also bouquets of them, and good stands of reflexed blooms, Anemone Pompons, Pompons, &c.

Twickenham Horticultural: *Nov.* 15 *and* 16.—The autumn exhibition of this Society was held in the Town Hall on Tuesday and Wednesday last. The large room was well filled with groups of Chrysanthemums and various decorative plants. Semicircular groups, standing out from the side walls, and other effectual large circular groups were in the centre. One of these, sent by Mr. Munro, gr. to Lady John Chichester, composed of Palms, Crotons, and Dracænas, gave good foliage effects, whilst Chrysanthemums, Tree Carnations, Ericas, and Chinese Primroses lent colour. The other group, staged by Mr. G. Barry, gr. to A. C. Stearns, Esq., Twickenham, was chiefly composed of Chrysanthemums dressed with foliage plants; both these were not in the competitions. Fronting the platform Messrs. Hooper & Co., of Twickenham, had arranged a pleasing collection of ornamental grasses in bunches, interspersed with some fine Carnations in pots and miniature Cacti. A couple of fronds of the Cycas revoluta with a wreath of white Chrysanthemums fastened to the base of the stems, represented a customary funeral ornament in Germany. Flanking the grasses on one side was a small collection of pretty stove plants, Calanthes, Pleiones, and other Orchids, the white-spathed Spathiphyllum cannæfolium, strongly fragrant, intermixed with good Chinese Primroses, Cyclamens, &c.; from Mr. Bates, gr. to J. E. Meeke, Esq., Poulett Lodge, Twickenham; and on the other side were some of Mr. R. Clarke's superb Cyclamens. Mr. Lake, gr. to E. Ascherson, Esq., Cambridge Park, had, in another part of the hall, a pretty group of plants, the most prominent, a good golden Gymnogramma, being surrounded by Dracænas, Epiphyllums, Calanthes, and finely flowered Chinese Primroses. Mr. R. Laing, Twickenham, also had a group of good decorative plants. Mr. R. Walker, of Whitton, put up some very fine Cyclamens, well grown and having large heads of bloom: these, set in a dressing of Maidenhair Fern, were very effective. All these collections were of a honorary kind, and greatly helped the show.

The competing Chrysanthemum plant groups, six in number, were of the customary kind—Mr. Sallows, gr. to J. J. Flack, Esq., taking 1st prize with the collection placed 3d at Richmond. Mr. Parsons, gr. to Mrs. Turning, came 2d with plants well bloomed; and 3d came Mr. J. Davenport, gr. to Captain Wells, whose group was most effectively arranged and full of bloom, but his flowers were not large. Mr. W. Brown, of Richmond, with the same group that won him 2d place there, only got Highly Commended. Such are the uncertainties of Chrysanthemum law. The only other collection in the large room calling for notice were the excellent half-dozen trained specimens of large-flowered kinds from Mr. Morrell, Richmond, and which had no worthy competitors. In a large ante-room were staged cut flowers, table plants, epergnes, &c. Here Mr. Sallows was 1st with twenty-four blooms of Japanese and incurved kinds; also with twelve Japanese and twelve incurved, the other flowers shown not being meritorious.

In yet another room were placed the fruit and vegetables. Here Mr. Poupart, market grower, had put up a huge collection of vegetables and fruits—some twenty-four kinds of Apples and a dozen of Pears, also a superb basket of Seakale and half a dozen sticks of his famous red Celery, showing great size and solidity. Of this Mr. Poupart grows about 12 acres. All the vegetables were excellent. A local fruiterer (Mr. Howell) staged baskets of Apples and Pears in the true market style—twenty fruits in a basket. Blenheim Pippin, Dumelow's Seedling, Ribston Pippin, Knight's Pippin, and King of the Pippins were very good; as also were Glou Morceau, Uvedale's St. Germain, Vicar of Winkfield, Easter Beurré, and Duchesse d'Angoulême Pears. With good Gros Colmar and Black Alicante Grapes Mr. Morrell obtained well merited commendation. The Grapes in the prize classes were poor. In the collections of fruit Mr. Munro was 1st, with capital Gros Colmar Grapes, Duchesse d'Angoulême Pears, Blenheim Orange Apples, and Medlars. Pears were not meritorious, but Apples were very good, the best four dishes coming from Mr. Buckland, gr. to G. J. Atkins, Esq., Cambridge Park, who had fine Beauty of Kent, Ribstons, Dumelow's Seedlings, and Blenheims. The vegetable classes were well filled, but call for no special mention.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 16, 1881

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°				In.
10	29.94	+0.14	58.0	42.5	15.5	51.8	+ 8.3	48.8	89	S.W.; S.S.W.	0.01
11	30.06	+0.26	57.0	50.0	7.0	53.2	+ 10.0	49.6	88	S.E.; W.S.E.	0.00
12	30.03	+0.24	58.0	52.0	6.0	54.0	+ 11.1	50.8	89	S.W.; S.	0.06
13	30.26	+0.48	59.1	50.0	9.1	53.4	+10.7	50.7	90	S.W.; S.S.W.	0.00
14	30.16	+0.39	53.0	48.0	5.0	50.3	+ 7.8	48.0	92	S.E.; S.S.E.	0.00
15	29.87	+0.11	53.5	45.5	8.0	48.9	+ 6.6	44.9	87	S.W.; S.S.W.	0.00
16	29.72	—0.02	55.0	43.5	11.5	49.9	+ 7.7	40.5	70	W.; S.W.	0.07
Mean	30.01	+0.23	56.2	47.3	8.9	51.6	+ 8.9	47.6	87	S.W.	0.14

Nov. 10.—A dull, rainy morning; overcast all day. Fine night.
— 11.—A fine day, but overcast. Fine warm night.
— 12.—Rain in early morning; a fine, bright day afterwards. Fine night.
— 13.—A fine day and night.
— 14.—A fine but cloudy and dull day and night.
— 15.—A fine, but overcast day. Fine, clear night.
— 16.—A fine morning. Very strong S.W. wind. Rough, squally night.

LONDON: *Atmospheric Pressure.*—During the week ending November 12, the reading of the barometer at the level of the sea increased from 30.11 inches at the beginning of the week to 30.24 inches by midnight on the 6th, decreased to 30.19 inches by midnight on the 7th, increased to 30.24 inches by 9 A.M. on the 8th, decreased to 30.02 inches by midnight on the 9th, increased to 30.28 inches by 3 P.M. on the 11th, and was 30.31 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.18 inches, being 0.20 inch higher than last week, and 0.20 inch above the average of the week.

Temperature.—The highest temperature in the shade during the week was 58°, on the 10th and 12th. On the 8th the temperature did not rise above 52°.5. The mean of the seven high day temperatures was 55°.7.

The lowest temperature in the week was 42°.5, on the 10th; on the 12th the lowest temperature was 52°. The mean of the seven low temperatures was 46°.4.

The greatest range of temperature in one day was 15°.5, on the 10th; the smallest was 4°, on the 8th. The mean of the seven daily ranges was 9°.3.

The mean daily temperatures were, on the 6th, 50°; on the 7th, 49°.6; on the 8th, 50°.9; on the 9th, 46°.9; on the 10th, 51°.8; on the 11th, 53°.2; on the 12th, 54°—being above their averages on every day by 4°.9, 4°.9, 6°.6, 3°, 8°.3, 10°, and 11° respectively. The mean temperature for the week was 50°.9, being 9° higher than last week, and 7° above the average for the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 102° on the 12th; the highest on the 8th was 57°.5. The mean of the seven readings was 77°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 37° on the 6th and 9th. The mean of the seven readings was 42°.

Rain.—Some fell on five days, to the amount of 0.29 inch.

ERRATA.—November 5, mean reading of barometer, for 29.56 inches, read 29.86 inches; and departure from average, for —0.23, read +0.69.

ENGLAND: *Temperature.*—During the week ending November 12 the highest temperatures were 63° at Sunderland, 62°.6 at Plymouth, and 62° at Truro. The highest temperature in the week at Wolverhampton was 56°.8; at Hull, 57°; and at Bristol Blackheath, Liverpool and Bradford was 58°. The mean from all stations was 59°.4.

The lowest temperatures in the week were 38° at Wolverhampton, 38°.5 at Nottingham, and 40° at Hull. The lowest temperature at Plymouth was 47°.8, at Brighton 44°, and at Liverpool 43°.5. The mean from all stations was 42°.

The greatest ranges of temperature in the week were 20°.4 at Leicester, and 20° at Truro and Sunderland. The least ranges were 14°.5 at Liverpool 14°.8 at Plymouth, and 15° at Brighton and Bradford The mean from all stations was 17°.4.

The mean of the seven high day temperatures was 60°.9 at Truro, 59°.5 at Sunderland, and 59° at Plymouth; and was 54°.6 at Hull, 54°.7 at Wolverhampton, and 55°.2 at Bradford The mean from all stations was 56°.8.

The mean of the seven low night temperatures was 50°.8 at Plymouth, 48°.9 at Truro, and 48°.4 at Liverpool; and was 43°.2 at Hull, 43°.6 at Nottingham, and 43°.7 at Wolverhampton. The mean from all stations was 46°.4.

The mean daily range was 13°.1 at Sunderland 12°.2 at Nottingham, and 12° at Truro, and was only 7°.6 at Liverpool, 8°.1 at Bradford, and 8°.2 at Plymouth. The mean from all stations was 10°.4.

The mean temperature for the week was 54°.4 at Truro and Plymouth, and 52°.6 at Cambridge, and was 48°.4 at Hull, 48°.7 at Wolverhampton, and 49°.2 at Nottingham. The mean from all stations was 51°.1.

Rain.—The largest falls were 0.41 inch at Bristol and 0.34 inch at Plymouth. The least falls were 0.01 inch at Sunderland, 0.04 inch at Brighton, and 0.05 inch at Wolverhampton. The mean from all stations was 0.17 inch.

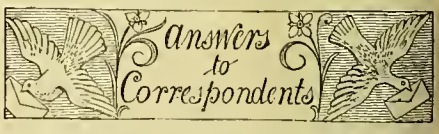
SCOTLAND: *Temperature.*—During the week ending November 12 the highest temperature was 61°, at Glasgow; at Dundee the highest temperature was 56°. The general mean was 58°.6.

The lowest temperature was 36°, at Dundee; at Greenock the lowest temperature was 43°.2. The general mean was 38°.3.

The mean temperature for the week was highest at Edinburgh, 50°.9, and lowest at Dundee, 46°.9. The general mean was 49°.5.

Rain.—The largest falls were 1.67 inch at Glasgow and 1.40 inch at Greenock. The smallest falls were 0.08 inch at Aberdeen, and 0.30 inch at Dundee The general mean was 0.76 inch.

JAMES GLAISHER, F.R.S.



AMATEURS' MEETING-PLACE: *Angræcum.* The place you mean has been closed for several years; indeed, it was only open for a few months, and the proprietor met with no encouragement.

EUONYMUS AND BUTCHERS' BROOM: *T. Edwards* It is not a common occurrence for the Japanese form of Euonymus to flower and fruit in this country. The climate is not hot enough. The Butchers' Brooms are, no doubt, all males.

FUNGUS ON PALM LEAVES: *T. Edwards.* The name of the fungus is Graphiola phœnicis, a member of the Æcidium family, of which many members have been fully described and illustrated in the *Gardeners' Chronicle.* The fungus is very common on Palms in conservatories, and is often accompanied by Chroolepus aureus, a zoospore-producing Alga. *W. G. S.*

INSECTS: *I. V.* The beetle received in box with bulbs from Holland is the ground beetle (Carabus nemoralis), common in England and the north-west of Europe. *W.—E. J.* The little grasshopper found in plant-stove on Poinsettias is a young larva of a Central American and Mexican species of Conocephalus. *W.*

NAMES OF FRUIT: *George Steed.* 1, Rymer; 2, Rosemary Russet. — *John Todd.* 1, Grange's Pearmain; 2, Beauty of Kent; 3, Winter Strawberry.—*B. Pounsett.* Withington Fillbasket. — *J. M., Woodlands. Pears:* 1, Vicar of Winkfield; 2, Forelle, or Trout; 3, Beurré de Capiaumont. *Apples:* 1, Dumelow's Seedling; 2, Brabant Bellefleur; 3, Gloria Mundi; 5, Alfriston; 6, Cat's-head; 10, Hollandbury; 11, Blenheim Orange; others not recognised.

NAMES OF PLANTS: *J.* 1, Picea nigra; 2, P. alba; 3, Abies Douglasii; 4, Quercus coccinea; 5, Linaria Cymbalaria.—*G. J. W.* 1, Tropæolum tuberosum; 2, Aster novi belgii; 3, a Maxillaria which we do not recognise; 4, Begonia Saundersiana, or one of the

nearly allied varieties.—*Chalcot.* Adiantum excisum multifidum—not new.—*V. Z.* 1, Scolopendrium vulgare; 2, Lastrea spinulosa; 3, Polypodium vulgare; 4, Asplenium Adiantum-nigrum; 5, Asplenium Trichomanes.

VEGETABLES IN MARCH: *I. M. H.* See p. 665.

VINES: *F. M. G.* Supernumerary Vines are often grown somewhat after the method you propose to adopt, and which should answer your purpose very well, if you give them good stuff to grow in. We would advise you, however, to burn a handful or two of shavings in the tubs before making use of them.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors*," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

W. SMITH & SON, Kintore, Aberdeen—General Nursery Stock.

G. J. ALBERTS & Co., Boskoop, Holland—General Nursery Stock.

WM. DRUMMOND & SONS, Stirling—General Nursery Stock.

CH. HUBER & Co., Hyères, Var, France—Seeds and Plants.

DICKSONS & Co., Waterloo Place, Edinburgh—General Nursery Stock.

P. J. LOOYMANS & ZONEN, Oudenbosch, Holland—Trees and Shrubs.

H. LORBERG, Berlin—Fruit Trees, Vines, Ornamental Trees and Shrubs.

CARL LACKNER, Steglitz, near Berlin — Greenhouse Plants, Roses, &c.

TRANSON FRÈRES, Orleans—Trees and Shrubs.

LEVAVASSEUR ET FILS, Ussy, Calvados, France—Fruit Trees, Conifers.

L. SPÄTH, Berlin — Fruit Trees, Roses, Ornamental Trees and Shrubs.

W. ETHERINGTON, Manor House, Swanscombe, Kent —Chrysanthemums.

CARLIES MITCHELL, Stranraer, N.B.—General Nursery Stock.

HOGG & ROBERTSON, 22, Mary Street, Dublin — General Nursery Stock.

THOS. KENNEDY & Co., Dumfries—Forest, Fruit, and Ornamental Trees.

RANIERI PINI, Prato, Florence, Italy—Seeds and Bulbs, &c.

OSBORN & SONS, Fulham, S.W.—Supplementary List of Hardy Trees and Shrubs, &c.

DICKSON & ROBINSON, 12, Old Millgate, Manchester—Roses.

COMMUNICATIONS RECEIVED.—J. P. & Sons.—M. D. (many thanks)—G. N.—I. O W.—T. M.—J. C. S.—W. I. (many thanks).—H. E. W.—W. P. R.—M. S.—A. O.—J. C. S.—J. D.—C. R.—J. & R. T.—W. T. T. D.—G. S.—J. S.—J. R. J.—P. G.—B. D.—D. T. F.—E. M.—T. B.—L.—E. R., St. Petersburg.—H. E. M.—J. M.—J. S. G.—A. B.—R. M., Boston, U.S.—H. H. D.—F. B.—T. M.—E. J.—W. B.

DIED, on November 11, at Charlton Kings, near Cheltenham, aged eighty-six years, FRANCES, relict of the late ROBERT ARNOTT, of the Cambrian Nursery.

Markets.

COVENT GARDEN, November 17.

There are no alterations from last week to be reported.
James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 4 6	Melons, each	2 0– 3 6
Figs, per dozen	0 6– 1 0	Peaches, per dozen	6 0– ..
Grapes, per lb.	0 6– 3 6	Pears, Eng., ½-sieve	2 6– 5 6
Kent Cobs, p. 100 lb.	75 0–77 6	— French, per doz.	1 6– 2 6
Lemons, per 100	4 0– 6 0	Pine-apples, Eng., lb.	3 0– 5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Herbs, per bunch	0 2– 0 4
Asparagus, French Sprue, per bundle	1 6– ..	Horse Radish, bund.	4 0– ..
— New Fr., bundle	5 0– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
Barbe de Capucin, per bundle	0 8– ..	— Engl. Cos, score	1 6– ..
Beans, French, p. lb.	1 0– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 0– ..	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	4 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen	2 0– 4 0	Parsley, per bunch	0 4– ..
Celery, per bundle	1 6– 2 0	Potatos (new), punnet	1 6– ..
Cucumbers, each	0 6– 1 0	Radishes, per bun.	0 2– 0 6
Endive, per doz.	1 0– 1 6	Salsify, per bundle	1 6– ..
Garlic, per lb.	1 0– ..	Seakale, per punnet	3 0– ..
		Small salading, pun.	0 4– ..
		Spinach, per bushel	2 6– ..
		Tomatos, per lb.	0 9– 1 0

Best Regents, 10*s.* to 11*s.*; Roses, 8*s.* to 9*s.*; Myatt's, 10*s.* to 12*s.*; Magnum Bonums, 9*s.* to 11*s.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Evergreens, in var., per dozen	6 0–24 0
Asters, per dozen	6 0–12 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 6
Begonias, per doz.	4 0–12 0	Fuchsias, per dozen	6 0–12 0
Chrysanthemums, per dozen	6 0–12 0	Myrtles, per doz.	6 0–12 0
Cissus discolor, doz.	18 0–24 0	Palms in variety, each	2 6–21 0
Cyperus, per dozen	6 0–12 0	Pelargoniums, scarlet, per dozen	3 0– 6 0
Dracæna terminalis	30 0–60 0	Solanums, per dozen	9 0–12 0
— viridis, per doz.	12 0–24 0		
Euonymus, various, per dozen	6 0–18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	3– 0 4	Marguerites, 12 bun.	4 0– 6 0
Asters, 12 bunches	9 0–15 0	Mignonette, 12 bun.	3 0– 6 0
Bouvardias, per bun.	9– 1 0	Pelargoniums, 12 sprays	1 0– 1 6
Camellias, 12 blooms	4 0– 6 0	— zonal, 12 sprays	3 0– 6 0
Carnations, 12 blms.	1 0– 2 0	Primula, double, per bunch	1 0– 1 6
Chrysanth., 12 bun.	6 0–12 0	Roses (indoor), doz.	1 0– 3 0
— 12 blooms	2 0– 4 0	— Tea (French), per dozen	1 0– 2 0
Eucharis, per doz.	6 0– 9 0	Stephanotis, 12 spr.	6 0– 9 0
Gardenias, 12 blms.	4 0– 9 0	Tropæolum, 12 bun.	1 0– 3 0
Heliotropes, 12 sp.	6– 1 0	Tuberoses, per dozen	2 0– 3 0
Hyacinths (Roman), 12 sprays	2 6– 3 0	Violets, 12 bunches	1 0– 1 6
Lapageria, white, 12 blooms	2 0– 4 0	— (Fr. Parme), bun.	4 0– 5 0
— red, 12 blooms	1 0– 3 0		
Lilac (Fr.), p. bunch	8 0–10 0		

SEEDS.

LONDON: *Nov.* 16.—The quietude previously noted continues to characterise the trade for farm seeds. As regards red Clover seed most of the samples of new English which have as yet appeared show poor quality. American quotations are again easier. Very bad accounts are to hand concerning the Belgian crop of Alsike: the fine new home-grown Alsike meets with increasing favour. Timothy seed is very scarce. Haricot Beans are in good request at the moderate rates now ruling. Blue Peas are firm. Linseed dull. *John Shaw & Sons, Seed Merchants,* 37, *Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday rather a better feeling prevailed in the trade, and American Wheat was considered in some cases to have realised 6*d.* over last Monday, all other imported Wheats remaining as on that day, excepting Indian, which was 6*d.* to 1*s.* lower. Flour of good quality was steady; secondary sorts not so well supported. Barley, Beans, and Peas on the spot moved off with a quiet demand at steady value. Maize had further hardened in value since Friday. New Oats were 3*d.* lower on the week. — There was but a poor attendance at market on Wednesday, and only a limited business was concluded at about Monday's rates, the tendency being in favour of buyers. Flour remained without quotable change. Barley and Peas were firm, Maize rather hardening in value; and Beans and Oats were dull. Average prices of corn for the week ending Nov. 12:—Wheat, 46*s.* 3*d.*; Barley, 34*s.* 9*d.*; Oats, 20*s.* 7*d.* For the corresponding period last year:—Wheat, 43*s.* 5*d.*; Barley, 34*s.* 7*d.*; Oats, 21*s.* 5*d.*

CATTLE.

At Copenhagen Fields on Monday first quality beasts cleared readily at 2*d.* per stone advance, but the plainer kinds did not improve. Sheep sold briskly at 2*d.* to 4*d.* per stone advance. Quotations:—Beasts, 3*s.* 8*d* to 4*s.* 8*d.*, and 5*s.* 2*d.* to 5*s.* 10*d.*; calves, 4*s.* 8*d.* to 5*s.* 10*d.*; sheep, 5*s.* to 5*s.* 8*d.*, and 6*s.* to 7*s.* — On Thursday the cattle trade was firm, but without activity. Both beasts and sheep sold at quite Monday's prices, and calves were steady.

HAY.

Tuesday's Whitechapel market report states that prices were unchanged, but the supply large, and the trade dull at the following quotations:—Prime Clover, 100*s.* to 137*s.*; inferior, 75*s.* to 90*s.*; prime meadow hay, 100*s.* to 130*s.*; inferior, 60*s.* to 90*s.*; and straw, 30*s.* to 52*s.* per load.—On Thursday there was about an average supply of fodder on sale. Trade was very dull, but prices were without alteration. — Cumberland Market quotations: — Superior meadow hay, 120*s.* to 132*s.*; inferior, 84*s.* to 110*s.*; superior Clover, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; and straw, 46*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that full supplies are to hand, and many of the samples a good deal blighted: prices consequently irregular Quotations:—Victorias, 60*s.* to 100*s.*; Regents, 60*s.* to 100*s.*; Champions, 55*s.* to 70*s.*; Early Rose, 105*s.* to 110*s.* per ton; German Reds, 2*s.* 9*d.* to 4*s.* 6*d.* per bag.

COALS.

The following are the prices current at market during the week:—East Wylam, 18*s.*; Bebside West Hartley, 16*s.* 3*d.*; Walls End—Hetton, 19*s.*; Hetton Lyons, 17*s.* 6*d.*; Lambton, 18*s.* 6*d.*; Original Hartlepool, 19*s.*; Wear, 17*s.* 6*d.*; Chilton Tees, 18*s.*; Thornley, 18*s.* 3*d.*; Tees, 18*s.* 9*d.*; Hawthorns, 17*s.* 9*d.*; South Hetton, 19*s.*; Tunstall, 17*s.* 6*d.*; Radford Navigation, 18*s.*

Government Stock.—Consols closed on Monday at 100⅛ to 100⅜ for delivery, and 100⅜ to 100¾ for the account. The closing figures were the same on Tuesday, Wednesday, and Thursday.

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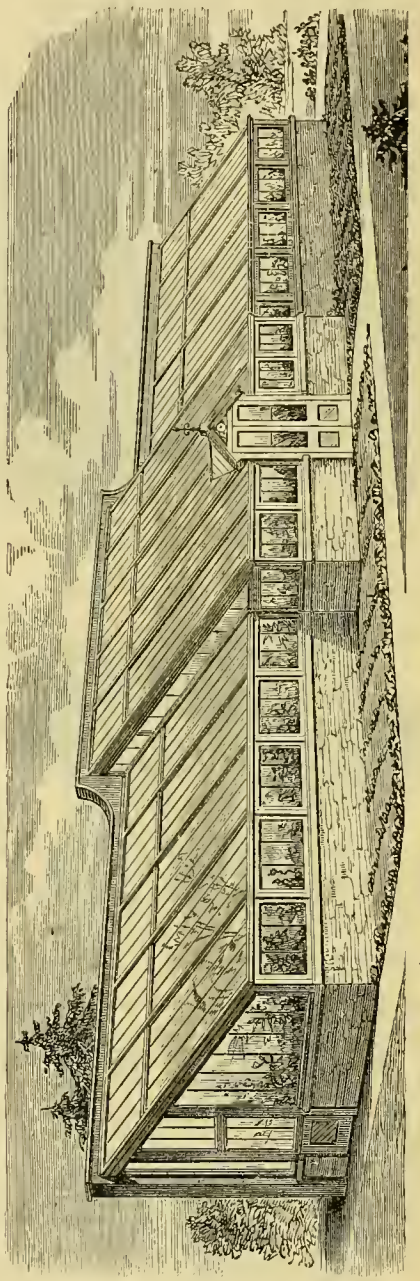

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Patentees of the Cast-Iron Tubular Saddle Boiler.

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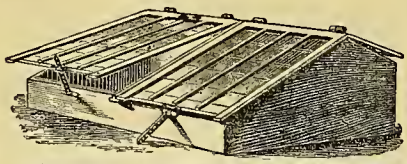

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CASH PRICES—Carriage Paid.

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These Frames give greater height in the centre. They are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Set-opes are provided for ventilating. Are made of the best hard red deal, all painted four coats of best oil colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales, also to Edinburgh and Dublin.

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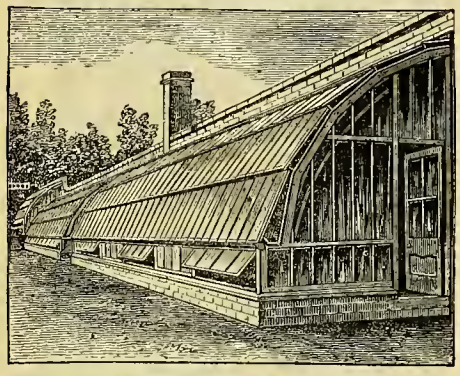

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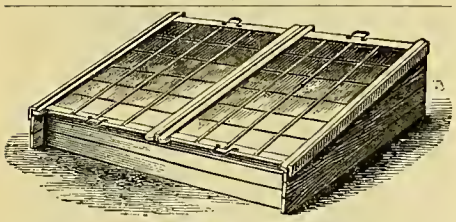

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FOSTER & PEARSON,

HORTICULTURAL BUILDERS.

First Prize for Best Greenhouse, June 8, 1881,
Royal Horticultural Society—Sixteen Competitors.

First Prize for Best Greenhouse, July 30, 1881,
Liverpool Horticultural Society—Four Competitors.

First Prize for Best and Most Durable Greenhouse, August 23, 1881,
International Fruit Show, Manchester—Ten Competitors.

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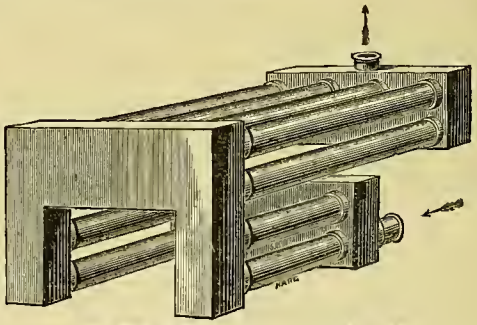

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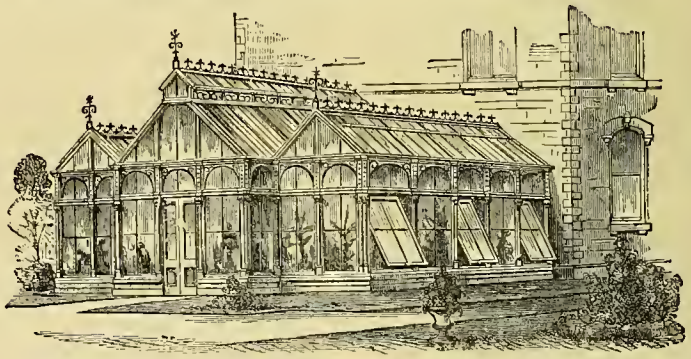

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GREEN'S PATENT TUBULAR SADDLE BOILER

Had the First and Highest Prize, a Silver Medal,

Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.

The "Journal of Horticulture" of June 9 says:—

"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The "Garden" of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

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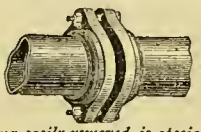

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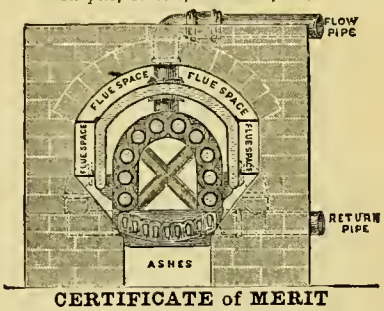

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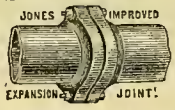

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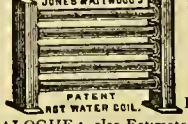

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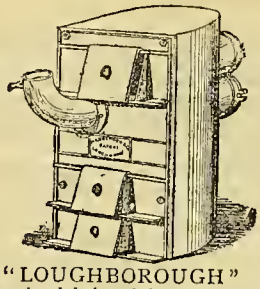

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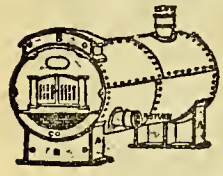

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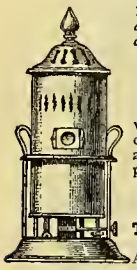

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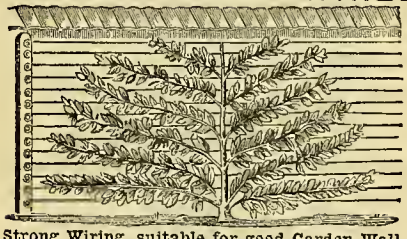

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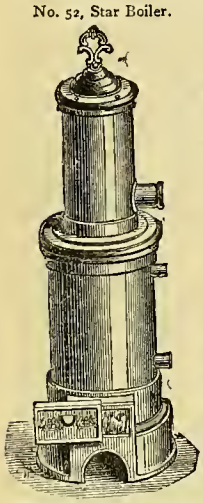

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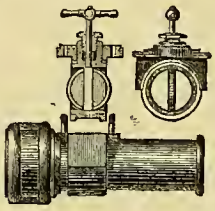

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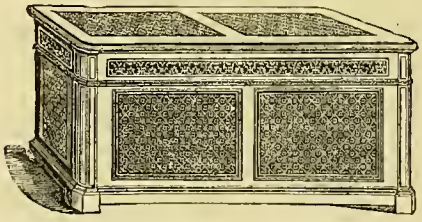

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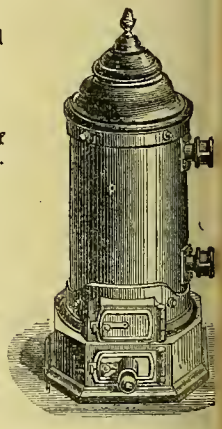

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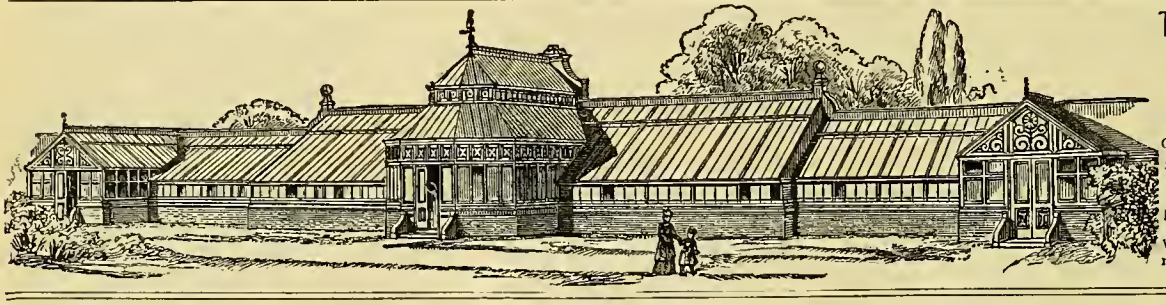

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STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.
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GARDEN POTS — GARDEN POTS. — From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

SALES BY AUCTION.

Every Monday.
UNRESERVED SALES OF DUTCH BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL, at the Auction Mart, Tokenhouse Yard, near the Bank, E.C., every MONDAY, at half-past 11 o'Clock precisely, large consignments of First-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other Roots from Holland, lotted to suit all buyers.
Catalogues at the Mart, and 8, New Broad Street, E.C.

Richmond.
Without Reserve.—Important Three Days' Sale of well-grown NURSERY STOCK, the ground having to be cleared and raised for drainage purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. G. & W. Steell to SELL by AUCTION, on the Premises, the Gas Field Nursery, Sandy Lane, ten minutes' walk from the Richmond stations, on TUESDAY, November 29, and two following days, at 12 o'Clock precisely each day, 100,000 EVERGREENS and CONIFERÆ, of all sizes, and in endless variety, including 1000 great Silver HOLLIES from Messrs. Steell's noted stock, 7000 THUYAS of sorts, 3000 RHODODENDRONS, 10,000 English YEWS, 2½ to 5 feet; 8000 fine LIMES, 8 to 10 feet, and other ORNAMENTAL TREES; 5000 Tea and other ROSES, on their own roots, &c.
May be viewed. Catalogues of Messrs. STEELL, Kew Road, Richmond, and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

Caen Wood Towers, Highgate, N.
One mile from Highgate and Gospel Oak Stations.
HIGHLY IMPORTANT THREE DAYS' SALE of VALUABLE and COSTLY HOUSEHOLD FURNITURE, CHAMBER ORGAN, WORKS of ART, FARMING STOCK, PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the owner (E. Brooke, Esq., J.P., who is leaving the Mansion) to SELL by AUCTION, on the Premises, Caen Wood Towers, Highgate, N., on WEDNESDAY, November 30, and two following days, at 12 o'Clock precisely each day, the residue of the *recherché* HOUSEHOLD FURNITURE, mostly by James Lamb, of Manchester, including an antique carved Oak Elizabethan Suite, a white-and-gold Boudoir Suite; an ebony, gold, and ivory Drawing-room Suite upholstered in crimson silk; a magnificent carved Oak Buffet, 21 feet long; a massive Dining-table; an ebony, gilt, and ivory Mantelpiece, Chimney-glass, Cheffonier, Console Glass, and two Cabinets—all *en suite*; a costly ebony and ivory Table of rare Italian workmanship, two pairs of valuable ebony and ivory Doors of artistic design, a fine-toned Chamber Organ by Walker, some very choice examples of Marble Statuary by Durham, A.R.A.; a few Oil Paintings, Articles of Virtu, Works of Art, rich velvet pile Carpets and Silk Curtains; also the Live and Dead FARMING STOCK, elegant Barouche, a Set of State Harness, and the whole of the STOVE and GREENHOUSE PLANTS.
Admission to view by Catalogues only, price 6*d.* each, which may be had on the Premises; of Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street, E.C.; and of the Auctioneers, at the North and East London Auction and Estate Agency Offices, 8, New Broad Street, E.C., and at Leytonstone.
N.B.—The very valuable and exceptionally beautiful FREEHOLD ESTATE FOR SALE, by Private Treaty. Particulars of J. HARWOOD, Esq., Solicitor, 90, Cannon Street, E.C.; and of Messrs. EDWIN FOX AND BOUSFIELD, as above.

Friday Next.
12,000 Splendid Bulbs of LILIUM AURATUM, from Japan (including 1000 unusually large roots), a very fine assortment of English-grown LILIES, CALOCHORTUS (the Butterfly Tulip), 2000 Berlin Crowns LILY OF THE VALLEY, four cases of HELLEBORUS NIGER from Austria, CYPRIPEDIUMS and DISAS from the Cape, 200 lots DUTCH BULBS, and various other ROOTS and PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above, by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, Dec. 2, at 12 o'Clock punctually.
Catalogues at the Mart, and 8, New Broad Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.
CONSIGNMENT from GHENT for Absolute SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, December 6, at 12 o'Clock precisely, a choice collection of about 200 Double CAMELLIAS and AZALEA INDICA, compact plants, 1½ to 3 feet, beautifully set with bloom-buds; about 300 Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, with a collection of DUTCH BULBS, Winter Blooming ERICAS, PRIMULAS, &c.
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, SNOWDROPS, and other Flower Roots from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, consignments of DUTCH BULBS, arriving weekly from well-known Farms in Holland, in large and small lots, to suit all buyers.
On view the mornings of Sale, and Catalogues had.

Cattleya Dolosa—(Sale No. 6000.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 29, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a large quantity of imported plants of the lovely CATTLEYA DOLOSA, also CATTLEYA LABIATA WARNERI Varieties, CATTLEYA LEOPOLDI, ONCIDIUM MARSHALLIANUM, ONCIDIUM WELTONI, ONCIDIUM KRAMERIANUM, ANGRÆCUM CITRATUM, ANGRÆCUM ELLISII, and other choice ORCHIDS.
On view morning of Sale and Catalogues had.

Roses, Shrubs, Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C. on WEDNESDAY, November 30, at half-past 12 o'Clock precisely, first-class Standard, Half-Standard, and Dwarf ROSES, including most of the leading varieties; Hardy CONIFERS, FRUIT TREES, ORNAMENTAL STOVE and GREENHOUSE PLANTS, &c.; also an importation of Choice Named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SNOWDROPS, and other BULBS from Holland
On view the morning of Sale, and Catalogues had.

10,000 Lilium auratum from Japan, in fine condition
(Sale No. 6000.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 1, at half-past 12 o'Clock precisely, an importation of 10,000 LILIUM AURATUM, just received from Japan in fine condition. Also some fine Bulbs of LILIUM NEILGHERENSE, L. HUMBOLDTII, L. WASHINGTONIANUM, L. PARDALINUM, and others; a small collection of RARE HARDY PLANTS and BULBS, including many scarce species; a consignment of PLANTS and BULBS from Germany and Austria, and an importation of BULBS from Holland.
On view the morning of Sale, and Catalogues had.

Manchester.
ORCHIDACEOUS STOVE and GREENHOUSE PLANTS.

MESSRS. ARTINGSTALL AND HIND beg to announce the receipt of instructions from the Trustee under the liquidation of Richard Smalley Yates, of Sale, near Manchester, Nurseryman and Florist, to SUBMIT to PUBLIC COMPETITION, at the Nursery, at Sale aforesaid, which is near to Brooklands Station, on the Manchester South Junction and Altrincham Railway, on WEDNESDAY, THURSDAY, and FRIDAY, November 30, and December 1 and 2, commencing each morning at 11 o'Clock A.M. prompt, the extensive and varied Collection of well-known ORCHIDACEOUS STOVE and GREENHOUSE PLANTS, many of them being of unusual size, in high condition, and difficult to obtain. Attention may be specially directed to about thirty grand specimens of Cœlogyne cristata, about 200 fine specimen Lælia anceps, coming in flower; good plants of Lælia purpurata, very fine Cattleyas, Calanthes, Aerides, and Vandas, and to the Orchids generally; several hundred specimen Camellias, 6 to 12 feet high, chiefly double white; Ornamental Plants, which will be found unusually fine, very numerous, and comprising all the best varieties in cultivation; and generally to the plants of every description, which it is difficult to describe within the limits of an ordinary advertisement.
Catalogues are in course of preparation, which, with any further particulars, may be procured from the Trustee, Mr. JAMES MARCHANTON (Messrs. Marchanton & Kendall), Accountant, 67, King Street; Mr. SAMUEL SIMPSON, Solicitor, South Gate, King Street West; and the Auctioneers, at their Offices, 45, Princess Street, all in Manchester, on Monday and Tuesday prior to the Sale, when the Plants will be open to inspection.
N.B.—The ORCHIDS will be SOLD on the first day, WEDNESDAY; mixed STOVE and GREENHOUSE PLANTS on the second day, THURSDAY; and the CAMELLIAS on the FRIDAY.

Guernsey.

TO BE LET on LEASE, or SOLD, a good, new, substantial DWELLING-HOUSE and GARDEN, with two Hothouses, about 230 feet in length, in full bearing; pleasantly situated, with good sea-view, near the bathing-places. Gas, with Rain and Spring Water on the premises. If sold two-thirds of the money may remain. Apply to
J. RICHINGS, 46, Hautville, Guernsey.

TO LET, in High Road, Kilburn Rise, a Piece of LAND, for Florist: frontage, 100 feet deep, 25 feet front, back of house 36 feet by 30 feet, and Glasswork ready to erect, 19 feet by 7 feet, with House, or part of. Apply,
J. JONES, 5, Gray's Place, Kilburn Rise, London, N.W.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

To the Trade.—Lilium auratum.

LILIUM AURATUM.—Cases of this Lily, direct from Japan, and containing about 100 Bulbs, various sizes, price **56s. per Case**, much cheaper in lots of five cases and upwards. Offered unopened, unexamined, and with all risks. All cases hitherto opened have proved in excellent condition.
JAMES CARTER AND CO., 237 and 238, High Holborn, W.C.

GRAPE VINES.—Planting Canes, all the leading sorts, 3*s.* 6*d.*, 5*s.* to 7*s.* 6*d.*, true to name, from eyes grown and proved in our own vineries.
DOWNIE AND LAIRD, Royal Winter Garden, Edinburgh.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities of STRAWBERRIES also, in pots, to offer. Prices, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

Scotch-grown Forest Trees.

W. P. LAIRD AND SINCLAIR, NURSERYMEN, Dundee, N.B., will be happy to forward Priced CATALOGUE of Seedling and Transplanted Forest Trees, free on application. Trade supplied.

To the Trade.

HARRISON AND SONS, Leicester, have a fine stock of extra strong transplanted QUICK, suitable for Working and Gapping; also Forcing SEAKALE and LIGUSTRUM OVALIFOLIUM. Samples free.

CHRYSANTHEMUM.—Speciality.—300 best and newest varieties only, flowered under glass and kept true to name. Purchaser's selection, well-rooted plants, 2*s.* 6*d.* per dozen, 14*s.* per 100; cuttings, 2*s.* per dozen, 10*s.* per 100. W. E.'s selected plants, 2*s.* per dozen, 10*s.* per 100; cuttings, 1*s.* 6*d.* per dozen, 8*s.* per 100, distinct varieties, post-free.
Send one stamp for LIST, and compare with others.
W. ETHERINGTON, The Gardens, Manor House, Swanscombe, Kent.

SEAKALE—SEAKALE.—Magnificent roots for Forcing. None to excel them for size in growth. Price on application to
ALFRED ATWOOD AND SON, Market Gardeners, 12, Chaldon Road, Fulham Fields, S.W.

CHRISTMAS TREES.—Thousands of fine feathered plants, of good colour, from 2 to 5 feet; QUICK, 10*s.* per 1000; OAK, SCOTCH FIR, &c.
W. GROVE, Tupsley, Hereford.

SPANISH CHESTNUT, HAZEL, ASH, LARCH, SCOTCH, BIRCH, ALDER, WILLOW, and THORN QUICK.—Stout, well-rooted, transplanted. A large quantity to be sold.
GEO. CHORLEY, Coaster's Nursery, Midhurst.

NOTICE OF REMOVAL TO No. 12, EXETER STREET, STRAND, W.C.
(Immediately at back of Exeter Hall.)
We beg to intimate that we have now removed to our New Premises at above address.
The continued increase of our business has made it compulsory for us to go into larger and more commodious Warehouses, where we shall now be able to execute all Orders entrusted us with greater despatch and facility.
WATKINS & SIMPSON,
Seed and Bulb Merchants, late of 1, Savoy Hill, Strand.
Seed and Trial Grounds at Feltham and Twickenham, Middlesex.

Notice of Removal.

SANDY AND SON beg to inform their Customers and the Trade generally that their address for the future for all purposes will be
THE NURSERIES, STAFFORD.
S. & Son have REMOVED their Seed Warehouse from Vine Street to the NURSERIES.
Nurseries and Seed Warehouse, Stafford.—November, 1881.

Special Notice.

MESSRS. WM. CUTBUSH AND SON would be greatly obliged to their Friends and Patrons if they will kindly address all Business Connections to HIGHGATE, and *not* to their *Branch Nurseries at Barnet*, as much time is saved thereby.
HIGHGATE NURSERIES, LONDON, N.

To Osier Growers and Others.

THE RURAL SANITARY AUTHORITY of the LOUGHBOROUGH UNION invite Tenders for the Supply of from 130,000 to 150,000 2-yr. old OSIER SETTS, not less than 14 inches long, of the following descriptions:—

LONG SKINS	60,000 to 70,000
GERMANS	35,000 to 40,000
SPANIARDS	35,000 to 40,000

Delivered on the Sewerage Ground, at Sheepshed, at the rate of 15,000 per day, commencing Monday, December 12, or earlier if convenient to the Contractor.
Persons desirous of contracting for the supply of the above are requested to forward 6 sample Setts of each or any of the said sorts, labelled, and price per thousand to me, at the Board Room of the Guardians, at Loughborough, not later than the 28th day of November instant.
By order, JOHN JARRATT, Clerk.
Town Offices, Loughborough.—Nov. 16, 1881.

To the Trade only.

ASPARAGUS, for forcing, extra strong, 6-yr. old, £2 10*s.* per 1000.
ADIANTUM CUNEATUM, in 3½-inch pots, £2 10*s.* per 100.
MAIRIS AND CO., Weston in Gordano, Bristol.

TELEGRAPH CUCUMBER PLANTS (true); Seeds of the same, 1*s.* 6*d.* and 2*s.* 6*d.* per packet. Strong STRAWBERRY PLANTS, 2*s.* 6*d.* per 100, or £1 per 1000.
G. WALKLING, College Park Nursery, Lewisham, S.E.

THORN QUICK, fine 4-yr. transplanted; LARCH, 1½ to 2½ feet, stout, twice transplanted; Austrian PINE, 2 to 3 feet, twice transplanted. Price (low) on application.—W. JACKSON, Blakedown, near Kidderminster.

Twelve Elegant Palms, 21s.
Most Beautiful Plants for Table Decoration.

LATANIA RUBRA, ARECA, EUTERPE, CARYOTA, COCOS, and other valuable and beautiful sorts, most of them worth 5*s.* and 7*s.* 6*d.* each. Packages gratis for cash with order.
J. H. LEV, Royal Nursery, Croydon.

To the Trade, Builders, &c.

GREEN EUONYMUS, 10,000, 9 inches to 3 feet, and a large quantity of the following Hardy Climbers and Plants:—AURICULAS, DELPHINIUMS, PANSIES, PYRETHRUMS, POLYANTHUS, DAISIES, HEPATICAS, Scarlet LOBELIAS, VIRGINIAN CREEPERS, HONEYSUCKLES, HERBS of all kinds, and many other things. Prices on application to
J. THOMAS, Elm Grove Nurseries, Brighton.

Grape Vines.

H. LANE AND SON have a very large stock of well-ripened Canes to select from. The numerous Gold Medals awarded for collections of Grapes is a guarantee that our mode of growing them is right.
The Nurseries, Berkhamsted, Herts.

KENTISH FRUIT TREES.—One of the largest and best stocks of every description, in 300 Varieties, including the most profitable kinds for Market Growers, at 25 to 50 per cent. under usual prices. Immense stock of AUCUBAS, 1 to 5 feet, very cheap.
T. EVES, Gravesend Nurseries.—Established 1810.

FOREST and ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, FRUIT TREES, ROSES, &c. Thoroughly transplanted, very hardy and well rooted. Immense Stock to select from.
New Priced CATALOGUE on application to
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.
Plans and Estimates furnished.

FRISBY'S EXCELSIOR BEET.—The best and most distinct Beet in cultivation. It is excellent both for the Flower Garden and for Table use. The top is small, with dark shining leaves; Root growing about double the length of most kinds, is of fine tapering form, with very dark skin; flesh deep crimson, of fine quality and exquisite flavour. Price per ounce packets, 1*s.* 6*d.*
EDMUND PHILIP DIXON, Hull.

Cypripedium japonicum, &c.

THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 54) is just published, and will be sent free on application.
Lion Walk, Colchester.

SCHOOLMASTER POTATOS.
A few Cwt. for Sale.
Handsome Samples; 8*s.* per cwt.
R. B. McCOMBIE, Christchurch, Hants.

GARDENIA INTERMEDIA, fine healthy plants, from 2 to 4 feet, clean and well set. Price on application. FICUS ELASTICA, 30 to 36 inches, 24*s.* per dozen. HERBACEOUS CALCEOLARIA, in 60's, finest Market strain, 20*s.* per 100.
H. B. MAY, Dyson's Lane Nursery, Edmonton.

DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., and 12s. 6d. per 100; 30s., 42s., 63s., 84s., and 105s. per 1000. Descriptive LIST on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Chrtstmas Roses.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland, have an immense stock of the above, fine flowering plants, in vigorous growth; have not been so fine for years—can be highly recommended. Price and all particulars on application. Any quantity can be supplied. Also SPIRÆA PALMATA (Red).
CATALOGUES of Hyacinths, Tulips, &c., sent post-free on application.

Hardy Rhododendrons and Azaleas.

ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.
Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.
AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.
Knap Hill Nursery, Woking, Surrey.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 5-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

CONTINENTAL SEEDS.—O. KNOPFF & Co., Erfurt (Established 1832), offer their well known FLOWER SEEDS to the Trade. For CATALOGUES, &c., apply, BECK & POLLITZER, 211, Upper Thames Street, E.C.

SPIRÆA PALMATA, the largest stock of Forcing Plants in Europe.
SPIRÆA JAPONICA, fine forcing plants.
RHODODENDRONS, covered with buds, for forcing.
STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.
CHARLES NOBLE, Bagshot.

Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.
The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 5s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.
BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

NOTE.—CABBAGE PLANTS, &c.—Fine autumn-sown Drumhead, Enfield, Sugarloaf, Schilling's Queen, Early Rainham, Nonpareil, Drumhead SAVOY, Thousand-headed, Green Curled KALE and ASPARAGUS KALE, 2s. 9d. per 1000. CAULIFLOWER PLANTS, 6s. per 100. Early and Late BROCCOLI, 5s. per 1000. BRUSSELS SPROUTS, 3s. 6d per 1000. Bath Cos, Wykeham Giant White Cos, and Lee's Immense Hardy Green Cabbage LETTUCE PLANTS, 4s. per 1000. Red Pickling CABBAGE PLANTS, 3s. 6d. per 1000. Can supply above in any quantities.
N.B. All Plants packed well in crates and hampered free of charge.
EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

Autumn Planting.

FOREST and ORNAMENTAL TREES and SHRUBS. Intending Planters are respectfully informed that the extensive stocks of Seedling and Transplanted Trees and Shrubs are this season in excellent condition. Special offers upon application.
THE LAWSON SEED and NURSERY CO. (Limited), 1, George IV. Bridge, Edinburgh; 106, Southwark Street, London.

Raspberry Canes.

MR. R. BATH has now a quantity of his noted FASTOLF for disposal. In consequence of prolonged drought during the earlier part of the past fruit season, young Raspberry Canes have not reached their usual height, but, being excellently rooted (guaranteed such), are equally as good as those sent out during more prolific seasons. Price 7s. per 100, 50s. per 1000, packed and put on rail. P.O.O. or cheque with order. Crayford, Kent.

New Seedling Apple "The Queen."

Awarded a First-class Certificate by the Committee of the Royal Horticultural Society.
SALTMARSH AND SON, The Nurseries, Chelmsford, are now Booking Orders for this splendid variety, which they feel confident must become the most popular apple for either Market or Exhibition purposes.
For description and Testimonials, see advertisement in this Journal on October 1, p. 452.
Maiden Plants ready in November, 10s. 6d. each, with the usual discount to the Trade.
A Supplementary List of Nurserymen ordering "The Queen," will shortly be advertised.
A correctly and beautifully coloured Plate, by Severeyns, of Brussels, will be sent to any address on receipt of seven stamps.
N.B.—The Stock being limited, early orders are requested.

Large Ornamental Evergreen Shrubs, FOR IMMEDIATE EFFECT.

W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester, have a very extensive collection of the above, all recently transplanted and in fine condition for removal, and now offered at greatly reduced prices to effect a clearance.
FRUIT TREES, the largest and best stocks in the Kingdom. Prices on application.

RICHARD SMITH & Co. WORCESTER

SEVENTY-FOUR ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for a penny stamp.

TWELVE ACRES of ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea-scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing.
See Descriptive Price LIST, free for 1d. stamp.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1d. stamp.
R. S. & Co.'s selection of 100 good showy varieties for 25s.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1d. stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for 1d. stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

SEAKALE.—Extra Strong, for Forcing, 2s. 6d. per dozen, 16s. per 100

RICHARD SMITH & Co. WORCESTER

ROSES.

The Largest Rose Gardens in England

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

120 FIRST PRIZES, 1880-1881.

STANDARD and HALF STANDARD.

DWARF STANDARDS.

DWARFS ON MANETTI, Magnificent Plants.

DWARFS on SEEDLING BRIER.

DWARFS on OWN ROOTS.

DWARF TEA-SCENTED and NOISETTE on SEEDLING BRIER.

CLIMBING and PILLAR ROSES.

EXTRA-SIZED ROSES, in 8, 9, and 10-inch Pots, Grown especially for Forcing.

NEW ROSES, French and English.

CRANSTON'S NEW ROSES, "MRS. JOWITT," and "MARY POCHIN."

Descriptive Priced Catalogue on application.

Special quotations for 100 and 1000 plants.

ADDRESS—

CRANSTON'S NURSERY and SEED CO. (LIMITED),

KING'S ACRE, NEAR HEREFORD.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

Deutzia gracilis.

WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty branches in each plant. Very cheap. Price on application.
Ottershaw Nursery, Chertsey.

Forcing Seakale.

CHARLES TURNER has extra strong at 15s. per 100, and good planting at 7s. 6d. per 100.
The Royal Nurseries, Slough.

JOHN TUCKER, The Nurseries, Bridgwater, has to offer:—
PINUS AUSTRIACA, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
,, LARICIO, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
LARCH FIR, 3 to 4 feet, 2 to 3 feet.
Well transplanted and in quantity.

To Planters.

J. SCOTT begs to offer an exceptionally fine assortment of FOREST TREES and ORNAMENTAL SHRUBS, which are this season in excellent condition for removal. He also begs to make an especial offer of fine STANDARD PEARS, 6 feet stems and good heads, 18s. per dozen; PYRAMID PEARS, 15s. per dozen; fine WALNUT TREES, 6 feet stems, 18s. per dozen; PLUMS, 6 feet stems, 2 and 3-yr old, 12s. per dozen; GOOSEBERRIES, Black, Red, and White CURRANTS, fine plants, 25s. per 100.
JOHN SCOTT, Merriott, Somerset.
The Merriott Nurseries contain the finest collection of Hardy Fruit Trees in the World. See *Orchardist.*
CATALOGUES free on application.

To the Trade.
SEED POTATOS.

H. AND F. SHARPE, having secured their Crops of SEED POTATOS in fine condition, are prepared to make special offers of all the leading varieties worthy of cultivation. The Prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

Seakale—Seakale—Seakale.
To NURSERYMEN and OTHERS.

FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,
Mr. WILLIAM BAGLEY, Millshot Farm, Fulham, S.W.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LARCH and QUICKWOOD PLANTS for SALE.—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet; 2,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, 3 to 4 feet; 100 Weeping Ash, Elms, Poplars, Pears, &c.; also Scotch Fir, Weeping Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply,
FRANCIS BELL, Nurseryman, Easingwold.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded free by post on receipt of three 1d. stamps.
CATALOGUES of ROSES and ORCHARD HOUSE TREES, post-free on application.
THOMAS RIVERS AND SON, Nurseries, Sawbridgeworth, Herts.

To the Trade.

CAPE FLOWERS.—A large Consignment just received in first-class condition. Prices and sample sent on application to the importers.
CORRY, SOPER, FOWLER AND CO. (Limited), 18, Finsbury Street, London, E.C.

RHUBARB, Victoria and Albert, strong, per 100, 16s.; cask and packing included.
T. EVES, Gravesend Nurseries.—Established 1810.

FOR SALE, RASPBERRY CANES.—100,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 100 for 5s. Also a few Thousand Fastolf, at £1 per 1000 on rail. The Canes are small, but being well rooted are equally as good as large grown ones. Payments to accompany orders. Postal Orders on Knockholt. Apply to
A. AND E. BATH, Colgates Farm, Sevenoaks, Kent.

TREES for AVENUES and STREET PLANTING.—The trees here mentioned have all stout stems, and handsomely furnished well balanced heads, and are splendidly rooted. They have always had ample room and thorough exposure, and are without doubt the finest stock of Avenue Trees to be met with in any Nursery in Europe. The girt of the stems is taken at 4 feet from the ground, and not at the base, which is often deceptive:—
ACER DASYCARPUM, 12 to 14 feet, girting 5 to 6 inches
16 to 18 feet, girting 8 to 9 inches.
PLATANOIDES (Norway Maple), 12, 14 to 16 feet girting 5 to 8 inches.
ACACIA BESSONIANA, 10 to 12 feet, and 12 to 14 feet.
BEECH, Common, 10 to 12 feet.
,, Purple or Copper, 10 to 11 feet.
CHESTNUT, Horse, 10 to 12 feet; 14 to 16 feet, girting 7 to 10 inches.
,, Scarlet, 10 to 14 feet, girting 8 to 10 inches.
LIMES, 12 to 14 feet, girting 5 to 6 inches; 15 to 18 feet girting 9 to 11 inches.
OAKS, Scarlet American, 12 to 14 feet, girting 5 to 6 inches.
PLANES, Occidental, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 7 to 10 inches.
POPLAR, CANADENSIS NOVA, 12 to 14 feet; 14 to 18 feet, girting 8 to 10 inches,
SYCAMORE, 12 to 16 feet.
,, Purple, 14 to 15 feet.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

NEW RASPBERRY,
BAUMFORTH'S SEEDLING.

Intending Planters of this splendid New Raspberry, who have not already ordered, would do well to order Canes at once, as the stock is now limited.

The leading Nurserymen have ordered, and are able to supply Canes.

PRICE:—

7s. 6d. per dozen; 50s. per 100.

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EDMUND PHILIP DIXON,
SEED GROWER AND NURSERYMAN, HULL.

All the Season.
Come and See.

OUR CHRYSANTHEMUMS, PRIMULAS, SALVIAS, and ZONAL PELARGONIUMS.—The former now presents a continuous bank each side of a house 150 feet long by 16 feet wide, consisting of 600 distinct kinds, varying from the wild species to the latest new varieties. These are grown and flowered specially for testing, to be quite sure that our stock is perfectly correct and true to name, and for the supply of cuttings, 2s. per dozen, 10,000 in 60's, plants 6d. each, 5s. per dozen, mostly set with flower-buds. These occupy a quarter of an acre, each variety is plunged in their respective beds of cocoa-nut fibre, and arranged as per Catalogue, which is elegantly and practically illustrated, and minutely describes every kind worth cultivating. It also contains a mass of most valuable information, and "how to grow them to perfection," and is acknowledged to be the best guide ever published on this family. Sent post-free.

"Dear Sirs,—At the Northampton Chrysanthemum Show I exhibited very fine blooms, and gained the following prizes:—

Special Prize for 12 Cut Blooms	First
12 Cut Blooms, incurved..	First
6 Cut Blooms, incurved..	First
6 Cut Blooms, Japanese, Anemones. and reflexed..	First
6 varieties, three in a bunch, large flowers	Second

The above were all cut from plants I got from you.

" Yours respectfully, H. HARRIS,
"Gardener to Capt. G. Ashby Ashby,
Naseby Woolleys, Rugby."

H. CANNELL & SONS,

THE HOME FOR FLOWERS, SWANLEY, KENT.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

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KING'S ACRE, near HEREFORD.

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WM. PAUL & SON

Have to offer 500,000 ROSES, of all sorts and sizes, from 30s. per 100 to 42s. each. The largest and best stock in Europe.

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FRUIT TREES.

Several Acres of Standards, Pyramids, Dwarfs, Fan-trained and Horizontal-trained Trees; FILBERTS, GOOSEBERRIES and CURRANT BUSHES, by the thousand; GRAPE VINES, Fruiting and Planting Canes, RASPBERRIES, STRAWBERRIES, &c.

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Several Acres in the finest possible condition for removal, having been frequently transplanted, and having passed through the recent severe winter uninjured by frost.

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The largest and finest stock in Europe; plants with flower-buds, from 2s. 6d. to 30 guineas each.

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HYACINTHS, TULIPS, AND OTHER BULBS,

Of the best quality, both for Greenhouse and Outdoor Culture.

Priced Descriptive CATALOGUE, ree by post.

*** *Large Buyers of the above will be charged at special and reduced rates.*

IMPORTANT.—Please observe the Christian Name and Address—

WM. PAUL & SON,
WALTHAM CROSS, HERTS.

Vines.—Vines.—Vines.

B. S. WILLIAMS has much pleasure in intimating that his stock of VINES is unusually fine this year, the Canes being very strong and well ripened. For List of Prices see B. S. W.'s BULB CATALOGUE for 1881.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.

LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

THE PLANTING SEASON.—Fine transplanted Spanish CHESTNUTS, ASH, POPLARS, and Scotch FIRS. Prices on application. Address
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

All intending Purchasers should send for a Copy of

W. M. CROWE'S CATALOGUE of Azaleas, Camellias, Ericas, Epacrises, Bouvardias, Cyclamens, Tree Carnations, Roses in pots, and other winter flowering Plants; 5000 Border Carnations, and other Hardy Plants; Clematis, and other Climbers, and general Nursery Stock, as cheap as any in the Trade.

W. M. Crowe's CATALOGUE of Hyacinths, Tulips, Spiræas, Lily of the Valley, &c., of first-class quality, may also be had free on application.
Boleyn Nursery, Upton, Essex.

ANTHONY WATERER respectfully invites the attention of intending Planters to the following List of desirable and in every way first-class Nursery Stock:—

BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
YEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
" Golden, many thousands, 3, 4, 5, to 10 feet high.
The Golden Yews in this Nursery are quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
" Irish, hundreds of fine specimens, 6, 7, and 8 feet high.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10 and 12 feet high.
" LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS', and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high.
" Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high.
" Golden Queen, many handsome specimens, 4, 5, 6, to 10 feet high.
" Silver, in variety, 4, 5, 6, to 10 feet high.
" Waterer's, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 feet high; hundreds.
PICEA PINSAPO, 6, 7, 8, to 10 feet high; hundreds.
" NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds
CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choice to be met with in no other Nursery.
" " GRACILIS, 4 and 5 feet high.
" " ARGENTEA, 4 and 5 feet high.
" " LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIBOCEDRUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6, and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine plants, 3, 4, and 5 feet high.
THUYOPSIS BOREALIS, 4, 5, and 6 feet high.
" DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high; splendid specimens.
THUYA WEAREANA, an immense quantity of fine specimens up to 10 feet.
" AUREA, 2, 3, and 4 feet high.
" SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
" Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.

The Plants referred to in this Advertisement have all been recently transplanted.
Knap Hill Nursery, Woking, Surrey.

WINTER BLOOMING and DECORATIVE PLANTS.

CALCEOLARIA BURBIDGEII—This most distinct and valuable winter-blooming variety can now be supplied in strong flowering plants, at 18s. and 24s. per dozen.
CHAMÆROPS EXCELSA—Fine plants, with from six to eight leaves, 21s. per dozen.
CORYPHA AUSTRALIS—Fine plants, six to eight leaves, 24s. per dozen.
DRACÆNA AUSTRALIS—Fine plants, ten to twenty leaves, 12s. per dozen.
CONGESTA and RUBRA—Fine plants, twenty to thirty leaves, 18s. per dozen.
EUPATORIUM GRANDIFLORUM—This is the finest of all—a strong growing plant with immense heads a foot or more across, of pure white flowers, which are produced in winter and early spring. Very strong plants, in 6 and 8-inch pots, 18s., 21s., and 30s. per dozen.
GREVILLEA ROBUSTA—Fine plants, 9s. per dozen.
PITTOSPORUM EUGENOIDES—A most distinct Myrtle-like shrub, admirably suited for window decoration, bushy plants, 9s. and 12s per dozen.
SEAFORTHIA ELEGANS—Fine plants, 12s. and 18s. per doz.
PALMS—Large plants of various species, extra well grown, 60s. to 84s. per dozen.
RODGER, McCLELLAND AND CO.,
Nurserymen, &c., Newry.

CEDRUS DEODARA var. BREVIFOLIUS.—This is the rare variety from Cyprus. A few only to offer, at 10s. 6d. each.

ARALIA QUINQUEFOLIA var. GRACILIS, a very elegant form of this handsome and nearly hardy species. The leaflets are only about one-third the width of the type; it will bear 10° or 12° of frost without injury; it is a first-class plant for table or ordinary room decoration, not requiring more than a cool greenhouse temperature at any time. Good plants, each, 7s. 6d. and 10s. 6d.

RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

JOHN H. LEY,
ROYAL NURSERY, CROYDON,

Begs to direct attention to his magnificent stock of choice Plants, a few of which are enumerated below. The nursery having just received the addition of one of the finest plant-houses in the trade (which is fitted with 16,000 NEW and RARE PLANTS of all descriptions), will well repay a visit from any one interested in plants.

10,000 ADIANTUM FARLEYENSE, all sizes, from 1s. each.
10,000 " CARDIOCHLÆNUM, at 1s. each.
10,000 AZALEA INDICA, all sizes, from 21s. per dozen.
5,000 " MOLLIS and A. PONTICA, from 18s. per dozen.
10,000 DRACÆNAS, newest and best sorts, from 1s. each.
5,000 CROTONS, fifty sorts, from 1s. to 63s. each.
10,000 ORNAMENTAL FOLIAGE PLANTS, in hundreds of sorts, from 1s. each.
5,000 CARNATIONS, of sorts, from 6s. per dozen.
10,000 PALMS, of sorts, from 6s. per dozen.
20,000 FERNS, of all sorts, from 20s. per 100.
Many Thousands of EUCHARIS, GLOXINIAS BEGONIAS, ORCHIDS, CAMELLIAS, &c., all in most beautiful condition.

Packages gratis for cash with order.

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One of the Best Whites yet raised.

MR. H. JAMES, of Castle Nursery, Lower Norwood, Surrey, has now the pleasure of announcing to his numerous Customers and Friends that he intends sending out the NEW CHRYSANTHEMUM, LADY SELBORNE—raised by Mr. C. Salter, and which has already gained Three First-class Certificates—on January 1, 1881. Price 5s. each.
P.O.O. payable at Thomas Terrace, Lower Norwood, S.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.

Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS which will be forwarded free on application.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

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(ESTABLISHED 1810,)

Cultivators of
FRUIT and FOREST TREES
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS
Conifers and Hardy Climbers

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A SPECIALITY.

Descriptive Priced Catalogues free.

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(ESTABLISHED 1785.)

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OF ROSES AND FRUIT TREES
Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED)
King's Acre Hereford.

NEW SINGLE DAHLIAS.

Raised by THOMAS MOORE, Esq., of the Chelsea Botanic Gardens.

We are delighted to announce that we again have the honour of sending out the following splendid seedlings, raised by the above-named gentleman, who, it is well known, is the most successful raiser of these beautiful and favourite flowers, not only for borders, but grand for the conservatory. Ready in the spring.

SEEDLINGS FROM DAHLIA GRACILIS.

There can be no doubt whatever that the most elegant of the many forms of Single Dahlias which have now become so popular, are those derived from the D. gracilis introduced from Mexico so lately as 1873. The peculiar recommendations of this species are its slender graceful compactly-branched habit of growth, its comparative dwarfness of stature—3 feet being its full height, its very abundant flowers, its well marked and showy colours, and its slender wiry flower-stalks, which so admirably adapt it for cutting—in a few words, this type of Dahlia is superior in every way by its greater elegance of character. See remarks in the *Gardeners' Chronicle* for October 22, 1881, p. 524, fig. 97.

Seedlings of D. gracilis.	Seedlings of D. "alba."
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D. GRACILIS LUTEA	D. TYRO
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Seedlings of D. coccinea.
D. BUFFALO | D. CATO

For descriptions, colours, and prices see our Spring Catalogue.

We shall also distribute AVALANCHE, much the best and finest White Single Dahlia in cultivation.

H. CANNELL & SONS,

THE HOME FOR FLOWERS, SWANLEY, KENT.

JUST LANDED EX SS. FROM JAPAN.

LILIUM AURATUM.

"THE MONARCH OF LILIES."

In Cases as imported, containing 100 Bulbs, more or less.

Price, 84s. per case.

Sent Packing and Carriage Free to any Railway Station in England and Wales on receipt of Cheque or Post-office Order, less 5 per cent. discount. As these are offered unopened and unexamined, JAMES CARTER & Co. sell them with all risks and imperfections.

Good Flowering Bulbs, each, 1s., 2s. 6d., and 3s. 6d., Extra large, 5s. each.

TRADE PRICE ON APPLICATION.

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THE QUEEN'S SEEDSMEN, AND BY SPECIAL APPOINTMENT TO H.R.H. THE PRINCE OF WALES,

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CATTLEYA DOLOSA.

(Sale No. 6000.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 29, at half-past 12 o'Clock precisely, by order of Messrs. HUGH LOW & Co., a large quantity of imported plants of the lovely CATTLEYA DOLOSA, also CATTLEYA LABIATA WARNERI Varieties, CATTLEYA LEOPOLDI, ONCIDIUM MARSHALLIANUM, ONCIDIUM WELTONI, ONCIDIUM KRAMERIANUM, ANGRÆCUM CITRATUM, ANGRÆCUM ELLISII, and other Choice ORCHIDS.

On view morning of Sale, and Catalogues had.

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ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants.

Tens of Thousands of Plants to select from.

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Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL

Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

Establishment for New and Rare Plants, 536, KING'S ROAD, CHELSEA, LONDON, S.W.

To the Trade.

LOCKE'S IMPROVED TELEGRAPH CUCUMBER.—The hardiest, most prolific, and best flavoured Cucumber in cultivation. 100 Seeds, 4s.; 500, 17s. 6d., for Cash with Orders.

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1881-1882.—General Nursery Stock.

WOOD AND INGRAM'S General Descriptive CATALOGUE of NURSERY STOCK, including Fruit Trees, Forest Trees, Hardy Conifers and Taxaceous Plants, Evergreens, Deciduous Ornamental Trees and Shrubs, Hardy Climbers, Roses, &c., is now ready, and will be sent free on application.

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To the Trade.

W. WISEMAN AND SON, NURSERYMEN, Elgin, N.B., can still offer many millions of Seedling and Transplanted Scotch FIR and LARCH. The Scotch Fir are all grown from seed collected for us in the celebrated forests of Strathspey.

Samples, with special low Prices, on application.

Cash Only.

ROSES—ROSES—ROSES.

	Per dozen.
Standard Hybrid Perpetuals, best sorts ..	21s.
Standard Tea Scented, best sorts	24s.
Dwarfs	12s.

FIR, Larch, fine stuff, 2 to 3 feet, 35s. per 1000; 3 to 4 feet, 45s. per 1000.

PEAT, good Fibrous, put on South Eastern or London, Chatham and Dover Rail here, 14s. per yard.

Post-office Orders payable to C. F. CATTELL, Sevenoaks, Kent.

"EARLY SUNRISE PEAS" (DAY'S).

The best time for planting this variety, for early podding, is *November*, *December*, and *January*, as they will stand a severe winter, and are *as hardy as a grey Pea;* and this for a *grand, prolific Marrow variety, specially adapted for Field Culture*, renders them invaluable to Market Gardeners and others. One Market Gardener this year returned £50 for *Half an Acre*, sown in November, and podded, commencing to pick June 4. "SUNRISE" is also adapted for succession and *late sowings*. Seedsmen can obtain their Stock and every information on application to

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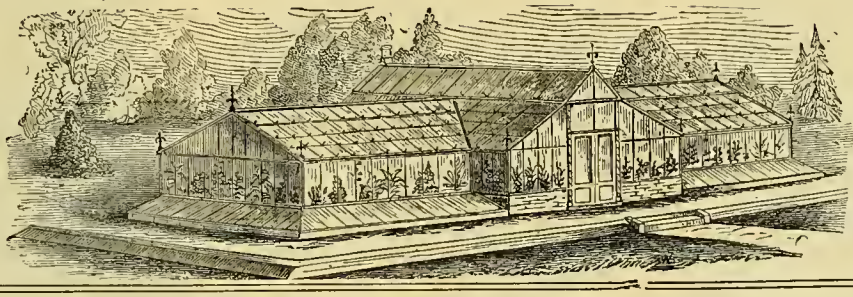
Manufacturers of

PATENT HOTHOUSES

and every description of Roof where Glass is required.

The Glazing is effected entirely without Putty and all materials being of an imperishable nature, the usual heavy expenditure in the maintenance of Putty-glazed Houses is avoided.

HEATING by HOT WATER, on the most approved principles.



Testimonial from JOSEPH S. MOYE, Esq., *Architect to the Hurlingham Club.*

"Gentlemen,—I have much pleasure in stating that during the recent heavy storms there has not been the slightest leakage or drip through the roof of the Smoking Saloon at Hurlingham, and I may safely recommend it as being thoroughly efficient and sound in construction. The Ventilation is also perfect.—I am, Gentlemen, faithfully yours,

"JOSEPH S. MOYE,

"3, Southwick Street, W.,

"June 2, 1881."

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One Shilling and Sixpence, Free by Post.

FRUIT FARMING FOR PROFIT:

A PRACTICAL TREATISE

ON ALL MATTERS RELATING TO THIS IMPORTANT INDUSTRY.

By GEORGE BUNYARD, F.R.H.S.

(Member of the Fruit Committee, South Kensington).

EMBRACING TWENTY CHAPTERS ON

ALL THE MOST PROFITABLE FRUITS,

WITH DETAILED INSTRUCTIONS FOR SUCCESSFUL CULTURE.

The favourable way in which the above Manual has been reviewed by the Press, and the great interest taken in it by the Nursery Trade, induces the Publisher to offer it at a cheaper rate to Trade Purchasers of not less than a dozen copies. It is considered the most Practical Guide yet written on the subject, and as such would be useful to Nurserymen for distribution to Customers. Application to be made to

FREDERICK BUNYARD, The Library, Maidstone.

OPINIONS OF THE PRESS.

The "Gardeners' Chronicle" says:—"Few men can be found so qualified to speak on the subject as Mr. George Bunyard. . . . There is a smack of sincerity and honesty about it that we like, and so we heartily recommend its perusal by those who contemplate fruit growing for profit."

The "Whitehall Review" says:—"Those who wish to be enlightened on the subject should get *Fruit Farming for Profit*. . . . This is one of the most entertaining and useful *brochures* of recent years, and it is hereby strongly recommended to the perusal of all landowners."

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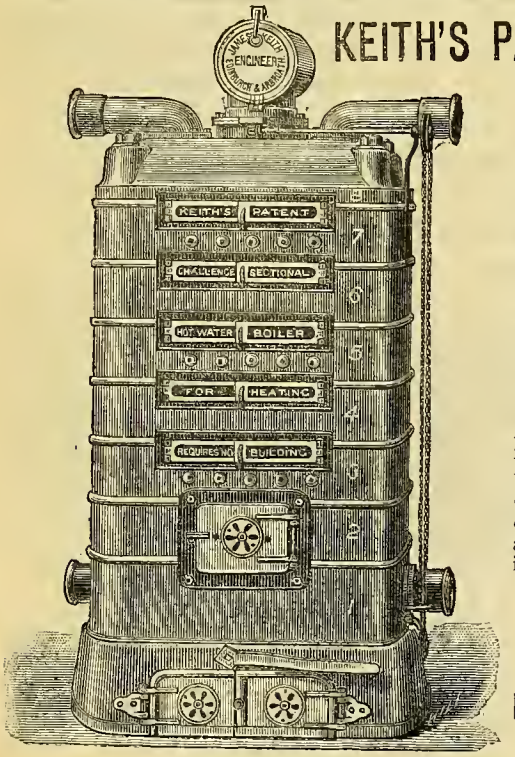

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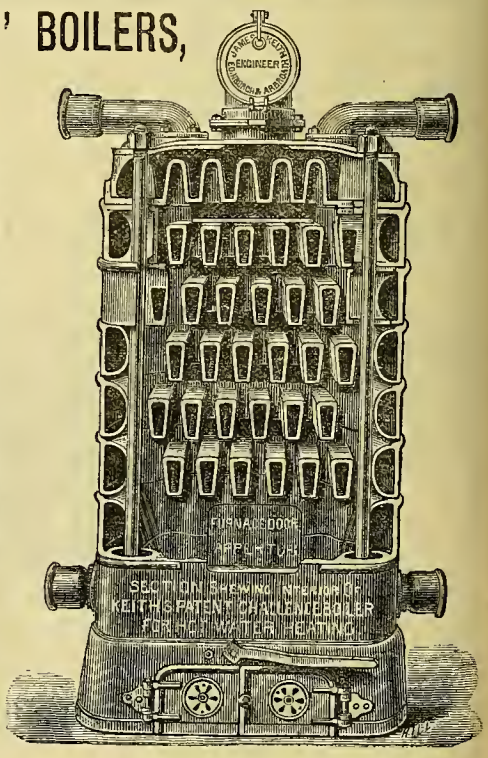

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THE
Gardeners' Chronicle.

SATURDAY, NOVEMBER 26, 1881.

WHAT IS A FRUIT?

ANOTHER CHAPTER OF FACTS AND INFERENCES.

THE above enquiry was suggested by a baked Apple, and the same or a similar question often crops up with reference to schedules of flower shows. Is a Cucumber a fruit or a vegetable? Is Rhubarb a fruit or a vegetable? Of course we have our own ideas upon these points, and other people have theirs, and the result is a pretty wide difference of opinion, not unpleasing perhaps to those who contend for the use of English names and words, but irritating to those who are trying to get at the truth, and prefer precision to vagueness. We turn to Webster's *Dictionary*, and there we find various interpretations of the word "fruit;" one is vague enough to please any one—"Whatever is produced for the enjoyment of man or animals by the processes of vegetable growth." It is clear that branches, leaves, flowers, roots, tubers, seeds, perfumes, galls even, might be thus classed as fruit, even as the Irishmen call the noble tuber "the fruit at the root." But for gardening purposes, and still more for botanical purposes, a little more precision is necessary, else we might as well say that mother and child are identical, and that the nail on the great toe of Hercules is equivalent to Hercules himself. The dictionary is, however, equal to the occasion. If we do not like one meaning we can try another. Here is one that will suit our purpose:—"That part of plants which contains the seed." The dictionary at once goes on to spoil that definition by extending it and making it so vague that it ceases to be a definition at all; but we will stop at the "part of plants which contains the seed"—we will confine it to that, and not include anything outside the fruit, not being an integral part of it; nor will we include anything inside of it which is not essentially a part of it. The fruit is that part of the plant which contains the seed, and it is nothing else. The core of the baked Apple shown at fig. 136 is then, according to this, the true fruit, for that is the part that contains the pips, and the pips are the seeds. It is a cartilaginous 5-lobed capsule, splitting along both edges. What oddities botanists are: they seem to reverse the natural order of things—they leave on their plates the fruit, and they eat something which they say is not the fruit! What is that something which is not the fruit? To answer this question to his own personal satisfaction—not, that is, to be dependent on dogma and "I say so" evidence, which is a kind of evidence eschewed in science except where no other can be had—the reader should see before him a flower of an Apple or a Pear in the earliest stages of its growth, and he should trace in other stages, from this earliest condition to the ripe state, the growth of the Apple or of the Pear. There are not many young gardeners who have skill and patience enough to do this thoroughly, and so they must perforce take something on trust; but a glance at our illustrations, showing at fig. 138 a Pear-blossom, at fig. 137 a cross cut of an Apple, and at fig. 136 representations of the core of an Apple separated from the surrounding

flesh, will enable him to see that the flesh of the Apple or of the Pear is nothing whatever but the end of the flower-stalk, which gradually swells out into a succulent mass, and which holds embedded within it the true fruit—the core. What in ordinary language is called the fruit is, then, only the swollen flower-stalk. Alchemillas and Spiræas, Peaches and Cherries, are not to be had in flower just now, else a cut down through the centre of the flower of either of these would reveal the cup-like stalk encircling the young fruit in the centre, just as a pill is enclosed within a pill-

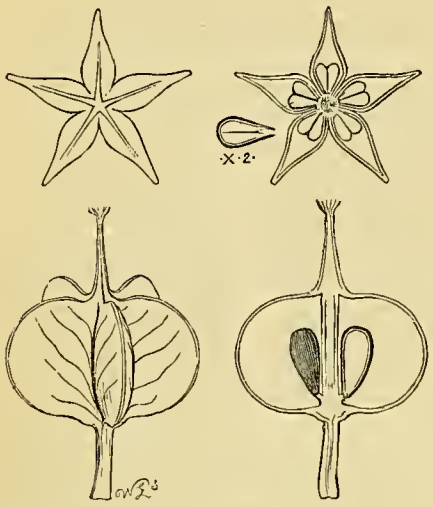


FIG. 136.—THE TRUE FRUIT OF AN APPLE.

box. Now, suppose the cup to be fleshy, and so thick as to come into contact with the fruit, and you would have exactly the condition of the Apple. So, then, to say that the core of an Apple is the true fruit, and the flesh thereof the dilated flower-stalk, is no dogma to be accepted as an article of faith, but it is a statement which any one with a pair of eyes, ordinarily nimble fingers, and a little patience, can, at the proper season, verify for himself. Another proof is afforded by the curious malformations, of which the *Gardeners' Chronicle* has from time to time published so many illustrations—

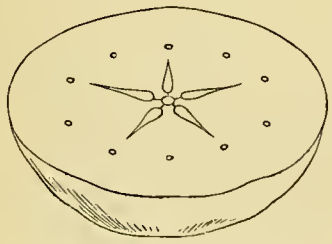


FIG. 137.—TRANSVERSE SECTION OF APPLE, SHOWING THE FLOWER-STALK SURROUNDING THE TRUE FRUIT.

cases wherein the stalk has asserted itself more or less successfully as a stalk and borne branches and leaves. Only the other day Mr. Burbidge sent us a note of a Bishop's Thumb Pear, which produces Pears of the ordinary character, together with others cylindrical and fleshy, but coreless—swollen stalks without any fruit at all. What is the purpose of this swollen mass outside the fruit? Now-a-days we seek for an intelligent purpose in everything—we believe that everything has been designed and created with a power of adapting itself to circumstances and of fulfilling its duties to itself and to other creatures. It is hard to think that a sour Crab or a wild Pear can be attractive; nevertheless there are some creatures, perhaps, to whom the acridity is not disagreeable, and who might be tempted by the glowing colours to prey even on the Crab, and so liberate its seeds and secure the perpetuation of the species; or it may be that the sour juices, like the prickles of a Thistle, serve to keep off intruders and unwelcome guests anxious to secure the toothsome seeds.

Whether or no, man has been sharp enough to avail himself of the wonderful power which the flower-stalk has of making itself agreeable, and by following out the same methods as Nature herself—making her work for him, as it were, he has been the means of setting in action the evolving forces which out of a Crab or a wilding Pear develope a Cornish Gillyflower or a Marie Louise. If he is to do more in this direction—and we cannot doubt that he will—his chance of success lies largely in seeing things aright, calling things by their right names, and directing his efforts in the right direction.

So, after all, to be able to recognise the core of an Apple as the fruit proper, and to see in the flesh of an Apple a swollen flower-stalk, is not to indulge in a mere botanical technicality, as some might at first be inclined to suppose, but it affords a means of ascertaining a truth, and as such of opening up possibilities of future utility and development; for truth is never barren of result—the sterility lies with the man who does not avail himself of the truth so far as he can—deep thoughts to be evolved from the castaway core of an Apple!

FIG. 138.—FLOWER OF PEAR, SHOWING SWOLLEN FLOWER-STALK, ETC.

THE ROSE GARDEN.

NOTWITHSTANDING the bitter experiences of the last few winters, when numberless Rose plants have perished throughout the country, there is little doubt that the Rose remains as great a favourite as ever, gaining in popular favour from day to day. Yet Roses are frequently seen under such conditions in the garden as give little evidence of careful treatment or judicious consideration of their requirements. Because they continue to exist when planted in any soil, and without any after-attention, and are not miffy, but are, in the reverse, most tenacious of life, they do not in an ordinary garden, where exhibiting is not thought of, receive anything like the care that less long-suffering and less worthy subjects receive. If, therefore, the successive heavy winter losses we have experienced cause more attention to be devoted to the ordinary garden cultivation of Roses, those losses will not be an altogether unmixed evil, and will at least bear some good fruits.

Soil and situation are both of vital importance in selecting a position for forming a rosery, in choosing a suitable border for their cultivation, or in forming groups on lawns and in shrubberies. Planting in mass should be adopted wherever practicable, as affording every advantage in the preliminary preparation of the soil, and its subsequent continued enrichment. When planted together, a sheltered position can be selected, where they will neither be exposed to the severity of the unbroken wind, nor overshadowed by trees, and the general effect will be better than that of isolated specimens—to say nothing of the cultural facilities afforded by groups. In many places there are portions of lawns partly surrounded by closely approaching shrubs, that are most suitable places for forming beds, especially if there be full exposure to the south, and shelter by somewhat distant trees from cold winds proceeding from other less favourable directions. In no position do Roses appear to greater advantage than when they are seen with a foreground of grass, backed by sheltering shrubs, which greatly enhance the appearance of the brilliant flowers by lending their masses as an effective foil beyond.

Heavy soil and low lying ground of any description will require to be effectually drained as a first essential in the preparation of the site. Trenching should be carried to a depth of not less than 2 feet, working in a quantity of rich manure as the work proceeds; both quantity and quality can scarcely be overdone—adding also, where convenient, fresh soil of such a nature as to counteract any tendency to extremes in the character of the ground chosen. An addition of marl or clayey-loam will be found serviceable on light soils, while heavy soils, if not actual clays, may be made quite suitable for the purpose in view by merely well working and manuring them, without the addition of much matter of a light and opening character, but it would be necessary in this case to plant Roses that have been worked on the Brier stock. Disappointment is occasionally experienced by the ill-success attending the planting of Roses on the Brier in very light soil, and from those on the Manetti or on their own roots in stiff, holding clays; but on the wide range of soils comprehended between the two extremes it matters little whether it be Brier, Manetti, La Grifferaie, or—no stock at all. Much more depends upon the careful preparation of such soils in the first place, and the after-care and treatment, than upon any peculiarity or fitness of any stock, however much wanted. Planting should be accomplished as soon as possible, burying those upon the Manetti deeper than would be advisable with others. A suitable distance for planting dwarfs in beds is 2½ feet apart, which just allows of passing amongst them when necessary, without being so widely distributed as to cause the plants to appear too thin. At the same time it is well so to arrange the width of all

beds and borders of Roses that the whole of the flowers can be easily examined, and conveniently gathered when required, without passing amongst them. An effective way of planting a suitable shrub-sheltered nook upon the lawn, while securing ready access to the plants without the beds appearing to be broken into littleness, is to carry a narrow bed around the space selected, following with easy curves the outlines of the boundary of shrubs. If at a little distance from the boundary, so as to allow of a grass walk behind, the border may be made 8 feet wide, which will take three rows of plants, but if carried close to the shrubs so as only to admit of one side being approached, it must be proportionally narrower, and only two rows can be planted.

The centre of the open space can be occupied with a small circular bed surrounded by a grass walk, which may in its turn be encircled by a ring bed 8 feet wide, and through which one or more grass walks may be made to reach the path around the centre bed. Or the centre bed may be surrounded by any desired number of segments of a circle as beds with grass between, and which, if not placed too widely, will have a sufficiently compact appearance at a distance, and will be more enjoyable than a mass bed where the individual flowers cannot be easily inspected.

Except for masses of colour for distant effect, the best exhibition varieties are also the best for any garden where beauty of form and colour has yet a place, as well as the now all-powerful single flowers, which, however, must certainly be allowed to carry a certain charm in their very simplicity. Amongst light varieties may be recommended Baroness Rothschild, Captain Christy, La France, Belle Lyonnaise, Madame Lacharme, M. Noman, Marguerite de St. Amand, and Comtesse de Serenyi. Of dark sorts equally suitable for general garden purposes or for exhibition there are Charles Lefebvre, Sénateur Vaisse, the Dukes of Teck, Wellington, and Edinburgh, Horace Vernet, A. K. Williams, and Duchess of Bedford; while ranging between the lights and darks may be mentioned Marie Finger, Star of Waltham, Dupuy Jamin, Countess of Rosebery, Etienne Levet, Marie Baumann, Alfred Colomb, and Marquis de Castellane. The above twenty-four Roses I have found to be, from their freedom of growth and good constitution, well suited for growers who cannot spare room for shy varieties, even if they give fine individual blooms. Only one of those mentioned is not entirely satisfactory, viz., Madame Lacharme, which is an uncertain flower, but is yet the best white amongst the hybrid-perpetuals, Marquise de Mortemart being too miffy, Mdlle. Bonnaire too small, Bessie Johnstone and Mabel Morrison too thin, and so on to the end of the chapter. As soon as the planting is finished, and suitable labels attached, let the whole of the surface be heavily mulched with long stable litter.

Established dwarf Roses should be gone over with the knife at once if not already done, removing by cutting out quite close to the ground all old growths that can be spared. All new growths that have started from the base during the summer must be retained at full length until the spring pruning, and if sufficiently numerous will be the only growths left at this time. Dwarf Roses treated each autumn in this way (on the same principle that governs the removal of old Raspberry canes) and sustained by manure will increase in vigour from year to year, and throw up annual growths like Willow wands. All sickly and dying plants may be removed and their places filled with fresh ones, as the retention of those that have not had strength to recover a healthy condition during the summer is usually of little avail. Manure may be got upon the ground as opportunity offers, and may be pointed in with digging forks, using great care that no roots be injured by the operation. If a plentiful supply of manure be applied around each plant, lightly covering with the soil as the work proceeds, no danger need be apprehended from ordinary frosts, as the base of the plant will be effectually protected. *Ralph Crossling, Castle Gardens, St. Fagan's.*

New Garden Plants.

Adiantum cuneatum, *Langsdorf and Fischer: var.* grandiceps, *Moore.*

Caudex, stipes, fronds, pinnæ and pinnules as in the type, except that the apex of the frond especially, and the apices of the lower pinnæ in a minor degree, are developed into large bunchy tasselled heads.

This very ornamental Fern is a variety of garden, origin, and may be briefly described as a tasselled of multifid form of the well-known Adiantum cuneatum, of which perhaps it is not too much to say that it is the most valuable species in cultivation for decorative purposes. The variety has the same graceful habit of growth, and differs only in the bunchy apices, which gives it an additional feature of interest. Our knowledge of the plant is due to Messrs. Veitch & Sons, of Chelsea, by whom it was exhibited before the Royal Horticultural Society on October 11, when it received from the Floral Committee the award of a First-class Certificate, which it well merited. *T. Moore.*

Nepenthes madagascariensis, *Hort. Veitch (?); Poiret.**

This is a very handsome Nepenthes, growing in fully exposed swamps in Madagascar, and introduced to the nurseries of Messrs. Veitch by Mr. Curtis. It was exhibited at the Royal Horticultural Society recently, and obtained a First-class Certificate. The plant is glabrous, with coriaceous leaves, green above, reddish beneath, about 5 inches long by 1¼ inch in width, oblong, gradually tapering at the base into a short broad amplexicaul stalk, and narrowing gradually into an acute lance-shaped point, terminating in a pitcher-bearing tendril. Pitcher 2¼ inches long by 1 inch wide, but when fully developed, 4—6 inches long, crimson, thinly covered with inconspicuous appressed bristly hairs, flask-shaped, *i.e.*, distended at the base, and gradually narrowing into a cylindrical neck, with two membranous fringed wings in front (these are said to be absent in the uppermost pitchers of adult plants). The mouth of the pitcher

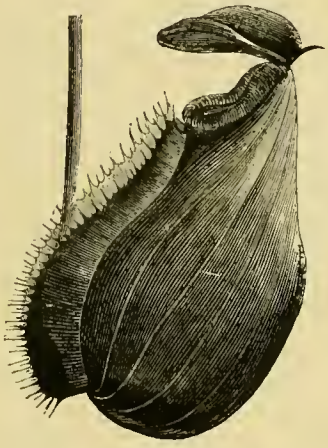


Fig 139.—Nepenthes madagascariensis, young pitcher, colour crimson.

is nearly circular, surrounded by a narrow closely ribbed border; the throat is of a pale cream colour. The lid is transversely oblong or somewhat kidney-shaped, obtuse at both ends, contracted in the middle, and with a small simple or laciniate spur at the back.

Our description was taken from a young plant in Messrs. Veitch's nursery; for a fuller description of details, which are not yet to be seen in the cultivated plant, reference should be made to Sir Joseph Hooker's monograph in the *Prodromus*, cited below. *M. T. M.* [We have affixed a query to the name, as we are in some doubt as to whether the cultivated plant is really the same as the typical plant, of which there are specimens in the herbarium at Kew. There are some slight differences in the venation of the leaves, but not greater than occur in other species. The form of the pitchers varies greatly in the same species.]

Polystachya hypocrita, *n. sp.*†

When I obtained this plant, sent with bulbs, leaves, and inflorescence, I took it for Polystachya tessellata, discovered by Gustav Mann, and one of the last species named by Dr. Lindley. It has the general habit of the group of Polystachya luteola, Hook., but it is much stronger and larger than this is wont to be. The leaves are broader and larger, the inflorescence is larger. The flowers have a blunt chin, are light green, showing a few brown spots at the base of the chin. Lip whitish, very mealy, with a very crisp middle lobe.

It would be Polystacha tessellata, which it imitates with a hypocritical mimicry, had it not all the organs of the flower quite even, and not bullate in the least. It was these bladders which gave Dr. Lindley the impression of a tessellation, a view I do not adopt. The callus is broad and strong on the lip, while it is very narrow, ancipitous, and two-shanked in the Lindleyan species.

It came from tropical Western Africa, and was imported, grown, and kindly sent by Mr. T. Christy, Malvern House, Sydenham. *H. G. Rch. f.*

Adiantum Lathomi, *Hort. Wills.*

This new Fern, which was certificated by the Royal Horticultural Society in October last, and which is in the hands of the General Horticultural Co. (John Wills), Limited, has been named in compliment to the Earl of Lathom, who is one of the directors of the Company. It appears to be a natural sport from A. Ghiesbreghtii (*alias* A. scutum), but from the decorative point of view differs, in having a drooping instead of a semi-erect habit of growth. The fronds grow from 2 to 3 feet high, and have a strikingly pendulous manner of growth, in which respect they resemble those of A. farleyense. They have a stout smooth stipes, and more slender rachides, the outline of the frond being triangular, or rather pentangular from the enlargement of the posterior basal pinnules of the lowest pair of pinnæ. The pinnæ, pinnules, and alternate pinnulets are all stalked, so that though large and leafy the frond does not appear unduly crowded in its parts. The fronds are quadripinnate in the lower and more compound portions. The larger pinnules are from 1 inch to 1¼ inch in length, trapeziform, articulated with their slender black pedicels, distinctly lobed at the margin, and bearing at the apices of the lobes the oblong, here and there elongate, sori, which are sometimes solitary on the segment, sometimes two or three together, according to its size.

The plant, we believe, originated as a stray seedling in one of the hothouses under Mr. Bause's charge, and has from the first been noted for its distinct and handsome character as a decorative object. Its appearance is such as to be suggestive of its having possibly originated in an accidental cross between A. Ghiesbreghtii and one of the lobate forms of A. trapeziforme, but whatever its source there can be no doubt that it will be one of the most highly ornamental of the larger growing species of Maidenhair, as useful in its way, doubtless, as the smaller-growing but indispensable A. cuneatum. *T. Moore.*

Aulacophyllum Wallisi.

The collection of Cycads in the Royal Gardens, Kew, has been still further enriched by the gift from Mr. Bull of one of his plants of the species published in the *Gardeners' Chronicle*, 1878, vol. x., p. 810, as Zamia? amplifolia, Hort. Bull. It is there remarked: "This seems to differ from any species in cultivation, and is not referable to any form described in books or herbaria. Possibly, however, when better known it may prove to be a variety of Zamia Roezlii or Z. muricata." The reference to the latter species must have been a *lapsus calami*, as Zamia muricata belongs to an entirely different section of the genus in its widest sense, in which the nerves are very numerous and slender, and not marked in their course by deep channels on the upper surface of the leaves. The affinity to Zamia Roezlii is more undoubted. This name, it may be remarked in passing, is merely a synonym of Zamia pseudoparasitica, Yates. The congeners of both are Zamia montana, Zamia Skinneri, and Zamia Wallisii, and in all the nerves are rather wide apart and marked in their course above by deep channels. All have been placed by Regel in his genus Aulacophyllum, in which the leaves are produced in terminal verticils, and not singly, one after another. This mode of leaf-development is similar to that of Cycas, Dion, and Encephalartos, and is splendidly shown in Aulacophyllum Lindeni. That it is a character which powerfully affects the habit of the individual plant cannot be doubted. How far it is a safe ground for generic distinction I am not at the moment prepared to say.

In any case, Zamia amplifolia is referable, I think, to Zamia (Aulacophyllum) Wallisi as a juvenile form. Mature specimens of this species must be perhaps the most remarkable of all Cycadeæ. I am indebted to Herr Wendland for authentically determined specimens, collected by Kalbreyer, in which individual leaflets are 19 inches long by 9 wide, while in a tracing of a type specimen of Braun's in the Berlin herbarium these dimensions reach 21 inches by 10½. And this for an individual leaflet! What must be the aspect of the whole frond? *W. T. Thiselton Dyer.*

* ? *Nepenthes madagascariensis*, Poiret, *Encycl.* iv., p. 459, ex Hook. f. in *DC. Prodromus*, xvii. (1873), p. 92.

† *Polystachya hypocrita*, n. sp.—Aff. P. tessellatæ, Lindl., foliis in pseudobulbos demum conico cylindraceo quaternis oblongoligulatis apice obtusis subemarginatis; inflorescentia paniculata P. tessellatæ; mento obtuse conico porrecto; sepalis paribus triangulis; sepalo impari ac tepalis linearibus acutis; labello a basi cuneata trifido, laciniis lateralibus linearibus curvatis obtusatis, lacinia mediana semioblonga crenulato crispula, callo oblongo crasso ante basin, ipso ac ditione proxima farinaceo. Afr. trop. occ. Imp. cl. T. Christy. *H. G. Rchb. f.*

Olive-oil.—20,260 tuns of Olive-oil of the value of £907,308 were imported in 1880.

FRUIT NOTES.

The Profits of Fruit Growing?—Those who (at the instance of Mr. Gladstone and of well-stocked nurserymen) are largely planting fruit trees may read—with all the profit they will ever get—my account of last Saturday's sales in Covent Garden:—

7 bushels Josephine Pears	£1	7	6
9 bushels Glou Morceau	2	0	6
4 strikes Knight's Monarch	0	7	0
½ bushel late Gansels	0	3	0
1½ bushel Ribston Pippins	0	10	0
5 bushels small Glou Morceau	0	10	0

I may add that the sales were not made on commission nor by auction, but at my own stand, and with long endurance. Also that for every bushel thus sold at least another bushel has been thrown away, for Pears perish rapidly this year. No finer English fruit than mine goes to Covent Garden. For the encouragement of vegetable growers let us note that best Brussels Sprouts are at 1*s.* 6*d.* per bushel, and beautiful Cauliflowers eight for 6*d.* When the price of fruit was at its best, and I was comparatively young and sanguine, one of our leading nurserymen observed to me—"Ah, sir, it pays a long way better to grow the trees than the fruit, even when you can get it." Twenty-five years have I now been a fruit grower, and in one season only has the produce paid the wages, let alone manure, repairs, interest on capital, &c. *A Victim to Pomona.* [We should be glad if other growers would give their experience also. Eds.]

Apple Lord Lennox.—This is one of the handsomest and most highly coloured dessert Apples which we have. It is of medium size; eye open and set in a shallow depression; skin red and spotted on the shaded side, deep crimson next the sun; flesh pinkish, of agreeable flavour, and full of juice. It makes a good contrast to the Winter Peach, another handsome table Apple. As my trees, both of Lord Lennox and Winter Peach, are young ones, and not having any previous knowledge of them, I am unable to state anything respecting their cropping capabilities. *H. W. Ward.*

Winter Pears.—There are so many degrees of "goodness," and the Pear's "Progress" notices and recommends may have certain qualities; but are they what I stated of Joséphine de Malines and Bergamotte d'Esperen—really good? and will they compare with them in point of flavour, smoothness of flesh, and other qualities high-class Pears ought to have? Nouvelle Fulvie I know will not, as that I have had and done away with; and Marie Benoist and Prince Napoléon are not in any select list of varieties I have yet seen. In Somersetshire they may come better than they do here in East Anglia, as Pears vary much according to climate and situation; and soil also has much to do with the quality; but the two I have named are, I believe, more generally reliable than any. We have Easter Beurré, both on walls and grown as pyramids, but the fruit is seldom eatable, as it is either mealy or gritty, according to the season; and yet, where climate suits it, no better Pear can be had. After a hot summer we sometimes find our Ne Plus Meuris rich and melting; but as a rule they are the reverse, and very seldom fit for dessert. The sorts of Pears, like many other kinds of fruits, might with advantage be weeded down considerably, as there is nothing gained by having a number of varieties all ripening about the same time, unless it is to make one more satisfied with the really good ones. I see there is a new kind now being recommended under the name of Docteur Alphand, and as the fruit is stated to be large, very sweet, with a delicate aroma, it may be worth having if it keeps so late in the season as April. While on the subject of Pears I would strongly recommend Doyenné du Comice as,—well, if not the best, one of the very best, sorts, now ripe, and a Pear that should be in every garden. Judging from its general character it appears to have been raised from Duchesse d'Angoulême, as it ripens about the same time, has similar flesh, and resembles it closely. The fruit is large, irregular in shape, melting, very juicy and sweet, and most exquisitely flavoured. *J. Sheppard.*

Pearson's Golden Queen Grape.—There can be no question as regards the good looks of this Grape, as in bunch and berry it greatly resembles the Muscat of Alexandria, the bunches being long, well shouldered and tapering, and the berries oval and large, added to which, the Vines crop well, but what I find fault with is its flavour, which is at best only third-class. As to being nearly equal to Muscats, as Mr. Wallis, of Keele Hall, states it is, I think he must have got them mixed up, or the Muscats he has compared the Golden Queen with have been poor; anyhow, if he will send a bunch of the Queen to the Editors for comparison, I will send one of Muscats for them to tell us the difference, and pronounce on the quality of the two. I know that most white Grapes require plenty of light to finish them off properly, and it may be that ours have not had enough, as the house one Vine is in is rather thickly planted, very full of foliage, and facing south-east. The other is in the portion of a vinery where the bunches do not get over-much light, and little or no sun, as they are so much overshadowed by leaves. *J. S.*

Plum Transparent Gage.—What "W. W." (p. 625) says concerning the above Plum I readily endorse. It is one of the most delicious Plums in cultivation, and I am quite sure cannot be surpassed even by that popular and excellent champion, Green Gage, whereas it is far superior to the latter as regards cropping qualities. There are standard trees here which never fail to give a fair crop (and most years an abundant crop) of medium sized, prettily marked, and deliciously flavoured fruit, having skin so transparent that, by holding it up to the light, the texture of the flesh and even the stone itself may be seen. *W. Roberts, Merriott.*

DR. PATERSON'S ORCHIDS.

The readers of this paper have from time to time had their attention drawn to this very nice collection. Some, at least, will remember that great stress has been laid by writers on the cool system of culture carried out by Dr. Paterson at Bridge of Allan: many growers have indeed openly expressed their doubts as to whether these Orchids have really been exposed to the large volumes of fresh air and the low temperatures recorded in these columns. Having through the well known hospitality of the Doctor, spent a fortnight under his roof, I have had an excellent opportunity of watching his treatment. The Orchids are contained in an ⅃ shaped range of houses, divided into four compartments. There is but one outside door—that leading into the cool-house. This door will be found open whenever the external air is calm and above 45°, and as the other compartments have open doorways, it acts as a ventilator to the whole range. This arrangement suits the warmer-growing plants, as the air in passing through the cool-house and intermediate-house gets nicely warmed; but I am certain the Odontoglossums and Masdevallias, healthy as they are, would make greater progress if aired on a less wholesale system.

Nevertheless in this short wide span-roofed house are several cool Orchids worthy of mention. Odontoglossum constrictum, an Orchid not well known or half appreciated, is represented by a specimen carrying eight fine branching spikes. The individual flower is much like O. gloriosum but smaller. The many-flowered spikes are as elegant as a frond of Adiantum cuneatum. Two forms of Odontoglossum Uro-Skinneri were at their best: one was very fine both as regards colour and shape. O. Alexandræ with two good spikes from one bulb, O. nebulosum, O. Rossii, and O. bictoniense, were also in flower. A splendid form of Masdevallia ignea was freely flowering; this species, I am persuaded, comes much brighter in Scotland than in England: it no doubt fully appreciates the brighter light and clearer atmosphere of the Scotch early autumn. Stray flowers of M. Lindeni, M. Veitchii, and M. Harryana helped to brighten up the house, but for the welfare of the plants they would have been much better off. Almost the only variety of M. amabilis I have ever seen worth growing, was in full flower; the colour of the newly opened flowers was a brilliant crimson, and it was very interesting to watch daily, as the blooms increased in size and age, the gradual fading of the crimson to rose. Some fine pots of Pleione lagenaria, P. maculata, and P. Wallichiana were placed here and there; these had been grown in an intermediate temperature. Maxillaria lepidota, which was first flowered by Mr. James, of Norwood, was carrying sixty flowers, and in that condition it is certainly a very pretty Orchid. Its sweet-scented kinsman, M. grandiflora, was also in flower. Perhaps when nurserymen charge as many guineas as they now charge shillings for this beautiful Orchid it will be properly appreciated; it is quite at home amongst the Odontoglossums, but speedily gets its foliage spotted if placed in more heat. The day temperature of this house during the two last weeks of October was 60°; night, 55°.

The next compartment is about 18 feet square and 12 feet high. In the centre of the gable, facing south, is a very large swing ventilator, through which the Tay Bridge gale found its way, and after sending the roof amongst the shrubs, it amused itself by arranging the Doctor's plants on the natural system! There is space enough on this roof to grow a nice collection of pendulous Dendrobiums, but a seedy looking D. chrysanthum had it all to himself. Almost monopolising the centre table is very probably the finest plant of Anthurium Scherzerianum under cultivation; it occupies a tub 3½ feet in diameter, and would be all the better for a shift, as its large healthy roots and leaves are now far over the edge. The cultivation of this plant up to its present pitch has taken fifteen years. It was purchased from the Messrs. Veitch as a small plant, but fine variety. On the side stages stood several plants worthy of mention. Mormodes luxatum eburneum, a masterpiece of cultivation, with a bulb just ripening, as large as a finely grown Peristeria elata bulb; it had carried two massive spikes, which every one termed grand. Why growers persistently ignore this magnificent Orchid, is to me a mystery. When in flower it is always termed grand, but so sure as a nurseryman offers it so sure does he meet with disappointment. A specimen plant of Dendrobium thyrsiflorum with many tall strong bulbs, had a corner to itself; I was told it produced very fine racemes of flowers, which was easy to believe, as I have never seen a strong plant of this species act otherwise. A plant of a free flowering form of Epidendrum prismatocarpum had about 50 leads; Lælia anceps Barkeri, ten well-advanced spikes. In flower were Cypripedium venustum, Zygopetalum Mackayi and Z. maxillare, Lycaste Skinneri, Oocidium Schlimii, O. Forbesii, O. varicosum, O. cheirophorum, the Hawthorn-scented Maxillaria picta, the scarlet Epidendrum rhizophorum, and its purple companion E. erectum, and a good plant of Miltonia Clowesii. On shelves were many plants of a seedling Sarracenia, a hybrid S. Drummondii crossed with S. purpurea, resembling and probably identical with S. Chelsoni. These were raised by Mr. Charles Paterson, the Doctor's youngest son, who, besides being head Orchid grower, takes great interest in, and is very successful with, Sarracenias, Darlingtonias, Cephalotus, Droseras, &c. The temperature of the house in point was about 58° at night, rising in the day to about 65°.

Passing through a doorway, which is always open, we enter the hottest division. This is a hip-roofed span, 12 feet wide, 18 feet long, and 10 feet high, with a back and front stage; the aspect is south. The boiler is built in under a portion of this house, and immediately over it, where the temperature would scarcely ever be below 65°, grow a few Calanthes, and a healthy plant or two of Phalænopsis Schilleriana and P. Lüddemanniana, the very pretty but scarce P. Lowii hung overhead in flower. On the back stage, small as it was, stood several very fine Orchids:—Aerides Fieldingii, a genuine plant, with twelve small and large breaks; Angræcum sesquipedale, 3 feet high, with three strong spikes—a model plant without a flaw, the result of fifteen years' careful cultivation; Aerides sp., imported fifteen years ago from Singapore, 4 feet high, with three breaks that ought to have been flower-spikes—a remarkable Aerides this, to pass fifteen years of its existence without flowering; however, it is now showing spikes from the upper axils of its remarkable green leaves. In a somewhat shady corner was a grandly grown plant of Chysis bractescens, with two maturing bulbs, each at least twice the size of any Chysis I have met with. The green-leaved form of Cattleya labiata was carrying a spike of four very fine flowers; this spike, with a few Fern fronds, would have made a bouquet fit for an empress. Several plants of Vanda cœrulea were placed here to flower; one, carrying a spike of twelve flowers, was worth all the others put together, so superior was it as regards size of flower and its dark blue markings. One of the first imported plants of Odontoglossum vexillarium, now of course a gigantic plant, was also here, along with healthy plants of Cypripedium Dominianum, C. Boxallii, C. Veitchii, and Cattleya Trianæ Symei.

The front stage was occupied by numbers of small plants that must have been taken from every house,

not even excepting the cool-house; strange to say they all looked very comfortable. In flower was an extraordinary form of Miltonia Moreliana, with a lip as large as that of a fine Odontoglossum vexillarium, and of a lovely rose colour. It was imported twenty years back by Mr. Wingate from the Brazils. Sophronites purpurea, under the name of S. grandiflora, had several fine flowers. This very fine species was imported by Mr. Bullen and Mr. Low; it is easily recognised by its almost globular bulb and short fleshy leaf. Dendrobium superbiens, Odontoglossum Londesboroughianum and Burlingtonia decora were also in flower. Vanda Bensonæ, although carrying a moderate spike, looked as wretched as usual. Probably it has never forgiven Colonel Benson for bringing it away from home.

The last compartment is an intermediate-house, 36 feet long, 15 feet wide, and 9 feet high. Here, standing on pots along the centre, were some fine Vandas, V. tricolor Patersoni being especially good, indeed it would be difficult to find a better form of tricolor. Lælia superbiens, with three strong spikes, was the picture of health; by it, growing in sphagnum mainly, was an old-established plant of Dendrobium chrysotis, with bulbs 5 feet high, carrying perfect foliage; its roots are always kept moist. The side stages were crammed with plants, Cœlogyne cristata and Cattleya Warnerii being extra well grown; Cymbidium giganteum and C. Lowii were finely in flower.

The Doctor, who has grown Orchids for many years, must, with his son, be congratulated on the good condition the plants are in. The Bridge of Allan is protected by hills and woods from all cold winds, and without doubt Orchid-house doors and ventilators may be left open there, when it would be madness to do so in a more exposed situation. But air alone will not grow Orchids, and no one knows that better than Dr. Paterson, who never allows his plants to want for anything likely to do them good, and who is never so happy as when amongst them.

The principal potting material is sphagnum moss, gathered high up in the neighbouring hills. It looks a rough article, but is nearly free from slugs or any other vermin. It grows thoroughly well in the houses. *J. C. Spyers, Burford Lodge, Dorking.*

COLONIAL NOTES.

Jamaica: *The Botanical Department.*—We learn rom the *Jamaica Gleaner* that, consequent on Mr. Nock's promotion to Ceylon, Mr. John Hart, who for the last seven years has been in charge of King's House gardens and grounds, has been appointed as Superintendent of the Cinchona plantations; and to fill the vacancy thus created at King's House Mr. William Harris has been sent out from Kew. Another Kew man, Mr. William Elliott, has also been appointed to the charge of the Parade Garden, Kingston, which from its central position and its proximity to the shipping facilities of Kingston, is intended to be utilised as a depot from whence plants from the other establishments may be conveniently stocked and distributed.

A weather observatory has been established at the Government Cinchona plantations, by Mr. Maxwell Hall. The observatory is at the residence of Mr. Morris, Director of the Botanical Department, and is beyond question the highest observatory in the British empire, the elevation being 4900 feet. The mean annual rainfall at this particular spot and elevation is put down at 136 inches, and the mean annual temperature at 60° Fahr. Apart from the bearing which the readings will have upon questions connected with the selection of land for Cinchona, much information of scientific and general interest will be gained from them. Mr. Morris' observations will appear in Mr. Hall's monthly meteorological report in the Jamaica *Gazette.*

"The Cinchona Planters' Manual."—Under this title Messrs. Ferguson, of Colombo, have published a handy little volume, compiled by Mr. T. C. Owen, and containing a brief history of the introduction of Cinchona into India, some elementary notions of botany, taken from *How Crops Grow*, and some corresponding particulars relating to the chemistry of the subject. From the latter section we learn the practical fact that barks grown at low elevations contain less quinine and more cinchonine than those at high elevations, and that the quicker a tree grows the more quinine and the less cinchonidin will be found. Dr. Trimen contributes some remarks on the classification of the forms, but adds that a good scheme of classification, founded on the characters afforded by the bark, taken in conjunction with other characters, would be useful "in a group where at present it is not too much to say that we have not a single good specific distinction." The third part of the book is the most valuable, as it contains details as to the proper method of planting and cultivation generally, which are not so generally accessible as are the chemical and botanical items of information. The book will be invaluable to all engaged in Cinchona culture or proposing to embark in the enterprise. To what an extent the cultivation is now carried on is shown by some figures in the appendix, from which we gather that over 10,000 acres are under cultivation in India, 33,000 acres in Ceylon, 8000 in Java, and 800 in Jamaica. The total (exclusive of those parts of South America where the trees are indigenous) is given as 52,850 acres under cultivation, and 74,000,000 of trees. The total consumption of bark is estimated at 21,850,000 lb.

WINTER WORK.

Though St. Martin's summer lingers with us longer than usual this season there can be no doubt that winter—probably a severe one—is close at the heels of this abnormally mild weather. And this very closeness is one of our greatest risks and dangers. Did the cold come upon us gradually on the heels of the heat, or did the latter cool gradually on an easy sort of sliding scale into the former, but little mischief would be done among plants, trees, and shrubs; but to-day it is 50° in the shade—to-morrow it may be 15°, or a difference of 35°. Nor is this all; the mild weather keeps all plants on the move. Though the leaves have fallen it can hardly be said the sap has gone to rest, if it ever does do so, on the contrary, the buds are swelling, the birds are singing, and all things feel spring-like instead of winterly. Hence, were sudden frost to come the door of the citadel of life is more open to receive it, and before it could be closed irreparable injury would be done. As we cannot arrest nor bottle up the sunbeams for future use, nor change the soft southerly or westerly winds into harsh and stern nor'-easters, it is well to turn to the plants and see if something may not be done to enable them the better to meet and master the inevitable severities of winter.

Root-pruning or transplanting are short cuts to the arrestment of growth and the stoppage of the sap. If set about early these processes may be performed without risk of injury to the plants or the loss of a season's growth of flower or fruit. Their favourable effects on fertility are generally admitted and abundantly proved by experience; but root-pruning as a means of rendering plants frost-proof is less understood and practised, and yet it is easy to see that in so far as such processes deplete the plants of crude sap they are made so much the hardier in consequence. Instances are also constantly occurring in which newly transplanted or severely root-pruned trees escape, while those left to grow without interference are destroyed by cold.

The common practice of heeling over Broccoli before winter is a case in point. No doubt the semi-prostrate condition assists them to bear frost better, but the sudden severance of so many roots cuts off the supplies, and they are less sappy, that is, less vulnerable to cold, in consequence. By-the-bye, it is by no means obvious that the universal action, to lay the plants in with their heads to the north, is the best; it might be were the plants dead logs and content to lie as laid till all danger from cold was over and gone: but they are not. Hardly have they been headed north than they begin to put forth efforts to turn their crowns to the sun. If they succeed in doing this, as they often do, the last state of the Broccoli is often worse than the first. Headed to the south the plants would make less effort to rise and probably winter more safely. Broccoli are particularly vigorous and full of sap this year, and if not already heeled over no time should be lost in doing so, lest the severe frosts should hit and cripple or kill them before it can be done. Similar principles underlie the practice of lifting half-grown Salad plants and transplanting them in fresh and more sheltered positions for the winter. By this simple device thousands of Lettuces and Endive help to fill the salad bowl that would have furnished food for the first severe frost.

The hardening effect of transplantation is also powerfully illustrated in the cultivation of winter annuals or other plants. How often we see those left in seed and nursery beds cut off, while those that have been transplanted into their flowering quarters have passed through the most severe winters unscathed and unharmed.

Where such methods are impracticable, a great deal may be done to save many plants from destruction by a timely and judicious mulching of their roots and thatching of their tops. This, in fact, is exactly what Nature does if left to herself; but this makes too much litter for our liking, and so we brush away all her protections, and then profess to marvel greatly that our plants get killed. The fact is, bare earth and exposed tops are quite unnatural to many plants, and if we must needs alter Nature's ways and conditions we must afford compensation by artificial coverings, or—and the penalty is swift as it is heavy—lose our plants. Our mulchings and top-coverings are but poor substitutes in many cases for Nature's littering up with slow or nonconducting *débris.* Roses especially need such protection. No wild Brier on clay or mud bank was ever subjected to such severe cold as those planted in our bare beds and bleak borders. Nearly everywhere the roots of weeds and strong grasses thoroughly mulch and so protect the roots of wildings while their heads are overhung with the bare boughs of taller trees, or it may be they are crowned with Ivy, or the Traveller's Joy. These prove quite sufficient, but the Briers are torn up and planted in dressed beds, and starved to death in consequence. And if such is the fate of Briers need we wonder that the more tender Roses fare still worse? And if we set aside Nature's protectors reason and common sense alike show the necessity of providing substitutes, and these are oftener worse than better than Nature's. A bunch of litter or Fern fronds or a thatch of straw on walls will mostly suffice to carry the beds of Roses safely through our winters, while a 6-inch mulch of strong litter, long farm-yard manure, or cocoa-fibre refuse will suffice to keep the roots safe against any possible amount of frost. If those who can find neither will allow dry tree leaves to lie over their Rose beds in winter, and keep them in position with a few Spruce or other boughs, we shall hear no more of a complaint all too prevalent of late years, of Roses dying from the roots upwards.

By these and other similar and equally simple expedients adopted in time we either harden plants sufficiently to pass safely through the winter, or protect them from its extreme rigour and severity. *D. T. Fish.*

NOTES ON VEGETABLES.

Exhibiting Vegetables and Judging Them.—It is a somewhat curious fact that more dissension arises over the awards made to collections of vegetables than in any other section of garden produce. Why should this be the case? There ought to be no more doubt as to the points which make good vegetables than in the cas of plants, flowers, or fruits, and yet it is evident that opinions do immensely differ with respect to them. Good average judges will say, that in considering the relative qualities of collections of six, eight, or twelve kinds, as the case may be, they always go by points, and that a collection which has the greatest number of points gets the award. To all ordinary minds that would seem to be the course that must always produce the most satisfactory results; but is it so? Indeed, so far from its being the case, excepting the winning exhibitors, no one seems satisfied, so that it is evident there is a screw loose somewhere in this infallible machine—and where is it? Why, without doubt, because points exist in men's diverse fancies, and have no tangible basis. Points are given just as judges may erratically decide, but there is no code of points, and each judge becomes a law unto himself, because if this vegetable judging commonly results in chaos, some day perhaps we may get a body of judges, who have some ideas in common as to what constitutes good points. There should be no difficulty in getting at some pretty exact estimate of what are the elements of a good dish of Turnips, Carrots, Onions, Tomatos, or of heads of Cauliflowers, Cabbages, and Savoys, of Brussels Sprouts, or sticks of Celery. It is rather in the matter of size over which men stumble, for there are some who think if they get bigness in what is staged they have all that is needed. This feature is displaying

itself in Brussels Sprouts for instance, for these are now becoming good sized Coleworts rather than the miniature solid rounded green and deliciously flavoured Sprouts we have in the past been accustomed to. The showing of these on the stem may be desirable or not, but the real point is that they are now being shown far too large. If judges would remember that the favourite Sprouts at table are those so firm and clean that each one constitutes a lady's mouthful, and does not want to be cut into three or four pieces ere being eaten, there need be no mistake when they are the subject of award. Carrots should be clean, clear, and perfect in form, and of medium size, such as may be found in a good sample of the Scarlet Intermediate. Some in one of the prize lots at Kensington the other day were fair samples of cattle Carrots, and the same may be said of Turnips, for those in two prize lots would have to be cut into four pieces at least ere they could be cooked. Such roots must be coarse, fibry, and flavourless. Clean washed, without blemish, white, and with small tops, and as globular as possible, are the points to be looked for in good Turnips. At this time of the year spring-sown Onions, solid, clean, and bright of skin, should, if but medium sized, outweigh any autumn-sown bulbs, or even larger ones if the skins be spotted or discoloured. Clear bright skins exhibit high culture, big coarse looking bulbs show wealth of manure, and that is all. Moderate sized heads of green curled Savoy Cabbages, are of more value as a winter vegetable than Early Ulm, Tom Thumb, or the big Drumhead. Cauliflowers present points that are most uncertain; with some men the bigger the better, and if the only object of the gardener was to fill a bushel basket of course he could hardly get them too big, but he would not send these to his employer's table. They may go to the servants' hall and be there adversely criticised, but to the dining-room will be sent pretty neat compact heads, white as snow, about 6 inches across. These are in Cauliflowers perfect. Why cannot judges (most of whom are gardeners) carry the same estimate into their judgments that they do into the selection for their employer's table? Somehow, however, men seem to think that on the show table things should have, not natural and truthful, but abnormal features, quite forgetting that in the matter of usefulness for table consumption should be found their chief value and interest. Some judges, too, have a prejudice for red Celery over white, and *vice versâ*, but if the sample shown be well grown, clean, thoroughly blanched, and solid, it seems quite childish to potter over colour and allow such a trivial thing to intrude into a decision. In the same way, points are sometimes given to a dish of white Potatos in preference to red ones, and yet the coloured ones, when cooked, may be the best. If size and general appearance be equal, colour of skin should exercise no influence in the judgment, but known table quality might well do so. Again, twenty-four pods of Peas or French Beans would constitute a ludicrous dish at any time, still more so are they at this time of the year, when they are small. Still judges are apt to say, "Oh! look at the difficulty of getting these things at this time of year," which may be true enough; but do these few pods in either case represent a *bonâ fide* crop? and, farther, what specially are they worth when they are grown? They have had their season, and during that time have had their place in numerous competitions. Now it is the season for other vegetables, and these should have preference; whilst Turnips, Carrots, Onions, Celery, &c., may represent a crop that will supply for the winter, French Beans or Peas give a dish for the day only, and certainly at this time of the year never repay for the time and labour expended in their growth. Judges should not be led away in making their awards by these poor products of catch crops, but as long as they are they will find growers foolish enough to bother with them, and do so most unprofitably.

THE POTATO TRADE. — The *Times* notes that the Potato trade in Great Britain has undergone very remarkable changes this season. Last year a large quantity of Scotch and English Potatos were exported to Ireland. This year the Irish farmers are sending cargos of Potatos to the western ports of Great Britain. Moreover, a considerable quantity of Irish Potatos is being shipped from Glasgow to the United States. Scotch and German Potatos are also being shipped to the United States. Scotch Regents are very scarce in all the wholesale markets of the North, and Champions are plentiful; Champions are not liable to disease, whereas the best class of East Lothian Regents have suffered considerably from it.

GILBERT'S CABBAGE BROCCOLI.—I have had the privilege of tasting two of Mr. Gilbert's new Cabbages, said to be a cross between a Broccoli and a Cabbage. For my part I should have taken it for a sport from the Broccoli. Although a Cabbage, the flavour is pretty much like the Broccoli. I have in years gone by had several sports from the Broccoli, but none so decidedly good and distinct as this Burghley Cabbage is. It is, in my opinion, the best of all the Cabbage tribe; it will be a great acquisition, as, in addition to its good qualities as a vegetable, the frost has, I hear, no effect on it. *William Culverwell.*

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 625.)

22. D. APPENDICULATUM, Lindl., *Gen. and Sp. Orch.*, p. 76; Miquel, *Fl. Nederl. Ind.*, iii., p. 635; *Desmotrichum appendiculatum*, Blume, *Bijdr. tot Fl. Nederl. Ind.*, p. 330.—Java. Buitenzorg Botanic Garden, 1866. A small plant, with inconspicuous flowers.

23. D. (EUDENDROBIUM) AQUEUM, Lindl., *Bot. Reg.* 1843, Misc. n. 6, t. 54; *Bot. Mag.*, t. 4640; *Jardin Fleuriste*, t. 262 (copied from *Bot. Mag.*); *D. album*, Wight, *Ic. Pl. Ind. Or.*, t. 1645; Lindl. and Paxt., *Fl. Gard.*, ii., p. 175, fig. 226.—India. The type was imported from Bombay by Loddiges in 1842, and the slight variety, D. album, by Messrs. Veitch, in 1851. Flowers dirty white, in pairs on the leafy stems. Hort. Kew.

24. D. (EUDENDROBIUM) ARACHNITES, Rchb. f., *Gard. Chron.*, n.s., ii., p. 354.—Birma. Discovered and introduced by Mr. Boxall for Messrs. Low; but I am not sure that it has grown and flowered. Dr. Reichenbach says, however, that since Sir W. Hooker described his unique D. amboinense no such remarkable and extraordinarily gorgeous Dendrobe has been discovered.

25. D. ARACHNOSTACHYUM, Rchb. f., *Gard. Chron.*, n.s., vii., p. 334.—Native country not given. Described as a gorgeous species, nearest in affinity to D. Mirbelianum and veratrifolium. Introduced by Mr. Peter Veitch.

26. D. (STACHYOBIUM) ASPHALE, Rchb. f., *Gard. Chron.*, n.s., ii., p. 644.—Native country unrecorded. Specimens received from Mr. P. Neill Fraser, Edinburgh. Flowers probably whitish.

27. D. ATROPURPUREUM, Miquel, *Fl. Nederl. Ind.*, iii., p. 644; *Oxystophyllum atropurpureum*, Blume, *Rumphia*, iv., p. 41, t. 193, fig. 4, et t. 198 c.—New Guinea. Buitenzorg Botanic Garden, 1866. Flowers small.

28. D. AUREUM, Lindl., *Gen. and Sp. Orch.*, p. 77; Wight, *Ic. Pl. Ind. Or.*, v., t. 1646; *D. heterocarpum*, Wallich, Lindl., *Gen. and Sp. Orch.*, p. 78; *Bot. Mag.*, t. 4708; *Fl. des Serres*, t. 842; *Jardin Fleuriste*, t. 386 (a badly coloured copy of *Bot. Mag.*, figure); *Bot. Mag.*, t. 4970 (var. *Henshallii*); *Bot. Reg.* 1839, t. 20 (var. *pallidum*); *D. rhombeum*, Lindl., *Bot. Reg.* 1843, t. 17.—Iodia, Ceylon. Messrs. Loddiges imported the pale variety from the latter country through Mr. Macrae about 1838; and Mr. Simons sent the handsome plant figured in *Bot. Mag.* from Assam in 1852. A pretty species, with cream or pale yellow flowers, the labellum deep yellow, with crimson stripes. Hort. Kew.

Var. PHILIPPINENSE, Rchb. f., *Gard. Chron.*, n.s., xiii., p. 72.—Described as a very fine variety, with pale flowers, having a single broad purple patch under the velvety disk. Hort. Kew.

29. D. BAMBUSÆFOLIUM, Parish and Rchb. f., *Trans. Linn. Soc.*, xxx., p. 149.—Moulmein. Discovered and introduced by the Rev. Mr. Parish. Cultivated at Kew 1881. Allied to D. salaccense.

30. D. (STACHYOBIUM) BARBATULUM, Lindl., *Gen. and Sp.*, p. 84; Lindl. and Paxt., *Fl. Gard.*, iii., p. 113, fig. 285; *Bot. Mag.*, t. 5918, not t. 5444 (which is D. Fytcheanum).—Western peninsula of India, in the mountains. Introduced by Mr. Woodrow, and flowered at Kew in 1871. Flowers small, in dense erect racemes, ivory-white, with a slight tinge of pink. Hort. Kew.

31. D. BENSONÆ, Rchb. f., *Bot. Zeit.* 1867, p. 230; *Bot. Mag.*, t. 5679; *Floral Mag.*, t. 355; Jennings, *Orch.*, t. 32.—Moulmein. Discovered and sent to Messrs. Veitch by Colonel Benson about 1866. A beautiful species of the D. nobile type. Flowers white; lip with a deep yellow disk, and two purple dark spots near its base. Hort. Kew.

Var. AURANTIACUM, Rchb. f., *Gard. Chron.*, n.s., ii., p. 6.—Disk of lip deep orange, spots brown not blackish.

Var. XANTHINUM, Rchb. f., *Gard. Chron.*, n.s., x., p. 45.—The orange disk of the lip destitute of dark blotches.

32. D. BICAMERATUM, Lindl., *Bot. Reg.* 1839, Misc. n. 85; *Walp. Ann.*, vi., p. 299.—North India. Discovered and introduced by Mr. J. Gibson for the Duke of Devonshire. Flowers dull yellow, spotted and streaked with purple. Hort. Kew.

33. D. (DENDROCORYNE) BIGIBBUM, Lindl., in Lindl. and Paxt. *Fl. Gard.*, iii., p. 25, fig. 245; *Bot. Mag.*, t. 4898; *Fl. des Serres*, t. 1143 (copied from *Bot. Mag.*); Warner, *Sel. Orch.*, ser. 2, t. 8.—North Australia, on Mount Adolphus. From a drawing in the British Museum by Francis Bauer, this plant is known to have flowered at Kew in 1824; and a Dr. Thomson collected it in the above-mentioned locality, and sent it to Messrs. Loddiges about 1850. One of the handsomest. Flowers rosy-purple, tinged with lilac, on long-stalked racemes from near the apex of the stems. Hort. Kew.

Var. SUPERBUM, Rchb. f., *Gard. Chron.*, n.s., x., p. 748; *Floral Mag.*, n.s., t. 229, and perhaps t. 386.—Flowers larger, more numerous, and mauve, with a purple labellum.

Var. CANDIDUM, Rchb. f., *Gard. Chron.*, ix., p. 168.—Flowers white.

34. D. BINNENDIJKII, Rchb. f., *Xenia*, ii., p. 74, t. 118, fig. 6.—Java. Buitenzorg Botanic Garden, 1866.

35. D. BINOCULARE, Rchb. f., *Gard. Chron.* 1869, p. 785.—Birma. Discovered and introduced by Colonel Benson, and acquired by Messrs. Veitch. Allied to D. fuscatum. "Flowers copper-coloured, the apex of the lip golden-yellow with one large brownish or purplish blotch on each side of its disk."

36. D. BOOTHII, Teijsm. and Binnend. in *Nat. Tijdschr. Ned. Ind.*, xxiv., p. 318; Miquel, *Choix de Pl. Rar. Jard. Buitenzorg*, t. 24, fig. 2.—Java. Cultivated in the Botanic Garden at Buitenzorg. A white flowered species, of little beauty.

37. D. BOSTRYCHODES, Rchb. f., *Gard. Chron.*, n.s., xiv., p. 748.—Borneo, or one of the neighbouring islands. Discovered by Mr. Boxall, and imported by Messrs. Low. Flowers white, with a little red; petals wavy.

38 D. BOXALLII, Rchb. f., *Gard. Chron.*, n.s., ii., p. 315; *Xenia*, ii., t. 194 (poor as to colour); *Floral Mag.*, n.s., t. 114; Jennings, *Orch.*, t. 19.—Moulmein. Discovered by Mr. Boxall and introduced for Mr. Low. One of the finest of the genus. Flowers scattered along the previous year's knotty stems; lip pink and white, with a large golden disk. In some varieties the petals are tipped only with purplish-rose, and the disk is lemon-coloured, with a few red dots near the base.

39. D. BREVIFLORUM, Lindl., *Journ. Linn. Soc.*, iii., p. 14.—West Bengal, India. Flowered by Loddiges in 1844, and at Kew in 1871. Flowers small, white, fleshy, with lines of crimson spots.

D. BRISBANENSE, Rchb. f. = D. gracilicaule.

40. D. BRYMERIANUM, Rchb. f., *Gard. Chron.*, n.s., iv., p. 323; v., p. 366; x., p. 752; xi., p. 474, fig. 65; *Bot. Mag.*, t. 6383; *Floral Mag.*, n.s., t. 459.—Birma? First flowered by W. E. Brymer, Islington House, Dorchester, in 1875. A very remarkable species, having deep yellow flowers, the lip of which is furnished with a very deep, branched, papillose fringe (see fig. 140.)

41. D. (STACHYOBIUM) BURBIDGEI, Rchb. f., *Gard. Chron.*, n.s., x., p. 300.—Sunda Islands. Discovered and introduced for Messrs. Veitch by Mr. Burbidge. Allied to D. minax, with yellowish flowers.

42. D. CALCARATUM, Lindl., *Bot. Reg.* 1840, Misc. n. 219.—Singapore. Cuming introduced it for Messrs. Loddiges. An inconspicuous species.

D. BULLERIANUM = D. gratiosissimum.

D. BUXIFOLIUM, Hort. = D. pulchellum, ex Planch. *Hort. Donat.*

D. CŒRULESCENS = D. nobile.

D. CALAMIFORME = D. teretifolium.

D. CALCEOLARIA = D. moschatum.

43. D. CALOPHYLLUM, Rchb. f., *Xenia*, ii., p. 167.—Timor or Amboyna? Cultivated by Mr. J. Day in 1869. Flowers greenish-yellow, with a whitish lip, streaked with violet.

44. D. CALOPOGON, Rchb. f., *Xenia*, ii., p. 23, t. 109.—Batavia. Introduced by Consul Schiller, of Hamburg, and flowered in his garden about 1862. A miniature species, with ephemeral flowers having a deeply fringed labellum.

D. CAMBRIDGEANUM = D. ochreatum.

45. D. (DENDROCORYNE) CANALICULATUM, R. Br., *Prodr. Fl. Nov. Holl.*, p. 333; Bentham, *Fl. Austr.*, vi., p. 282; Fitzgerald, *Orch. Austr.*, pt. 3; *D. Tattonianum*, Bateman, *Gard. Chron.* 1865, p. 890; *Bot. Mag.*, t. 5537.—North-east Australia. Discovered by Banks and Solander, and rediscovered and introduced into this country by J. G. Veitch in the spring of 1865. It flowered in several gardens the following autumn, amongst others in that of Lord Egerton of Tatton. Flowers small, white, tipped with yellow, and having a mauve or purple-brown lip, arranged in erect slender racemes proceeding from near the apex of the pseudobulbs. Hort. Kew.

46. D. CAPILLIPES, Rchb. f., *Gard. Chron.* 1867, p. 997; *Xenia*, ii., p. 164, t. 169, figs. 4—6.—Moulmein. Discovered by the Rev. Mr. Parish, and flowered by Mr. Low, of Clapton, in 1867. A small, comparatively unattractive species, with yellow flowers. Hort. Kew.

Var. ELEGANS, Rchb. f., *Gard. Chron.*, n.s., xiii., p. 743.—Birma. Discovered and introduced by the Rev. Mr. Parish. Flowers large, yellow, dark orange at the base of the lip.

47. D. (NIGRO-HIRSUTA) CARINIFERUM, Rchb. f., *Gard. Chron.* 1869, p. 611.—Native country not recorded. Cultivated by Mr. Marshall, Enfield, in 1869. Flowers white; sepals tinged with yellow at the tips; labellum orange, tipped with white and furnished with a cinnabar-red crest.

48. D. CARNOSUM, Teijsm. et Binnend., *Nat. Tijdschr. Neerl. Ind.*, v., 1853; *Walp. Ann.*, vi., p. 302; Miquel, *Fl. Ned. Ind.*, iii., p. 644. — Java. Buitenzorg Botanic Garden, 1866. Inconspicuous.

49. D. CAUDATUM, Teijsm. and Binnend., *Nat. Tijdschr. Nederl. Ind.*, xxiv., reprint, p. 11.—Sumatra. Buitenzorg Botanic Garden, 1862. Flowers 2 inches long, white with a yellow lip.

50. D. CANDIDUM, Wallich, *Bot. Reg.* 1838, Misc. n. 54; Lindl. and Paxt., *Fl. Gard.*, i., p. 63, fig. 41.—Khasya Hills, India. Found by Mr. John Gibson, and sent to this country for the Duke of Devonshire. Flowers small, pure white, exquisitely scented.

51. D. CERINUM, Rchb. f., *Gard. Chron.*, n.s., xii., p. 554.—Malayan Archipelago. Discovered and introduced by Mr. Burbidge for Messrs. Veitch, with whom it flowered in 1879. This is very near the well-known buff-coloured variety of D. sanguinolentum. Sepals and petals light yellowish-ochre, shaded with brown; labellum light ochre, with radiating brown lines.

2. D. CILIATUM, Parish, *Bot. Mag.*, t. 5430.—Moulmein. Discovered by the Rev. C. S. P. Parish, and sent to Messrs. Low, of Clapton, with whom it flowered in 1863. A tall, slender species, having erect racemes of small yellow and green flowers, with a prettily fringed labellum.

(To be continued.)

Fig. 140.—DENDROBIUM BRYMERIANUM. (see p. 688.)

ALPINE PLANTS.

(*Continued from p.* 528.)*

The Species of Androsace.—Among those best worthy of cultivation are the following:—

A. carnea, Linnæus.—A pretty little species with rose-coloured flowers and glaucous-green foliage. Its general aspect reminds one of Primula farinosa, but it is smaller and more refined in habit. It is generally found on the granite soils of the higher Alps. It is rather rare, but is met with specially in the Pennine Alps, in the Grisons, at Fully, and some parts of Tyrol. The plant is easily cultivated, and flowers freely on the rockwork. It should be placed in an eastern aspect in a well drained pocket (*poche*), filled with light nutritive soil. Humus, sawdust, and granitic sand should enter into the composition of the soil. It succeeds better from seed than when transplanted.

A. Laggeri, Huet.—This charming plant, a native of the Pyrenees, is very like the preceding. It is distinguished from it by its much earlier and more abundant flowering. It is more delicate, and has deeper green foliage. At first the flowers are sessile, but as growth goes on the stem lengthens and bears a tuft of stalked flowers, which are bent down towards the ground by the dew of the morning. It flowers very early in spring, and its first flowers have expanded even as early as February 15. The flowers remain in good condition for six or eight weeks, and it is only towards the end of April that they lose their beauty. The species is not tender, but it suffers from exposure to the sun and from excessive moisture. It should be placed in a recess well-drained, and facing the east, and should be planted on a slope so that the water may not remain on the tuft. It requires watching in summer, careful watering, and shelter from the powerful rays of the sun. I have raised it from seed with readiness, but as the tufts require three or four years to attain a certain size I prefer to get them direct from the Pyrenees. The transplanted tufts succeed very well, but I doubt if they will be of long duration, as with me they have always perished after a few years, while those raised from seed have lived for a much longer time.

A. ciliata, De Candolle, is also a native of the Pyrenees. In 1878 I received some fine tufts of this species from the Pyrenees, to which I paid every attention. What was my surprise the following spring to see, instead of the usual white flowers, blossoms of a very deep carmine-red; the colour was so beautiful that those who saw them declared that they had seen nothing like it amongst alpine plants. I flattered myself that I was in possession of a variety, or at least of a plant modified by cultivation, but my surprise was doubled when, in the following year, instead of crimson flowers my plant only produced white blossoms such as I had been accustomed to previously. The plant is cultivated exactly in the same manner as the preceding species, and is easily multiplied by division of the plant.

A. villosa, Linnæus, occurs in the Pyrenees, in the Jura and other limestone mountains. This plant is one of the prettiest and one of the most interesting and desirable that we can cultivate on our rockworks. Its silky foliage grows in compact tufts, each of which produces a stem laden with rose-coloured flowers, with a deeper coloured eye, and which have a perfume of honey. They are so abundant that they completely cover the plant, so that the foliage can scarcely be seen. It flowers in May and June. It should be grown in a little narrow pocket, where it has not much room to expand, so that its compact habit may be the better preserved. The pocket should be well drained with limestone pebbles and exposed to the sun. If it is placed in a larger pocket it sends off many offshoots, breaks up into a quantity of little tufts, and loses all its charm. As in the case of A. Laggeri, I find that imported tufts produce a greater abundance of flowers, but the plants obtained

from seed last longest. The soil should be light, sandy, and calcareous.

A. lactea, Linnæus, is a pretty strong growing species. It is not found in the Alps, but it covers the summits of the Jura and is also met with in Tyrol. This pretty species is very free-flowering, has deep green, shining, tufted foliage in tufts. The large flowers, supported on long graceful stalks, are of the purest possible white. It flowers in June and July. Seedlings succeed better than imported tufts. It should be grown in an eastern or western aspect, in rich, porous soil, mixed with humus, sawdust, and lime. It is not necessary to plant it on the slope, but water should not be allowed to remain on the tufts.

A. Vitaliana, Linnæus—a native of the Pyrenees and of the Alps—is the only species with yellow flowers. Their colour and the existence of a whitish meal in the flower recall the yellow Auricula, Primula Auricula, although much less in size than it. It flowers in May, June, and July. When properly cultivated it produces numerous flowers. Unfortunately it often rots from bad cultivation, on which account it has acquired the reputation of being difficult to grow, which is by no means the case if its requirements are properly attended to. It specially requires a dry place, a well-drained, shallow pocket. The soil should be sandy, calcareous, and the plant placed on a slight slope, exposed to the sun or in a westerly aspect. It grows from seed, from division, or from transplanted tufts.

A. Chamæjasme.—This is a very pretty species, met with in limestone pasturages of the Alps. It is very vigorous and free-flowering, although it does not produce many flowers at a time. I have a plant which has been in flower ever since the spring, and last winter I had it in flower up to December. It is easily cultivated. I place it in an eastern aspect in a well-drained pocket in a soil mixed with calcareous sand. It is reproduced by seed and by division. It produces offshoots very freely, but it is difficult to obtain good specimens for cultivation from the pastures because the roots of the original plant are not easily to be found, and the offshoots do not produce roots. Unlike A. villosa this species should be planted in a wide pocket in order that it may spread widely, and assume its special habit of forming large tufts rather than compact cushions, as in A. villosa, which it resembles in the flower.

A. obtusifolia, Allioni, is met with on our high and dry pastures. It is very free-flowering, but the tufts are small and not pretty. The flowers are white, rather small, and borne on rather long stalks. It succeeds very well on our rockwork, where I sow it and grow it in a soil without lime, but consisting of one-third peat, one-third leaf-mould, and one-third granitic sand.

A. helvetica, or Aretia helvetica, is a native of the high limestone mountains of Switzerland and Tyrol. This plant is remarkable for forming compact tufts or hummocks, as some mosses do on the roofs of houses. These hummocks, when examined, are seen to consist of a number of little tufts pressed one against the other, as in A. villosa, but in a much more marked degree. The leaves are very short and velvety. The older the tufts are, the more compact they are. In June and July they are so thickly covered with white flowers as to resemble snowballs. I cultivate the plant on a wall, or between the stones of a rockwork, but always in a vertical position. As the tufts take a long time to grow from seed it is preferable to get plants from the Alps, but they must be removed when young, care being taken to secure all the roots. For this purpose it is necessary to break the rock with a hammer, which is easily done on limestone soils.

A. glacialis, Hoppe (Aretia), greatly resembles the preceding, but is only found in non-calcareous soil and in the highest Alps. It is one of the species which ascend highest into the regions of eternal snow, often in company with Erytrichium nanum, with which it offers remarkable contrasts of colour. The flowers vary, on the same tuft, from pure white to bright rose. Its tufts are not so cushion-shaped as in the preceding species. Its culture is rather difficult. It does not do in a northern aspect, still less in a southern position. I place it towards the east in a very shallow pocket thoroughly drained, with granite stones or pieces of slate, and in a soil composed of one-sixth of leaf-mould, one-third peat, one-sixth sawdust, and one-third granitic sand. It must be planted on the slope. I have never had it in good flowering condition, but I think the English climate would suit it much better than ours, and I am persuaded my English readers could cultivate it much better than we can.

A. imbricata, Lamarck, or A. argentea of Gaertner, is also an Aretia, much resembling A. helvetica; the most characteristic difference is in the colour of its foliage, which is of a silvery-grey, and the leaves are overlapping. It may be cultivated exactly in the same way as A. helvetica, but it is more difficult to obtain as it is a rare plant. It used to be found at Zermatt, but it has almost totally disappeared from that locality, in consequence of the continued raids made upon it by botanists and tourists.

A. lanuginosa, a native of the Himalayas, with its flexible and pendulous stems covered with shiny silken leaves and with beautiful lilac flowers, is a favourite with all who cultivate rock plants. It does not produce seed with us at Geneva, so that I multiply it either by cuttings or by layers.

A. sarmentosa, a native of Thibet, resembles the foregoing very much as to the flower, but differs considerably from it as to the foliage, although silky like the other; it forms tufts, whence spring a number of runners bearing at their extremities other tufts, as in the case of Strawberry runners, producing flowers and new offshoots. I do not think that any Androsace can be cultivated in the open border. Here, at any rate, rockwork culture is essential for them. They are all admirable plants, which should form part of every collection. *H. J. Correvon, Inspector, Botanic Garden, Geneva.*

Orchid Notes.

Work in the Houses.—Plants of Lælia albida, autumnalis, and purpuracea that are grown on blocks hanging from the roof in the Odontoglossum-house must still be carefully dipped whenever the blocks are dry. In the blocking of such species as these, which make long fleshy roots that quickly leave the blocks and push into the moistened atmosphere, it is neither necessary nor desirable to place much moss about the plants; but if the pieces are fastened on bare rough blocks of Apple, Pear, or Plum, or blocks of a similar nature, and hung up where they can be easily syringed or taken down and dipped, it is much better for them. These will now be pushing up their long spikes, the flowers appearing mostly at the end of the spike. The same may be said of L. anceps and its varieties, which, with those already mentioned, on account of their blooming in the winter, should always be grown in quantity, when such choice blooms are doubly welcome. See that none of the spikes touch the glass, or the buds may speedily damp off. Of L. albida there are several very pretty varieties, one in which the blooms quickly turn a light salmon colour, another named Maryani, where the sepals and petals are of a light rosy-pink. Of L. autumnalis there are some fine rich and dark coloured varieties; these also vary much in the breadth of the sepals and petals. If a good dark coloured variety is secured which has also the advantage of breadth and substance, it is one that should be thought much of and treated accordingly. The true L. purpuracea is not often met with; sometimes a dark variety of autumnalis is sold under the name. This, however, is wrong; in growth the true purpuracea is much more compact, the bulbs considerably smaller and rounder, the leaves shorter and more upright than autumnalis. It often only produces a single flower on a spike, though it is capable, if the bulbs are strong, of bringing two and occasionally three blooms. Just now, while the spikes and buds are developing, it is well to hang them in the Cattleya-house, where the extra warmth will be beneficial. In their different divisions, such things as Vandas, Saccolabium giganteum, Calanthe Veitchii, C. vestita, &c., Phalænopsis, Cattleyas, Odontoglossums, Masdevallias, Oncidiums, &c., will be in flower, in fact the houses now should be gay with these varieties. That the blooms may long retain their freshness see that they are kept free from damp and drip; it will not do to keep the evaporating troughs quite dry and empty all at once, but less will be now required in them than during the growing season. Still, as much more fire-heat is now given than during that period, it is necessary that some water be put in half of the troughs every morning. As any of the earlier Dendrobiums that were stood out in the cool divisions show signs of flowering gradually bring them back to the warmth of the Dendrobium-house; here they will quickly swell and the buds burst into beauty. Any of the later varieties that have only just finished making their bulbs may be placed where they can rest and mature their growths. D. chrysanthemum on blocks or in baskets now starting into growth must be dipped whenever it becomes dry. Bring back also Dendrochilum glumaceum into heat again; the new breaks are just showing, and will soon swell and push away. This is one of the earliest growers, and among the first of the spring-flowering forms, and is a favourite with all. If the soil is old or sour it must be shaken out and the plant be repotted in a mixture of good fibrous peat and sphagnum, keeping the plant well up in the centre, and be sure at the same time that the drainage is plentiful and good. If the plant was shaken out last year, a top-dressing of this material will be sufficient after the old soil on the top has been picked away. *W. Swan, Fallowfield.*

Mr. Leach's Orchids.

Mr. Leach, of Fallowfield, has at present a beautiful display of the finest dark varieties of Calanthe Veitchii arranged in the East India-house, with the green leaves of the Vandas, Aerides, &c., for a background. The red and yellow-eyed varieties of C. vestita are also coming well into flower. A number also of seedling Cypripediums, mostly forms of Harrisianum, are in bloom, as well as some large plants of C. insigne; Vanda tricolor and Pleiones have been and still are very fine. The Odontoglossum-house is also very gay; a host of spikes are in bloom or coming forward; some of the Alexandræ and Rossii majus are exceptionally fine, while cirrhosum in a short time will be represented with spikes of unusual length and number of laterals. Plants of Oncidium macranthum are showing well, whilst O. serratum has a spike over 12 feet long with many laterals upon it.

Mr. C. Wynn's Orchids.

Amongst the many good Orchids in flower in the collection of C. Wynn, Esq., Birmingham, is the lovely Odontoglossum Alexandræ elegans, with fourteen flowers on a spike—this is a fine and distinct variety, striped and barred with bright chocolate; the beautiful and rare Cypripedium Spicerianum, a very distinct species; some grand varieties of Oncidium Forbesii; Masdevallia Chelsoni, a hybrid between M. amabilis and M. Veitchii, partaking of the character and colour of the two parents; a grand variety of M. coccinea is also in splendid condition. There are hundreds of Alexandræ grown here in fine condition, throwing spikes in great profusion—in fact they are never without flowers. This collection is making great headway, and speaks volumes in favour of Mr. Sells, who is in charge, as an Orchid grower. *A. O.*

Vanda cœrulea.

A good plant of this charming East Indian Orchid is now in flower in Messrs. Jackson's collection at Kingston. The plant is growing in a basket, and the flower-spike is of unusual vigour for a plant of its size. The colour is a very deep mauve with violet lip, and the diameter of the individual flowers over 3½ inches.

Oncidium tigrinum.

This is an excellent free-flowering variety at this season, of good habit and robust constitution. A gem of its kind—perhaps not to Orchid fanciers, but to that large class who admire flowers more for their usefulness than for their rarity or intrinsic worth. This Oncidium produces a drooping spike, has a bright yellow lip, and deserves a place in every useful collection of Orchids for cutting, if for nothing else.

Notices of Books.

St. Nicholas, of which we have the first number of a new volume before us, is an American Magazine for young folks, published in this country by F. Warne & Co. It is wonderful at the price, and the illustrations in particular are excellent.——*Routledge's Christmas Number* is also intended for children; its strong point consists in its coloured illustrations, some humorous, some pathetic. The touch of Nature is painfully, if truly, illustrated in the "Accident"—a picture after Gustave Doré.

—— *European Ferns*, by James Britten (Cassell), of which we have previously spoken on several occasions, has reached its twenty-seventh part. The successive stages of Osmunda regalis, figured at p. 176, will be novel to many—even to Fern collectors.

—— *Ludgate Hill, Past and Present*, is a chatty account of this famous street, its inhabitants and history, with numerous illustrations. It is astonishing what a

wealth of interest centres around St. Paul's, and Mr. Treloar has done well to concentrate in one small volume, what must have been gleaned from scores. Ludgate Hill, with a railway bridge across it, and paved with wooden blocks, is what none of our ancestors could have foretold. The railway-bridge, now inevitable, reconciles us even to the want of symmetry between the street and the western façade of St. Paul's; but it is clear that the citizens can have set little store upon the noble lines of the building. The fine Plane tree in Stationers' Hall Court was, we are told, planted some fifty years since, by the Treasurer of the Stationers' Company, and it is satisfactory to know that its existence is not yet threatened by the builder. Two years ago, it is even said, a cuckoo was heard and seen in its leafy covert, "the same cuckoo, perhaps, which has this year been heard in that other noble tree at the corner of Wood Street, Cheapside." Cuckoo is a cry readily imitated, and Mr. Treloar does not tell us who saw the bird.

Garden Operations.

KITCHEN GARDEN.

As the attendant consequence of the unusually mild weather which we have been having all through the present month, vegetation has been rather active for the time of year, and if a severe spell of frost were to suddenly set in now, it would make havoc among many of the crops. Bearing this in mind, it will be necessary to be provided with a good supply of bracken close at hand with which to protect ridges of Celery, Endive, and young Lettuce plants, which are growing in warm situations out-of-doors; also those under hand-glasses and in pits and frames, whenever the nature of the weather may render protection necessary. The first favourable opportunity should be taken to get all pieces of ground as they are cleared of Cauliflower and early Broccoli stumps manured, dug, and trenched where necessary, so as to be in readiness for early plantings of Peas, Cauliflowers, and other crops. The wheeling of manure, however, should not be attempted while the walks and ground are saturated with rain, but should be done during dry weather (frosty mornings being the best time for this kind of work being done), when the walks are hard—a condition which not only enables the work to be performed with a less amount of labour, but also without damaging the walks. Take advantage of a dry day, when the leaves are dry, to pull up any weeds that are among breadths of Broccoli, Cauliflower, &c., and remove them to the rubbish-heap, together with any discoloured leaves which may be attached to the stems of the plants, and finally earth up late plantings of Celery and Cardoons.

Forcing Department.—Another batch of Rhubarb and Seakale roots should be got into the Mushroom-house, or in the absence of this accommodation should be covered with pots in the open ground, and the pots covered with 3 or 4 feet thick of Oak or Chestnut leaves. Another frame of Asparagus should be got in at once. Sow Mustard and Cress at short intervals, so as to have a good succession of them for salading, and see that successional beds of Radishes have sufficient air to prevent them becoming drawn. Keep a good supply of rich soil to hand in the potting shed in readiness for the sowing and top-dressing of French Beans and other purposes connected with this department. Potato sets of the Early Ashleaf and Hammersmith Kidneys, which are the two best early varieties, should be put in boxes or singly in 3-inch pots in leaf-mould, and put in a little heat to start preparatory to being planted on the hotbeds when they have made 2 inches of growth a few weeks hence. Stable-dung (including the horse-droppings) and leaves in about equal proportions should be thrown together next week, wherewith to make up hotbeds for Potatos, Carrots, Radishes, &c., about the middle of the ensuing month; they should be turned over a couple of times during the interval to allow of the rank heat escaping.

Mushroom-house.—As yet it has not been necessary to turn any hot water on in this department, inasmuch as the heat thrown off from the newly made-up successional beds, at intervals ranging from three weeks to a month, was sufficient to maintain a main temperature of 60°—a circumstance which rendered the application of atmospheric moisture unnecessary. Our house contains six shelves, which are made of slate and iron, two of these (the bottom ones) being used for the forcing of Rhubarb, Seakale, &c. Two of these beds are producing liberal supplies of Mushrooms; therefore, so long as the temperature does not fall below 55°, we shall not deem it necessary to turn on any heat, or distribute any moisture in the house; but so soon as a change in the weather may render the turning on of hot water necessary, in order to keep up the temperature above indicated, recourse will have to be had to the syringe and tepid water, in order to maintain a humid atmosphere. Where horse-droppings are plentiful it will be advisable to make up beds in the ends or back of sheds, or anywhere out-of-doors where a little protection in the way of covering can be given them, which will yield good supplies of Mushrooms next spring and early summer. *H. W. Ward, Longford Castle, Wilts.*

FLOWER GARDEN.

Walks, Alterations, &c.—My notes and doings of the last fortnight, which form the foundation for the remarks in this column, as also the immediate prospective work, are so similar to those of the last few weeks that there is little to add to the hints, &c., there given, other than to say that whilst the weather continues open every effort should be made to advance planting operations and alterations of every kind. As regards this part of the country, there never has been in my remembrance a more favourable season as to weather for getting extra work and planting off hand quickly. Walks and roads made in autumn, with the winter moisture to consolidate them, are much superior to those that are done in the spring time. Walks and roads that need repairing only should also now be done; the defective parts are best seen after a heavy rain. These portions we at once turn up, put in rough gravel or brick-rubble, and then, if the gravel be dirty or moss-grown, "point" over the whole walk, and roll as frequently as circumstances permit. By such treatment we are rarely troubled with weeds on walks or roads where the grass is kept short; but on the park roads, where the grasses are sometimes allowed to seed, hoeing and sometimes salting has to be had recourse to. When the gravel is stoney—if used with care, so as not to injure the turf—salt furnishes a very economical means of keeping down weeds; but on dressed walks that are desired to be dry and walkable in all weathers the use of salt should never be thought of.

Shrubbery Clumps and Herbaceous Borders.—Now that the leaves are all down shrubbery clumps should be raked out, and after the straggling growths have been removed, or, if needs be, the plants thinned out, the beds should have a dressing of decayed leaf soil, and be surface "pointed" over; the margins of such borders are suitable spots for bulbs of various kinds, but Lilies in particular, as the less they are disturbed by digging the better they thrive, and in such beds deep digging should always be the exception. Herbaceous flowering plants are now coming to the front, and in their proper place they are invaluable. Unfortunately there is an immense number of worthless species—at least, as regards flowers—that it is imperatively necessary to have a good knowledge of them before setting up a collection, or else get some one well up in them to make the selection for the first start. We are now busy among our small collection, which we are increasing by lifting and dividing the old plants and replanting the same on deeply dug and well manured soil. They are being arranged in somewhat the following order:—The tall growers, such as Pyrethrum uliginosum, Asters, and Helianthuses, in clumps of three in the back line border; the shorter growers in front, in clumps of three, five, or seven, according to the spread of growth of each variety. This we find a more effective mode of arrangement than the plan generally adopted, that is, single plants in straight lines. Necessarily borders that are entirely filled with such plants look very naked at this season of the year—a condition that may easily be remedied by using a few dwarf evergreen shrubs at regular intervals throughout the border, and introducing plots of Saxifrages, Sedums, &c., as carpeting plants for bulbs. The mildness of the season is producing a very undesirable growth in spring bedding plants, which the first severe frost will be sure to cripple unless protection can be given, and nothing is so neat for this purpose as plenty of cocoa-fibre refuse: an additional coating of this material is daily becoming more necessary. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Orchard-house.—The trees intended to fruit in the late house next season are now plunged over the rims in cocoa-nut fibre refuse out-of-doors; they will be no trouble to us until they are removed into the house any time after the new year. If the young maiden trees are not yet potted the weather is still very favourable for doing so. Even if the trees are carefully lifted in the nursery there are sure to be some roots bruised and broken. The injured parts must be cut clean off with a sharp knife. It is also necessary sometimes to cut the large roots well back, in order to get the trees into the pots. I have never used larger pots than 11-inch ones for the first potting, but more often 9 and 10-inch pots are used. If there is any of that troublesome pest, the brown aphis, on any of the young growths—they cluster round the flower-buds on the end of the young wood and prevent their opening well—let them be destroyed by washing all the wood with soft-soapy water to which some tobacco-liquor has been added, and two good handfuls of sulphur to each gallon of the water. Look over the Strawberry plants on the shelves and remove any decaying leaves. The pots should be washed, so that everything may be made neat and clean. If it is intended to force a portion of the trees the house must now be prepared for them. The middle of December is a good time to start them, with a very little artificial heat indeed until the new year comes in. Some pots of Black Prince and Keens' Seedling Strawberry should be placed on shelves near the glass at the same time; and if there is room for more than 100 pots, it would be as well to introduce some of later varieties. President will follow closely on the heels of Keens' Seedling, British Queen next to it, and we always finish off with Loxford Hall Seeding. It is no use trying to force Peach or Nectarine trees unless they have been well established in the pots early in the autumn. I would not advise growing any other class of trees in the forcing orchard-house except Peaches and Nectarines; and if space can be found for a few fruiting canes of Black Hamburgh and Foster's White Seedling Grapes, the fruit may be very useful, at least the Vines, when well grown, are very ornamental, and add much to the appearance of the house. We have grown them trained up the pillars which support the roof, where they did well, and ripened off excellent fruit. *J. Douglas.*

Peaches and Nectarines.

The early house may now be closed, but if we have a continuation of mild weather very little or no fire-heat will be required for the present to keep up the desired temperature of 40° to 50° by night, and 50° to 55° by day, with a rise of 10° more by sun-heat. Where fermenting material can be used inside, I have no doubt it is a great advantage, giving off a nice humid heat and dispensing with fire-heat for some little time to come; it will require turning over every morning and a little fresh dung and leaves added occasionally as the heat declines. I do not use it here, as our houses are not adapted for it. If the lights have been off, very little water will be required at the roots for the present. Syringe the trees, paths, and borders with tepid water twice daily, about 9 A.M. and 2 P.M., except on very dull days, when the morning syringing will be sufficient. If the roots are allowed to go outside protect them with a good thick covering of dry litter or leaves. Give air on all favourable occasions, and do not by any means over-excite them at starting, a gentle start is much the best, and old trees that have been forced early some years are much more easily excited than young ones. Proceed with pruning, cleaning, and training succession-houses when convenient, which may be done when the weather is unfavourable for outdoor work. *J. Wallis, Keele Gardens.*

Melons.

The season for Melons being now practically at an end as far as any aid from cultivation is concerned nothing better than a repetition of the advice given in my last Calendar will be of any service to those having plants in fruit still on hand. Keep a dry atmosphere night and day, and, except to prevent the fruits from shrivelling, give no water to the roots. In almost every case now the fruits that remain may be removed to a warm room, and the houses utilised for other and more profitable purposes. *W. Hinds.*

Cucumbers.

Since my last Calendar was written we have enjoyed a spell of warmth and sunshine unusual at this season and the benefit of which cannot be overestimated in regard to its influence upon the future welfare of plants. Not a day has passed during the past fortnight in which it has not been possible to admit healthy volumes of pure fresh air for a longer or shorter period. With such important natural advantages the routine of cultural treatment has been simplified indeed. A good deal rests with the stoker as to whether he does not negative the benefit of the natural warmth by keeping up a high temperature at night. It should, however, be borne in mind that the less forcing that is necessary in the case of the Cucumber at this season the better. If plants are in vigorous health they make progress rapid enough to meet all ordinary demand without resorting to hard forcing. If there is any appearance of green or black fly, now is the time to dislodge it effectually. The foliage is pretty firm and will bear fumigating with less risk of injury than if the weather had been dull and the plants confined in a close atmosphere. Syringe the plants once daily when the weather is fine, pinch and train in young growth and thin the crop to the lowest minimum that requirements will admit of. Keep a ground thermometer in the bed and water the roots of the plants with water a few degrees higher than that indicated by the ground thermometer. *W. Hinds.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 28	Sale of Dutch Bulbs, at Stevens' Rooms; and the Auction Mart, by Protheroe & Morris.
TUESDAY,	Nov. 29	Sales of Imported Orchids, at Stevens' Rooms; and of Nursery Stock at Steele's Nursery, Richmond, by Protheroe & Morris.
WEDNESDAY,	Nov. 30	Liverpool Chrysanthemum Show. Sales of Stove and Greenhouse Plants at Caen Wood Towers, Highgate, by Protheroe & Morris; and of Hardy Plants, &c., at Stevens' Rooms.
THURSDAY,	Dec. 1	Meeting of the Linnean Society, at 8 P.M. Sale of Lilium auratum Bulbs, at Stevens' Rooms
FRIDAY,	Dec. 2	Sale of Lilium auratum and other Bulbs, at the Auction Mart, by Protheroe & Morris.
SATURDAY,	Dec. 3	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

A VERY interesting return has lately been published by the Board of Trade, as to the number of acres in Great Britain under Hops, market gardens, and orchards respectively, during each year from 1868 to 1880 inclusive. With this are given statistics, showing the quantities and the money value of the Hops, fruit and vegetables respectively, during each year from 1840. Unfortunately, the returns are not complete in all cases, and not always fairly comparable. Nevertheless, it is easy to pick out some of the salient points which must be of very great interest to Free Traders and Fair Traders alike—indeed, to every one who has to be fed and to feed others.

The acreage under Hops varied from 60,030 acres in 1871, to 71,789 in 1878; the general average from 1867 to 1880 being 65,626 acres. The climate of the previous year, fiscal regulations, and the amounts of foreign imports, are, of course, important factors to be considered in explaining these figures, but as Hops are rather outside of our scope, we make no further mention of them now.

Similarly, the acreage of market gardens varied from 36,204 acres in 1872, the earliest year of which any record is given, to 44,490 acres in 1880, the average being 38,851 acres. The terrible year 1879 did not discourage market gardeners, for we find that in 1879 there were 40,582 acres, while in the year following the amount had risen to 44,490, the increase coinciding with a marked increase in the acreage of orchards and a slight decrease in that of Hops.

The orchards of Great Britain were computed to occupy 148,221 acres in 1873, the smallest area; while the largest area so cultivated was in 1880, when it reached 179,596 acres, the average for the whole ten years being 167,002 acres. The fluctuations and discrepancies in the figures in this column are such as in the absence of explanation to prevent any fair inference being drawn. We fail to see, for instance, why the acreage should have diminished from 206,583 acres in 1871 to 169,808 in 1872, or how such a jump as that of 165,415 in 1878 to 174,715 in 1879 could have taken place; for it must be remembered that, unlike cereal or market garden crops, orchards are perennial.

Again, there is the difficulty of distinguishing between a market garden and an orchard. About London market garden crops and orchard crops are often grown side by side in the same ground. Leaving this part of the subject we may now advert to the quantities of Apples, Potatos, and Onions imported, and to their value, leaving out of account the quantities of Oranges and Lemons, Pears, Grapes, miscellaneous raw fruit, Currants and Raisins, Figs, Plums, Prunes, and other dried fruits, either because they are not within our province, or because the reports are too incomplete, or are not sufficiently precise for our purpose.

Apples come first on the list, and of these there is a complete record of importations from 1843 to 1870, that is to say, for twenty-eight years. Running down the figures we find the lowest number of bushels imported was in 1844, when 182,590 bushels were imported, while the largest quantity was in 1863, when 1,262,207 bushels were imported. The total number of bushels for the whole period was 13,931,693, which, divided by 28, the number of years, gives an annual average of 497,524 bushels. It is, however, more instructive to give the average for each seven years, which we put in tabular form, thus :—

Average	1843 to 1849	269,265 bush.
,,	1850 to 1856	393,194 ,,
,,	1857 to 1863	724,691 ,,
,,	1864 to 1870	745,947 ,,

It is clear that there has been on the whole a steady increase in importation for the period indicated, and could we have the figures for the last ten years no doubt the increase would be seen to be extremely great, for it is within that period that the great increase in the importation of American Apples has taken place. The money value of the imported Apples is given in the tables from 1854 to 1870 inclusive. Analysing the figures we find that the minimum value was in 1855, when the value was quoted at £55,048. The largest value recorded was in 1862, when it amounted to £316,388. The average of seventeen years is £169,639. That the amount is greatest in the later years, is shown by taking the average of the first nine years separately from that of the second eight, thus :—

1854 to 1862	£143,971
1862 to 1870	198,515

Rightly to appreciate the significance of the figures for each individual year, we ought to know the climatic details for that year and the quantity and value of our own home-grown crop.

The record relating to Potatos is, in many respects, the most interesting, particularly because it is complete from 1840 to 1879—forty years—of which the first were in the old Protection days. The lowest amount of imported Potatos was in 1840, when 2293 cwt. only were imported. The highest amount was in 1879, *when over nine million hundredweights* were imported! The quantity steadily but slowly increased in 1841, 1842, and 1843, in which latter year 16,033 cwt. were imported. The quantity suddenly and largely increased in 1844 to 116,911 cwt. This had reached 275,274 cwt. in 1847, while in 1848 it bounded up to 940,707 cwt., and in 1849 to 1,417,867 cwt. Surely history is vividly illustrated by those figures! The decade from 1850 to 1859 showed fluctuations from 16,446 cwt. in 1854, about the same as in 1843, to 1,721,953 cwt. in 1858, the average for the ten years being 734,334 cwt.

The third decade, 1860—1869, inclusive, witnessed a fluctuation from 385,446 cwt. in 1861 to 2,041,436 cwt. in 1868, the average of the ten years being 1,091,115 cwt.

The importation fell in 1870, the year of the Franco-German war, to 771,854 cwt., while in 1871, during part of which war was still raging, the importation was 847,835 cwt. History again!

In 1872 the importation leapt up to nearly 6,000,000 cwt., it fell to about 4,000,000 in 1874, while from 1876 to 1879 it has increased by more than 1,000,000 cwt. each year, till in 1879 it had reached the astounding figure of 9,357,179 cwt.

The true rate of increase is perhaps best seen by taking the averages of each decennial years, and so in some degree equalising the more violent fluctuations dependent on season. Treated in this way the figures come out thus :—

Average	1840 to 1849	37,764 cwts.
,,	1850 to 1859	734,334 ,,
,,	1860 to 1869	1,091,115 ,,
,,	1870 to 1879	5,508,032 ,,

The money value of the Potatos imported is unfortunately not given so completely as the quantities imported. It is given only from 1854 to 1879. The total amount for this period is £18,748,843, which gives an average of £721,109 per annum for the whole period. The lowest amount paid was in 1855, £10,196, the highest in 1879, £2,696,885—*considerably more than two millions and a half pounds* paid in one year for Potatos! The averages may be given as follows—

Average	1854 to 1862	£138,181
,,	1863 to 1871	274,021
,,	1872 to 1879	1,879,877

It will be seen that the last average, though only for eight instead of nine years, is more than four times greater than that for the nine years preceding!

The British Potato grower may well look aghast at these figures; but there is another point of view—that of the consumer—and the Potato grower is a consumer like the rest of us, and we must remember the relatively very limited cultivatable area we have to draw upon, the enormous increase of our population, and the desperate character of our seasons in many years, especially lately. With these facts in view, we may ask ourselves where should we be as a nation were it not for these prodigious imports? But we must not deal with the political part of the question, but pass on to the item of Onions.

From 1855 to 1879, inclusive, it appears there were imported 21,100,060 bushels of Onions, or a yearly average of 844,002 bushels. The smallest amount was in 1856, when 126,987 bushels, the largest in 1878, when 2,169,480 bushels were imported. The Franco-German war does not seem to have affected the imports in 1870, when 1,084,162 bushels were introduced. The explanation of this lies in the fact that we do not import Onions largely either from Germany or France.

Dividing the whole period of twenty-five years into two periods, one of thirteen, the other of twelve years, we get the following averages :—

Average	1855 to 1867	378,336 bush.
,,	1868 to 1879	1,343,473 ,,

The money value of imported Onions is given for twenty-four years, 1856 to 1879. From this we learn that the average annual value is £240,598; the lowest amount was in 1856, £42,329; the highest in 1879, £450,019; the average from 1856 to 1867 was £169,316; while in the last period of twelve years, from 1868 to 1879, it amounted to £311,881.

Looking at these facts in their entirety, it will, we think, become apparent that we cannot, with our past and ever increasing requirements, and our uncertain climate, ever hope to dispense with foreign aid. But although this is so, that circumstance of itself would not prevent our market growers from realising good profits for themselves if other conditions were favourable. They cannot well have been worse than during the last few years, so that there is good reason to believe they must now improve. To this end rents must fall as they are falling, transit rates must be lowered to balance foreign import, the agency of middlemen must be reformed if it cannot be done away with, open markets must be increased, the producer and consumer brought into more immediate contact to the advantage of both, and the cultivator must employ more capital, and especially more brains, so as to be able to avail himself of the resources which science is daily putting in his way, and to know how to secure one crop when he sees another likely to fail or to fall in value.

—— HELIANTHUS MULTIFLORUS (fig. 141).—This is a very common plant, but one of the best of large-growing Composites which flower in the autumn season. It branches and blossoms so freely that it is extremely ornamental in the garden, and not only so, but it holds its own as a cut flower in company with the larger class of subjects, as Dahlias, &c., used for filling vases. It is one of the flowers which thrive well in London, there being abundant examples of it in the gardens on the Thames Embankment and the Chelsea Embankment. The double-flowered form of it is equally common and equally free, but is not to our minds so pleasing as this single form, whose golden rays and blackish disk show up to great advantage. There is also occasionally seen a form in which the golden ligulate ray florets are developed in company with yellow tubular disk florets—the flower-heads, in fact, being like a quilled Aster. All the forms are worth a place in the flower border proper, and they are equally suitable for mixing in the front ranks of shrubbery borders.

FIG. 141.—HELIANTHUS MULTIFLORUS. (SEE P. 692.)

—— A Large Oak Tree.—In the *Deutscher Garten* for October there is a description and figure of a gigantic Oak tree, the Königseiche, or King's Oak, of Pausin. This fine tree, though still standing, is dead. At 40 inches from the ground the stately trunk is about 9 metres, or nearly 30 feet, in circumference. This tree is regarded as one of the very primæval Oaks in existence at the present time.

—— The New Afghan Yellow Rose.—This Rose, which has already been mentioned in our columns, has been raised at Kew from seeds brought home by Dr. Aitchison, and there will, therefore, be an opportunity of judging of its value as an ornamental plant. Dr. Aitchison states that it is one of the commonest bushes between Habibkalla and Alikhel, forming with Amygdalus eburnea the greater part of the scrub on the stony ridges of the Hariab district.

—— Replanting Large Trees at Dunse Castle.—With reference to the tree raising operations at Dunse Castle, described at p. 667, we are informed that the trees are about 60 feet high, in their cut-in state, as raised, their full height having been about 90 feet. The largest will girth about 10 feet at 5 feet from the ground, the weight of the tree being about 4 tons, and the ball of roots and earth about 16 tons, or 20 tons in all. About a dozen trees have been raised in the "Lime-tree Avenue," and it is intended to raise a number more of the fine trees which have been upset in the near neighbourhood of the Castle. These will include some weightier trees than any in the avenue, and will consist of Limes, Oaks, Sycamores, Elms, and ornamental trees and shrubs, which are not so badly smashed but that they are likely to grow, and are worth raising.

—— Russian Mats.—Messrs. J. Blackburn & Sons report that Archangel mats are unusually scarce and dear this season, and that prices are hardening up to a higher figure than has been touched since 1876, the short supply being caused by unremunerative prices for past years. Raffia fibre is also likely to advance in price.

—— Leontice Alberti.—This is a pretty species, near L. altaica, having flowers of a bright brownish-yellow. It was discovered in Turkestan by A. von Regel, and has flowered in the Petersburg Botanic Garden. A coloured figure of it has recently appeared in Regel's *Gartenflora*.

—— Mildness of the Season.—A correspondent informs us that in various parts of Staffordshire and Warwickshire Jasminum nudiflorum is flowering most profusely, as also about London; also Pyrus japonica, and Violets and Primroses are very plentiful, showing how mild the season is. With us Clematis flammula has leafy shoots 2 inches long, Lilac buds are opening, the Alder catkins are nearly out, Petasites fragrans is in bloom, Roses are on the move, and black Currant buds have cast their outer scales. We have also before us some Gooseberry blossoms, sent by a correspondent.

—— Weight and Size of the Leaves and Flowers of Victoria regia.—Paul Marcoy, a plant collector, found, as we learn from the *Wiener Illustrirte Gartenzeitung*, a gigantic specimen of the great Water Lily in the inky-black water of Lake Nuna in Peru. One of the leaves measured 24 feet 9 inches and 3 lines in circumference, and weighed between 13 and 14 lb. A flower measured 4 feet 2 inches in circumference; the outer petals were 9 inches long; the weight of the flower was 3½ lb.; and that of a bud 2¼ lb.

—— Ricinus communis a Remedy Against Flies.—A contributor to the *Bulletin de la Société d'Horticulture d'Orleans* states that the Castor-oil plant is an excellent remedy against flies in dwelling-rooms. Flies that alight on the leaves and suck the sap fall down dead, their bodies changing to white. Rooms in which flies are very numerous are by this means soon freed of them.

—— Ligularia macrophylla.—This gigantic herbaceous plant is a native of Siberia, and perfectly hardy in this country. It is allied to Senecio Ligularia, syn. Ligularia Kæmpferi; but it has very different leaves, resembling rather those of very luxuriant Horse Radish, and attaining a length of 3 to 4 feet. Some years ago this fine plant was in cultivation at Kew—and it may be still—where it grew to a large size, though by no means so large as the dimensions recorded in a German contemporary. Under favourable conditions, it is stated, the flowering-stems rise to a height of 9 to 10 feet, and form a very striking object. The flower-heads are yellow, and borne in dense narrow panicles. Ligularia macrophylla is represented by a closely allied species in Northern Persia and in the mountains of Afghanistan. It is the L. persica of Boissier, and is perhaps not more than a form of the same species. Dr. Aitchison collected it at an elevation of 9000 feet, and he describes it as a very showy plant, the flower-spike being nearly 4 feet high at that elevation. There is a good figure of L. macrophylla in Ledebour's *Icones Floræ Altaicæ*, t. 367.

—— New Myrtle, Jenny Reichenbach.—This dwarf free-flowering Continental variety will be found very useful for furnishing stands when it becomes better known. It literally swarms with flowers in a young state, and the fragrance emitted from the opening flowers will be very acceptable to ladies at a time of year when scented flowers are not over plentiful.

—— Afghan Rhododendrons.—One of the two species of Rhododendron, R. afghanicum, collected in Afghanistan by Dr. Aitchison, and described in the *Journal of the Linnean Society*, vol. xviii., p. 75, has been raised from seed at Kew. It is not showy, and will probably seldom be seen outside of a botanic garden. Nevertheless, it is an interesting species. It is a dwarf, dense shrub, trailing over and rooting in rocks at an elevation of 7000 to 9000 feet. The flowers are small, and greenish-white, differing from those of most others in the short, broadly campanulate corolla and exserted stamens. This species is reputed to be poisonous to goats and other animals, and, when not in flower, difficult to distinguish from the second species, R. Collettianum, as the leaves of the two are almost exactly alike, except that in R. afghanicum they are thinly studded beneath with rather large, disk-like scales, whereas in R. Collettianum the under-surface of the leaves is densely felted with minute rusty scales. The latter species is also said to be inert, and grows to a larger size than the other.

—— Sir John Lubbock on Ants, Bees, and Wasps.—At the last meeting of the Linnean Society, the President, Sir John Lubbock, laid before the members a paper, an abstract of which had already been read at the York meeting of the British Association. It was a continuation of his previous memoirs on the habits of ants, bees, and wasps. He observed that the consideration of the causes which have led to the structure and colouring of flowers is one of the most fascinating parts of natural history. Most botanists are now agreed that insects, and especially bees, have played a very important part in the development of flowers. While in many plants, almost invariably with inconspicuous blossoms, the pollen is carried from flower to flower by the wind, in the case of almost all large and brightly coloured flowers this is effected by the agency of insects. In such flowers the colours, scent, and honey serve to attract insects, while the size and form are arranged in such a manner that insects fertilise the flowers with pollen brought from another plant. This view, of course, pre-supposes that bees have the power of distinguishing colours, and Sir John Lubbock had shown experimentally that this is the case in former memoirs. In the present paper he commenced by detailing some experiments made with the view of ascertaining not only whether bees could distinguish one colour from another, but also whether they preferred certain colours to others. Under precisely similar conditions he placed drops of honey on papers of different colours, having accustomed marked bees to come to the spot for food. He then placed these pieces of paper on a lawn. When the bee returned and had sipped the honey for about a quarter of a minute he removed it. She then flew to a second colour; this he took away. Then she went to a third, and so on. In this manner he induced her to visit all the drops successively; and, by recording a large number of observations, he ascertained for which colour the bees showed a preference. The result was that they seemed to like blue much better than the other colours. It may be asked why it is that, if blue is the favourite colour of bees, and if bees have so much to do with the origin of flowers, there should be so few blue ones. He suggests the explanation to be, that all flowers were originally green, and then passed through white or yellow, and generally red before becoming blue. As regards ants, he recorded a variety of experiments bearing on their recognition of relations, and, with reference to their longevity, observed that some of his specimens had lived in confinement sincce 1874, being, therefore, now, at least seven, and probably more than eight years old.

—— Royal Horticultural Society of Ireland.—The fifty-second annual meeting was held recently at the Society's rooms, Westland Row, Dublin, the Duke of Leinster in the chair. The report, as published in full in the *Irish Farmers' Gazette*, is on the whole of a satisfactory character—the exhibitions having been good, and the financial condition sound, a handsome reserve fund being in existence to meet the deficit from unfavourable seasons.

—— Aralia dactylifera.—The plant under notice is one of the best of its kind either for exhibiting or furnishing purposes. The leaves are beautifully cut, and the plant has the further merit of living in a greenhouse temperature—say a temperature of 40°. The smaller but more fashionable and costly hothouse kinds are no doubt pretty in certain positions and situations, but the variety which is the subject of these remarks will stand six times the tear and wear, and does not cost half the price. It is also a rapid grower, requiring less cultural skill to have it in good condition.

—— Botanical Drawings.—Mrs. Barnard, Leckhampton, Cheltenham, has prepared for the use of classes and of teachers of botany a series of pen-and-ink drawings—reproduced by the polygraph—of common wild flowers, with floral details on an enlarged scale. They are excellent for the student to make use of, together with the plant, as they serve to direct his attention to the points of structure most worthy of notice, and when actual specimens are not forthcoming these drawings are serviceable substitutes. They have this advantage over large diagrams hung up in the class-room, that each pupil can have one for his own use, and of course the number of illustrations may be much larger than would be possible in the case of wall pictures. As compared with woodcuts also these drawings have an advantage, as the great cost of woodcuts limits their use in text-books, but the process employed by Mrs. Barnard is so simple and effectual that every detail capable of pictorial representation might be illustrated for the pupil at a very trifling cost. Young gardeners would find them very serviceable, and if they were introduced into gardeners' societies, where a teacher or advanced student could explain them, the benefit would be great. We might suggest to Mrs. Barnard that she might exercise her skill in drawing specimens of garden flowers, and especially of fruits, so as to diffuse a knowledge of the more important kinds among gardeners and others. The cost of these drawings is not more than about a shilling a dozen.

—— Cyperus alternifolius as an Aquatic.—How useful and popular this plant is for all purposes of decoration it is not necessary now to mention, but it is seldom seen treated as an aquatic. Messrs. Jackson, of Kingston, grow a large stock of it in small pots set in saucers of water; the roots are swarming in the saucers after passing through the bottoms of the pots, every rootlet with a white tip and the picture of health. The plants are of a much better colour than they are generally seen, and the lesson to be drawn from the facts above stated appears to be that the plants under the common system of cultivation are not sufficiently supplied with moisture.

—— Root Parasites.—The troubles of horticulturists are manifold. Insects, fungi, worms, slugs, snails, millepedes, woodlice, and a host of other pests, are unceasingly at work to injure or destroy the plants they rear with such pains. A case is before us of a very serious nature, and one new to us. A large plant of Stephanotis covering a house 60 feet in length by 15 feet in width, and which last year produced 2800 sprays, was lately observed to be in ill-health, the leaves turning yellow and falling off. Some roots were sent to us for examination, presenting little gall-

like swellings, as well as cracks in the rind. On cutting them down cysts or bags of membrane were clearly perceptible to the naked eye, filling the interior of the galls; and on placing these under the microscope these bags were found full of immature worms, probably closely allied to those which produce one form of the Cucumber disease. We have not previously met with these root-worms in Stephanotis, and must defer further notice of them until they have been more fully examined. In the meantime it is clear that the parasites feed on the nutriment stored up in the fleshy roots for the use of the plant, and divert for their own purposes what is intended for the plant. We greatly fear there is no remedy short of uprooting the plant, burning the roots and the soil, and starting afresh; but as that is a serious matter, it may be well to watch the plant affected, and endeavour by the judicious use of liquid manure so to strengthen the plant as to enable it to withstand the weakening effect of its enemy.

—— Professor Hinds.—The death of this gentleman, who for twenty-five years held the office of Professor of Botany at Queen's College, Birmingham, is announced. Dr. Hinds was not a voluminous writer, but he was deservedly a favourite with his colleagues and pupils from the thorough yet urbane way in which he filled the duties not only of Professor but also of Dean of the school.

—— The Royal Arboretum at Edinburgh. Mr. John Sadler, Curator of the Royal Botanic Garden, has been appointed by the Lords Commissioners of Her Majesty's Treasury Curator of the Royal Arboretum.

—— Begonia socotrana.—This very interesting and beautiful Begonia is now blooming freely at Kew. Flowering, as it does, at a time when the fine tuberous-rooted species from the Andes, and the host of hybrids and seedlings raised from them, have been long past, it makes a most welcome addition to the list of bright flowering plants for the warm conservatory during the present dull season. The original description, together with an illustration of this species, were given in the first number of the *Gardeners' Chronicle* for the current year.

—— Begonia insignis.—What is now flowering under this name at Chiswick is a form well deserving the attention of gardeners, as it is an admirable winter-blooming plant. Mr. Barron states that it is distinct from what is generally grown under this name. The plant at Chiswick has a peculiarly fine-shaped growth, and is not erect, like most of the others; the habit is handsome and spreading, and a good plant has a pleasing outline, apart from all training. The flowers are of a salmon-rose colour and are plentifully produced, it is also a continuous flowerer. Taking B. ascotensis as one of the best summer-flowering Begonias of this section, whether for indoors or out-of-doors, B. insignis succeeds it at the proper time, and when its decorative qualities are most valuable. It bids fair to become as popular as B. weltoniensis. It will also prove most useful to cut from, though Begonias are not particularly enduring in a cut state.

—— Crystal Palace School of Gardening.—On Wednesday last Mr. F. A. Fawkes delivered the second of his series of illustrated lectures to the students and the public on "Horticultural Buildings." Commencing with glass and how it should be fixed, he reviewed, in a very clear manner, the rival advantages as well as the disadvantages of putty and other systems of glazing; and showed that for strictly horticultural growing purposes putty glazing, with all its unmechanical, crude, and objectionable character, when properly and judiciously carried out, was the best system. The various kinds of glass to be used, those not to be used, as well as various crotchets and fads connected with cutting glass, received attention at the hands of the lecturer. After speaking of curvilinear and ridge-and-furrow houses he analysed the details, and gave the dimensions of stages best adapted for various growing purposes and various forms of houses. The principles of ventilation and their application to the ventilation of horticultural structures, followed by the best forms of ventilators for different purposes, and the means of opening them either singly or in combination, were then explained. The next point related to training wire for roofs, walls, &c. Some very necessary instructions and data regarding paint were given, the structural formation of a Vine border and a forcing bed explained and illustrated. The lecture concluded with some very pertinent and useful remarks upon paving and paths in houses, the materials at command, how they can be best utilised, the most advantageous mode of applying them, and a variety of dimensions connected with them.

—— Herr Wendland.—We are informed that Mr. Wendland has no intention of leaving Herrenhausen to take charge of the Botanic Garden at Carlsruhe, as was recently stated in these columns.

—— Dr. Paterson's Orchids.—On the occasion of the Queen's return to Windsor Castle from Balmoral on Tuesday last, Dr. Paterson, of Bridge of Allan (whose collection of Orchids is noticed in another column by Mr. Spyers), had the honour of presenting to Her Majesty, at the Perth railway station, a beautiful basket of Orchid flowers, which included over 200 spikes, of the following species and varieties:—

Odontoglossum Alexandræ
,, bictoniense superbum
,, constrictum
,, nebulosum
,, Rossii majus
,, Uro-Skinneri
,, Londesboroughianum
,, grande
,, citrhosum
,, Pescatorei
Lycaste lanipes
,, Skinneri
Lælia anceps
,, autumnalis
,, ,, atrorubens
Vanda cœrulea
,, tricolor
Neottia picta maculata
Oncidium Schlimii
,, varicosum
,, crispum
,, ornithorhyncum
,, tigrinum
,, cheirophorum
,, cucullatum
,, album
,, aurosum
,, Forbesii
,, incurvum
,, flexuosum
Cypripedium insigne
,, venustum
,, Harrisianum
,, Sedeni ×
,, Spicerianum
,, Haynaldianum
,, longifolium
Epidendrum erectum
Epidendrum alatum majus
,, rhizophorum
,, ciliare latifolium
Pleione maculata
Dendrobium chrysanthum
,, superbiens
,, bigibbum
Masdevallia amabilis
,, ignea
,, Veitchiana
,, melanopus
,, chimæra
,, Davisii
,, Harryana
,, Lindeni
,, polysticta
,, tovarensis
Maxillaria Lehmanni
,, picta
,, lepidota
Gongora Ruckeriana
,, Cymbidium giganteum
,, eburneum
,, Mastersii
Goodyera Dawsoniana
Mesospinidium vulcanicum
Miltonia atrorubens
Sophronites grandiflora
,, violacea
Zygopetalum Mackayi
,, maxillare
Calanthe Veitchii
,, vestita
,, rubra-oculata
Cattleya marginata
Restrepia antennifera
,, fuscatum
Bollea cœlestis.

—— New British Orchis.—Mr. C. B. Clarke at the Linnean Society's last meeting (17th) brought before the Fellows a Hampshire Orchis not represented in *English Botany*. This plant has pale flesh-coloured flowers, and is nearly allied to O. latifolia, but has a denser, more cylindric spike, with shorter bracts than O. latifolia. By comparison of the authentic specimen and description of Linnæus and of the specimen in Fries' standard herbarium, Mr. Clarke shows that this Hampshire Orchis is the true O. incarnata, Linn.; and that the O. incarnata of Syme and Babington is (as Smith and Sowerby called the same identical plate in *English Botany*) O. latifolia, Linn. Mr. Clarke maintains that at all events the pale Hampshire Orchis has not yet been figured among English plants.

—— Linnean Society.—The following papers will probably be read at the next meeting, on December 1:—Professor Owen on the "Coronario-hypophysial tract;" Dr. Masters, on the "Foliation of Buddleia auriculata;" Sir John Lubbock, P.L.S., on "Daphnia;" Rev. Geo. Henslow, on a "Proliferous Mignonette," &c.

—— A Cruel Hoax.—Mr. Hart, of the firm of Messrs. Butler, M'Culloch & Co., herbalists, of Covent Garden, applied to Mr. Vaughan, the magistrate at Bow Street, on Wednesday last, with reference to an advertisement that had been inserted in a daily paper without the sanction of the firm, for several women to pack herbs, &c., in their warehouse, no previous knowledge being necessary, and the wages to be 15*s.* per week, and application to be made on Tuesday to the above firm. Being market day, and upwards of 500 women having applied, great inconvenience and annoyance was caused, two constables being necessary to move the women away. The present application was made with a view of ascertaining what steps could be taken to punish the perpetrators of the hoax. Mr. Vaughan said it was a very mischievous thing, and thought that the women who had been so imposed upon had been victimised to a greater extent even than the firm, though great annoyance must have been caused to them. There had, however, been no actual fraud, and the perpetrator of so cruel a hoax was not answerable to the criminal law. If his name could be ascertained the women could sue him for damages.

—— Cratægus Pyracantha.—Whether for a wall, as a bush in a shrubbery, as a standard on a lawn, or as a hedge plant, this Thorn may safely be recommended as one of the best for its purpose. It is perfectly hardy, dense in foliage, not easily penetrable as a hedge, and generally it is loaded in the autumn and winter with its brilliant berries. Mr. Maurice Young tells us that its production of berries may be greatly accelerated by grafting it on the Quince.

—— A Large Puffball is recorded in Coulter's (American) *Botanical Gazette*.—The writer states that some unknown friend presented him with a giant Puffball (Lycoperdon giganteum), which had attained unusual proportions during the long-continued rains. It was depressed globular in shape; its circumference in a horizontal plane being 58 inches, and the line reaching from the ground on one side over the top and down to the ground on the other side again was 32 inches.

—— "Knowledge."—This is the title of a new periodical "intended to bring the truths, discoveries, and inventions of science before the public in simple but correct terms—to be, in fact, the minister and interpreter of science for those who have not time to master technicalities, whether of science generally or of special knowledge." The publication is issued weekly at twopence, under the editorship of Mr. Procter. The articles we have seen have been of a good type, but we cannot say that the editor has been in all cases able to banish technicalities, as witness the paper on the "Great Pyramids," or that on "Logarithms," which are very formidable looking, though doubtless simple enough to the mathematician.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending November 21, issued by the Meteorological Office, London:—The weather has been dull, unsettled, and rather rainy and squally in all parts of the kingdom. Lightning was observed in many places at the commencement of the period, and at Stornoway a thunderstorm occurred. Temperature has again been above the mean, the excess averaging from 4° in the east and north-east of England to 7° in the south of Ireland. The thermometer was highest on the 20th or 21st, when it rose in most districts to 57° or 59°. The minima, which occurred generally on the 18th, were as low as 27° or 28° in Scotland and the north-east of England, and 30° to 35° elsewhere. Rainfall has been slightly less than the mean in "England, E. and N.E.," but rather more in all other districts. Bright sunshine, though still very little prevalent, shows an increase, the percentage ranging from 19 in "England, N.W.," to 36 in "England, E." Depressions observed: — During the whole of the period the barometer has been highest over France and lowest to the northward and north-westward of our islands. Several depressions—some of them very deep—have passed in a northerly or north-easterly direction outside or across our western and northern coasts. The wind has consequently been generally between west and south, and variable in force from a moderate or fresh breeze to a strong gale. During the night of the 20th an exceptionally violent gale was felt in the north of Scotland.

—— Gardening Appointments.—Mr. Wm. Thompson, for four years Foreman to Mr. Morrison, at Narrow Water, Warrenpoint, Co. Down, has been engaged as Gardener to J. La Touche, Esq., Harristown, Newbridge, Co. Kildare.—Mr. James Turner has been appointed Gardener to the Earl of Courtoun, at Courtoun House, Gorey, Co. Wexford; and Mr. P. Braund, late of Courtoun, has succeeded Mr. McLean as Gardener and Steward to Lady Louisa Cotes, Pitchford Hall, Shrewsbury.—Mr. T. Ashby, late Foreman to Mr. Chas. Bennett, Besborough Court, has been engaged as Gardener to Lord Fermoy, Trabolgan, Cork.

MR. BRUCE FINDLAY.

ON Wednesday afternoon about a hundred ladies and gentlemen met in the Mayor's Parlour, at the Town Hall, Manchester, under the Presidency of the Mayor, Mr. Ald. Baker, for the purpose of presenting a public testimonial to Mr. Bruce Findlay. Proceedings were opened by the Mayor in a complimentary speech, after which Mr. R. Tait, Honorary Secretary to the Testimonial Committee, read letters apologising for non-attendance from Lord Derby, the Bishop of Manchester, Mr. R. N. Phillips, M.P., and others.

Mr. Joseph Broome, who was called upon to make the presentation, said that he had had opportunities of coming in contact with Mr. Findlay more than perhaps any other member of the committee, and he could say of Mr. Findlay, who had been before the public of Manchester for twenty-three years, that a more assiduous man, one more devoted to the work he had in hand, he had never known. At a meeting held in that room on September 7 a resolution was passed warmly supporting "a substantial presentation to Mr. Bruce Findlay in recognition of his long and eminent services in the general spread of horticulture and floriculture." The result in so short a time was something unknown in Manchester, the sum of £1106 having been collected without, he might say, a single application having been made to any one. He had now the pleasure of presenting to Mr. Findlay a cheque for £1000 and a gold watch and chain, together with an address, and at the suggestion of the Mayor the Committee had also provided a gold watch and chain for Mrs. Findlay.

The address, which was bound in morocco and engrossed on vellum, was as follows :—

"To Mr. Bruce Findlay, Curator and Secretary of the Royal Manchester Botanical and Horticultural Society. Dear Sir,—Your career as Curator of the Manchester Botanical Society commenced in the year 1858, twenty-three years ago. The zeal and energy which you have exhibited for the prosperity of the Society, as well as for the general extension of the science of botany, floriculture and horticulture, have been watched with interest by your numerous friends. Your suggestions to the Council of the Botanical Society have been characterised by rare judgment. The annual Whitsuntide exhibitions converted the small local exhibition into one of an extensive national character, with the result of giving pleasure and instruction to 40,000 or 50,000 visitors, and also causing a considerable improvement in the financial position of the Society. The autumn international display held by the Society in 1873 was only second to the grand international exhibition which took place in August of this year in celebration of its jubilee. This latter exhibition your friends recognise as your crowning achievement. In the position of Curator and Secretary of the Manchester Botanical Society you have at all times laboured devotedly, and your friends feel that the present year is an appropriate time to mark the esteem in which you are held by them, not only by reason of those works to which allusion has been made, but for the invincible resolution, quiet perseverance, and business-like qualities displayed during your long and arduous career. Your health suffered somewhat from the labour and anxiety for the success of the recent great exhibition. We hope, however, that the beneficial influence of this show and the appreciation we now acknowledge with pleasure of your work will be some solace to your mind, and will aid in your restoration to health. As a token of the esteem of a large circle of friends we desire your acceptance of a purse containing a thousand pounds and the accompanying gold watch and chain, which we hope may continue to record for you the flight of time during many years of health, happiness, and prosperity. We also desire you to present our best wishes to your wife, together with the gold watch and chain provided for her.—We are, yours very faithfully, Thomas Baker, Mayor of Manchester: Joseph Broome, chairman; Samuel Barlow, Treasurer; Robert Tait, Hon. Secretary.—Town Hall, Manchester, November 23, 1881."

Mr. Findlay said he felt the impossibility of adequately expressing his sense of the honour done to him. His future actions must show the thanks he could not speak. He thought they might congratulate themselves on the progress of horticulture, which, as the late exhibition proved, had been pushed to an extraordinary degree of perfection. It was of the kind the queen of exhibitions—the most interesting and marvellous that the world had ever seen. The address referred to the labour connected with an exhibition of that magnitude. He should not be charged with egotism when he said that for ten or twelve months he concentrated all his energies upon the work, and was intensely anxious that the exhibition should be a great success. A number of ladies and gentlemen subscribed liberally to the prize fund, and they deserved the warmest thanks. The only drawback was the unfavourable weather, which prevented many thousands of persons seeing what would have been to them "a joy for ever." That the Society was rendering important service to the community must, he thought, be apparent to the most superficial observer. The large sum of money they annually distributed in prizes must have had the effect of bringing into the market for general consumption a larger quantity and better quality of fruits, vegetables, and flowers. There were many other important objects which they anxiously contemplated carrying out, and it was hoped that with the advent of better times the means would be forthcoming to enable the Executive to extend their sphere of operations. His earnest efforts in the future would be exerted to the bringing about of this result. Their kindness had established an additional claim upon his best service. He had not said half what he wished, but he hoped they would believe he should always retain a lively and grateful sense of that day's proceedings.

FIG. 142.—THE LABURNUM MINER-INSECT IN VARIOUS STAGES OF NATURAL SIZE AND MAGNIFIED.

THE LABURNUM LEAF MINER.

FOR several years past, in the neighbourhood of Oxford, almost every leaf of the Laburnum trees (Cytisus Laburnum) has presented the appearance of having been scorched, a large portion of the surface being withered and of a dirty green or whitish colour, from each of which blotches there was often to be seen a small white caterpillar suspended in the air at the end of a very delicate thread. So numerous were these little creatures hanging from the Laburnums where they grew near footpaths as to attract public attention. Earlier in the year, however, in May, my attention had been attracted by a number of delicate white silken cocoons fixed on the branches of several Orange trees (which had previously stood under a Laburnum) especially at the base of each of the branches and twigs. And at the same time I noticed a number of the most delicate minute white moths on these Orange trees, several of which were noticed hanging by their fore-legs on the edges of the leaves with the wings drooping. This was evidently the position of such of the little moths as had recently escaped from the cocoons, and which were hanging thus in order to allow the expansion to the full extent of their delicate wings. A considerable number of the little moths were also observed at this time on the leaves of Ivy grown as a bush, also under a Laburnum tree, the contrast offered by the delicate wings of the moths (seated with their wings lying flat upon their backs) against the dark shining leaves, being very striking.

The blotches on the Laburnum leaves are caused by the minute larvæ feeding upon the parenchyme between the two skins of the leaves, which become dry and discoloured in such places. The eggs from which these larvæ are hatched are deposited by the female moths on the underside of the leaves, the little larvæ as soon as hatched boring into the leaves, and beginning immediately to form the mines, which increase in size with the growth of the larvæ, the excrement of which is deposited in semicircular rows attached to the inside of the upper cuticle of the leaves, and which are observable from without, owing to the thinness of the cuticle. When full grown the larvæ eat a hole through this cuticle, and spinning a thin silken thread from their mouths they descend by it to the ground, or are blown by the air against some branch of an adjacent tree, where they fix themselves and spin their delicate white cocoons, of an oblong-oval shape, pointed at each end; others spin thin cocoons on the underside of the leaves, close to their place of exit, as shown in the leaf folded back (fig. 142). As there are two broods in the year, the caterpillars which are found in September and October remain in the chrysalis state till the following May, when the moths appear. They lay their eggs and soon die, the summer brood of caterpillars appearing in June and July, and the moths from this second brood in August depositing their eggs from which the autumn caterpillars are produced.

The caterpillars when full grown are not quite a quarter of an inch long (fig. 142 B), of a greenish-white colour, with a dark line down the back, formed by the dorsal vessel, seen through the thin skin. The head is pale greyish coloured, the mouth brown, and the following segment is distinguished by two curved greyish marks; the legs are very small, the body is sparingly furnished with fine short hairs; the chrysalis is dark brown. The moth is pure white, with two pale yellow spots near the extremity of the anterior margin of the fore-wings, each spot with a thin brown line on each side; at the posterior angle of these wings is a black triangular spot glossed with violet, and there are several thin brown streaks at the apex of the wings extending into the fringe, which is very long, especially in the hind wings.

The insect was first described and published in 1848 by Martini, and is excellently figured by Stainton (*Nat. Hist. Tineina*, vol. i.) and by Vollenhoven (*Nederlandsche Ins.*, 2d ser., vol. iii., plate 4) under the name of Cemiostoma Laburnella. Our woodcut (fig. 142) represents a leaf of the Laburnum with several mines in each leaflet, and with the caterpillar suspended from one mine, and the perfect insect of the natural size hanging by its forelegs from the edge of another leaflet (fig 142, E). The detached figures represent the larva, C, chrysalis, D, and moth, F, highly magnified. *I. O. Westwood.*

Home Correspondence.

Worms and the Formation of Mould.—The following extract from a letter just received from a gentleman who has not read Mr. Darwin's book will no doubt be of interest to your readers. I send the writer's name and address to the Editors; it is sufficient to say here that the district referred to is a chalky one in Kent. "Some ten years since my brother-in-law put a thick coating of chalk rubbish on to a light sandy upland meadow; his landlord criticised him very freely, and said, 'It was a most foolish trick and perfectly useless.' I defended my brother in so far that as chalk is so absorbent it would retain the moisture and cause the land to be more holding. Having had my eye on this piece of land, I have carefully watched it year by year ever since, and sections cut through it disclose the chalk stratum deepening year by year, so that now it is 6 or 7 inches below the surface." *W. G. S.*

Game Covert: Elder (Parsley-leaved), Buckthorn, Rhamnus utilis.—I have read with interest the article on "Game Covert" by Mr. Michie, in your journal, p. 602. It is now nearly thirteen years since another correspondent, Mr. Forsyth, introduced the Elder to the notice of persons desirous of forming a good covert cheaply and expeditiously. More than forty years ago Mr. Stanley Carr, in the first volume of the *Journal of the Royal Agricultural Society*, related that the Holsteiners, in the arrangement of their dairies, are wont to shade their milk-cellars from the southern sun by rows of trees, for which purpose they greatly prefer the Elder, on account of its influence in keeping off the insect tribes. This property of the Elder I would now utilise by planting a screen in the south-west corner of a meadow, behind which a small herd of Jerseys may retreat in summer and find protection from the annoyance of flies, and from the scorching heat of the sun. I should be glad to know whether the scent of any variety of this plant is more repulsive to insects than that of the original type? Has the tree Box a similar property in any degree? The Buckthorn is another plant mentioned by Mr. Michie, but I have not particularly observed that it thrives near the sea. I find in two nurserymen's catalogues two species are named —Rhamnus frangula and R. utilis; the latter I do not find mentioned in Loudon's *Arboretum*, nor in any book within my reach at present. *Mere.* [The plant intended was the Sea-Buckthorn, Hippophaë rhamnoides. Eds.]

Old Calceolarias.—Few of the older species of Calceolaria are now seen in cultivation, why I know not, as many of them are preferable to the newer introductions. That grand old species, C. Pavonia, is in fine form in the hardy house in James Dickson & Sons' nursery, Chester. The plant is growing in a 12-inch pot, 7 feet high and as many through, feathered down to the pot; some of the corymbs are 26 inches long, and it has been in flower three months. C. bicolor was also in fine flower, with very large trusses of bloom. C. violacea (perhaps the hardiest species) was a large plant, and C. plantaginea strong. Can any of your readers state if C. arachnoidea and C. Fothergilli are still in cultivation? I may say, to my surprise I saw living plants of the rare Narcissus Broussonetti in the same house, with leaves 18 inches long and ½ inch wide; perhaps the most difficult species to grow, and the rarest. *Alpha.* [Please send your present address. Eds.]

Poinsettia pulcherrima major.—The plants of this fine variety exhibited by Mr. John Charlton, of Tunbridge Wells, at the Chrysanthemum exhibition, deserve more than a passing notice. We generally look to the growers for Covent Garden Market to show us how to grow popular plants well, and the first Poinsettias were sent in on November 15 with the bracts not half developed, and certainly not 6 inches across. On the dwarf sturdy plants exhibited by Mr. Charlton I counted forty-eight bracts on one head, and several heads measured 1 foot across. Last year at the same date the heads measured 15 inches across. Mr. Charlton says it is a distinct and superior form of pulcherrima; and certainly as exhibited at Tunbridge Wells, both by Mr. Charlton and from Dr. Siemens' garden by Mr. Buchanan, it is a most desirable plant. *J. Douglas.*

Urceolina aurea, syn. pendula.—At Enville Gardens, conspicuous amongst a fine display of miscellaneous flowering plants at the present time is the beautiful Urceolina aurea. Several good examples in 4-inch pots bear half-a-dozen good spikes each. This plant was introduced from Peru some years ago, and is of easy culture, requiring the stove or intermediate temperature. The flowers, which are of a bright golden-yellow, tipped with green, are produced on a scape from 12 to 15 inches long, from the summit of which they hang most gracefully. It is a charming plant, and being of easy culture ought to be grown very extensively. Another plant grown very extensively by Mr. Green here is the Rivina, both humilis and aurea; these produce grand racemes of berries, the former scarlet, the latter yellow. Also noticeable were some good plants of Luculia gratissima in 32-pots, with two and three trusses of flowers; these, as used and grown by Mr. Green, are grand objects at this dull season of the year. *A. O.*

Calceolarias and Rabbits.—A communication a few days ago from Mount Edgcombe interested me, and I thought it might be equally so to some of your readers. The flower garden there is much frequented by rabbits, to the utter destruction of many things. Calceolaria aurea floribunda is eaten to the ground; but C. Golden Gem, although growing alongside, is not touched. A single plant of the latter in a bed of the former is quite intact when all else are eaten quite away. What are the peculiar properties of the one not found in the other would be a secret of some value to plant cultivators if to be found out. *J. T.*

Cattle Poisoned by Laburnum.—I have always understood that the seeds of this tree are the part containing matter injurious to both human beings and cattle, and as your correspondent, Dr. Stark, mentions that there were pods both on the Laburnum that proved poisonous, and on the branches that were eaten with impunity, I conclude that the pods on the first contained their seeds, and that those on the branches had shed them, or else that the poison is more active at one particular stage of the ripening process than it is at another. *Helen E. Watney.*

The Milton Registered Throttle Valve (fig. 143).—Messrs. Steven Bros. & Co., the well-known ironfounders of Upper Thames Street, have recently introduced a new valve under the above name, for which they claim as advantages in its favour "that no cement or putty is required in fixing the working

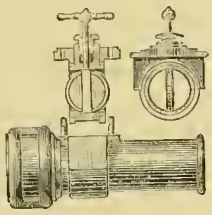


Fig. 143.—Milton Throttle Valve.

parts. This is accomplished by two india-rubber rings, quite a new feature in fitting these valves, which prevents the valve-chamber from sticking fast to the body. The valve and chamber can be easily removed from the body, leaving a roomy space for the hand, for removing any obstruction. The valve and chamber can be replaced without disturbing the body or breaking joints anywhere." Eds.

Wood-ashes.—The usefulness of wood-ashes as a manure for the garden generally is now fully acknowledged on all hands, and, thanks to the laborious investigations of analytical chemists who have lent their aid to the practical horticulturist, we also know that it is more necessary to some members of the vegetable creation than to others, or, at least, is required in larger proportion in the soil in which they are cultivated. But it does not necessarily follow that the knowledge thus acquired is always turned to the best practical use, or that any more care is now taken to secure every available source of supply suitable for charring for ashes than was done many years ago, before gardeners were able to give any other reason for their practice than that it was justified by results. Mons. J. Ch. Puls, writing on the colouring of Grapes in the *Bulletin d'Arboriculture* for October, says:—"Another cause may, however, prevent good colour in some soils. The Grape that is in this the most sensitive is Mrs. Pince's Black Muscat. It does not colour well when potash is deficient in the soil, therefore I recommend always to cultivate one cane at least in a house of Muscats, because it will inform you of the state of the border." And he concludes by recommending the employment of wood-ashes in order to supply the deficiency of potash. Chemical analyses have shown what a large percentage of potash is contained in the berry of the Grape, and whether or not M. Puls be correct in directly attributing the lack of colour in the variety Mrs. Pince to a deficient supply of that essential in the soil, there can be no difficulty about acknowledging that the peculiar inherent weakness of any variety may be expected to develope itself whenever the conditions under which the plant is cultivated are in some particular unfavourable. Thus, indirectly at least, more ills than we are perhaps at present prepared to acknowledge owe their origin to the lack, or it may be superabundance, of something in the soil. A better time than the present for directing attention to the necessity for making the best practical use of our acquaintance with the value of wood ashes, cannot be expected to occur for some time. There are at the present time many thousands of tons of branches of trees torn down by the gale of last month throughout the country, which would make most valuable supplies of ashes that would have a magical effect on gardens requiring just that assistance. Quantities of the *débris* will litter the ground in parks, fields, and lanes for a long time, or be summarily burnt in small heaps in order to clear it away, and the resulting ashes lost for all practical purposes, if not systematically collected and carefully burnt. To secure in the fullest degree the retention of highly beneficial gases given off during combustion the fire should be kept well smothered with any small refuse that can be obtained. Earth thrown upon a covering of the smaller twigs will have the desired effect, but will considerably increase the bulk of the residue; this will, however, be but a slight disadvantage, quite disproportionate to the saving of useful manure obtained by the retention of the carbon, &c., which would be carried off in the atmosphere were not the mode of combustion regulated. *Ralph Crossling.*

Achillea aurea. — Does Achillea aurea still exist in cultivation in English gardens, and did it survive the winters of 1879 and 1880? I ask the question, because the plant is included in several nursery catalogues, but I have tried to get it in vain, A. tomentosa, a naturalised plant, being always sent instead of it. A. aurea is figured in Sibthorpe's *Flora Græca*, and is a finer plant, with larger and whiter foliage than A. tomentosa, and differs from it in having a simple instead of a compound umbel. It is probably not very hardy, like many plants from the Levant. A. tomentosa is to the gardener a plant of great merit, either on the edge of the flat border or, still more, in a nest amongst rockwork, bearing its bright golden flowers all through the season to the very end of autumn, but for all that it is not A. aurea. *C. Wolley Dod, Edge Hall, Malpas, Nov. 19.*

Effects of the Late Gale at Moor Park.—Subjoined is a list of the trees uprooted and damaged by the loss of branches, &c., by the destructive gale of wind which occurred on October 13 and 14 at Moor Park, Rickmansworth. Trees entirely uprooted—Elms, 62; Oaks, 8; Ash, 5; Birch, 1; Plane, 1; Aspens, 18; Limes, 7; Willows, 2; Sycamore, 1; Spruce, 2; red Cedars, 2; Spanish Chestnuts, 2; Whitethorn, 14; Poplars, 4; Yew, 1; Cherries, 3; and Apples, 4—making a total of 112 blown down. The circumference of some of the largest trees, particularly Elms, at 12 feet from the ground, ranged from 12 feet to 17 feet. The number of trees very much disfigured by the loss of tops and branches are —Elms, 20; Oaks, 28; Ash, 5; Beech, 9; Limes, 5; Sycamore, 1; Cedar of Lebanon, 1; Cherries, 6; and Weymouth Pine, 1—total, 76. The greatest force of wind experienced here was on the 14th, between 1 and 2 o'clock P.M. There will be universal regret felt to learn that so much damage has been done to the fine trees for which Moor Park is noted. *J. C. Mundell.*

Resting Caladium Tubers.—A letter on this subject appeared in your last issue; the treatment therein recommended is contrary to what we have successfully adopted, indeed it is some years since we discarded the practice Mr. Drummond recommends. It frequently happens that as soon as Caladiums show signs of going to rest, and begin to look unsightly, they are put aside, water being entirely withheld, and the plants unnaturally hurried and starved to rest: the leaves are torn off before they have had time to perform their proper functions, and the tubers in an immature condition are placed in some dry, warm place, such as your correspondent recommends, where they never get a drop of water for many weeks; the consequence is, that in the spring they are found to have succumbed to the dry-rot. One of the most important points in the culture of Caladiums is the ripening of the tubers, and when thoroughly ripe they are not fastidious as to the position they occupy during the resting season, providing they are not subjected to the extremes of heat and drought on the one hand, and cold and wet on the other. As soon as the plants show signs of going to rest they should be placed in a light, warm, airy position, and the soil in the pots should be kept constantly moist until the foliage is exhausted, after which they may stand on the damp border of a plant-stove, where they will absorb the damp from the border, and seldom require any water to keep them moist, but they are frequently examined, and never allowed to become dry. Under these conditions we have never lost a tuber, and they come up strong at the end of February or early in March, when they are taken out and repotted. Prudence and practical

experience condemn the dry, parching treatment which the article referred to recommends, as wrong in theory and ruinous in practice. *Horace Woods, The Gardens, Maindiff Court, Abergavenny.*

Chrysanthemums at Garbrand Hall.—When visiting my friend, Mr. J. Child, The Gardens, Garbrand Hall, Ewell, the other day, I was much struck by the grand display of Chrysanthemums, and especially by the manner in which they were arranged and trained for flowering, viz., in a span-roofed Peach-house 100 feet in length, with a central walk some 3 feet 6 inches in width running from end to end. The Chrysanthemums are trained thickly on either side to the height of 7 feet, with eight complete arches at equal distances, and scarcely a pot is visible. The leading varieties are represented, and the health of the plants, combined with the quantity and quality of the flowers, is very remarkable—a mass of flowers producing a magnificent effect not soon forgotten. *T. S., Nonsuch Park.*

—— I send you a few blooms of Chrysanthemums cut from plants that are making the conservatory very gay just now. We grow them in large tubs, three in a tub, and only stop the plants once, when young, in order to obtain three shoots to a plant. In this way we get large made-up specimens, which are most valuable for filling up a large conservatory at this season. *Geo. Merritt, Gr. to Lord Dacre, The Hoo Gardens, Welwyn.* [A very nice lot. Eds.]

Cleanliness in Gardening.—It is generally admitted that cleanliness is necessary for the health of animals, and it is quite as essential for that of plants, which without it suffer perhaps more quickly than ourselves, for when they get their leaves and bark coated over with dust and dirt the breathing pores and air passages are stopped, and root-action becomes enfeebled and slow. This is no fancy sketch, as many know who have had much to do with gardening, the best cultivators are so fully alive to the importance of keeping plants clean that they are always on the watch to free them from insects, which not only interfere with and cripple their growth by feeding on them, but do even more harm by the excretion they exude, and the way they seal up the pores. Take scale for instance, which confines itself mostly to the bark—or mealy-bug, that lives anywhere or on anything—and what can be more injurious than they? And yet the injury they commit is not so much from what they take from the plant as what they add to it, or in the way they affect it as mentioned above. It will be seen, then, how necessary it is to free them from these parasites. Fortunately they succumb readily to paraffin, which is unquestionably one of the safest and best insecticides that can be had, for with proper care in mixing and applying it does not hurt anything, and has the merit of actually improving such foliage as that of the Gardenia or Camellia, to which it seems to impart an additional polish and lustre. For Peaches, Pears, or other fruit trees infested with scale it has no equal, as they may be gone over quickly by the aid of a syringe and wetted all over, and in a short time the scale, which before were able to cleave tightly, will be compelled to leave their hold, as the penetrating power of the paraffin is so great that, invulnerable as their coats seem, it soaks them through and through. The remedy for aphis is well known and easily carried out, and although they may be dealt with in a variety of other ways, such as by the application of tobacco-dust and insecticides used in a liquid state, nothing answers better than fumigating where the smoke can be confined, as it can always be in houses or pits. Thrips, too, are readily vanquished by the fumes of tobacco, but to be thoroughly effectual it is necessary to repeat the dose two or three times in quick succession, which is better than only one strong application, and running the risk of injuring the plants. To get rid of the excreta of insects and other dirty deposits from the foliage, the best way is to syringe it over with warm soapy water, which should be clear and soft, and after this has had time to soak in and soften the dirt, a thorough rinsing from the garden engine will remove it altogether, and make the leaves clean. Camellias always pay well for sponging, and it is a good plan to go over these at this season before the buds are further advanced, and give them a good washing after the engine has been brought to bear on them, as the beauty of the flowers is much enhanced by having bright glossy foliage to back them. Not only is it necessary to have the leaves and bark of all plants perfectly clean if they are to be maintained in health, but it is just as important that their habitations should be made in the same condition, and especially is it so as regards the roof—the glass—for light is life to vegetation, and few plants in houses at this time of year get enough for their welfare. All sashes and woodwork, too, are greatly improved by a good scrubbing, which, if soft-soap and water are used, is almost equal in its beneficial effects to a coat of paint, as it removes all filmy deposits, that harbour and hold the wet and carry decay into the wood. The best time to cleanse glass is when the atmosphere is damp and heavy, as then the vegetable matter with which it is coated becomes slimy, and may be started quickly by using a large soft brush, followed up with plenty of water. This, driven on with force after the rubbing, will wash all off and make the glass clean, which will then admit the full rays of the sun, so cheering to plants at this season. The plants and glass clean, the next thing is to look to the soil and the pots, the former of which should be gently scraped and surfaced over so as to remove any mossy growth and let in the air, without which roots suffer, and the earth they are in soon becomes stagnant and sour. Dirty green pots are a frequent cause of the latter state of things, and they should therefore be scrubbed outside when in use, and always well washed all over and dried before putting plants in. Where there are walls in houses, a fresh coat of limewash has a very sweetening effect; and not only this, but it adds to the light and gives a more cheerful appearance. In the sweeping and cleaning of floors the great thing is to avoid dust, which floats about in the atmosphere, from whence it is deposited on the plants and adheres to the foliage. *J. S.*

Selaginella Kraussiana as a Decorative Plant.—That this easily cultivated plant is one of the most useful and popular subjects of the present day for floral decorating is a fact which cannot be wondered at. Indeed, in point of usefulness, it is a moot question as to whether it is second to any other plant grown, not excepting even the chaste and lovely Maidenhair—a few fronds of which have come to be looked upon as almost indispensable to a well-dressed epergne or choice bouquet. Notwithstanding the fact that the Maidenhair would probably outnumber the Selaginella in the variety of ways in which it can be utilised, the latter is, nevertheless one of those things which, when used with taste and judgment, is incapable of becoming either painful or wearisome for the most fastidious of critics to look at. On the contrary, in many devices and arrangements it appears to be the only plant wanting to impart some semblance to Nature, by way of toning down and giving relief to those bright and glaring colours which, with some persons, are so necessary to a grand display, but which to the æsthetic individual are apt to prove, when used in too great a profusion, somewhat obnoxious, or else "too utterly too distressing." In some gardens the plant is in great demand, and never can the writer forget when—living as a subordinate in an establishment where decoration was extensively done—he received his first orders to make up a given number of hundreds of 3-inch pots, and at the same time wondering, but hardly venturing to ejaculate, "What on earth can such a number be wanted for?" However, with the why and the wherefore of the order he became acquainted on subsequent occasions. This brings us to the point we are driving at, viz., to decorate in writing, so to speak, a dinner-table of moderate size, in the arrangement of which S. Kraussiana shall predominate, and which, if we took Whistler and not Ruskin as our authority, we might call a "symphony in green." Not absolutely green, for we shall have occasion to employ a few cut flowers of different hues and tints. We must here ask the reader to draw a little on his imagination, and picture to himself a table large enough to dine sixteen persons, decorated thus:—Three mounds on ½-inch boards 18 inches in diameter, to be placed at an equal distance from each other in a line down the middle of the table, an inverted 6-inch pot on the middle of each—these in their turn to be mounted, the centre one with Dracæna Cooperii or D. terminalis, the two end ones with well-coloured and well-grown plants of Croton angustifolius or Pandanus Veitchii, in 4-inch pots; from the edge of the board to the base of each plant, bank up with common moss—green and fresh gathered, of course—and face over with S. Kraussiana. Into this arrange, angular or zig-zag fashion, a row of cut blooms of Gardenias or Eucharis amazonica for the centre one, and for the two end ones single trusses of Bouvardia Hogarthii—in the absence of this, say, scarlet Pelargonium; finish off with a few fronds of Adiantum cuneatum, a row of which should be placed round the edge of the board, and one or two stuck in here and there amongst the flowers. Two arches are next required, these to extend from the centre to the two end mounds, the same being made by simply twisting two stout bramble shoots together, and fixing the points firmly down the inside of the pot containing the plants; each arch must be bound lightly round with S. Kraussiana, and draped or decked—not too much, the lighter the better—with sprays of Lapageria alba and rosea. For this kind of work it ought to be here mentioned that hurry and bustle won't do; give the operator plenty of time, without which it is impossible for him to give the finishing touches which are sometimes so necessary. It would also be as well to add that the middle of each arch must not exceed in height that of the plant; from this it will also be seen that the latter must as nearly as possible be all of the same size. To complete the arrangement, a double line of Selaginella must be laid on the cloth, and extend nearly the entire length and width of the table, and must be placed so as not to be too near nor yet in the way of the knives and forks, quadrants to be formed at the corners; eight pots of the same plant, which must be divested of every particle of soil, are now wanted, and to avoid such a thing as soiling the cloth, each one must be placed on the table on a small piece of stiff paper, one at each corner, the others half-way between each mound, and in a line midway between the latter and the outer row of Selaginella. The effect of each plant may be greatly enhanced without much ingenuity by arranging a few cut flowers on the tops; say, for instance, stick in two or three blooms, with short footstalks of Cyclamen persicum, with the same number of its own leaves or shoots of Panicum variegatum; this point, however, we will not dwell upon, but will leave it to the taste of the individual most concerned in the work. The above arrangement we commend by way of a change to those of your readers who have much to do with dinner-table decorating, and who have not hitherto adopted the same style. It seems almost superfluous to say that wherever this mode of decorating is carried out, and meets with approval, it would be advisable to grow a quantity of Selaginella in some way other than pots; it grows luxuriantly enough, and is quite at home when planted out in beds under the stage or in narrow borders beneath the pipes in plant-houses. The plant may be used in a number of ways besides those we have mentioned, but space, we fear, will not admit of going into further details at present. In a great many country establishments indoor floral decorating at this time of the year forms one of the most important duties of a certain section of young gardeners—foremen and first journeymen, to wit—and is work for which the head gardener is responsible; and yet, although this is the case, how very seldom it is we see anything written on the subject. Cannot, I would ask, some of your practical readers with whom the art is a sort of speciality, favours us with an occasional note on the matter? I would venture to say that it would be read with much interest, and might prove of much assistance to a vast number of the younger members of the fraternity, and would doubtless be the means of some few of them gleaning fresh ideas. No amount of reading, of course, will ever make a person a good decorator; he must have a natural taste and liking for the work if he would succeed. *J. Horsefield, Heytesbury.*

Reports of Societies.

Edinburgh Botanical.—The first meeting of the forty-sixth session was held on the 10th inst. in the Rooms, 5, St. Andrew Square, Mr. Alexander Buchan, Vice-President, in the chair.

The Chairman read a paper embodying the results of meteorological observations on the weather of the last summer. At the outset he showed by statistics that the last decade had been remarkable for the recurrence of periods of cold weather more or less protracted, the last period being that from October, 1880, to the present time. From October, 1880, to the end of October, 1881, there had been thirteen months of continuous low temperature excepting May, which was above the average. There were no ten years during the last 118 years, except the period from 1780 to 1790, in which there had been so many periods of protracted low temperatures as during the decade from 1872 to the present date. Much had been done in recent years with the view of endeavouring to throw light upon the coming weather—to prognosticate not only for a few days, but for a few months or a season. A great deal had been done in India, and with some success, when the difficulty of the problem was understood, in this direction; and Dr. Hann, of Vienna, one of the most distinguished of living meteorologists, found that when cold weather sets in, the longer it continued the less likelihood was there of a change. If the centres of cyclones passed to the south of us, there was cold weather; if to the north, fine weather. It was one of the most difficult and one of the most pressing problems of meteorology to throw light on the causes that bring about the paths of storms, on the one hand to the north, on the other to the south of us. The cold weather which began in the first week of October last year was 4°.5 below the average. During the whole of the past 118 years there had been only two colder Octobers than that of 1880. November and December were each 2° below the average. The January that followed was, except in Shetland, Orkney, and the extreme north of Caithness and Sutherland, absolutely the coldest month of which there was any record in Scotland during the past 118 years. In the centre of Scotland, and particularly in the district between the Cheviots and the Lammermoors and Pentlands, it fell in many districts to 4° lower than in any previous month. Hence the great havoc done to the water pipes of their houses, the arrangements of which had not been made to resist such a temperature. The greatest cold occurred on the two nights preceding the great snowstorm in London on January 16 and 17. The lowest temperature they had any record of occurred at Stobo, Kelso, and Paxton House. At Stobo it was 16° in the protected box; at Springwood, Kelso, 15° below zero; and at Paxton House, 13°.

December 4, 1879, and January 16 and 17 last were the occasions of the greatest cold that ever was known in the British Isles, and they occurred in that part of Scotland lying between the Cheviots and the Pentlands, which, during the past ten years, had been peculiarly liable to be attacked by severe cold. July was also a remarkable month. The temperature as regards Scotland was very unequally distributed, the coldest being in the south-west of Scotland, and the warmest in the east. He exhibited a map showing the distribution of temperature over the British Isles in July, bringing out this result among others, that in London the heat was about 3° above the average, and at Cork 3°.5 below it. This difference, he stated, turned on what were called anti-cyclones—that was, places where the barometer was higher than all round. Where there were high barometers in summer there was great heat. Thus in the South of England these anti-cyclones remained or succeeded each other so continuously that there was brilliant weather in July, while Scotland was involved in the clouds and cold, wind and rain of cyclones. In the previous year the circumstances were reversed. In August, a disastrous month over the whole of Scotland, the temperature was close on 4° below the average. There were only two colder Augusts in the last 118 years—those of the dreadful 1782 and 1830. In October also the temperature was very unequally distributed, as was shown by maps he exhibited, Mr. Buchan also produced maps showing the rainfall over the country for the different months of the year, bringing out in these also interesting results as to the inequalities in the snowfall and rainfall in different districts. He mentioned that by far the heaviest rainfall occurred on the foreshores looking north when the wind was N.E. or E. By taking these differences of temperature and rainfall into account as regards August and subsequent months, an explanation was obtained of how it is that different reports come in regarding the crops from different districts. He had no doubt that such results would be put by-and-bye to considerable use in forecasting the yield of the harvest. In conclusion, Mr. Buchan remarked that in connection with the last very extraordinary season, the Meteorological Society were fortunate in having an observer (Mr. Wragge) on Ben Nevis, who climbed to the top every morning by 9 o'clock.

Professor Dickson thought the results brought out by Mr. Buchan would be very important to mariners, but he doubted if they would be of much use to farmers, unless the forecast could be made so far forward as to tell them what sort of crops they should put into the ground.—The Chairman mentioned that Sir Robert Christison, a remarkable observer all his lifetime, had found it invariably the case that when there was severe frost for some days either in the last week of October or last week of November—neither before nor after this fortnight—there followed a mild winter. There was severe frost at this time this year, and Sir Robert was therefore looking forward to the approaching winter with great interest.

Mr. Taylor, the Assistant Secretary, read obituary notices of Messrs. William Gorrie, Hewett C. Watson (Surrey), and ex-Provost Russel, of Falkirk (deceased members of the Society); I. A. Henry, Esq., also communicated a notice of the late Thomas Sprott, Esq., W.S. Dr. Paterson exhibited a number of specimens of Potato monstrosities.

Mr. Sadler gave in a report on the state of the plants in the Botanic Gardens. He stated that the forest trees and shrubs flowered remarkably well during the early summer. Many of them produced fruit, but, unfortunately, a great many did not. It might be said that the gardens suffered little or nothing from the October storm. Since the winter had begun they had had the thermometer several times below 32°, and on two occasions down to 25°. There were upwards of thirty species and varieties of plants in full flower in the rock garden, Christmas Roses having been in flower for two or three weeks. Some plants whose bloom should be over were still in full flower, while there were others not out that should be in full flower.

In a letter from Mr. John Buchanan, Shire Highlands, Central Africa, he intimated that Coffee and Sugar grew well at Blantyre Mission Station there. Mr. Wardlaw Ramsay sent a photograph of the vegetable ivory tree which had been blown down there in 1868.

Mr. John Campbell, Ledaic, Argyleshire, sent specimens of flowering plants from his open garden, collected on November 9. These included Strawberries in flower and fruit, Agapanthus umbellatus, Escallonia macrantha, Aster argophyllus, Cytisus hybridus, Andromeda media, Helleborus niger, Pyrus japonica (white and scarlet vars.), Anemone Hepatica, &c.

Ealing and Acton Horticultural.—A charming show, indeed, was the autumn exhibition of this Society, held in the Drill Hall, Ealing, on the 15th inst. As usual here, the competitive collections were largely supplemented by others sent not for competition or in the miscellaneous class, amongst which first place must be given to a grand group covering the whole of the large platform, staged by Mr. McPhun, gr. to T. Nye, Esq., Ealing, that included so many diverse descriptions, as to be past description. It was well awarded 1st prize in the miscellaneous class. Second to this was placed a handsome group of Ferns and Mosses, well shown by Mr. Fountain, gr. to Miss Wood, Hanger Hill; some collections of fruit being also placed in the same class. Of other groups one of peculiar excellence was sent by Mr. Roberts, gr. to Baroness Rothschild, Gunnersbury. In this were admirably grown Crotons, Dracænas, Palms, &c., fronted by white and red Ericas, then some superb Chinese Primroses, and finally Maidenhair Ferns. Mr. Hudson, gr. to A. J. Atkinson, Esq., Gunnersbury, staged six bunches of superb Grapes, two of which were Muscat of Alexandria, and the others one each of Lady Downe's, Gros Colmar, Black Alicante, Alnwick Seedling, and West's St. Peters, all finely finished and coloured. Mr. Roberts sent also from Gunnersbury a dish of marvellous Trophy Tomatos, of great size. Mr. Stone, gr. to W. Mead, Esq., Village Park, Ealing, sent a large and very meritorious collection of Apples and Pears, as did also the Secretary, Mr. R. Dean, from Bedfont, the latter comprising about forty dishes.

In the plant classes Mr. McPhun took a 1st prize with six flowering plants that included such unusual subjects at this time of year as four large zonal Pelargoniums, the sorts being Ianthe, Mrs. Wm. Paul, Arthur Pearson, and Crimson King, each 3 feet through, and finely flowered. The best trained specimens, both large flowered, and Pompons, came from Mr. Brunn, gr. to E. M. Nelson, Esq., Hanger Hill, his four of the former being Mrs. Haliburton, Julia Lagravère, Lady Hardinge, and Prince of Wales. The four Pompons were Anna de Bellocca, Calliope, Mrs. Sharpe, and Bijou. From the same grower came a capital single specimen of Fair Maid of Guernsey. All these plants were good. The open prizes for twenty-four blooms, any kinds, brought only two competitors, Mr. R. Strong, of Virginia Water, taking an easy 1st with a superb lot of flowers, Mr. McPhun coming 2d. The smaller classes for large-flowered and Pompon kinds were well filled. The competition in the Apple and Pear classes was large, and many good samples shown. With six dessert Pears, Mr. Hudson was 1st, with Forelle, Beurré Diel, and other kinds; Mr. Granger, gr. to W. Clark, Esq., being placed 2d. For three dishes of dessert Apples, Mr. Bunn was 1st, with handsome Cox's Orange Pippin, Margil, and Kings; Mr. Fountain coming 2d with Court-pendu Plat, Kings, and Ribstons. Mr. Hudson was 3d with good kinds, and with culinary kinds was 1st with handsome Wellingtons, Hollanbury, and Gloria Mundi; Mr. Stone coming 2d, with fine Dutch Codlin, Blenheims, and Wellingtons; and Mr. Bunn was 3d. Some open prizes, offered by Mr. P. McKinlay, for four dishes of Potatos, brought a remarkable competition, and, curiously enough, the 1st prize was taken by Mr. Cachett, a Great Western Railway signalman, who had good Bresee's Prolific, Giant King, American Rose, and Magnum Bonum. With three dishes Mr. Hudson was 1st, with Vicar of Laleham, St. Patrick, and Early Rose; and was also a strong 1st in the class for six vegetables, having capital Vicar of Laleham Potatos, solid self-protecting Broccoli, a splendid dish of Excelsior Tomatos, good Brussels Sprouts, Celery, and Turnips. There was remarkable competition in the cottagers' classes, Potatos in two classes, Celery, Onions, Carrots, and Turnips being wonderfully shown. Not the least interesting was the competition in the classes for cooked Potatos, about a dozen dishes being sent of both kidney and round kinds. Four prizes were awarded in each class, Mr. Cachett taking both 1sts, with kinds unfortunately not named, but capitally cooked.

Dundee Horticultural Association: *Nov.* 10.—The ordinary monthly meeting of this Association was held in the Reform Street Hall, Dundee, on the above date, the President, Mr. D. Doig, in the chair. There was a full attendance of the members.

Mr. Jas. Brebner read a paper on the "Movement of Plants," being a *résumé* of the contents of Dr. Darwin's book upon that subject. He described his experiments in proof of the universality of the law of circumnutation in radicles, stems, leaves, and flowers, and showed the advantage to the plant of this movement. The modifications of this law in climbing and sleeping plants and in plants when exposed to the influence of lateral light were then described and discussed. Attention was also directed to the peculiar sensitiveness of the tip of the radicle to the action of gravitation and to contact with solid bodies. It transmits a secret influence to the adjoining portion of the root, and thus acts as a guide along the course best calculated to enable it to extract nutriment from the soil.

Torquay Horticultural: *Nov.* 17 *and* 18.—The autumn show of this Society was held at the Winter Garden, the interior of which presented an exceedingly gay appearance. The staple of the exhibition was, of course, the Chrysanthemum, of which there were exhibited endless varieties in form and colour. Those exhibited, with few exceptions, were rather weak as regards foliage, but the blooms were magnificent. The cut blooms were also exceptionally fine. The Chrysanthemums for competition occupied the centre of the building, and made a very effective display. The western side of the building was taken up by Mr. Phillips, of the Torbay Nursery; and Mr. W. B. Smale, of the Torquay Horticultural Depôt. These collections were tastefully displayed, and were backed by rows of Chrysanthemums. There was quite a blaze of colour presented by the pot Roses, Poinsettias, Ericas, Primulas, and Solanums, Cinerarias, and other showy plants. The staging below the orchestra was partly taken up by Mr. Smale, and partly by Mr. Beachy, of Newton, who had a good display of miscellaneous plants. The eastern side of the building was devoted to Mr. Burridge, of Paignton, and Messrs. Curtis & Sandford, of the Devon Rosery, Torquay. The collection belonging to Mr. Burridge contained a number of spring flowers, such as the Arum, Hyacinth, Begonias, Azaleas, and Pelargoniums, besides such foliage plants as new Crotons and Dracænas. Messrs. Curtis had several Cacti in bloom, also Ericas, Begonias, &c.

The display of fruit was a remarkable feature of the exhibition. Messrs. Clarke, fruiterer, of Lower Union Street, occupied a large range of staging, on which were shown upwards of a hundred named varieties of Apples. There were fruits of tropical as well as temperate climes; there were Pine-apples, Bananas, Pomegranates, Mangos, Melons, and Grapes, besides Nuts of various kinds. The Pears were exceptionally fine—one, the Belle de Jersey, weighed 2 lb. 3 oz. The Earl of Devon (Mr. D. C. Powell, gr.) also largely exhibited in fruit, as also did Messrs. Cranston & Co., of Hereford. Superb bunches of black and other Grapes were exhibited by Earl Kinnoull, the Earl of Devon, Colonel Campbell, and Mr. C. Richardson, of Cary Castle. Earl Kinnoull was deservedly awarded the 1st prize, for a very fine bunch of Mrs. Pince black Grapes, 3 lb. 2 oz. in weight, and perfect in colour. A collection of Apples, Pears, Potatos, and Cucumbers, not for competition, was sent by Mr. W. J. P. Chatto; and a couple of dozen well-grown and nicely-marked seedling Pansies in pots were contributed by Captain Halford Thompson, of Claremont, Exeter. A collection of fruit by Messrs. Coombs & Turner was much admired.

The vegetable department was much stronger than has been seen for several seasons. We may mention that amongst the most successful competitors were Colonel Campbell, Captain Tucker, Mr. C. Richardson, Messrs. Curtis & Co., Mrs. Wild, the Misses Carew, the Earl of Devon, Earl of Kinnoull, Mr. Fortescue, Mr. Plumptre, &c.

Tunbridge Wells Chrysanthemum. — This Society has been established for five years, and the exhibition this year, for the first time, was held in the Skating Rink, a building very suitable indeed for the purpose. A word of praise here is due to the management of the exhibition. The various groups were diposed with excellent taste. At one end of the building was arranged the large flowering section, in the front the dwarf-trained specimens, and at the back a row of tall pyramids. The principal occupants of the other end were the Pompons, and down the further side from the entrance the groups were tastefully arranged, while two long tables in the centre were well furnished with cut blooms and very fine fruit. The entire arrangements were in the hands of Mr. John Charlton. The principal prizes were awarded to groups of eight plants, and there was a very close competition. Mr. J. Adams, gr. to T. Grant, Esq., Hungershall Park, was 1st; he had large, well-grown plants, nicely grouped, M. C. Hubert, Japanese, was very fine, and well-furnished with flowers; Mrs. Dixon, Mrs. Geo. Rundle, and Antonius Anemone Pompon, was large and fine. The next class was for eight Chrysanthemums, but confined to plants grown within fourteen miles of Tunbridge Wells: there was also a good competition here, but Mr. R. Beilby, gr. to W. H. Tindall, Esq., Hollyshaw, was well 1st. He had Dr. Sharpe, the crimson-purple flowers of which contrasted well with the large golden flowers of Peter the Great. The specimen plants of both the large-flowered varieties and Pompoms were remarkably well grown, and compared most favourably with the best of those exhibited in or near London. Mr. J. Wilkins gained the 1st prize for six large-flowered specimens; the plants were well grown and flowered; Mr. Beilby was 2d, and Mr. Earley 3d. Single specimens were not large, but they were well grown and flowered, the varieties being Mrs. Dixon and Mrs. Rundle. Mr. Adams gained a 1st, Mr. Beilby 2d, and Mr. Earley 3d prizes. Mr. Adams also had the best single specimen Pompon—a grand plant of Fanny, over 4 feet across; Mr. Beilby had the best six Pompons, very fine, large, well-flowered specimens of Madame Montels, Cedo Nulli, Antonius, Calliope, President Decaisne, and Golden Cedo Nulli, &c. Mr. Adams also gained a 1st prize in another section with a handsome specimen of Baron Beust.

In the class for two specimen Pompons, Mr. Beilby gained a 1st prize for two really handsome specimens of Baron Beust. There were about twenty classes for plants, and as merely to enumerate the names of those to whom prizes were awarded would take up too much space, suffice to say that there were few bad plants, and great credit indeed is due to Mr. J. Adams, who, besides taking good prizes in the other sections, carried off all the 1st prizes but one in the section confined to places where only one gardener is kept. Mr. J. Charlton, Parade, Tunbridge Wells, took nearly all the principal prizes in the open class for cut specimens, with very good blooms; Mr. George Ware, gr. to Mrs. Morgan, Hungershall Park, being the most prominent exhibitor in another section.

The Chinese Primulas were a most important part of the exhibition, and some really good plants were exhibited. The three 1st prizes were awarded to Mr. George Ticknor, gr. to H. Hewetson, Esq.: his plants of the double white variety were very fine, and all the three collections were most creditable to the exhibitor, who has charge of a "single-handed" place. Equally worthy of high commendation were the splendid plants of Poinsettia pulcherrima major, from Mr. J. Charlton. Six plants were placed in a round basket, which they quite filled; they were furnished with from three to five bracts each. The 1st prize was awarded to them. Mr. D. Buchanan, gr. to Dr. Siemens, Sherwood Park, also had six very large specimens, 6 feet high at least, and gained the 2d prize. The same exhibitor also received a 1st prize for some well-grown Gesneras. Mr. A. Bashford, gr. to Mrs. Stoddart Douglas, Chilston House, exhibited excellent Alicante and Muscat of Alexandria Grapes, for which he gained 1st prizes, as well as for a collection of fruit.

Apples and Pears were exhibited in large quantities and of exceptional quality. Mr. W. Johnson, gr. to Captain Philip Green, Bayham Abbey, had the best six dishes of dessert Pears; they comprised fine Conseiller de la Cour, Duchesse d'Angoulême, Beurré Diel, Délices d'Hardenpoint, and Beurré Superfin. Mr. Johnson

was also 1st for three dishes, with fine Beurré Bachelier, Doyenné du Comice, and Marie Louise. Mr. J. Allan, gr. to G. H. Field, Esq., Ashurst Park, had the best single dish of dessert Pears—a very good one—of Doyenné du Comice. Mr. G. Goldsmith, gr. to P. C. Hardwick, Esq., Hildenborough, had the best kitchen Pears in two classes, Cattilac being the best, and very fine. Dessert Apples were clean, large in size, and remarkably well coloured. The best six dishes were sent by Mr. G. Goldsmith, who also obtained the 1st prizes for three dishes and for a single dish. The varieties were Court-pendu Plat, Ribston Pippin, Blenheim, Bell's Nonpareil, King of the Pippins. and Cox's Orange Pippin. Mr. H. Hutchinson, gr. to E. Hussey, Esq., Lamberhurst, obtained the 1st prize for six dishes of kitchen Apples; they were Beauty of Kent, Scarlet Admirable, Pomona, Golden Noble, Yorkshire Greening, and Norfolk Beefing. Mr. G. Goldsmith took the remaining prizes with excellent fruit—Bedfordshire Foundling, large and good; Shepherd's Fame, Blenheim, and Flower of Kent. It may be as well to state that 235 dishes of Apples and Pears were exhibited for competition, 100 dishes not for competition, 108 Primulas, and 225 plants of Chrysanthemums.

Kingston and Surbiton Chrysanthemum.—The fifth annual exhibition of this Society, which was held in the Drill Hall, Kingston, on Thursday and Friday, Nov. 17 and 18, was one of the best of its kind held this season. The hall was well filled and presented a very gay appearance. Upon the right and left after entering the hall various devices for the dinner-table, buttonhole bouquets, and other floral ornaments were arranged on two tables; and upon a second one, immediately in front of these, there was a fine show of Primulas in pots and other plants, and a fair display of hardy and other fruits. Next to this there were three tables running the full length of the hall, having an excellent show of dinner-table plants arranged along their centres, and the cut blooms of Chrysanthemums, which made a grand show of themselves, arranged upon either side. The groups and collections of trained plants made a brilliant show on both sides of the hall, and the general effect was much improved by the introduction of several groups of miscellaneous plants, which were of first-rate quality and faultless in balance, but perhaps somewhat wanting in material to divest them of that trimness which borders upon formality. The orchestra was decorated with hardy plants in pots and several groups of Chrysanthemums in pots, and choice collections of miscellaneous plants made a rich display in front of it. In the corners of the hall, upon the right and left of the orchestra, a very interesting and attractive display of plants was made by J. H. Bryant, Esq., Glencairn, Surbiton Hill. One of the collections consisted chiefly of trained Chrysanthemums, both dwarfs and standards, in magnificent order, and as well arranged as trained plants could be: this group was bordered with Palms, Crotons, Primulas, and Ferns, and had an exceedingly good effect. In the opposite corner the collection again consisted mainly of Chrysanthemums, but naturally trained, and mingled with small Palms, which gave two distinct effects, and which was both instructive to exhibitors and afforded variety in the exhibition. This gentleman also showed a plant by way of illustrating practically the damage done to Chrysanthemums in bud by a little insect which has been recently fully described in the columns of the *Gardeners' Chronicle*.

For the best group of miscellaneous plants arranged for effect, to occupy a space not exceeding 100 square feet, the 1st prize was deservedly awarded to Mr. C. Atwell, gr. to C. J. Freake, Esq., Bank Grove, Kingston, who had a fine Yucca in the centre of the back row of his group, good Palms and flowering plants intermixed, and a neat groundwork of Primulas and Maidenhair Ferns. These exhibits were a distinct, and, from an artistic point of view, the most pleasing feature of the show. For the best collection of Chrysanthemums in pots to be shown as grown in a space of 50 square feet, quality and general effect to be the leading feature, the competition was spirited, but all the groups lacked finish in the arrangement, which somewhat detracted from the effect. The colours, however, were beautifully blended, and the blooms large and well grown. Mr. C. Bond, Oxford House, Ham, had the 1st prize. In the class for six trained specimens with single stems, distinct varieties, Mr. G. King, gr. to R. Few, Esq., Wolsey Grange, Esher, and Mr. E. Becket, gr. to J. P. Currie, Esq., Sandown House, Esher, were awarded equal 1st for grand plants with a luxuriance of foliage and a profusion of flowers seldom equalled in trained specimens. Perhaps the John Salter exhibited in Mr. King's half-dozen was the finest trained plant of its kind ever shown. For three trained plants, large flowering, Mr. Sallows, gr. to J. J. Flack, Esq., Twickenham, was 1st, and the same exhibitor also obtained a similar award for three standards. Mr. King was 1st for the single trained specimen. For six trained Pompons with single stems, distinct varieties, Mr. J. Lyne, Wimbledon, was 1st. Mr. Lyne was again the winner for three standard-trained Pompons, and Mr. Becket and Mr. Lyne were 1st and 2d respectively for the single trained specimen.

Great interest was manifested in the show of cut blooms, especially in the class for the Champion Challenge Vase, which, as was stated in our last, was awarded to Mr. Faulkner, gr. to F. R. Leyland, Esq., Woolton Hall, Liverpool, who has been fortunate enough to secure the coveted prize for the year upon his first attempt; Mr. Tunnington, gr. to C. McIver, Esq., Calderstone, Liverpool (last year's winner), being 2d; and Mr. C. Gibson, gr. to J. Wormald, Esq., Morden Park, Mitcham, 3d. The contest for the possession of the Vase practically lay between Messrs. Faulkner and Tunnington, two neighbours, and the keenness of the battle may be gathered from the fact that the judges spent over an hour deliberating upon their verdict. One of Mr. Tunnington's flowers (Sarnia) in his stand of twenty-four Japanese was so much bruised in transit as to severely militate against his chance of success. His stand of Japanese was, however, considerably in advance of his opponent's, but the judges, after a long and careful "comparison of points," turned the scales in favour of Mr. Faulkner, upon the ground that his stand of incurved flowers had the best of it. Upon the other hand Mr. Tunnington's incurved flowers had great substance and size of petal, and showed "no eyes" under the influence of gas, which is one of the best tests of genuine quality. The varieties exhibited in the incurved section were Princess of Wales, Prince Alfred, Queen of England, Mrs. Heale, Barbara, Hero of Stoke Newington, Blonde Beauty, Mr. Bunn, White Venus, Princess Beatrice, Mrs. Dixon, Prince of Wales, Mr. Howe, Golden Empress, Beauty, Empress of India, Sir Stafford Carey, White Beverley, Inner Temple, Jardin des Plantes, Lady Hardinge, Princess Teck, Cherub, and Venus; Japanese—Elaine, Khedive, Fair Maid of Guernsey, Baron de Prailly, James Salter, Bismarck, Red Dragon, Tendresse, Père Delaux, Nuit d'Automne, Striatum, Gloire de Toulouse, Peter the Great, Comtesse de Beauregard, Madame Mouline, Bouquet Fait, Soleil Levant, Cry Kang, Hiver Fleur, Oracle, Harlequin, Mons. Lemoine, La Nymphe, and The Cossack.

In the class for twenty-four incurved cut blooms Mr. Faulkner was distinctly 1st with duplicates of those already mentioned. Other prizes were awarded in this class, in which there were several exhibitors. For twelve incurved varieties Mr. E. Molyneux, gr. to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham, Hants, carried off the 1st prize with flowers almost equal to anything in the show. Mr. Coombs, Mr. Slade, and Mr. J. Benson were the winners in the class for six blooms, and in the class only open to those who have never won a prize for cut blooms before Mr. Lee, Mr. Watson, and Mr. Standen were the successful competitors.

Fruit was but a moderate show. There was a good show of Chrysanthemums in pots and cut blooms by amateurs and cottagers in the Kingston district, and special prizes given for stands of cut flowers were well won by Miss M. Curtis, Richmond, Mrs. J. Drewett, and Mrs. J. Beagley. Special prizes were also given for buttonhole bouquets, to consist of Chrysanthemums and Maidenhair Fern. Several extra prizes were awarded, among them one to Mr. Harding, gr. to J. Galpin, Esq., Putney Heath, for his stand of cut blooms entered for the Challenge Vase, which the judges considered was entitled to substantial recognition. The result of the contest for the Champion Vase next year will be looked forward to with great interest, the chances of the North country growers being, as will be seen, two to one against the south.

Borough of Hackney Chrysanthemum.—The thirty-fifth annual exhibition of this Society was held in the Royal Aquarium, Westminster, on Thursday and Friday, November 17 and 18. Neither the plants nor cut blooms of the incurved varieties were quite up to the average of the last few years, but they were quite as good as could be expected, considering the exceptional character of the season. The principal prizes were given for groups of Chrysanthemums to be arranged on a space of 100 square feet. The 1st prize was awarded to Messrs. S. Mahood & Sons, of Putney, the group composed entirely of plants grown to produce large cut blooms, the tallest at the back and sloping to the front. The best of the incurved section, and a few Japanese varieties, were used in its formation. Mr. John Stevens, also of Putney, was 2d with a group of nearly equal merit. The 3d prize group was also a good one, from Mr. Butcher, gr. to R. A. Glover, Esq., The Priory, Hadley, Barnet, and it was fairly representative, comprising varieties of all the sections. For six large-flowered specimens Mr. H. Langford, gr. to J. Barnet, Esq., Coleraine House, Stamford Hill, was 1st with good dwarf-trained examples; and for large-flowered standards Mr. Butcher was 1st with really well-grown and finely-bloomed plants, the flowers being of large size. For six specimen Pompons, Mr. F. Wells was 1st, with healthy, well-grown plants.

Collections of foliage plants were arranged in the centre of a semicircular space, on the margin of which the greater proportion of the plants were arranged, and this very much aided the effect of the banks of colour.

For twenty-four incurved blooms, distinct varieties, there was a very good competition, and the blooms in the prize collections were of fair average merit; and the competition for the 1st place was very close between Mr. Berry, gr., Roehampton House, Roehampton, and E. Sanderson, Esq., Harlesden Park, Willesden, and the 1st prize was ultimately awarded to the former by a few points only; Mr. Stevens gained the 3d prize. There were seven competitors in the class for twelve blooms: the 1st prize stand was a really good one, from Mr. Gibson, Morden Park, near Mitcham; Mr. C. Herrin, gr. to J. V. Hibbert, Esq., Chalfont Park, Gerrard's Cross, was 2d; and Messrs. J. Garaway & Co., of Bristol, 3d. In the class for six distinct blooms, Messrs. Garaway were 1st with a grand stand—Empress of India and Golden Empress were splendid; 2d, Mr. E. C. Jukes, Hope House, Winchmore Hill—Princess of Wales and Cherub being his best blooms. Mr. Berry gained the 1st prize in a poor class (where there were but three competitors) for a stand of large-flowered Anemones. Anemone Pompons were much better, and Mr. Butcher had the best stand—a very good one. A white variety, Madame Senlin, and a pale pink Defiance were very fine and very pretty. There was a really fine collection of cut blooms of the Japanese section, which formed one of the most interesting and beautiful features of the exhibition. Mr. C. Gibson gained the 1st prize for twenty-four blooms in not less than twelve varieties, and they were so very fine that it is best to give their names:—Fair Maid of Guernsey, Peter the Great, M. Ardene, Criterion, a fine bloom; Elaine, Baron de Prailly, M. Delaux, Red Dragon, Ethel, Lutea striata, Mons. Lemoine, Grandiflora, Cry Kang, Red Dragon, Fulgore, and Alba striata; Comte de Germiny in Mr. H. Smith's stand, which won a 3d prize, was a very remarkable flower of a dun colour, with long incurved petals. Madame Bertier Rendatler is novel, and very neatly fringed.

In what is termed the "Boro'" classes the competition was not very spirited, the cut blooms being far behind those open to all exhibitors. In the competition for ten plants Mr. J. Lanford was 1st, with a very nice group. For twenty-four incurved blooms Mr. S. Gilbey, gr. to E. Booth, Esq., Upper Clapton, was 1st. Mr. F. Wells was 1st for twelve, and also for four well-grown standard Pompons—Bob and Antonius were the best of them.

Prizes were offered for two bunches of black Grapes and one bunch of white Grapes, and some good ordinary examples were staged in competition. The best black were Gros Colmar, from Mr. F. J. Cooke, The Vineyard, King's Lynn, Norfolk; the berries were not so large as some there, but well coloured. Mr. George Osborne, Kay's Nursery, Finchley, had the best Muscats; the berries were medium-sized and well coloured. There were also seven collections of six dishes of dessert Pears staged for competition, the winning exhibits being especially fine; those from Mr. W. Fowle, gr. to Sir H. Mildmay, Bart., Dogmersfield, Hants, which gained 1st prize, were really splendid. Mr. G. Goldsmith Hollander, Tunbridge, was 2d; and Mr. J. Stewart, gr. to H. S. Bennett, Esq., Langford Park, Maldon, 3d—all of them showing fine large, highly coloured fruit. Mr. R. Dean, of Ealing, had the best six dishes of dessert Apples amongst eleven competitors, and very clean and highly coloured they were. There were nine competitors in the class for six dishes of kitchen Apples, but Mr. Fowle was well ahead of all of them with large handsome fruits.

Collections of vegetables formed one of the best features of the exhibition, and there were no less than eleven competitors for one set of prizes. Mr. R. Philips, gr. to Capt. Jackson, The Deodars, Meopham, gained the highest place, although he was very closely pressed by the 2d prize, taken by Mr. J. Millen, Hamstead Park, Newberry, Berks, whose Cauliflowers were past their best, else there was but little to choose between them. Mr. S. Gilbey obtained a 1st prize for a collection of vegetables grown in the Borough of Hackney. There were also excellent collections of Potatos exhibited, and a good competition. Mr. R. Dean gained the 1st prize for twelve varieties. For six dishes, Mr. Miller was easily 1st. Messrs. Sutton & Sons, of Reading, exhibited eighty dishes of Potatos, including five new varieties raised by Mr. Fenn, but not yet sent out. They had also a capital collection of coloured and curled Kales. Messrs. Charles Lee & Son filled a long table with seventy dishes of Potatos, including their new purple kidney Defiance. From W. Skinner, Esq., of Maidstone, there were eighty dishes of excellent Apples, which were highly commended by the judges. There was also a very large and interesting collection of Gourds from Mr. Sidney Ford. Mr. Ross received a Silver Medal for a collection of Pines: and last, though not least, Mr. Cannell, of Swanley, arranged a really pretty and striking group of Salvias, White Lady Heliotrope, very fine; cut blooms of zonal Pelargoniums, and a selection of the Swanley Primulas, which for quality and colour are surpassed by no others.

Bristol Chrysanthemum, *November 16 and 17.*—This, the eighteenth exhibition, well sustained the reputation which Bristol and the surrounding district has earned for the cultivation of this fine autumn flower. Plants and cut flowers were well represented; but here, as in most places this autumn, the individual blooms were scarcely so large as they have been seen.

In the class for six plants, large flowered varieties in 12-inch pots, Mr. Bradner was a good 1st with large, low trained, evenly bloomed examples, each about 1 yard across, of Prince of Wales, Mrs. Dixon, Mrs. Forsyth, Alma, Mrs. Corbay, and Mrs. Rundle. Mr. Smith, gr. to A. Shipley, Esq., took 2d, staging a nicely flowered lot. With three, Mr. Bradner took 1st, showing in good condition Guernsey Nugget, Bronze Jardin des Plantes, and White Globe. For six Pompons Mr. Bradner was also to the front, with Marie Stuart, Bob, Antonius, Madame Martha, and Miss Nightingale. The same exhibitor was also 1st for four Pompons, and also for six in 8-inch pots. With two Japanese varieties Mr. Cole, gr. to W. Pethick, Esq., took the lead, staging Fair Maid of Guernsey and The Cossack. The prizes offered by the High Sheriff, F. F. Fox, Esq., for three standards, in a close competition was won by Mr. Smith, who had well managed plants of Venus, Mrs. Rundle, and Guernsey Nugget. Mr. Smith also won the Royal Horticultural Society's Bronze Medal, offered for the best plant of Chrysanthemum shown in any class, which was awarded to the specimen of Mrs. Rundle in the three last named.

Bouvardias were nicely shown, and the half-dozen Celosia pyramidalis, grown in 6-inch pots by Mr. Vallance, which took Mr. J. Weech's special prize, were the best managed examples of this beautiful feathery flower we have seen, being unusually dwarf, strong, and compact, the stems clothed with healthy leaves, and bearing extraordinarily fine plumes, intensely coloured. Zonal Pelargoniums were produced in excellent order, as full of bright flowers and healthy foliage as usually met with in summer. The special prizes offered by W. Derham, Esq., for groups of miscellaneous plants, brought out two very good collections, Mr. Perry taking 1st with a

mixed lot, consisting of flowering and fine-foliage subjects, amongst which were a number of Orchids; Messrs. Maule & Sons, who were 2d, also staged a very good group.

Primulas, as usual at Bristol, were grandly shown: nothing in their way could be finer than the half-dozen with which Mr. Bannister took 1st, the foliage being of the right stamp, surmounted by dense heads of large finely coloured flowers. Poinsettias in 6-inch pots (the prizes offered by Mrs. W. H. Budgett) were nicely shown, dwarf plants with single heads. Berry-bearing plants, in sixes (the prizes given by G. W. Edwards, Esq.), were exhibited by Mr. Spry, gr. to G. F. Prideaux, Esq., and Mr. Ward, gr. to W. H. Budgett, Esq., who took the prizes in the order of their names. Prizes offered by Mr. T. Bush, for single specimen stove or greenhouse plants in flower, the 1st was deservedly awarded to Mr. Perry for a beautifully flowered example of a fine form of the handsome Oncidium macranthum bearing two large spikes: Mr. O'Brien, gr. to Mrs. R. P. King, took 2d with a large and excellently bloomed specimen of Clerodendron Balfourianum, its white bracts being purer in colour at this sunless time of the year than they are in summer, showing the manageable character of this handsome plant.

Cut Flowers.—Chrysanthemums were fairly shown. For twenty-four large-flowered kinds Mr. Baylis took 1st, with an even medium-sized stand. Twelve large-flowered sorts: 1st, Mr. H. Morgan, with a fresh-looking lot of blooms. With six Mr. Baylis was likewise 1st. For twelve Anemone-flowered varieties Mr. Baylis was 1st, with an even stand. The special prizes offered by S. Derham, Esq., for twelve blooms of large-flowered Chrysanthemums, incurved, in two distinct colours, were won by Mr. Baylis, with six Prince of Wales and six Barbara. For twelve Japanese varieties, not less than six distinct kinds, Messrs. Garaway were 1st, showing a handsome lot of flowers, conspicuous amongst which Baron de Prailly, Madame C. Andiguier, Peter the Great, Red Dragon, and Fair Maid of Guernsey. There could not be anything prettier than the vases and baskets, arranged with outdoor grown berries and leaves, for which special prizes were offered. The effect produced by the beautiful shades of the leaves in their closing stages of colour, arranged with suitable berries, was quite equal to that obtainable by the grouping of bright flowers and green foliage.

Fruit.—There was a nice show of fruit; in the class for six dishes (the prizes given by Messrs. Garaway & Co.) Mr. Vallance took 1st prize, staging Lady Downe's and Black Alicante Grapes, both in good condition; Victory of Bath Melon, Medlars, King of the Pippin Apples, and Alexandre Lambre Pears. Mr. J. Farmer, gr. to S. Derham, Esq., was 1st with well-finished fruit in good condition; 2d, Mr. Bannister; 3d, Mr. Bradner. With three bunches of Muscats Mr. Bannister was 1st, with medium-sized examples beautifully coloured.

For Sir Greville Smyth's special prizes for four bunches of Grapes, not less than two varieties, Mr. Avery, gr. to J. B. Low, Esq., had 1st, with Gros Colmar and Black Alicante, both nicely done; Mr. Bannister, who was 2d, had Lady Downe's and Muscat of Alexandria; 3d, Mr. Gibson, with Mrs. Pince and Gros Colmar. The prizes given by V. Down, Esq., for three bunches of black Grapes went to Mr. Vallance, who had Lady Downe's, beautifully finished; 2d, Mr. Shelton, gr. to W. K. Wait, Esq. Apples and Pears were present in large quantities and in the most beautiful condition in colour and size; the dessert Apples were such as it would be difficult to surpass. For six dishes of dessert Pears Mr. Farmer took 1st, having faultless examples of Josephine de Malines, Duc d'Aumale, Glou Morceau, General Todtleben, Beurré Clairgeau, and Durondeau. Four dishes of Pears: Here, too, Mr. Farmer was 1st, with varieties similar to his collection of six kinds. Six varieties of dessert Apples: 1st, Mr. J. Virgo, who had superb dishes of Ribston, Kentish, Blenheim, and Coulston Pippins, Court-pendu Plat, and King of the Pippins; 2d, Mr. Aplin, whose most noticeable fruits were Golden Harvey, Nonpareil, and Blenheim Pippin; 3d, Mr. Bannister, the best dishes here being Scarlet Pearmain, Claygate Pearmain, Cox's Orange Pippin, and Golden Reinette. Four varieties: 1st, Mr. Vallance, showing fruit alike remarkable for size and general condition, consisting of Ribston, Cox's Blenheim, and King Pippins; 2d, Mr. Aplin. Single dish of dessert Apples: Messrs. Aplin, Virgo, and Avery took the prizes in the order of their names, all showing Ribston Pippin. Six culinary varieties: With these Mr. Aplin had 1st, staging Kentish Pippin, Reinette de Canada, Holland Pippin, Flanders Pippin, Malster, and Hanwell Souring; 2d, Mr. Goddard, who had an excellent half-dozen kinds. Single dish of culinary Apples: 1st, Mr. Aplin, with Blenheim Pippin, unusually big, and remarkable for colour.

Royal Horticultural of Southampton.—This, without exception, the finest and most successful autumn show in the South of England, was held in the spacious Skating Rink of the old southern town on Tuesday and Wednesday last, and was attended by such a dense body of visitors as to be literally crowded. Very prominent were the groups of miscellaneous plants, two of which were exhibited by gardeners, and two others by trade growers. In the former section Mr. McMillan, gr. to H. S. Stanley Esq., Paultons, Romsey, took 1st place with a very nice lot of plants; some good Eucharis amazonica and Cypripediums, a large plant of the not very showy Epidendrum purum, several of the red-flowered Plumbago, &c., told well amongst the foliage plants. Mr. E. Wills, gr. to Mrs. Pearce, The Firs, Bassett, who was placed 2d, had a capital group, and to our thinking the best, for the plants were all very fresh and good. In this lot the rich coloured bracts of Poinsettias told well. Chrysanthemums were very good and effective, and zonal Pelargoniums intermixed with bright-leaved Crotons and Dracænas, gave ample colour; the collection was a highly creditable one. In the trade groups Messrs. J. C. & H. Ransom, had a bright lot of plants, in which deep coloured zonal Pelargoniums played a prominent part; Mr. J. Kingsbury, Bevois Valley, taking 2d place. Two large groups of Chrysanthemums were staged, the best coming from Mr. Allen, gr. to J. Bailey, Esq., Elmfield, Hill, all well bloomed and having robust foliage; Mr. Osborne, gr. to H. J. Buchan, Esq., Wilton House, coming 2d. Trained plants of Chrysanthemums are very differently done here to what we are accustomed to see around the metropolis. There was not a flat trained plant in the show, but all grown on single stems, with an average height of 3 feet, and as much across the head. In the class for twelve plants Mr. Allen was 1st with a capital lot, well grown and flowered; amongst these, specially good, were Fingal, Golden Christine, White Globe, and Snowball; and of Japanese kinds, La Nymphe, The Cossack, and Fulton. Mr. Wills, who came next, included in his lot good plants of King of Crimsons, Striatum, Dr. Sharpe, and Prince of Wales. With six plants of similar growth Mr. Thomas, gr. to R. R. Scott, Esq., Shirley Lodge, was 1st; amongst these Mrs. Forsyth was very good. Mr. Osborne took 2d prize here. Mr. Allen was again 1st with six Japanese kinds, having fine plants of Sultana, Album plenum, Striatum, Fulton, The Cossack, and Grandiflorum. Messrs. J. C. & H. Ransom had nine very good plants from trade growers. In the single specimen classes Mr. Allen was 1st, with a well-bloomed Harlequin for Japanese; Mr. Wills having an unnamed kind for 2d prize. In the incurved or reflexed class Mr. Osborne was best, with a fine Golden Christine; Mr. Allen coming 2d, with Dr. Sharpe in good colour. Amongst other plants shown were some fine specimen Palms, Mr. Blandford, gr. to Mrs. Hazelfoot, Bitterne, taking 1st, with a clean grown Latania borbonica. Poinsettias, though not largely shown, were very bright and effective. Mr. Wills had the best six plants, averaging 2 feet in height, and each producing two and three brilliant coloured heads; Mr. McMillan was 2d, with tall fellows having single stems. Single Chinese Primulas were not so well shown as is desirable, but the six doubles from Mr. Blackmore, Winchester, were truly first-rate, large and full of bloom. There were three whites, Mrs. Barron, White Lady, and Poolei?, Atro rubra plena, and Hillier, bright rose. Mr. J. Bushel, florist, of Bassett, had the only Cyclamens shown, good plants, well bloomed, but all white kinds. A very fine collection of Orchids, shown by Mr. Osborne, must be the subject of a special note. Table plants of the usual type and berried Solanums were largely shown.

Remembering that the show was held full a week late to secure good blooms of Chrysanthemums the display in this department was very satisfactory. In the open class for twenty-four blooms Mr. Molyneux, gr. to W. H. Myers, Esq., Meanmore Park, was 1st, with excellent examples of Princess Teck, Queen of England, Baron Beust, Venus, Peter the Great, Meg Merrilies, M. Ardene, Criterion, and others. With a similar class the competition restricted to gardeners, Mr. Allen was 1st, with admirable blooms; particularly fine were Mrs. Mary Morgan, Mr. James, and Pink Christine. With twelve incurved or reflexed flowers Mr. Molyneux was a good first, including kinds previously named; whilst in the class for twelve Japanese flowers, Mr. Allan was best—Cry Kang, the Daimio, and Mons. Ardene showing well. Other classes for lesser quantities of blooms were well filled, and the competition throughout excellent.

Without doubt fruits and vegetables constituted the most meritorious features of the show, for not only was the competition quite remarkable in nearly all the classes, but the quality was first-rate, and elicited the highest commendations. Grapes were well and largely shown, there being some eight or nine entries in the class for three bunches in three kinds. Here Mr. T. Hall, a young but very able grower, gr. to Captain Davidson, South Stoneham House, was 1st, with fine Black Alicante, Barbarossa, and Muscat of Alexandria. In the class for three black Grapes Mr. Hall was again 1st, with truly superb bunches of Black Alicante, weighing from 3 lb. to 4 lb. each, and as black as Sloes. In this class were also shown some superb Gros Colmar, but barely finished for colour. With three white Grapes Mr. J. Smith was 1st, with highly-coloured Muscat of Alexandria, some of the berries getting shrivelled; Mr. Wildsmith, gr. to Viscount Eversley, Heckfield Place, was 2d, with medium-sized, fresh bunches of the same Grape. With two good bunches of Alicante Mr. Rudd was 1st in the junior class for black Grapes, the same grower taking 1st prize with moderate Muscats in white kinds. In the Pine class Mr. Browning, gr. to H. F. K. Holloway, Esq., Marchwood, was 1st, with a very good Queen.

For very substantial prizes offered in a class for four dishes of Pears and four dozen of Apples there were eleven lots staged, making a fine competition. Here Mr. Wildsmith was 1st, with, of Pears, fine samples of Spring Beurré, Huyshe's Victoria, Beurré Diel, and Duchesse d'Angoulême; and Apples, Blenheim Pippin, Hollandbury, Cellini, and Cox's Pomona, all superbly coloured. A class for three dishes of dessert Apples brought a splendid competition of twenty entries, and the fruit as a rule good and handsome. Mr. H. Girford, market gardener, of Nursling, who was placed 1st, had wonderfully rich coloured samples of Blenheim Pippin, Winter Pearmain, and Scarlet Nonpareil. Mr. A. Tragnell, gr. to T. C. Hill, Esq., Bassett, had Kings, Cox's Orange Pippin, and Claygate Pearmain. With three dishes of kitchen Apples Mr. Hall took the lead of eighteen competitors, with large Flower of Kent, Wellington, and Bedfordshire Foundling. Three dishes of Pears brought fifteen lots, the finest by far being those exhibited by Mr. Wildsmith, who was an easy 1st with superb Columbia, a very handsome smooth kind; Duchesse d'Angoulême, and Beurré Diel.

The ten lots of vegetables shown in the open class for eight kinds were all good and made a fine show, and was generally staged in the most approved fashion. That successful exhibitor, Mr. Austen, was 1st here with good Cauliflowers, pink Celery, large Reading Onions, Snowball Turnips, good Brussels Sprouts, Schoolmaster Potato, Excelsior Tomatos, and Sion House Cucumbers. In two collections were bundles of Seakale not well done, but these did not help the exhibitors to prizes. Two lots of salads, each of about twelve kinds, were in competition, but the things shown were hardly meritorious and certainly not worth the prizes. A special prize for collections of Potatos of any number brought two competitors only, as the class was limited to 6 miles of the town. Mr. T. M. Vokes, an enterprising amateur grower of the noble tuber, from Bishopstoke, was an easy 1st, with some fifty-eight dishes, some fairly good samples, though far below the Crystal Palace mark. A special prize of four valuable books, offered by Mr. B. S. Williams, of Holloway, for the largest winner of prizes in the plant classes for gardeners, was awarded to Mr. T. Hall, who also took a Certificate for the greatest number of points gained in that section. A similar Certificate, richly illuminated and framed, was awarded to Mr. Wildsmith, gr. to Viscount Eversley, for having the largest number of points in the fruit classes.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, November 23, 1881

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°			In.
17	29.72	−0.01	54.5	43.0	11.5	47.5	+ 5.5	44.8	91	W.; S.W.	0.10
18	30.17	+0.45	48.0	36.5	11.5	42.2	+ 0.3	40.4	92	W. S.W.	0.00
19	30.00	+0.30	51.5	43.0	8.5	47.1	+ 5.3	42.4	85	S.:S.W.	0.02
20	29.81	+0.11	56.5	42.8	13.7	50.4	+ 8.7	47.1	90	W.SW.	0.00
21	29.47	−0.22	53.0	48.5	4.5	51.2	+ 9.5	49.6	94	W.; S.W.	0.24
22	29.71	+0.02	53.0	43.0	15.0	49.2	+ 7.6	48.6	97	S:S.W.	0.05
23	29.79	+0.11	53.0	43.0	10.0	47.4	+ 5.7	45.4	96	W.	0.02
Mean	29.81	+0.11	53.5	42.8	10.7	47.9	+ 6.1	45.6	92	S.W.	0.33

Nov. 17.—Fine bright day; strong wind in the morning. Fine clear night.
— 18.—Fine; fog in the morning, thin drizzling rain at night.
— 19.—Fine bright day and night.
— 20.—Rather cold damp morning. Fine afternoon; deep blue sky. Fine night.
— 21.—A dull damp morning. Fine bright afternoon. Dark rough night.
— 22.—Fine, but dull, overcast, and windy. Fine clear night.
— 23.—Dull, overcast morning. Fine bright afternoon. Fine clear night.

London: *Atmospheric Pressure.*—During the week ending November 19, the reading of the barometer at the level of the sea increased from 30.31 inches at the beginning of the week to 30.45 inches by midnight on the 13th, decreased to 29.97 inches by 3 P.M. on the 15th, increased to 30.11 inches by midnight of the same day, decreased to 29.74 inches by midnight on the 16th, increased to 30.37 inches by 3 P.M. on the 18th, and was 30.04 inches at the end of the week.

The mean reading for the week at the level of the sea was 30.13 inches, being 0.05 inch lower than last week, and 0.20 inch above the average for the week.

Temperature.—The highest temperature in the shade during the week was 59°, on the 13th. On Nov. 18 the temperature did not rise above 48° The mean of the seven high day temperatures was 53°.5.

The lowest temperature in the week was 36°.5, on the 18th; on the 13th the lowest temperature was 50°. The mean of the seven lowest temperatures was 44°.2.

The greatest range of temperature in one day was 11°.5, on the 16th, 17th, and 18th; the smallest was 5°, on the 14th. The mean of the seven daily ranges was 9°.3.

The mean daily temperatures were, on the 13th, 53°.4; on the 14th, 50°.3; on the 15th, 48°.9; on the 16th, 49°.9; on the 17th, 47°.5; on the 18th, 42°.2; on the 19th, 47°.1—and these were all above their averages by 10°.7, 7°.8, 6°.6, 7°.7, 5°.5, 0°.3, and 5°.3 respectively. The mean temperature for the week was 48°.5, being 2°.4 lower than last week, and 6°.3 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 105° on the 13th; the highest on the 14th was 55°. The mean of the seven readings was 89°.4.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 35°.5, on the 18th. The mean of the seven readings was 40°.1.

Rain.—Rain fell on four days, to the amount of 0.18 inch.

ENGLAND: *Temperature.*—During the week ending November 19 the highest temperatures were 64° at Leeds, 63°.8 at Sheffield, and 63° at Sunderland. The highest temperature at Brighton was 57°.3, at Truro 58°, and at Bradford 58°.4. The mean from all stations was 60°.6.

The lowest temperatures in the week were 29°.5 at Nottingham, 30° at Hull, and 31° at Leicester. The lowest temperature at Truro was 40°, at Plymouth 39°, and at Brighton 38°. The mean from all stations was 34°.

The greatest ranges of temperature in the week were 32°.3 at Nottingham, 31° at Leeds, and 30°.8 at Leicester. The least ranges were 18° at Truro, 19°.3 at Brighton, and 20°.8 at Plymouth. The mean from all stations was 26°.7.

The mean of the seven high day temperatures was highest at Sunderland, 57°.8; at Truro, 57°; and at Plymouth, 56°.9; and lowest at Hull, 52°.6; at Blackheath, 53°.5; and at Brighton, 53°.6. The mean from all stations was 55°.2.

The mean of the seven low night temperatures was highest, 47°.7, at Plymouth, 46° at Truro, and 45°.2 at Bristol; and was lowest, 41°.1, at Nottingham, 41°.2 at Wolverhampton, and 41°.3 at Leicester. The mean from all stations was 43°.7.

The mean daily range was greatest, 15°.4, at Sunderland, 14° at Nottingham, and 13°.4 at Leeds, and was smallest, 9°.1, at Brighton, 9°.2 at Plymouth, and 9°.3 at Blackheath. The mean from all stations was 11°.5.

The mean temperature for the week was highest, 51°.9, at Plymouth, 51°.2 at Truro, and 49°.9 at Bristol, and was lowest, 46°.9, at Hull, 47°.4 at Wolverhampton, and 47°.5 at Leicester. The mean from all stations was 49°.1.

Rain.—The largest falls were 1.14 inch at Bradford, 0.85 inch at Sheffield, and 0.59 inch at Bristol. The least falls were 0.11 inch at Cambridge, 0.18 inch at Blackheath and Sunderland. The general mean was 0.36 inch. It fell on an average of three days.

SCOTLAND: *Temperature.*—During the week ending November 19 the highest temperature was 61°.4 at Edinburgh and 60° at Glasgow; at Leith the highest temperature was 56°. The general mean was 58°.7.

The lowest temperature was 27°, at Dundee; at Aberdeen the lowest temperature was 32°.1. The general mean was 29°.5.

The mean temperature for the week was highest at Glasgow, 49°, and lowest at Leith, 43°.9. The general mean was 46°.7.

Rain.—The largest falls were 1.99 inch at Greenock and 0.92 inch at Glasgow, and 0.90 inch at Leith. The least falls were 0.29 inch at Aberdeen and 0.65 inch at Dundee. The general mean was 0.92 inch.

JAMES GLAISHER, F.R.S.

Obituary.

WE have this week the painful duty to record the death of Dr. DENNY, who during the last few years has been so active in the world of horticulture that he had become a familiar and influential personage at our chief horticultural gatherings, respected alike for his honesty of purpose and for his wide-spread sympathies.

John Denny, M.D., M.R.C.S.E., L.A.C., was the only son of John Denny, Esq., of Ipswich. He was educated at the grammar school of that town, and afterwards pursued his medical studies at University College Hospital, London. He was for thirty-four years the Resident Medical Officer of the Stoke Newington Dispensary, and died at the latter place of paralysis, after an illness of six months' duration, on November 18, aged sixty-two years.

In the horticultural world Dr. Denny was especially identified with the advance of the zonal Pelargonium, which up to a recent date had not kept pace with the show Pelargonium in the race of improvement. He was also a most efficient member of the Council of the Royal Horticultural Society, to which he was elected in the troublous times of 1875, and on which he has continued to sit up to the time of his illness, ever showing himself the champion and friend of legimate horticulture. As a hybridist Dr. Denny was most painstaking and accurate, and so long since as 1872 he published in the *Florist and Pomologist* an elaborate treatise in three chapters on the cross-breeding of his favourite flower. In August, 1874, the Pelargonium Society was founded, and this useful body, which has done and is doing good service in the extension of the taste for the culture of the Pelargonium, mainly owes its origin to the exertions of Dr. Denny and the late Mr. John Pearson, who were always regarded as its fathers and founders. Of this Society Dr. Denny acted from the first as Treasurer, and he continued to fill that office with his wonted zeal and assiduity until last year, when he resigned the post into the hands of Mr. H. Little. Dr. Denny was a very active member of the Floral Committee of the Royal Horticultural Society, and was at the time of his death Chairman of that useful body, at whose meetings his presence will be sadly missed. He was a kind and warm-hearted friend, social in his habits, and genial in his contact with his fellow men, and there will be many amongst his associates of the horticultural fraternity who will cherish his memory with affectionate regret.

Dr. Denny was buried on Thursday last in the Ipswich cemetery, where, at his own request, his mortal remains were deposited.

Florists' Flowers.

THE CHRYSANTHEMUM.—Specialists in this particular flower will probably regard the year 1881 with contending emotions. Some tell us of sad failures—plants bloomless, or eaten up by the predatory maggot; others blown literally to ribbons during the late storm; others, not early housed, had the best buds injured by early frosts; and so on in the catalogue of misfortunes. But it has been made pretty evident, by the large number of exhibitions of the autumn queen of flowers held during the past few weeks, that some growers, at least, have avoided these ills, and have been enabled to present to the public their plants and cut flowers in splendid form. These are doubtless well pleased; but none can differ as to the superb character of the flowering season, although before the blooms had expanded some materially suffered. We have heard of some growers whose blooms before fit for cutting fairly rotted on the plants; but this must have been in houses where they were thickly crowded, and the ventilating conditions not quite satisfactory. These are exceptions to a general rule, for in the open air rarely has a more congenial time for the Chrysanthemum been known. Our reports of exhibitions devoted chiefly to the Chrysanthemum tell, though necessarily imperfectly, of the large number of these which now are held; and, indeed, on the score of popularity, both as a decorative and show flower, the Chrysanthemum distances all others, for even the Rose cannot claim so many courtiers as the autumn queen of flowers can boast of. The reason is not far to seek, for to town and suburban residents the latter queen is much the easiest to woo. The Chrysanthemum will thrive well where the Rose will die, and it is largely because it is so amenable to town culture that it is such a favourite flower. How much horticulture has gained is evident. A few years since and such exhibitions as we now see were impossible. Apart from the improvements effected in the incurved and Pompon kinds, the Japanese flowers have become one of the chief features of shows; and if stiff-minded florists did at first turn to them the cold shoulder, they have made their way, and are now the prime favourites of the public. More charming foils for the very formal round flowers could not be found.

Enquiries.

He that questioneth much shall learn much.—BACON.

THE ISLAND OF CAPRI.—Can any reader oblige by naming any work on the flora of this island? *E.*

Answers to Correspondents.

ATOM: *H. A.* An atom is a particle so small that it is not capable of being divided, so far as is known. A molecule is the smallest particle that can exist in a free uncombined state. It may consist of one or more atoms.

BONES: *S. C.* Generally considered the most valuable when they have been boiled, and are now almost uniformly so treated before being crushed.

BOOKS: *Seedsman.* If you mean horticultural, Paxton's *Botanical Dictionary*, price about one guinea.

CHRYSANTHEMUMS: *C. J. Langlois.* The two seedling Pompons are well-formed flowers, but rather lack brightness of colour. Mrs. C. Langlois has the florets very broad, the colour rosy-pink, and the flower-heads very double. Miss Lavinia Hutchings is quite different in style, a dense globe of very small florets, whitish when fully developed, but in the bud form showing the lilac tips of the florets like a dark centre to the flower-head. The quality of the flower is first-rate.

ERRATA.—At p. 662, col. *b*, twenty-sixth line from the top, for "discovered" read "diseased." At p. 665, in the paper on "Lilac Fungus," the figures B and C are transposed in the text.

GLOXINIAS: *Deepcar.* The outgrowths from the outer surface of the corolla of this plant are well known. They are sometimes much more distinct than on your plant.

GUN LICENSE: *W. Bryant.* Yes; you must take out a license, but, having done so, you may depute a servant to use the gun for scaring birds and killing vermin without taking out another license for him.

NAMES OF FRUIT: *J. Hawkins.* Knight's Monarch.—*J. M., Woodlands* (omitted last week). No. 9, Cox's Pomona.—*G. S., Sandbeck Park. Apples:* 1, Mère de Ménage; 2, Beauty of Wilts; 3, Cox's Pomona; 5, Cellini; 7, Duke of Beaufort. *Pears:* 1, Louise Bonne of Jersey; 2, Beurré Hardy; 3, Althorp Crassane; 4, Beurré d'Amanlis, probably.—*H. J. H.* 1, Cellini; 2, Downton; 3, King of the Pippins; 4, Kerry Pippin.—*J. K. B.* 4, Yorkshire Greening; 7, Beauty of Wilts; 8, King of the Pippins; 9, Pear Marie Louise, as far as we can make out—very small, and rotting. The others are very worthless varieties; most likely local seedlings.—*A. H.* 1, Golden Noble; 2, Cellini; 3, Emperor Alexander; 4, probably Glou Morçeau; 5, Bishop's Thumb; 6, Beurré Rance.—*Bence Jones.* 1, Alfriston; 2, Rymer.—*J. Perkins & Son.* Your Apple is unknown to us.

NAMES OF PLANTS: *A. B. H.* Quercus Fulhamensis (the Fulham Oak), and the common Bullrush (Typha latifolia).—*W. Hannaford & Sons.* Cattleya guttata, a native of Brazil.—*Connon & Reid.* Senecio mikanioides.—*E. G.* Hedera dentata.—*H. L.* Oncidium dasystyle.

PALM SEEDS: *L. M. G.* We regret we cannot tell you more than you already know.

PUTNEY CHRYSANTHEMUM SHOW.—We are requested to state that at this exhibition, reported last week, Mr. R. N. Dalton, Hill Side, Putney Hill, won the 1st prize in the amateurs' section for a group of twelve Chrysanthemums.

VIOLETS: *G. S. K.* Read the article on "Violet Culture Under Glass" in our number for September 3 last, p. 299.

CATALOGUES RECEIVED.

J. BLACKBURN & SONS, 4 and 5, Wormwood Street, E.C.—Russian Mats, &c.

W. P. LAIRD & SINCLAIR, Dundee—Roses, Fruit Trees, and General Nursery Stock.

S. MAHOOD & SON, Lower Richmond Road, Putney—Chrysanthemums.

CONTINENTAL HORTICULTURAL COMPANY, Ghent.—List of Window Plants, &c.

COMMUNICATIONS RECEIVED:—H. T. B.—W. B.—A. F. B.—W. L.—W. H.—D. C. P.—W. Watson—C. O. (thanks).—C. M. O.—H. Whiteway.—R. G.—T. A.—J. C. & Co.—B. W. W.—W. H. D.—W. H. B.—C. W.—J. D.—E. M.—R. T. (many thanks).—W. C.—W. H.—T. Dodds.—J. H.—The Gardener.—H. J. V.—A. B.—H. M.—H. C., Geneva. H. J. E.—J. S. G.—L. W.—J. R.—J. & R. T.—M. N.—J. W.—E. R.—J. H.—W. T. D.—L. M.—E. T. M.—T. H. F.—T. C., Florence—F. B.—R. B.—G. A. S., Boston, U.S.—Sir John Kirk.—H. N. E.—H. E.

Markets.

COVENT GARDEN, November 24.

Trade has been quiet during the week, and with large arrivals of St. Michael Pines, home-grown fruits are in less demand. Apples, except best stuff, are quiet, with no improvement. Kent Cobs firmer. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Herbs, per bunch	0 2– 0 4
Asparagus, French Sprue, per bundle	1 6– ..	Horse Radish, bund.	4 0– ..
— New Fr., bundle	5 0– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
Barbe de Capucin, per bundle	0 8– ..	— Eogl. Cos, score	1 6– ..
Beans, French, p. lb.	1 0– ..	Mint, green, bunch	0 4– 0 6
Beet, per doz.	1 0– ..	Mushrooms, p. baskt.	1 6– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bushel	4 0– ..
Carrots, per bunch	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen	2 0– 4 0	Parsley, per bunch	0 4– ..
Celery, per bundle	1 6– 2 0	Potatos (new), punnet	1 6– ..
Cucumbers, each	0 6– 1 0	Radishes, per bun.	0 2– 0 6
Endive, per doz.	1 0– 1 6	Salsify, per bundle	1 6– ..
Garlic, per lb.	1 0– ..	Seakale, per punnet	2 0– 2 6
		Small salading, pun.	0 4– ..
		Spinach, per busbel	2 6– ..
		Tomatos, per lb.	0 9– 1 0

Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatts, 100s. to 120s.; Magnum Bonums, 90s. to 110s.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0-	4 6	Pears, Eng., ½-sieve	2 6-	5 6
Grapes, per lb.	1 0-	4 0	— French, per doz.	1 6-	2 6
Kent Cobs, p 100 lb.	75 0-	80 0	Pine-apples, Eng., lb.	1 6-	3 0
Lemons, per 100	4 0-	6 0			

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldii, per dozen	18 0-	42 0	Evergreens, in var., per dozen	6 0-	24 0
Arbor-vitæ (golden), per dozen	6 0-	18 0	Ferns, in variety, per dozen	4 0-	18 0
— (common), dozen	6 0-	12 0	Ficus elastica, each	1 6-	7 0
Begonias, per doz.	6 0-	12 0	Foliage Plants, various, each	2 0-	10 6
Bouvardia, per doz.	9 0-	18 0	Myrtles, per doz.	6 0-	12 0
Chrysanthemums, per dozen	6 0-	18 0	Palms in variety, each	2 6-	21 0
Cissus discolor, doz.	18 0-	24 0	Pelargoniums, scarlet, per dozen	3 0-	6 0
Cyclamen, per doz.	12 0-	24 0	Poinsettia, per doz.	12 0-	18 0
Cyperus, per dozen	6 0-	12 0	Primula (single), per dozen	4 0-	6 0
Dracæna terminalis	30 0-	60 0	Solanums, per dozen	9 0-	12 0
— viridis, per doz.	12 0-	24 0			
Epiphyllum, per doz.	18 0-	30 0			
Euonymus, various, per dozen	6 0-	18 0			

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 blooms	0 3-	0 6	Marguerites, 12 bun.	4 0-	6 0
Azalea, 12 sprays	1 0-	2 0	Mignonette, 12 bun.	3 0-	6 0
Bouvardias, per bun.	0 9-	1 0	Pelargoniums, 12 sprays	1 0-	1 6
Camellias, 12 blooms	4 0-	6 0	— zonal, 12 sprays	3 0-	6 0
Carnations, 12 blms.	1 0-	2 0	Poinsettia 12 blooms	6 0-	12 0
Chrysanth., 12 bun.	6 0-	12 0	— small, 12 blooms	3 0-	6 0
— 12 blooms	2 0-	4 0	Primula, double, per bunch	1 0-	1 6
Cyclamen, 12 blooms	0 3-	0 6	— (single), 12 bun.	6 0-	12 0
Epiphyllum, 12 blms.	0 9-	1 0	Roses (indoor), doz.	1 0-	3 0
Eucharis, per doz.	4 0-	8 0	— Tea (French), per dozen	1 0-	2 0
Gardenias, 12 blms.	4 0-	9 0	Stephanotis, 12 spr.	6 0-	9 0
Heliotropes, 12 sp.	0 6-	1 0	Tropæolum, 12 bun.	1 0-	3 0
Hyacinths (Roman), 12 sprays	2 0-	3 0	Tuberoses, per dozen	3 0-	6 0
Lapageria, white, 12 blooms	4 0-	6 0	Violets, 12 bunches	1 6-	2 0
— red, 12 blooms	1 0-	3 0	— (Fr. Parme), bun.	5 0-	..
Lilac (Fr.), p. bunch	8 0-	10 0			

SEEDS.

LONDON: *Nov.* 23.—There was a very poor attendance on to-day's market, and the transactions were few and unimportant. Nearly all the samples of new English red Clover seed which have as yet appeared show poor quality. American red is still quite neglected. The new home-grown Alsike continues in favour. There is no business just now doing in either white or Trefoil. The rates demanded for Kœnigsberg Tares prohibit business therein. Feeding Linseed is firm. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, London, E.C.*

CATTLE.

At the Metropolitan Market on Monday prices in the beast market were firm, especially for prime qualities, which were scarce. Middling and plain cattle sold rather slowly and unevenly. The number of sheep was very small, and soon cleared at 2*d.* per stone advance. Prime calves were also rather dearer. Quotations:—Beasts, 4*s.* to 4*s.* 8*d.*, and 5*s.* 2*d.* to 5*s.* 10*d.*; calves, 5*s.* to 6*s.*; sheep, 5*s.* 2*d.* to 5*s.* 8*d.*, and 6*s.* 2*d.* to 7*s.* 2*d.*—Thursday's cattle trade was dull in tone. A fair supply of beasts was offered, and prices ruled hardly so good as on Monday, with a quiet demand. Sheep were about the same in value, calves sold at late rates, and pigs were dull.

HAY.

Tuesday's Whitechapel report states that with large supplies the trade ruled very dull, for Clover more especially. Quotations:—Prime Clover, 120*s.* to 136*s.*; inferior, 75*s.* to 90*s.*; prime meadow hay, 115*s.* to 126*s.*; inferior, 60*s.* to 90*s.*; and straw, 30*s.* to 52*s.* per load.—On Thursday there was a large supply on offer. The trade was dull, and prices were lower, as follows:—Prime Clover, 100*s.* to 135*s.*; inferior, 60*s.* to 95*s.*; prime meadow hay, 100*s.* to 124*s.*; inferior, 50*s.* to 90*s.*; and straw, 30*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 120*s.* to 132*s.*; inferior, 70*s.* to 100*s.*; superior Clover, 130*s.* to 140*s.*; inferior, 90*s.* to 110*s.*; and straw, 48*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that there were full supplies, but dull trade. Quotations:—Kent Regents, 100*s.* to 110*s.*; ditto Victorias, 100*s.* to 120*s.*; Champions, 70*s.* to 80*s.*; Essex Regents, 80*s.* to 90*s.*; Champions, 60*s.* to 70*s.* per ton; German Blues, 3*s.* 6*d.* to 4*s.* 6*d.* per bag.—The imports into London during the past fortnight consisted of 132,712 bags from Germany, 4797 Holland, 3746 France, and 638 Belgium.

COALS.

The following are the prices current at market during the week:—Walls End—Hetton, 18*s.*; Hetton Lyons, 16*s.* 6*d.*; Lambton, 17*s.* 6*d.*; Wear, 16*s.* 6*d.*; Hawthorns, 16*s.* 3*d.*; Original Hartlepool, 18*s.*; South Hetton, 17*s.* 6*d.*; Tunstall, 16*s.* 6*d.*; East Hartlepool, 17*s.* 9*d.*; Tees, 17*s.* 9*d.*; Haswell, 18*s.*; Radford Navigation, 18*s.*

Government Stock.—Consols closed on Monday at 100¼ to 100⅜ for delivery, and 100 5/16 to 100 7/16 for the account. Tuesday's figures were 100⅛ to 100¼ for both delivery and the account; and on Wednesday the final quotations were 99⅞ to 100 for both classes. The closing quotations of Thursday were 100⅛ for delivery, and 100⅛ to 100¼ for the account.

PAUL & SON,

The Old Nurseries, CHESHUNT,

Respectfully ask for the Orders of Planters of any of the following well-grown

TREES AND PLANTS.

ROSES, Standards of the best Hybrid Perpetuals.
,, Standard Teas, for Rose or Orchard-house or Conservatory decoration.
They hold the largest Stock of Standard Roses in Europe.
ROSES, Dwarfs, of all the finest varieties, of both Hybrid Perpetuals and Teas, Ground Plants.
,, Pot, in large and very select varieties.
DWARF-TRAINED FRUIT TREES of the best Apples, Pears, Plums, Cherries, Peaches, and Nectarines.
STANDARD APPLES—the finest trees in the country of the best sorts.
PYRAMID FRUIT TREES, all carefully formed and pruned.
CURRANTS, GOOSEBERRIES, STRAWBERRIES, and all the small fruit in variety and in large quantities.
VINES, Fruiting, all from eyes this year

EVERGREENS.

ARAUCARIA IMBRICATA, 2 feet, 3 feet, and 8 feet to 9 feet in height.
BOX, Green and Variegated, in large quantities, 5 feet, 6 feet, and 7 feet in height.
CEDRUS DEODARA, 2 feet, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet to 9 feet in height. Splendid specimens.
CUPRESSUS LAWSONIANA, in some twenty varieties, 1 foot to 6 feet in height.
AUCUBA JAPONICA, extra bushy and fine colour, 1 foot, 2 feet, and 3 feet in height.
HOLLIES, common Green, 1 foot, 2 feet, 3 feet, and 4 feet in height. A splendid lot, in fine nursery condition.
,, Variegated, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet, 4 to 5 feet, 5 to 6 feet, 6 to 7 feet, in very large quantities.
,, Green varieties, 6 feet, 7 feet, 8 feet, and 9 feet in height; splendid specimens.
,, Golden Queen, by the 100 or 1000, in various sizes.
PINUS EXCELSA, extra fine specimens, 10 to 16 feet in height.
,, JEFFREYI, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet in height.
RHODODENDRONS, best named varieties, by the 100; 1 foot, 2 feet, and 3 feet in height.
KALMIA LATIFOLIA, handsome specimens, 3 feet, 4 feet, and 5 feet in height.
PICEA NORDMANNIANA, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 8 feet, and 9 feet in height; fine pyramids.
,, PINSAPO, 2 to 3 feet, 4 to 5 feet, and 5 to 6 feet high.
YEWS, splendid pyramidally-cut plants, 5 feet, 6 feet, and 7 feet in height.

DECIDUOUS.

LIMES, 10 to 12 feet (extra scented), 12 to 14 feet, 14 to 16 feet in height.
PLANES, 12 to 16 feet in height.
CHESTNUT, Horse, 10 feet, 12 feet, to 14 feet in height.
,, Scarlet, 10 feet, 12 feet, 14 feet, and 16 feet in height.
Deciduous Ornamental flowering and fine-foliage Trees in splendid variety.
,, Shrubs, in over 500 sorts.

We advise an Inspection of the above.

THE OLD NURSERIES, CHESHUNT

LILIUM AURATUM.—Splendid, direct Imported and Home-grown Bulbs.
SANDER AND CO., St. Albans.

Winter Flowers.
CHOICE PLANTS and SHRUBS for FORCING, well set with buds.

JOHN H. LEY, Royal Nursery, Croydon, has a splendid stock of the following valuable plants for forcing, to produce flowers during winter. The prices will be found far below those usually charged, and the plants finer:—

	Per dozen.—s.	d.
AZALEA MOLLIS, for 5-inch pots	21	0
,, ,, 6-inch pots	30	0
,, PONTICA, very fine sorts	21	0
,, ,, without names	12	0
,, INDICA, 100 finest sorts 21*s.* and	42	0
,, ,, specimens, double white, about 150 buds each, 15*s.* each,	126	0
RHODODENDRONS, choice sorts, for 8-inch pots, 30*s.* and	42	0
AZALEA GANDAVENSIS, Golden Queen, new this autumn (J. H. Ley)	84	0
DEUTZIA GRACILIS	6	0
DIELYTRA SPECTABILIS	6	0
SPIRÆA JAPONICA (30*s.* per 100)	4	0
,, PALMATA	9	0
CARNATIONS (Perpetual)	18	0
Also choice STOVE PLANTS, strong, for Winter Flower—		
GARDENIA INTERMEDIA, full of buds 12*s.*, 21*s.*,	42	0
EUCHARIS AMAZONICA very fine bulbs, 5-inch pots	21	0
PLUMBAGO ROSEA, in flower 15*s.* and	24	0
GESNERA EXONIENSIS 12*s.* and	18	0
CALANTHE VESTITA, in flower	42	0

Packages gratis for cash with order.
13 plants for each dozen, and Ferns gratis.

J. H. LEY, Royal Nursery, CROYDON.

TO THE TRADE

50,000 SEAKALE, extra strong, for forcing, 80*s.* per 1000.
70,000 SEAKALE, strong, fit for forcing, 60*s.* per 1000.
40,000 SEAKALE, planting, good, 40*s.* per 1000.
60,000 ROSES, Dwarf, on Manetti, fine, 40*s.* per 100; £17 10*s.* per 1000, my own selection.
40,000 MANETTI STOCKS, 45*s.* per 1000, fine.
White Cut BLOOMS, Chrysanthemums, fine, 2*s.* per dozen blooms. For cash with orders only.
RICHARD LOCKE, The Royal Alexandra Nurseries and Rose Farms, Red Hill, Surrey.

TO THE TRADE.—A considerable quantity of the following for disposal:—
ALDER, Common, 2 to 3 feet, and 3 to 4 feet.
ASH, Common, 2 to 3 feet
HAZEL, 2 to 3 feet.
LARCH, 2 to 3½ feet.
SYCAMORE, 2 to 3 feet.
PRIVET, Evergreen, 3-yr. transplanted.
SCOTS FIR (Native), strong, about 1½ to 2 feet.
THORNS, 3-yr. transplanted, about 2 to 3 feet.
The above are thoroughly healthy, robust, and well rooted.
Cheap Railway Rates to all parts of England and Wales.
Samples and special quotations on application to
ALEXANDER ANDREW, Nurseryman, Kilmarnock, N.B.

W. CROWDER begs to call the attention of intending Planters to the following NURSERY STOCK, all of which is very fine, well-rooted, and very healthy:—
STANDARD TREES for Avenue, Park, or Hedgerow Planting.
CHESTNUT, Horse, 8 to 10 and 10 to 12 feet.
,, Scarlet, 6 to 8 and 8 to 10 feet.
BEECH, common and Purple, 6 to 8 and 8 to 10 feet.
LIMES, 6 to 8, 8 to 10, 10 to 12 and 12 to 14 feet; the finest stock in the country.
POPLAR, White Abele and Black Italian; SYCAMORE, ELM, Huntingdon and Narrow-leaved; MAPLE, Mountain ASH.
EVERGREENS, common and Irish YEWS, CUPRESSUS LAWSONIANA, PINUS AUSTRIACA, P. CEMBRA, PICEA NORDMANNIANA, &c.
FOREST TREES—LARCH, 1 to 1½, 2 to 3 and 3 to 4 feet, very fine; QUICKS, in sizes; SPRUCE FIR, 1 to 1½, 1½ to 2, and 2 to 3 feet; Scotch FIR, 1 to 1½ foot, and 12 to 20 inches.
All the above have been recently transplanted, and are in a fine state for removal, and the Nurseries being in a very exposed situation renders the risk of removal very slight.
CATALOGUES with prices of the above may be had on application.
Samples with special prices will be given to large consumers.
Through Railway Rates and Trucks can be obtained for any part of the Kingdom for quantities of a Ton weight and upwards, thus saving the expense of packing.
W. CROWDER will be pleased to see any Customers to inspect the stock before purchasing, and respectfully solicits early orders, which shall have his most careful attention.
Thimbleby Nurseries; and 14, High Street, Horncastle.

SINGLE DAHLIAS.
YELLOW DWARF, 1*s.* 6*d.* each, 15*s.* per dozen.
SCARLET GEM, 1*s.* 6*d.* each, 10*s.* per dozen.
COCCINEA, 1*s.* 6*d.* each, 15*s.* per dozen.
A pot-root of each of these splendid kinds, post-free, 4*s.* 6*d.*
We have the most complete collection of doubles, and always grow not less than 10,000 pot-roots, and can therefore offer best in cultivation.
H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent.

LILIUM AURATUM, and other LILIES, the best picked Bulbs only. Size No. 1, 9*d.*; No. 2, 1*s.*; No. 3, 1*s.* 6*d.*; and the largest Bulbs imported, 2*s.* each. Equally low prices for other Lilies, and Special LIST of Orchids forwarded on application to
WM. GORDON, City Office, 10, Cullum Street, London, E.C. Special Price to the Trade.

To the Trade.
R. AND A. MORRISON, The Nurseries, Elgin, beg to offer the following Seedling and Transplanted Forest Trees:—
LARCH, true native. Price on application.
,, Tyrolese, £4 10*s.* per 100,000.
,, Transplanted, 12 to 18 inches, 12*s.* 6*d.* per 1000; 18 to 24 inches, 15*s.* per 1000; 2 to 3 feet, 17*s.* 6*d.* per 1000.
SCOTCH FIR, true native Highland Pine, 1-yr. Seedlings, £7 10*s.* per 100,000; 1-yr. 2-yr. Transplanted, 7*s.* 6*d.* per 1000; 12 to 18 inches, 10*s.* 6*d* per 1000.
PINUS AUSTRIACA. P. LARICIO, P. MARITIMA, and MONTANA, 1-yr. Seedlings, 2*s.* 6*d.* per 1000; 2-yr. 2-yr. Transplanted, 10*s.* 6*d.* per 1000.
ELMS, WYCH, 1-yr., 1*s.* 6*d.*; 2 yr., 2*s.* 6*d.*; and 1-yr. 1-yr., 5*s.* per 1000.
OAKS, ENGLISH, 1-yr, 2*s.* 6*d.* per 1000.
Trade CATALOGUE may be had on application.

RHODODENDRONS, with bloom-buds; fine plants for immediate effect, 2 to 5 feet high. Also EVERGREENS, FRUIT TREES, ROSES, and VINES.
Apply for CATALOGUE.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

CHOICE NAMED CARNATIONS and PICOTEES, strong plants, including all the finest varieties, 40*s.* per 100; TREE CARNATIONS, for winter flowering, good stuff, in 60-pots, 45*s.* per 100; BOUVARDIAS, VREELANDII and HOGARTH, good plants, 40*s.* per 100; CAMELLIAS, good bushes, well set, 2 to 2½ feet high, 24*s.* per dozen.
W. JACKSON, Blakedown, near Kidderminster.

"The Celebrated North of Ireland Roses."
THE ONLY ROSES in IRELAND having any claim to such a title are those grown by us, and we repudiate the right of any other Nurserymen to claim such "celebrity."
Having gained many hundreds of First Prizes at the leading shows all over the country, WE ALONE have thus made North of Ireland Roses celebrated. Our stock of Standards and Dwarfs numbers over 100,000 plants, in the finest possible health, and embraces every good variety in cultivation.
Descriptive CATALOGUES may be had on application to
ALEX. DICKSON AND SONS, Nurseries, Newtownards; or, HUGH DICKSON, Belmont Nursery, Belfast.

PEAT.—Brown, fibrous Peat for Orchids, Ferns, &c, £2 10*s.* large size Great Eastern Trucks put on rail at Lynn Station. Sample bags, 2*s.* each, for Cash.
A. DRAKE, Pilot Street, King's Lynn, Norfolk.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,
3*d.* per bushel; 100 for 20*s.*; truck (loose, 250 bushels), 30*s.*: 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*: 12 for 45*s.*, or 36*s.* per ton.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; 12 for 40*s.*, or 34*s.* per ton; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* half ton, 26*s.* per ton; in 1 cwt. bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s* 6*d.* per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per truck. Sample bag, 5*s.*; 5 bags, 22*s.* 6*d.* 10 bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per bag.
SILVER SAND, Coarse or Fine, 52*s.* per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 tons. GRAVEL, good colour, 25*s.* per truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

Special Offer.—Trade Only.—Cash.

THIRTY SACKS of PEAT, containing 4 Bushels each, free from waste, ready for potting, and rom which may be selected Peat suitable for any kind of plants, £3 cash, on rail here—Ringwood; 15*s.* extra charged for bags not returnable. Own sacks filled if sent carriage paid. This quantity comes under the two-ton rate for minerals.
Excellent Peat for Rhododendrons and common purposes, £3 per truck of 4 tons, on rail here, Cash.
F. G. GATERELL, Manager, Chief Depôt and Office, Ringwood, Hants.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1*s.*; 15 bags, 12*s.*; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3*s.* (truck-load free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1*s.* each; 15 Sacks, 12*s.*; 30 Sacks, 20*s.* (all Sacks included); Van-load at Works, 4*s.*; ditto delivered within 5 miles, 10*s.*; Truck-load (equal to about 300 bushels when dry), free on rail, 25*s.* Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,
CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6*d.* and 1*s.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

TRANSPLANTING TREES.—A Patent, Expeditious, Economical, Labour-saving, Powerful Implement, **£2 2s.**, removes large trees in a few minutes, with large section of earth and roots uninjured. Extract sent from *Gardeners' Chronicle*, March 5; *Chambers' Journal*, May 2; *Field*, June 2; *Design and Work*, Aug. 20, 1881.—Agent, Mr. J. CHARLTON, Landscape Gardener, Tunbridge Wells.

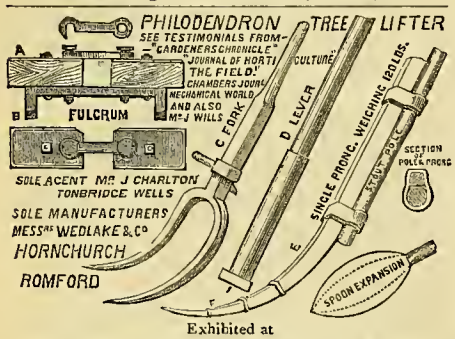
Protect your Glass from Frost and Cold Winds, by using a Material, called

FRIGI DOMO, which can be obtained from all Nurserymen and Florists, or from BENJN. EDGINGTON, 2, Duke Street, London Bridge, S.E. Frigi Domo is a registered article, with all Trade Marks and rights.

Auhert's Patent Secateurs.

CORRY, SOPER, FOWLER AND CO. (Limited), Sole Importers. Special quotation to the Trade on application.—18, Finsbury Street, London, E C.

THOMSON'S STYPTIC.
PREVENTING VINES BLEEDING.
PREVENTING CUTTINGS FLAGGING.
As a substitute for Grafting Wax.
Sold by all Nurserymen and Seedsmen, 3*s.* per bottle.
Wholesale Agent: W. E. DIXON, Edinburgh.



Exhibited at
THE GENERAL HORTICULTURAL COMPANY, 142, Regent Street, London, W.;
MESSRS. DIXON AND CO., 34, Moorgate Street, E.C.

RUSSIA MATS

For COVERING GARDEN FRAMES.
SEED BAGS and SACKS.
BEST ROLL TOBACCO PAPER. RAFFIA FIBRE.
TARPAULINS and HORSE-CLOTHS.
ROPES, LINES, and TWINES.
Catalogue post-free on application.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

G. ELAM AND SON, 43, Wellington Street, Strand, London, W.C.
Manufacturers of ROPES, TWINES, SACKS, TARPAULINS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1*s.* each; 15 sacks, 12*s.*; 30 sacks, 20*s.*; truck-load, delivered to any station in London, 25*s.* Try our HEMP SASH LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.
Chief Office: 25, Commercial Road, E.
Works: Belgrave Street, Stepney, London, E.

ARCHANGEL AND PETERSBURG

MAT MERCHANTS and IMPORTERS.

All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description. RAFFIA FIBRE, NETTING, and TIFFANY, TARPAULINS, RICK-COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to
J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

FRESH ARRIVALS OF

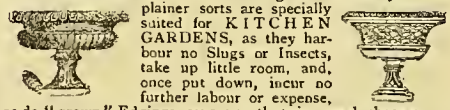
ARCHANGEL MATS, best colour and quality; also ST. PETERSBURG MATS and RAFFIA. SEED BAGS and SACKS, NETTING and SHAOING, &c. Prices on application.—**WM. PETERS,** 44, Tenter Street South, Goodman's Fields, London, E.

Wholesale Russia Mat Merchants.

MARENDAZ AND FISHER, James Street, Covent Garden, W.C., have received a special importation of new ARCHANGEL MATS; also a large consignment of PETERSBURG MATS, MAT BAGS and RAFFIA FIBRE.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Geometrical Mosaic and Encaustic

TILE PAVEMENTS, for Conservatories, Verandahs, Entrance Halls, &c. Enamelled and Decorated Glazed Tiles, for Wall Linings, Fireplaces, &c.; also Patent Indestructible Terra-cotta Plant Markers. Patterns and Prices sent post-free on application.
MAW AND CO., Benthall Works Broseley, Shropshire.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities of
BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.
B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting up purposes, in 200-ft. and 300-ft. cases.

Glass—Glass.

GLASS—Special.—100 feet superficial, good quality Sheet Glass, in squares 9½ × 6½, and 8½ × 6½; 216 squares in former, and 260 squares in latter. Price 9*s.* 6*d.* Case 2*s.* extra, which is allowed for when returned.
HENRY WAINWRIGHT, Glass and Lead Merchant, Alfred Street, Boar Lane, Leeds.

HORTICULTURAL WINDOW GLASS,

15-oz. and 21-oz., in Boxes containing 200 feet.
Carriage Paid to any Railway Station in England.
Price Lists on application.
ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 6 and 8, Pentonville Road, London, N.

T. MILLINGTON AND CO.,

43, Commercial Street, E.
PLATE, SHEET, CROWN GLASS.
SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz.,	300 feet,	35*s.* 0*d.*,	if 21-oz.,	200 feet, 35*s.* 0*d.*
Fourths ..	,,	,,	37*s.* 6*d.*	,,	,, 37*s.* 6*d.*
Thirds ..	,,	,,	41*s.* 0*d.*	,,	,, 41*s.* 0*d.*
Seconds ..	,,	200 feet,	40*s.* 0*d.*	,,	,, 47*s.* 9*d.*
Best ..	,,	,,	50*s.* 0*d.*	,,	,, 60*s.* 0*d.*

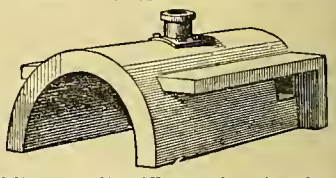
Also 26-oz., 28-oz., and 32-oz. Glass.

SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½	× 5½	..	9*s.* 6*d.*,	10*s.* 6*d.*, 11*s.* 6*d.*, 12*s.* 6*d.*
8 × 6 to 10½	× 8½	..	10*s.* 0*d.*,	11*s.* 0*d.*, 12*s.* 0*d.*, 13*s.* 0*d.*
11 × 9 to 14	× 10	..	11*s.* 0*d.*,	12*s.* 6*d.*, 13*s.* 6*d.*, 14*s.* 6*d.*
15 × 10 to 18	× 12	..	11*s.* 0*d.*,	12*s.* 6*d.*, 13*s.* 6*d.*, 14*s.* 6*d.*
20 × 12 to 20	× 18	..	12*s.* 0*d.*,	13*s.* 0*d.*, 14*s.* 0*d.*, 15*s.*; if

21-oz., 15*s.*, 16*s.* 6*d.*, 18*s.* 6*d.*, 20*s.*
SHEET LEAD, WHITE LEAD, OILS, TURPENTINE, and COLOURS.

Silver Medal, 1874. First-class Certificate, 1867.
Highly Commended, 1873. First-class Certificate, 1875.



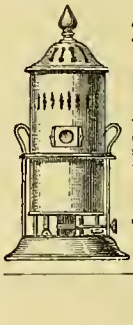
Mr. W. THOMPSON, Tweed Vineyard, has written the following letter to a gentleman who inquired respecting this Boiler:—
"Galashiels, February 4, 1881.
"The Terminal Saddle Boiler is BY FAR the best one we have here, and we have had all sorts. It does its work well, and with less fuel than most Boilers. It is the most economical and efficient Boiler we have, and has not cost sixpence since we fixed it some eight years ago."
Illustrated Prospectus Post-free.
THOS. JONES, Temple Street, Manchester.

HEATING.

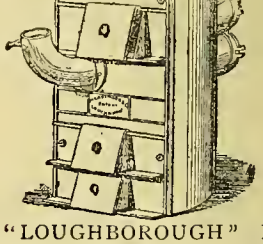
HYGIENIC GAS or OIL STOVES, to heat 1000 cubic feet for ¼*d.* an hour, £3 5*s.* complete; pure, warm air, and perfect condensation of injurious vapours.
COPPER BOILERS fitted in these Stoves with small Hot-water Pipes for 16 feet long, £5 10*s.*
The above are portable and self-contained, and require no inlet or outlet flues or other fittings.
"ALEXANDRA" GAS BOILER, strong Copper Tubes, to heat 50 feet of 2-in pipe, £3; 100 feet, £5; 200 feet, £9.
CHEAP GAS BOILER and small Pipes for 15-feet house, £4 5*s.*
CONICAL "STAR" BOILERS, to heat 300 feet 2-in. pipe, £3 3*s.* complete; requiring no brick setting; can be built in a wall. SMALLER SIZE, with portable jointed Pipes for 20-feet long house, £6 10*s.* complete.
B. W. WARHURST, 33, Highgate Road, LONDON, N.W.

RIPPINGILLE'S PATENT

WARMING STOVES.



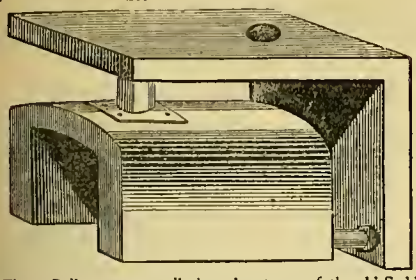
The only perfect Oil Stoves made to burn absolutely without Smoke or Smell, Trouble or Dirt. Unequalled for Warming
Greenhouses, Vineries, Shops, Bedrooms, Halls, Offices, Damp Rooms, &c.
Perfectly safe, require no pipes or fittings, will burn from twelve to twenty hours without attention, give off no injurious vapour, and are the best Stoves ever invented to save plants from frost, keep out the damp, &c.
PRICE FROM A FEW SHILLINGS.
Write for Illustrated List of Warming Stoves to
The Holborn Lamp and Stove Co.,
118, HOLBORN, LONDON, E.C.,
And say where you saw this Advertisement.



THE "LOUGHBOROUGH" BOILER, now introduced, is intended to supply a want long felt, of a cheap Boiler for small Greenhouses, requiring neither brick setting nor iron case. The Boiler is placed in the wall of the Greenhouse, so that the heat from the Boiler itself is utilised in heating the house. Price with fittings, £2 12*s.*, delivered. Capable of heating 70 feet of 4-in. pipe.
The apparatus for a Greenhouse, 20 feet by 10 feet, complete, for £6 10*s.* Prices and full particulars on application.
MESSENGER AND CO., Loughborough.

Price 14*s.*
Petroleum Greenhouse Stove,
26 in. high, portable, and requiring no flue will burn 24 Hours without attention.
No Smoke, no Smell, no Injury to the most delicate Plants.
Packed in case, or sending by rail, 1*s.* extra.
*Oil, 1*s.* per Gallon, supplied by Deane & Co.*
DEANE & Co. provide and fix Hot-water Apparatus for all Horticultural purposes.
Factory, 21, Jacob Street, Dockhead.
Illustrated Horticultural Catalogue Post-free.
DEANE & CO.,
46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1000	16	0	0
24 ,,	24 ,,	48 ,,	1400	20	0	0
28 ,,	28 ,,	60 ,,	1800	25	0	0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May* 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

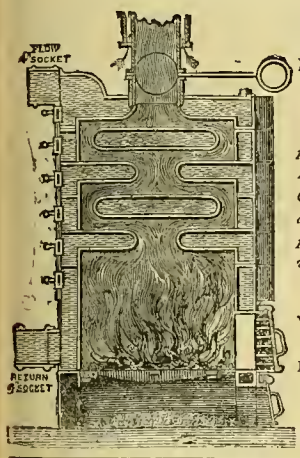
PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

When ordering Boilers please refer to the above advertisement.

Sole English Medallists at Philadelphia for the Best Hot-water Apparatus.

Wright's Patent "Endless-Flame Impact" Hot-water Boilers.



New Malleable Iron and Tubular Series.

Descriptive Pamphlets. New Price LIST of 175 Boilers, Opinions of the Press, and 24 pages of Reports from those at work, on application.

Over 400 at work.

Wm. Wright & Co.,
AIRDRIE,
Near Glasgow, N.B.; and
Dunipace Foundry,
Denny, N.B.

The Best System of Heating is by Hot Water.
The Best Hot-Water Joint is Jones' Expansion Joint.

JONES & ATTWOOD,
ENGINEERS & IRONFOUNDERS
STOURBRIDGE.

THE BEST

HOT-WATER JOINT.

Medal Awarded, Horticultural Show, Aston, 1875.

SIMPLE, DURABLE, NEAT, CHEAP.

Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c.

Illustrated CATALOGUE; also Estimates for Heating with the most improved BOILERS, EXPANSION JOINT PIPES, or COILS, on application.

PIPES and FITTINGS,
FOR HEATING APPARATUSES.

The largest stock in the Kingdom. 4-inch pipes, 1s. 6d. per yard.

SILVESTER & SAINSBURY,
Castle Hill Foundry, Newcastle, Staffordshire.

STOVES.

Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Healthy Heat twenty-four hours or longer for about 1d., without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,

112, Victoria Street, Westminster, S.W.

"ART WITH ECONOMY."
Applied to Conservatories and Greenhouses.
With Illustrations, Prices, &c.
Part I., now ready. Post-free, twelve stamps.

HORTICULTURAL BUILDINGS
Of every description Made, Erected, Fitted and Heated.
ESTIMATES and PLANS GRATIS.

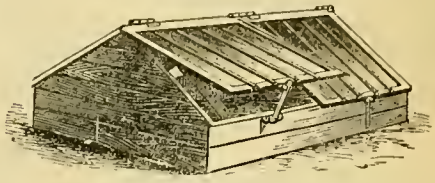
CHEAP ART SUMMER-HOUSES.
Illustrations and Prices Gratis.
Mr. Fawkes' New Illustrated Work of Reference on Horticultural Buildings, post-free, 10s. 6d. Prospectus sent gratis.

T. H. P. DENNIS & CO.,
MANSION HOUSE BUILDINGS, LONDON, E.C.
WORKS: CHELMSFORD.

DAVID LOWE & SONS,
HORTICULTURAL BUILDERS
AND
HOT-WATER ENGINEERS,
GILMORE PARK, EDINBURGH; and CORNBROOK CHESTER ROAD, MANCHESTER.

Plans and Estimates on application for every description of Horticultural Buildings in Wood or Iron.

Garden Frames and Sashes in Stock.



Portable Plant Frames.

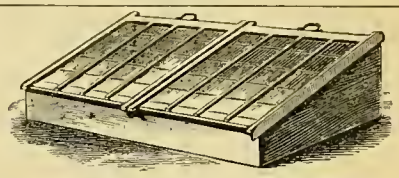
R. HALLIDAY AND CO. desire to draw special attention to their Plant Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England, also Dublin and Belfast:—

	£	s.	d.
6 feet long, 4 feet wide	2	15	0
12 feet long, 4 feet wide	4	15	0
6 feet long, 5 feet wide	3	15	0
12 feet long, 5 feet wide	6	10	0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

R. HALLIDAY AND CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.



No. 75. MELON, or CUCUMBER FRAMES.
CASH PRICES—Carriage Paid.

No. 2 size ..	8 ft. long ..	6 ft. wide ..	£3	7	6
No. 3 size ..	12 ft. long ..	6 ft. wide ..	4	17	6
No. 4 size ..	16 ft. long ..	6 ft. wide ..	6	7	6

These Frames are 13 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. These Frames are made of the best hard red deal, shipped from the best districts for durable wood, all painted four coats of best oil colour, the lights are glazed with best 21-oz. English glass. For Testimonials, see our Catalogue, free on application. Carriage paid to any Railway Station in England and Wales; also to Edinburgh and Dublin.

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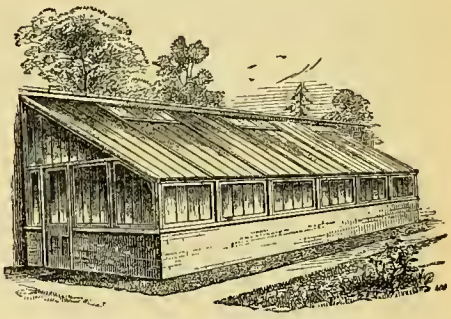

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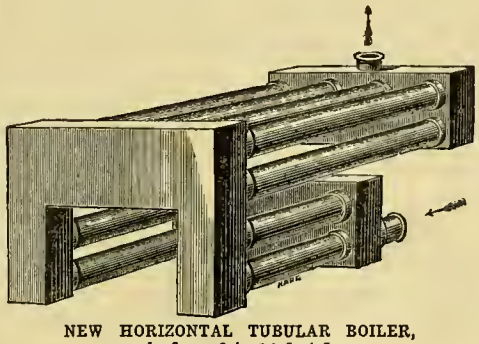

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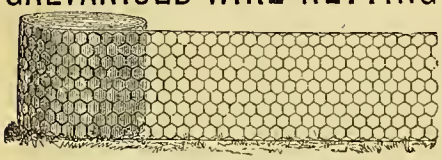

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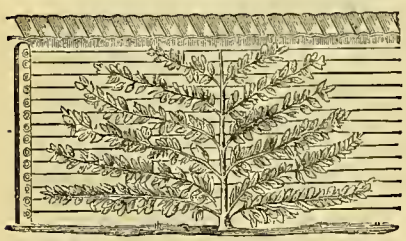

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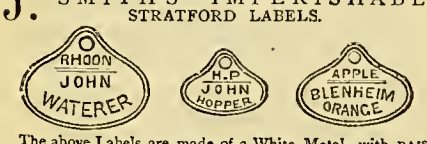

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JOBBING CARPENTER, or HANDYMAN, on an Estate, and willing to be useful. Good character.—H. M., 73, Belmont Street, Chalk Farm Road, N.W

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Pure, Mild and Mellow, Delicious and Most Wholesome. Universally recommended by the Profession. The Cream of Old Irish Whiskeys.

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Makers of Epps's Chocolate Essence for Afternoon use.

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The Medical Profession for over Forty Years have approved of this pure solution as the Best Remedy for
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"This is (in my opinion) the best dwarf marrow Pea in existence. With me, "on rich soil, it grew 18 inches high, and formed 5 or 6 strong stems bearing a "profusion of well-filled pods containing Peas of the finest flavour—is earlier than "any dwarf marrow Pea I know, and should never be planted thicker than Beans, "owing to its strong branching habit. It has been the admiration of every "gardener and nurseryman to whom I have shown it."

PEA—DEAN'S DWARF MARROW.

Similar to *Advancer* in habit, but very superior to that favourite variety, being much more compact and wonderfully prolific. The haulm is about 2 feet high, of a dark green colour, and covered with pods averaging 9 fine Peas in each. The flavour is very fine.

PEA—JOHN BULL (Laxton).

The "Stockwell" of Peas! Considered by Mr. LAXTON his best introduction. This new 3-feet main crop Pea is a blue wrinkled variety of first size and quality, of the same parentage as *Marvel*, and is unapproached in size and beauty of pod, quality, fertility and regularity of growth, by any other Pea of its class. The densely filled pods, which are usually produced in pairs, hang as thickly as those of *Fillbasket*, and contain from 9 to 13 compressed Peas in each. They are also larger, deeper in colour, and somewhat less curved than those of *Marvel*, constituting *John Bull* not only the *beau ideal* of a fine show Pea, but one of the best of all for market and table purposes. Sown on the 11th March last, this variety was fit to gather on the 11th July. Mr. LAXTON'S high appreciation of this Pea has led him to adopt it largely for crossing with the early and late varieties.

PEA—MINIMUM (Laxton).

The dwarfest of all Peas, being only half the height of *Little Gem* and earlier than that variety. It has closely filled pods with white wrinkled seeds, and out of upwards of 100 varieties tried at the Girtford Trial Grounds in 1879 and 1880, *Minimum* was the most prolific of all, the crop being practically all corn. It is not only a valuable garden variety, as, without material diminution in quantity of produce, a succession crop can be easily grown with it, but it is also the best adapted of all Peas for frames and forcing.

PEA—MARVEL.

First-class Certificate Royal Horticultural Society. A fine main crop Pea of robust branching habit, about 3 feet in height. The pods are produced in pairs in great abundance, and are very large, from 4 to 4½ inches in length, containing from nine to eleven very large Peas of exceedingly fine quality. This *has proved to be one of the grandest Peas yet introduced, and has yielded us a larger crop than any other variety.*

PEA—CRITERION.

A fine main crop Pea, partaking of the character of *Ne Plus Ultra*, while, as a second early, coming into use somewhat in advance of *Champion of England*, it is valuable on account of its fine quality and free cropping properties.

The plant is of a robust branching habit, and grows from 5 to 6 feet in height. The pods, which are produced in pairs, are of a deep olive-green shade and exceedingly well filled, generally containing from seven to nine Peas.

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An early *Ne Plus Ultra*, coming in one week after "Dillestone's." Height 3 feet. Described by the Royal Horticultural Society as "a very handsome Pea." The earliest green wrinkled marrow, very sweet and of excellent quality, pods being very well filled and of a beautiful deep green colour, like the *Ne Plus Ultra*.

Awarded a First-class Certificate, Royal Horticultural Society.

PEA—YORKSHIRE GEM.

A first-class variety. Haulm strong and stout, about 4 feet in height, well covered with large well-filled pods. The Peas, when cooked, are of extra good quality. As it is not subject to mildew, this will prove a valuable sort for general crop.

PEA—CHALLENGER.

PEA—INVINCIBLE (Sharpe's).

PEA—CULVERWELL'S TELEGRAPH.

PEA—TELEPHONE.

BEAN—THE MONSTER NEGRO LONG-PODDED.

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This fine Onion (introduced last season) has proved to be a very valuable variety.

ONION—NEW EMPEROR GLOBE.

Similar to the last variety, but a globular Onion, and therefore a much heavier cropper. It is said to be one of the best keepers known.

TOMATO—PRESIDENT GARFIELD.

A new variety of extraordinary size, fruits having been cut weighing over 3 lb. each. The growth is very luxuriant and it is very prolific. The fruit is irregular in shape, but of unusually fine flavour, and contains very few seeds.

TOMATO—ABUNDANCE.

Extremely prolific, of first-rate quality, very firm and solid and good flavour. Upwards of 34 lb. of fruit have been cut from a single plant.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

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THE GARDENERS' CHRONICLE,
Volume XV., JANUARY to JUNE, 1881.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

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The Lessees are prepared to LET SPACE (covered) for the Exhibition of Garden Furniture, Tools, Machinery, &c.
Medals will be awarded to noteworthy articles by the Judges of the Monthly Exhibitions.

ROYAL AQUARIUM, WESTMINSTER. —The BOROUGH of HACKNEY CHRYSANTHEMUM SOCIETY will hold the THIRTY-SIXTH ANNUAL EXHIBITION as above, on NOVEMBER 15 and 16, 1882.—Schedules will shortly be issued.
WILLIAM HOLMES, Hon. Sec.,
Frampton Park Nursery, Hackney, E.

Smithfield Club Show.

JAMES CARTER AND CO. respectfully invite the attention of visitors to the MAGNIFICENT COLLECTION of GARDEN and FARM PRODUCE exhibited on their Stand (No. 86) in the NORTH GALLERY.
The Queen's Seedsmen, and by Royal Warrant to H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.

TEA ROSES—Specimen Plants, &c.—A large stock, to be sold cheap, of Niphetos, Maréchal Niel, Narcisse, Catherine Mermet, Safrano, Mad. Falcot, &c., all best sorts, in 16, 24, 32, and 48 pots. Twelve best sorts H.P., in 32-pots. LIST and Prices on applying to
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Plane Trees suitable for Planting Roadsides on SUBURBAN ESTATE.

TENDERS WANTED for these, and other suitable Trees, in large quantities Apply to
S. E. PLATT, Esq., 34, Great George Street, Westminster, W.

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WANTED, Ground Roots or Pot Roots of the above. State price and quantity to
J. WEST, Wellesley Road, Brentwood, Essex.

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WANTED, about 1000 well-grown English OAKS, 3 to 4 feet; Scotch FIRS, 2 to 3 feet, and MANETTI STOCKS. Quote prices to
JOHN JEFFERIES AND SONS, Royal Nurseries, Cirencester.

WANTED, a large quantity of SLOE, or BLACKTHORNS, good stuff, 2 to 3 feet. Quote price per 1000, to
ISAAC MATTHEWS AND SON, Nurserymen, Milton, Stoke-on-Trent.

WANTED, Consignments of GRAPES, CUCUMBERS, TOMATOS, &c. Also choice CUT FLOWERS.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, London, W.C.

Floral Commission Agency.

WANTED, all kinds of CHOICE WHITE FLOWERS.—Nurserymen and others having the above will please communicate with W. CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.

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WANTED, a few of each of the following varieties, LETTY COLES, INNOCENT PIEROLA, and MADAME BERARD. Please state quantity, size, and cash price to
CHARLES WILSON, Summerhow Nurseries, Kendal.

WANTED, MANETTI STOCKS.—Send samples and price to
JOHN STANDISH AND CO., Royal Nurseries, Ascot, Berks.

WANTED, MANETTI STOCKS; also DE LA GRIFFERAIE STOCKS. Address, with Price per 1000, to
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Manetti and Brier Stocks.

WANTED, 10,000 MANETTI, and 5000 BRIERS, strong, for Grafting. Samples and price to
THE LIVERPOOL HORTICULTURAL COMPANY (J. COWAN), Limited.

WANTED, Perpetual or Autumn-flowering CLEMATIS, good 2-yr. old plants. State price per 100 or 1000 to
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

WANTED, 500 1-yr. Cuttings of Sweet White JASMINE, do. of JASMINUM NUDIFLORUM, do. of Common Pink China ROSE, do. of Sweet Dutch HONEYSUCKLE; 300 Plants of ANEMONE JAPONICA, HONORINE JOBERT. Also WANTED Cheap Cash Offer of Maiden PLUMS, APPLES, PEARS, and CHERRIES. Also WANTED 25 STANDARD DAMSONS and 25 STANDARD GREEN GAGES. Cash.
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WANTED, RHODODENDRON PONTICUM, 2 to 3 feet, bushy plants. Please state price to
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WANTED, in any quantities up to 10,000, of each of the following, or of any Hardy Plants about same value:—LAURELS, EVERGREEN PRIVET, BERBERIS, LAURUSTINUS, CUPRESSUS MACROCARPA, AMERICAN ARBOR-VITÆ, EUONYMUS, and IVIES. Send price delivered into railway trucks, to
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WANTED, LAURELS, Common, not less than 2 feet; bushy, good rooted. State price per 1000 for cash to
EDWIN HOLLAMBY, The Nurseries, Groombridge, Tunbridge Wells.

WANTED, LAUREL CAUSICA, 2 to 3 feet.—State lowest cash price per 1000.
W. AND J. BROWN, Stamford.

WANTED, 10,000 BLACK THORN, 2 to 3 feet.—State price to
WM. L. SKINNER, Nurseryman, Silcoates, Wakefield.

WANTED, 10,000 BLACKTHORN.—Size and Price to
WM. BOSTON, Manor Farm Nurseries, Carthorpe, Bedale.

WANTED, Deciduous Trees, such as ALDER, BIRCH, ELM, LIME, OAK, LARCH, Austrian SPRUCE, and Scotch FIRS, all 5 feet or more. State lowest price per 1000, and for same kinds 2 to 2½ or 3 feet. Also WANTED, 20,000 THORNS, must be extra strong, 3 feet at least. Apply.
T. L. MAVOS, Nurserymen, Hereford.
N.B.—All samples sent must be carriage paid.

WANTED, TREE BOX, about 1 foot high, healthy, bushy and well rooted. State price per 1000 to
GEORGE STANTON, Park Place, Henley-on-Thames.

WANTED, strong APPLE STOCKS, fit for working Sample and Price to
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WANTED, several thousands of the above. Send Sample and Prices to
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WANTED, MUSSEL PLUM STOCKS. State quantity, size, and price, to
W. B. ROWE AND CO. (Limited), Barbourne Nursery, Worcester.

WANTED, STANDARD VICTORIA PLUMS, State size, age, and lowest price per 100.
We have to offer a good stock of PYRAMID VICTORIA PLUMS, and shall be pleased to quote price for the same.
HARRISON AND SONS, Royal Nurseries, Leicester.

WANTED, Standard and 2-yr. trees of PLUMS.—State sorts, price, and quantity to
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SUTTONS' CHOICE FLOWER ROOTS, CARRIAGE FREE.
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LILIUM HUMBOLDTII, beautiful, hardy and easily grown, 18s. and 30s. per dozen; gigantic roots, 42s. per dozen.
LILIES OF VARIOUS SORTS, either for Greenhouse, Conservatory, or Open Border, by the dozen, 100, or 1000.
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Price 1s. per dozen, 7s. per 100.
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ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
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The Best Dwarf Roses in the Trade.

JAS. GARAWAY AND CO. offer the above, 100 in Best Leading Varieties, their selection, packed and carriage paid to any railway station, on receipt of Post-office Order for 60s.; 50 for 33s.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

To the Trade Only.

TEA ROSES, on own roots, extra strong, out of 4½-inch pots, £2 per 100, for cash. Now ready, Isabella Sprunt, Gloire de Dijon, &c.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

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ROSES!—ROSES!—ROSES!
4000 DWARF ROSES, in Pots.
4000 extra strong CLIMBING ROSES, of all the leading varieties. CATALOGUES free.
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ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Cypripedium japonicum, &c.

THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 54) is just published, and will be sent free on application.
Lion Walk, Colchester.

ARAUCARIA IMBRICATA.—A large Stock of fine Specimens of the above, from 6 to 9 feet high. Price on application to
T. JACKSON AND SON, Nurseries, Kingston-on-Thames.

CHRISTMAS TREES.—A quantity of SPRUCE FIRS, from 3 feet to 10 feet high, for sale. Well branched and selected to suit the purpose. Price per dozen or 100 on application to
Mr. A. DUDLEY CLARKE, Blenheim Estates Offices, Woodstock.

6000 Grape Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

Vines.

STRONG PLANTING CANES of BLACK HAMBURGH and MUSCAT of ALEXANDRIA, 36s. per dozen.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

SALES BY AUCTION.

French Roses, Dutch Bulbs—(Sale No. 6005.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 5, at half-past 12 o'Clock precisely, a consignment of First-class Dwarf ROSES, from one of the most renowned Nurseries in France; also an importation of Choice Named Double and Single HYACINTHS, of different sorts and colours; TULIPS, CROCUSES, NARCISSUS, IRIS, GLADIOLI, RANUNCULI, and other BULBS, just received from well known Farms in Holland.

On view morning of Sale and Catalogues had.

Hardy Plants and Bulbs.—(Sale No. 6007.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C. on WEDNESDAY, December 7, at half-past 12 o'Clock precisely, choice named Standard, Half-Standard, and Dwarf ROSES, including most of the leading varieties; Standard, Pyramid, and Dwarf-trained FRUIT TREES; Hardy Ornamental CONIFERS, Hardy HERBACEOUS PLANTS; also first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, GLADIOLI, and other BULBS from Holland, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

ODONTOGLOSSUM ODORATUM.

A rare and beautiful Odontoglot from Venezuela, the finest scented of the genus and in few Collections only. The plant is figured in the *Gardeners' Chronicle*, March 12 of this year, where it states at p. 336:—"The finest specimen of this handsome and fragrant Orchid that has come under our notice was the one exhibited at Manchester last April and again at South Kensington on May 11, and of which we now give an illustration. The plant bore four branching panicles of its brown-blotched golden-yellow flowers The plant was greatly admired at both places."

MR. J C. STEVENS has received instructions from Mr. F. Sander, St. Alban's, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 8, at half-past 12 o'Clock precisely, a fine importation of the above superb Odontoglossum, a few new ANGRÆCUMS, a fine lot of CATTLEYA MAXIMA, HOULLETIA BROCKLEHURSTIANA, CATTLEYA ELDORADO SPLENDENS, &c.

May be viewed the morning of Sale, and Catalogues had.

10,000 Lilium auratum from Japan, in fine condition.
(Sale No. 6011.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 12, at half-past 12 o'Clock precisely, an importation of 10,000 bulbs of LILIUM AURATUM, just received from Japan in the finest possible condition. Also English-grown LILIES, including Lilium Brownii, L. Leichtlini, L. Batemanni, L. giganteum, L. pomponium, and others; some fine established clumps of DISA GRANDIFLORA; quantity of immense roots of the lovely ERYTHRINA HERBACEA; thirty cases of BELLADONNA LILIES, and a fine assortment of miscellaneous HARDY BULBS and PLANTS from various parts of the world.

On view the morning of Sale, and Catalogues had.

Tressider's Nursery, Truro.
In Liquidation.—*Re* Henry Clive Browne, Truro, Nurseryman, &c.

MR. W. J. JOHNS is instructed to SELL by AUCTION, on MONDAY, TUESDAY and WEDNESDAY, December 5, 6, and 7, without reserve, for the benefit of Creditors, 2500 APPLE TREES, 3000 GOOSEBERRY and CURRANT, 1000 SEAKALE, 10,000 THORNS, 100,000 Larch, Scotch, austriaca, Pinaster, and other FIRS and FOREST TREES; 10,000 AUCUBAS, various ORNAMENTAL SHRUBS, STOVE and GREENHOUSE PLANTS, &c.

On view any time previous to Sale. Catalogues are now ready, and can be obtained of the Auctioneer, Truro.

Nov. 22, 1881.

Valuable Nursery Stock for Sale.

THE Whole NURSERY STOCK of JAMES COCKER AND SONS, NURSERYMEN, Sunnypark, and Morningfield Nurseries, near Aberdeen, will be SOLD by PUBLIC ROUP, unreservedly, in lots, on THURSDAY and FRIDAY, December 8 and 9, and following Day if necessary. The Sale will commence on December 8, at Morningfield, near the Skating Pond, at 10 o'Clock forenoon, and will continue each day thereafter at the same hour. The Stock consists of FOREST and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, FRUIT TREES and BUSHES, ROSES, GREENHOUSE and STOVE PLANTS, GREENHOUSES, FRAMES, &c.; also Three HORSES and PONY-CARTS, and FARMING IMPLEMENTS.

Catalogues may be had on application to Messrs. COCKER, at 82, Union Street, and at the NURSERIES, Sunnypark and Morningfield, and to Messrs. HENDERSON AND CATTANACH; Advocates, 130, Union Street, Aberdeen.

Hatfield, Herts, on the Great Northern Railway.
To POULTRY BREEDERS and OTHERS.

MR. GEORGE JACKSON is favoured with instructions from Edward Pryor, Esq., to SELL by AUCTION, on the Premises, about a minute's walk from the Railway Station, on FRIDAY, December 16, at 1 o'Clock, 200 head of pure-bred COCHIN FOWLS, comprising Partridge, Buff, White and Black, mostly of Tomlinson's, Tudman's, and other well known strains, and principally this year's birds. Also the Boarded HEN-HOUSES, with zinc roofs; forty COOPS, and TOMLINSON'S PATENT INCUBATOR and ARTIFICIAL MOTHER.

May be viewed on the morning of Sale, and Catalogues obtained at the Inns in the neighbourhood; at the Auction Mart, Tokenhouse Yard, London, E.C.; and of Mr. GEORGE JACKSON, Auctioneer and Appraiser, Hitchin, Baldock, and Royston, Herts.

Monday Next.

GREAT SALE of DUTCH BULBS WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS will SELL, at the Auction Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, at half-past 11 o'Clock precisely, 800 lots of First-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, LILY of the VALLEY, and other Roots from Holland, in lots to suit all buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.
CONSIGNMENT from GHENT for Absolute SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, December 6, at 12 o'Clock precisely, a choice collection of about 200 Double CAMELLIAS and AZALEA INDICA, compact plants, 1½ to 3 feet, beautifully set with bloom-buds; about 300 Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, with a collection of DUTCH BULBS, Winter Blooming ERICAS, PRIMULAS, &c.

On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E C, and Leytonstone.

Friday Next.

12,000 splendid Bulbs of LILIUM AURATUM (including 1000 unusually large roots), a very fine assortment of English-grown LILIES (including some extraordinary roots), Berlin crowns LILY of the VALLEY, and various other ROOTS and BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above at the Auction Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, at 12 o'Clock precisely.

Catalogues at the Mart, and 8, New Broad Street, E.C.

WANTED, to PURCHASE, an Established SEED and NURSERY BUSINESS, or good FLORIST and FRUITERER'S. Apply with particulars, to
F. CLARKE, Old Manor House, Beckenham.

London, S.W.—No. 5484.)

FOR SALE, the FREEHOLD of a well-established NURSERY, with 8 Greenhouses, in connection with a Florist's Business in the West End, returning over £2000 a-year. Price £2750 for everything, including Stock. A Shop and Dwelling-house are rented on Lease next the Nursery at £70 per annum. Details of Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.

To Gardeners.

TO BE LET, a good COTTAGE, with every convenience, and One Acre of Garden Ground, wherein is large Peach-house, well stocked; Cucumber-house, and small Stove and Conservatory; the Garden well stocked with Trees and Vegetables. Rent £30; close to a good Market-town, and within 22 miles of London. Fruit will well pay rent.

Applications to be made to A. B., 28, Great James Street, Bedford Row, London, W.C.

Southgate.

TO LET, a Six-roomed HOUSE, and good Garden, £20 a year.

Also an Acre of GARDEN adjoining, for £10 a year. More if required.

ROWE, Southgate Chase, Middlesex.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

Sterling Novelties for 1882.

JAMES CARTER AND CO.'S SPECIAL TRADE LIST of the above is now ready, and will be forwarded gratis and post-free on application. It contains a number of valuable additions to the Vegetable and Floral Catalogue.

237 and 238, High Holborn, London, W.C.

LARGE SPECIMEN CAMELLIA, "IMBRICATA," 8 feet by 5 feet, well-shaped and closely grown; price £6. Also five LARGE SPECIMEN ORCHIDS, fit for Show, fine rare kinds, for £5. For names and descriptions apply
W. JACKSON, Blakedown, near Kidderminster.

STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities of STRAWBERRIES also, in pots, to offer. Prices, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

GRAPE VINES.—Planting Canes, all the leading sorts, 3s. 6d., 5s. to 7s. 6d., true to name, from eyes grown and proved in our own vineries.
DOWNIE AND LAIRD, Royal Winter Garden, Edinburgh.

Special Notice.

ASH, BIRCH, POPLARS, MAPLE, LIMES, and SYCAMORE, stout handsome trees, 15 to to 20 feet high, in good condition for removal; GREEN HOLLIES, 6 to 10 feet; AUCUBAS, 3 to 4 feet, fine specimens; ROSES, Dwarf Hybrid Perpetual, extra fine. Prices on application to
W. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

LILIUM AURATUM (Home-Grown). "Imported Bulbs do die."

I have only a few to offer this season, but they are fine; 7 to 9, 9 to 10, 10 to 11, and 11 to 13 inches in circumference.

LILIUM GIGANTEUM, also fine. This is the time to plant.

CHARLES NOBLE, Bagshot.

SPECIMEN AZALEAS, Four large Pyramidal Plants, beautifully trained; Three fine Bushy CAMELLIAS, about 4 feet high; and three SPECIMEN EPACRIS. The above all finely set for bloom, and fit for Exhibition. Price £8 the lot, package included.
W. JACKSON, Blakedown, near Kidderminster.

STRAWBERRY PLANTS.—Fine rooted Plants of all the leading varieties, warranted true to name. Prices and Descriptive LIST post-free on application.
JOHN CATTELL, Nurseryman and Seedsman, Westerham, Kent.

GLOBE ARTICHOKES, 3s. per dozen, 21s. per 100.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

Special Notice.

MESSRS. WM. CUTBUSH AND SON would be greatly obliged to their Friends and Patrons if they will kindly address all Business Connections to HIGHGATE, and *not* to their *Branch Nurseries at Barnet* as much time is saved thereby
HIGHGATE NURSERIES, LONDON, N.

Notice of Removal.

SANDY AND SON beg to inform their Customers and the Trade generally that their address for the future for all purposes will be
THE NURSERIES, STAFFORD.

S. & SON have REMOVED their Seed Warehouse from Vine Street to the NURSERIES.

Nurseries and Seed Warehouse, Stafford.—November, 1881.

NOTICE OF REMOVAL TO No. 12, EXETER STREET, STRAND, W.C. (Immediately at back of Exeter Hall.)

We beg to intimate that we have now removed to our New Premises at above address.

The continued increase of our business has made it compulsory for us to go into larger and more commodious Warehouses, where we shall now be able to execute all Orders entrusted us with greater despatch and facility.

WATKINS & SIMPSON,
Seed and Bulb Merchants, late of 1, Savoy Hill, Strand.
Seed and Trial Grounds at Feltham and Twickenham, Middlesex.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 15s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.
BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

FOREST and ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, FRUIT TREES, ROSES, &c. Thoroughly transplanted very hardy and well rooted. Immense Stock to select from. New Priced CATALOGUE on application to
JAMES DICKSON & SONS, "Newton" Nurseries, Chester
Plans and Estimates furnished.

IMPORTANT NOTICE.—First-class NURSERY STOCK, specially cheap for Cash only, to clear the ground by March next.
CATALOGUES on application to
WALTER DAWSON, Nurseryman and Seedsman, Coventry

Spruce Firs for Christmas Trees.

WM. JACKSON AND CO., Nurseries Bedale, Yorks, can supply the above, 1½ to 2 feet, 5s. 3 to 4 to 5 feet, 10s. per 100. Quartered wide apart. Price and all particulars on application. Now is the time to order Strong GOOSEBERRIES and CURRANTS, VICTORIA and other PLUM TREES, Standard, Dwarf, and Bush APPLES, cheap and good.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED superior to all others, is harvested from their unequalled collection, which was again awarded first prizes at all the London great Flower Shows. Sealed packets, free by post, 1s. and 2s. 6d. each. All first quality. The Trade supplied.
JOHN LAING AND CO, Seedsmen, Forest Hill, S.E.

ASPARAGUS PLANTS.—Strong Roots of the above, 1-yr. old, 2s. per 100; 2-yr. old, 2s. 6d. per 100. Prices to the Trade on application.

J. C. also begs to intimate that his Special Trade LIST of Home Grown Seeds is now ready, and may be had on application.
JOHN CATTELL, Nurseryman and Seedsman, Westerham, Kent.

SEAKALE CROWNS, for Forcing, 12s. 6d. per 100.
CURRANT TREES, Warner's Large Red, and Wilmot's Large White, each, 2s. per dozen.
RHUBARB, for Planting (Royal Albert), 2s. per dozen,
Special Prices for large quantities. Cash with order.
JOHN MEYERS, Boston Road, Brentford, Middlesex

SPANISH CHESTNUT, HAZEL, ASH, LARCH, SCOTCH, BIRCH, ALDER, WILLOW and THORN QUICK.—Stout, well-rooted, transplanted. A large quantity to be sold.
GEO. CHORLEY, Coaster's Nursery, Midhurst.

Easts's Kentish Invicta and Essex Rival Peas.

FOR SALE.—A few Quarters of the above in splendid condition. Lowest price and samples on application to
WALLACE R. HARRISON, Maidstone, Kent.

CHRISTMAS TREES.—Thousands of fine feathered plants, of good colour, from 2 to 5 feet; QUICK 10s. per 1000; OAK, SCOTCH FIR, &c.
W. GROVE, Tupsley, Hereford.

To the Trade.

CUT LILIES of the VALLEY and MAIDENHAIR FERNS; regular supplies from now till May.

ADIANTUM CUNEATUM and GRACILLIMUM, in 48's, 10s. per dozen.
T. JANNOCH, Dersingham, Norfolk.

Spruce Firs for Christmas Trees.

SPRUCE FIRS, 1½ to 2 feet, 5s. per 100; 2 to 3 feet, 8s. per 100; 3 to 5 feet, 20s. per 100. Cash (Post-office Order) with order, payable to
J. W. COLE, Holly Nursery, Hundleby, near Spilsby, Lincs.

THORN QUICK, strong, 4-yr. transplanted 20s. per 1000. LARCH, fine, 1½ to 2½ feet, twice transplanted, 17s. 6d. per 1000. MAHONIA AQUIFOLIA 2 to 3 feet, 50s. per 1000. AUSTRIAN PINE, 2 to 3 feet twice transplanted, 50s. per 1000.
W. JACKSON, Blakedown, near Kidderminster.

"The Celebrated North of Ireland Roses."

THE ONLY ROSES in IRELAND having any claim to such a title are those grown by us, and we repudiate the right of any other Nurserymen to claim such "celebrity."

Having gained many hundreds of First Prizes at the leading shows all over the country, WE ALONE have thus made North of Ireland Roses celebrated. Our stock of Standards and Dwarfs numbers over 100,000 plants, in the finest possible health, and embraces every good variety in cultivation.

Descriptive CATALOGUES may be had on application to ALEX. DICKSON AND SONS, Nurseries, Newtownards; or, HUGH DICKSON, Belmont Nursery, Belfast.

RHODODENDRONS, with bloom-buds; fine plants for immediate effect, 2 to 5 feet high. Also EVERGREENS, FRUIT TREES, ROSES, and VINES. Apply for CATALOGUE.

H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

To the Trade.

R. AND A. MORRISON, The Nurseries, Elgin, beg to offer the following Seedling and Transplanted Forest Trees:—

LARCH, true native. Price on application.
" Tyrolese, £4 10s. per 100,000.
" Transplanted, 12 to 18 inches, 12s. 6d. per 1000; 18 to 24 inches, 15s. per 1000; 2 to 3 feet, 17s. 6d. per 1000.
SCOTCH FIR, true native Highland Pine, 1-yr. Seedlings, £7 10s. per 100,000; 1-yr. 2-yr. Transplanted, 7s. 6d. per 1000; 12 to 18 inches, 10s. 6d. per 1000.
PINUS AUSTRIACA. P. LARICIO, P. MARITIMA, and MONTANA, 1-yr. Seedlings, 2s. 6d. per 1000; 2-yr. 2-yr. Transplanted, 10s. 6d. per 1000.
ELMS, WYCH, 1-yr., 1s. 6d.; 2 yr., 2s. 6d.; and 1-yr. 1-yr., 5s. per 1000.
OAKS, ENGLISH, 1-yr, 2s. 6d. per 1000.
Trade CATALOGUE may be had on application.

NOTE.—CABBAGE PLANTS, &c.—Fine autumn-sown Drumhead, Enfield, Sugarloaf, Schilling's Queen, Early Rainham, Nonpareil, Drumhead SAVOY, Thousand-headed, Green Curled KALE and ASPARAGUS KALE, 2s. 9d. per 1000. CAULIFLOWER PLANTS, 6s per 000. Early and Late BROCCOLI, 5s. per 1000. BRUSSELS SPROUTS, 3s. 6d per 1000. Bath Cos, Wykeham Giant White Cos, and Lee's Immense Hardy Green Cabbage LETTUCE PLANTS, 4s. per 1000. Red Pickling CABBAGE PLANTS, 2s. 6d. per 1000. Can supply above in any quantities.

N.B. All Plants packed well in crates and hampered free of charge.

EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

LILIUM AURATUM, and other LILIES, the best picked Bulbs only. Size No. 1, 9d.; No. 2, 1s.; No. 3, 1s. 6d.; and the largest Bulbs imported, 2s. each. Equally low prices for other Lilies, and Special LIST of Orchids forwarded on application to

WM. GORDON, City Office, 10, Cullum Street, London, E.C. Special Price to the Trade.

SINGLE DAHLIAS.

YELLOW DWARF, 1s. 6d. each, 15s. per dozen.
SCARLET GEM, 1s. 6d. each, 10s. per dozen.
COCCINEA, 1s. 6d. each, 15s. per dozen.

A pot-root of each of these splendid kinds, post-free, 4s. 6d.

We have the most complete collection of doubles, and always grow not less than 10,000 pot-roots, and can therefore offer best cultivation.

H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent.

TO THE TRADE.—A considerable quantity of the following for disposal:—

ALDER, Common, 2 to 3 feet, and 3 to 4 feet.
ASH, Common, 2 to 3 feet
HAZEL, 2 to 3 feet.
LARCH, 2 to 3½ feet.
SYCAMORE, 2 to 3 feet.
PRIVET, Evergreen, 3-yr. transplanted.
SCOTCH FIR (Native), strong, about 1½ to 2 feet.
THORNS, 3-yr. transplanted, about 2 to 3 feet.

The above are thoroughly healthy, robust, and well rooted. Cheap Railway Rates to all parts of England and Wales.

Samples and special quotations on application to ALEXANDER ANDREW, Nurseryman, Kilmarnock, N.B.

Parsley-leaved Bramble.

JOHN CARTER, NURSERYMAN, Keighley, has a fine lot of strong Fruiting Plants of this prolific and useful Fruit. They are very ornamental trained round stakes or trellis, or against a wall. 6s. per dozen, or 40s. per 100.

J. C. has also a large Stock of FOREST and FRUIT TREES, DWARF ROSES, and HARDY SHRUBS, which he has every confidence would give satisfaction.

Wholesale and Retail CATALOGUES on application.

Cash Only.

ROSES—ROSES—ROSES.

	Per dozen.
Standard Hybrid Perpetuals, best sorts	21s.
Standard Tea Scented, best sorts	24s.
Dwarfs	12s.

FIR, Larch, fine stuff, 2 to 3 feet, 35s. per 1000; 3 to 4 feet, 45s. per 1000.

PEAT, good Fibrous, put on South-Eastern or London, Chatham and Dover Rail here, 14s. per yard.

Post-office Orders payable to C. F. CAITELL, Sevenoaks, Kent.

To the Trade.

W. WISEMAN AND SON, NURSERYMEN, Elgin, N.B., can still offer many millions of Seedling and Transplanted Scotch FIR and LARCH. The Scotch Fir are all grown from seed collected for us in the celebrated forests of Strathspey.

Samples, with special low Prices, on application.

All intending Purchasers should send for a Copy of W. M. CROWE'S CATALOGUE of Azaleas, Camellias, Ericas, Epacrises, Bouvardias, Cyclamens, Tree Carnations, Roses in pots, and other winter flowering Plants; 5000 Border Carnations, and other Hardy Plants; Clematis, and other Climbers, and general Nursery Stock, as cheap as any in the Trade.

W. M. Crowe's CATALOGUE of Hyacinths, Tulips, Spiræas, Lily of the Valley, &c., of first-class quality, may also be had free on application.

Boleyn Nursery, Upton, Essex.

THE PLANTING SEASON.—Fine transplanted Spanish CHESTNUTS, ASH, POPLARS, and Scotch FIRS. Prices on application. Address

WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To the Trade.

THOMAS IMRIE AND SONS draw special attention to the following SURPLUS STOCK, all clean grown, healthy, well rooted, and in excellent condition for removing, for which special quotations will be sent on application:—

PINUS AUSTRIACA, 1 to 1½ foot.
" LARICIO, 1 to 1½ foot.
LARCH FIRS, 1½ to 2, 2 to 2½, 2½ to 3, and 3 to 4 feet.
" " extra fine, with perfect leaders.
SCOTCH FIRS, true Native, 2-yr. 2-yr., and 2-yr. 3-yr., extra fine.
SILVER FIRS, 6 to 9, and 9 to 12 inches.
SPRUCE FIRS, Norway, 6 to 9, 9 to 12, and 12 to 18 inches, very bushy.
ALDER, Common, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet, twice transplanted.
ASH, Mountain, 5 to 6 and 6 to 8 feet, grown singly, and good stems.
BEECH, Common, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 8 to 12, and 12 to 24 inches.
HAZEL, 12 to 18 inches, and 2 to 3 feet, twice transplanted.
LIMES, 3 to 4, 4 to 5, 5 to 6, 6 to 8, and 8 to 10 feet; all grown singly, and several times transplanted.
POPLARS, sorts, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet, all twice transplanted.
PRIVET, Evergreen, 1-yr. cuttings, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
SERVICE TREE 4 to 5, and 5 to 6 feet, good stems, and grown singly.
THORNS, or QUICKS, 1-yr. 1-yr., 9 to 12 inches, 12 to 20 inches, and 1½ to 2 feet.
Also ORNAMENTAL TREES—consisting of Plane or Sycamore, Flowering Chestnuts, Purple Beech, Ash, and Elms, sorts, &c.

The Nurseries, Ayr, N.B.

LILIUM AURATUM.—Splendid direct Imported and Home-grown Bulbs, 30s., 40s., 50s., 60s., 75s., and 100s. per 100.—SANDER AND CO., St. Alban's.

Chrysanthemums—Chrysanthemums.
The Finest Named Varieties.

STRONG STOCK PLANTS, in 5-inch pots, our selection, 4s. per dozen; 12 varieties, to name, 25s. per 100, in 50 varieties.

STRONG CUTTINGS, post-free, our selection, 12, in 12 named varieties, 1s. 6d.; 50, in 25 varieties, 5s.; 100, in 50 varieties, 8s.; 100, in 100 varieties, 10s. 6d.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

LARCH and QUICKWOOD PLANTS for SALE.—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet; 2,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, 3 to 4 feet; 100 Weeping Ash, Elms, Poplars, Pears, &c.; also Scotch Fir, Weeping Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply, FRANCIS BELL, Nurseryman, Easingwold.

BULBS of the Finest Quality, at the Lowest Price consistent with Genuineness. LIST free on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Seakale—Seakale—Seakale.
To NURSERYMEN and OTHERS.

FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,

Mr. WILLIAM BAGLEY, Millshot Farm, Fulham, S.W.

To the Trade.
SEED POTATOS.

H. AND F. SHARPE, having secured their Crops of SEED POTATOS in fine condition, are prepared to make special offers of all the leading varieties worthy of cultivation. The Prices will be found very reasonable.

Seed Growing Establishment, Wisbech.

JOHN TUCKER, The Nurseries, Bridgwater, has to offer:—

PINUS AUSTRIACA, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
" LARICIO, 2 to 3 feet, 1½ to 2 feet, 1 to 1½ foot.
LARCH FIR, 3 to 4 feet, 2 to 3 feet.

Well transplanted and in quantity.

Deutzia gracilis.

WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty branches in each plant. Very cheap. Price on application.

Ottershaw Nursery, Chertsey.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.

PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

NEW CHRYSANTHEMUM—LADY SELBORNE.
One of the Best Whites yet raised.

MR. H. JAMES, of Castle Nursery, Lower Norwood, Surrey, has now the pleasure of announcing to his numerous Customers and Friends that he intends sending out the NEW CHRYSANTHEMUM, LADY SELBORNE—raised by Mr. C. Salter, and which has already gained Three First-class Certificates—on January 1, 1881. Price 5s. each.

P.O.O. payable at Thomas Terrace, Lower Norwood, S.

EDELWEISS.—The above FUCHSIA is the best Double White ever sent out in every respect. Orders booked now to be sent out in April, 2s. each, by

W. HENDER AND SONS, Nurserymen, Plymouth.

Thorns for Stocks.—To the Trade.

JAMES DICKSON AND SONS can supply a few thousands of clean grown and well rooted THORNS, selected for working. Price on application.

"Newton" Nurseries, Chester.

CHRISTMAS TREES.—Beautiful pyramidal-shaped, 5 to 15 feet high, well feathered, and rich green colour. Prices on application. Trade supplied.

E. P. DIXON, Hull.

SPECIAL OFFER.

	s.	d.	
ALMONDS, standard flowering	12	0	per doz.
ASH, Weeping, 8 to 10 feet	24	0	"
" " 10 to 12 feet	30	0	"
AZALEA AMŒNA, in pots	12	0	"
CEANOTHUS DENTATUS, in pots	6	0	"
CHESTNUT, Scarlet Horse, 6 to 8 feet	9	0	"
" " " 8 to 10 feet	12	0	"
ELM, Chichester, 8 to 10 feet	12	0	"
" " 10 to 12 feet	15	0	"
" English, 8 to 10 feet	12	0	"
GUELDER ROSE	3s. and	4	0 "
LILACS	3s. and	4	0 "
WEIGELAS, in sorts	3s. and	4	0 "
APPLES, pyramids, 3 to 4 feet (J. G. & Co.'s own selection of varieties.)	15	0	"
" " 4 to 5 feet	16	0	"
CURRANTS, Red and Black	10	0	per 100.
FILBERTS, transplanted layers	20	0	"
PEARS, pyramids, 4 to 5 feet	15	0	per doz.
" " 5 to 6 feet	18	0	"
" " Beurré Diel and Marie Louise, 6 to 8 feet	30	0	"
PLUMS, pyramids, 4 to 6 feet	18	0	"
" " extra strong	21	0	"
WALNUTS, 6 to 8 feet	12	0	"

JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

Large Ornamental Evergreen Shrubs,
FOR IMMEDIATE EFFECT.

W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester, have a very extensive collection of the above, all recently transplanted and in fine condition for removal, and now offered at greatly reduced prices to effect a clearance.

FRUIT TREES, the largest and best stocks in the Kingdom. Prices on application.

New Seedling Apple "The Queen."
Awarded a First-class Certificate by the Committee of the Royal Horticultural Society.

SALTMARSH AND SON, The Nurseries, Chelmsford, are now Booking Orders for this splendid variety, which they feel confident must become the most popular Apple for either Market or Exhibition purposes.

For description and Testimonials, see advertisement in this Journal on October 1, p. 452.

Maiden Plants ready in November, 10s. 6d. each, with the usual discount to the Trade.

A Supplementary List of Nurserymen ordering "The Queen," will shortly be advertised.

A correctly and beautifully coloured Plate, by Severeyns, of Brussels, will be sent to any address on receipt of seven stamps.

N.B.—The Stock being limited, early orders are requested.

Raspberry Canes.

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ELMS, Huntingdon, 14 to 18 feet.
" English, narrow-leaved, 1-yr. seedling.
" Weeping, 6 to 8 feet stems.
GORSE (Furze) 1-yr. seedling.
HAZEL, 4 to 5, 2 to 3 feet.
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PEARS, Standards, in great variety, leading kinds.
POPLARS, Black Italian, 14 to 16, 6 to 8, 4 to 5 feet.
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WHITETHORN, QUICK, 1-yr., extra fine.
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H. CANNELL AND SONS beg to say that all their 600 varieties have been tested and true to name, and the whole Stock of CUTTINGS, now very large, and in fine condition, 2s. per dozen. The same with STOCK PLANTS in 4-pots, 5s. per dozen. To show the completeness of our Stock, and our successful mode of transit, we beg to append the following:—

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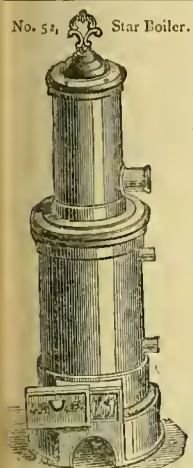

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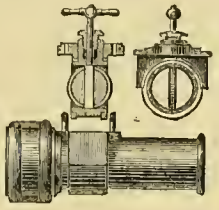

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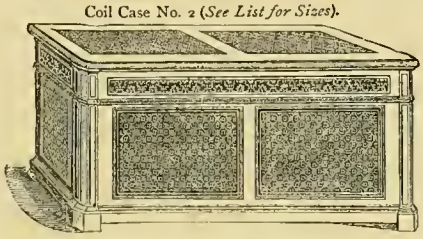

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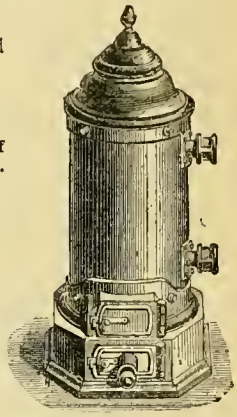

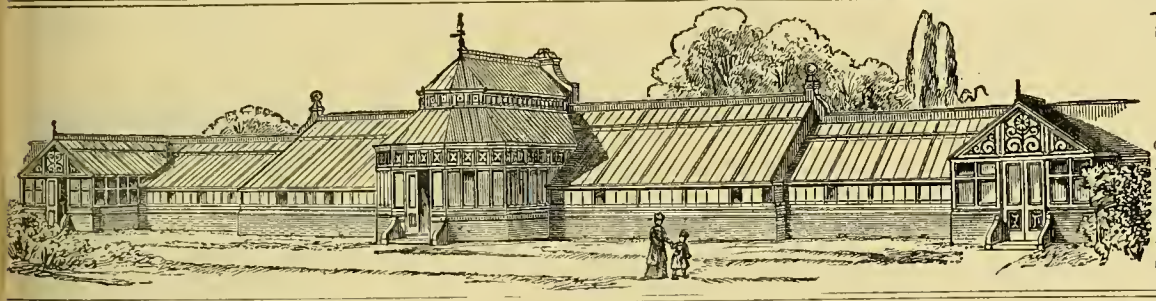

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PINUS CEMBRA, 2 to 3, and 3 to 5 feet.
„ LARICIO (Corsican Pine), 9 to 15, and 18 to 24 inches, fine.
LARCH, 12 to 18 inches, 1½ to 2, 2 to 3, and 2½ to 4 feet, all extra fine.
PINE, Maritime, 12 to 18 inches, fine.
„ Mountain, 9 to 15 inches, extra stout.
FIR, Scots, true native, 6 to 12, 12 to 18, and 18 to 24 inches, extra fine.
SPRUCE, Norway, 6 to 12, and 12 to 18 inches.
„ Black American, 1½ to 2, and 2 to 3 feet.
YEW, Common or English, 18 to 24, and 24 to 30 inches.
ALDER, Common, 12 to 18 inches, and 5 to 7 feet, fine plants.
BARBERRY, Common, 9 to 18 inches.
BEECH, Common, 12 to 18 inches.
CHESTNUT, Horse, 2 to 3 and 3 to 5 feet, strong.
„ Spanish, 12 to 18 and 18 to 30 inches.
ELM, Scotch or Wych, 1½ to 2 and 2 to 3 feet.
„ English, 1½ to 2 and 2 to 3 feet.
HAZEL, 2 to 3 feet.
HOLLY, Common, 4 to 6, 6 to 9, and 12 to 15 inches.
HORNBEAM, 12 to 18 inches, and 5 to 6 feet, stout.
LABURNUM, 2 to 3 feet.
LIME, 2 to 3, 3 to 4, 4 to 6, and 6 to 8 feet.
MAPLE, Norway, 4 to 6 and 6 to 8 feet.
OAK, English, 12 to 18 inches.
POPLARS, of sorts, 2 to 3, 3 to 4, and 4 to 6 ft.
PRIVET, Evergreen, 2 to 3 feet, extra fine.
THORNS, 12 to 18, and 18 to 24 inches.
WILLOWS, of sorts, 2 to 3 and 3 to 5 feet.

EDINBURGH, December, 1881.

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PINE, Black Austrian, 1 and 2-yr. seedlings.
„ Corsican (Pinus Laricio), 1 and 2-yr.
LARCH, 1 and 2-yr. seedlings and 1-yr. seedlings 1-yr. bedded, all extra fine.
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SPRUCE, Norway, 2 and 3-yr. seedlings.
ALDER, Common, 1 and 2-yr. seedlings.
ASH, Common, 1 and 2-yr. seedlings.
BEECH, Common, 1-yr., very fine.
BIRCH, Common and Weeping, 1-yr.
CHESTNUT, Spanish, 1 and 2-yr.
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WHIN, or GORSE, 1 and 2-yr.

EDINBURGH, December, 1881.

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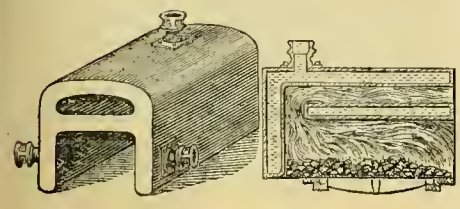

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THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 3, 1881.

FLOWER LORE: DECEMBER.

As the dark and inclement season of winter approaches, few flowers remain to enliven the wayside hedge or garden; the chief attractions now being the bright Holly bushes with their rich clusters of crimson berries, and the winter-blooming Laurustinus, mixed with other evergreen shrubs which are always welcome to the eye when the surrounding foliage has disappeared. Here and there, too, may be seen the Mistleto; and the bright green Ivy gives a life and warmth to many a tree with its bare, naked branches. A shrub that occasionally flowers is the Glastonbury Thorn, which was commonly supposed by our forefathers never to bloom until Christmas Day. In days gone by it was customary, until the time of Charles I., to present to the King and Queen of England a branch of this celebrated Thorn-bush, which was believed to bud on Christmas Eve and blossom on Christmas morning. According to a popular legend this Hawthorn was said to be sprung from the staff of Joseph of Arimathea, who stuck it into the ground with his own hands, when it immediately took root and put forth leaves, the day following being covered with snow-white blossoms. Referring to the alleged flowering of the Glastonbury Thorn on Christmas Day, we find the following entry in the *Gentleman's Magazine* for January, 1753, when it appears the public were under some embarrassment as to the proper date owing to the change from the old style to the new:—"At Quainton, above 2000 persons went, with lanterns and candles, to view a White Thorn in that neighbourhood, and which was remembered to be a slip from the famous Glastonbury Thorn, and that it had always budded on the 24th, was full blown the next day, and went all off at night. The people finding no appearance of a bud, it was agreed by all that December 25 (new style) could not be the right Christmas Day, and accordingly refused to go to church. At length the affair became so serious that the ministers of the neighbouring villages, in order to appease them, thought it prudent to give notice that the old Christmas Day should be kept holy as before." Amongst other trees which were supposed to possess similar properties may be mentioned the old pollard Oak in the New Forest, which, according to Aubrey, was in the habit of putting forth "young leaves on Christmas Day for about a week at that time of the year. Old Mr. Hastings, of Woodlands, was wont to send a basketful of them to King Charles I. I have seen of them several Christmases brought to my father. But Mr. Perkins, who lives in the New Forest, says that there are two other Oaks besides that which breed green buds after Christmas Day, but not constantly." Collinson, in his *History of Somersetshire* (1793), alludes to the miraculous Walnut tree which grew in the abbey churchyard of Glastonbury and never budded before the feast of St. Barnabas (June 11), but on that day shot forth leaves and flourished. The Shropshire peasantry believe that the common Brake only flowers once a year, namely, on Michaelmas-eve at midnight, when it puts forth

a small blue flower, which disappears with the dawn of day. There is also a superstition current at Oldenburg, where it is said that the Ash tree [?] appears without its red [?] buds on St. John's Day, because the witches eat them the night before on their way to the orgies of Walpurgisnacht.

At the present season it may not be inappropriate to mention some of the many customs and superstitions associated with some of our evergreens—almost the only ornaments of our gardens, especially as they will in a week or two be much in request for the Christmas decorations.

Thus the Holly, which from time immemorial has been much in request for dressing up our churches and houses at Christmastide, has an interesting folk-lore attached to it. In years gone by it was much used for hedges, on account of its prickly leaves :—

> "A hedge of Holly, thieves that would invade,
> Repulses like a growing palisade."

John Evelyn, in his Diary, speaking of this plant, says : "Is there under heaven a more glorious and refreshing sight of the kind than such an impregnable hedge, glittering with its armed and varnished leaves, the taller standards at orderly distances blushing with their natural coral." Evelyn, it may be added, had such a hedge at Say's Court, 400 feet long, 9 feet high, and 5 feet broad. One of its popular names is "Christmas," from its use at Christmastide. The name Holly is in all probability a corruption of "holy," because this plant was considered by our forefathers an excellent charm against evil influences. On this account it was frequently planted near houses as a protection against lightning. The origin of its use at Christmas is, says Mr. Napier in his *Folklore of the West of Scotland* (1879, 121), "Apparently the survival of the ancient Roman custom occurring during the festival to Saturn, to which god the Holly was dedicated. While the Romans were holding this feast, which occurred at the time of the winter solstice, they decked the outside of their houses with Holly; at the same time the Christians were quietly celebrating the birth of Christ, and to avoid detection they outwardly followed the custom of their heathen neighbours, and decked their houses with Holly. In this way the Holly came to be connected with holy also." Old writers seem to have assumed a curious rivalry between the Holly and the Ivy for the foremost place in the Christmas festivities ; and a well known carol of the time of Henry VI., a stanza of which we subjoin, describes a contest between the two, in which the Holly has the mastery :—

> "Holly he hath berries as red as any Rose,
> The foresters, the hunters, keep them from the does.
> Ivy she hath berries as black as any Sloe,
> Then come the owls, and eat them as they go."

Amongst the divinations associated with Holly, we may mention that in Northumberland we hear of a he-holly and a she-holly, according as it is with or without prickles ; the leaves of the she-holly being alone deemed proper for divination. These must be plucked late on a Friday night, and the person gathering them must take special care to preserve an unbroken silence from the time he goes out to pluck them until the next morning's dawn. The leaves must be collected in a three-cornered handkerchief, and on being brought home nine of them must be selected, tied with knots into the handkerchief, and placed beneath the pillow.

Dreams, we are told, worthy of all credit will be sure to attend this ceremony, and consequently no small importance is attached to them, as they are supposed in the most unerring manner to predict future events. It is curious that Shakespeare only once mentions the Holly, and then in *As you Like It*, act ii., sc. 7 :—

> "Heigh-ho ! sing heigh-ho ! unto the green Holly ;
> Most friendship is feigning, most loving were folly ;
> Then heigh-ho, the Holly !
> This life is most jolly."

Again, the Ivy which forms such a picturesque appearance climbing up the towers of our old country churches, and over the walls of many a manor house, has, like the Holly, from time immemorial held a prominent place in the dressing up of our churches and houses at Christmas time. Objection has been raised to its use as a church decoration from its associations, having in ancient times been held sacred to Bacchus. Anyhow, its bright shining leaves are always a welcome ornament to our rooms on Christmas Day :—

> "Then Ivy and Holly berries are seen,
> And yule-log and wassail come round again."

Aubrey informs us that in several parts of Oxfordshire it was the custom for the maidservant to ask the man for Ivy to decorate the house, and if he refused or neglected to fetch in a supply, the maids stole a pair of his breeches, and nailed them up in the yard or highway. A similar usage prevailed in other parts, when the refusal to comply with such a request incurred the penalty of being debarred from the well-known privilege of the Mistleto. Ivy is not without its medicinal charms, for Gerard tells us that its "leaves laid in water for a day and a night's space, help sore and smarting waterish eyes if they be bathed and washed with the water wherein they have been infused." In Shropshire children suffering from whooping-cough are allowed to drink all they require out of drinking cups made from the wood of the common Ivy, this being considered an infallible remedy. A correspondent of *Notes and Queries* says that he once knew an old gentleman "who, being fond of turning as an amusement, was accustomed to supply his neighbours with these drinking cups, and whose brother always provided him with the wood from his own plantation." It is necessary, in order to be effective, that the Ivy from which the cups are made should be cut at some particular change of the moon or hour of the night. Formerly an Ivy bush was placed outside taverns as a sign, in which there is probably an allusion to its classical relation to Bacchus. Hence arose the proverb "Good wine needs no bush," implying that real good wine is of itself a sufficient recommendation, without requiring to be advertised. Thus an old writer remarks—

> "I hang no ivie out to sell my wine,
> The nectar of good wits will sell it selfe."

Another plant which we must not omit to mention is the Mistleto, as, apart from its use at Christmas, it has always been an object of interest to naturalists. Thus Herrick speaks of it as :—

> "The mystic Mistleto,
> Which has no root, and cannot grow
> Or prosper but by that same tree
> It clings about."

Indeed, few plants have been honoured with a more varied folk-lore than the Mistleto ; and according to one tradition the Cross was made of it. Prior to this time it is reported to have been a fine forest tree, but was condemned henceforth to lead a parasitical existence. As is well known, too, this plant was held in the greatest veneration by the Druids, who gathered it at the commencement of the year with every mark of pomp. At what time, however, Mistleto came to be recognised by us as a Christmas evergreen is uncertain. There are Christmas carols in praise of Holly and Ivy of even earlier date than the fifteenth century, but allusion to Mistleto can scarcely be found for two centuries later, or before the time of Herrick. Brand considers that it was never put in churches amongst evergreens but by mistake and ignorance ; for, says he, "it was the heathenish or profane plant, as having been of such distinction in the Pagan rites of Druidism, and it had its place, therefore, assigned to it in kitchens, where it was hung in great state." Various superstitions are still attached to this plant, which are not confined to our own country. Thus, formerly in Worcestershire, farmers were in the habit of taking a bough of Mistleto and giving it to the cow that first calved after New Year's Day, as this act was supposed to avert ill-luck from the dairy. In Holstein the Mistleto is the "Märentaken," or "branch of spectres," and is supposed to confer upon its possessor the power of seeing ghosts. No allusion to the popular custom of kissing under the Mistleto is met with earlier than the middle of the seventeenth century. Cypress has been occasionally used for church decorations, but its general relations render it somewhat out of place at a festive season like that of Christmas. Rosemary, too, has been in request at this time, whereas the Laurel, which Spenser describes as the

> "Meed of mighty conquerors and poets sage."

is a popular decoration. The Bay also is gathered, but many object to its presence in churches at Christmas ; it being a funereal flower, and considered an emblem of the Resurrection. Thus Sir Thomas Browne says, that when seemingly dead it will revive from the root, their dry leaves resuming their wonted vitality again. At Christmastide this plant is frequently in demand at family gatherings, being used for love divinations ; its leaves when crushed in the hollow in the hand being supposed to tell the truth of the lover by a crackling sound.

New Garden Plants.

SACCOLABIUM GRÆFFEI, *Rchb. f.**

This species was discovered in the Viti Islands by Dr. Græffe, a Swiss naturalist, chiefly zoologist. It is a very fine thing, with broad, ligulate, retuse, bilobed leaves (0.15 m. long, 0.025 m. wide). The strong peduncle bears a spike of conspicuous deep purple flowers, which make one think of some Aerides colours, or, perhaps better, of Rodriguezia secunda. The cylindrical spur is blunt and constricted. The lip's blade is short, three-toothed, and has a transverse lamella in front of the base of the middle lacinia. The inflorescence at hand reaches 0.09 m., and is most worthy pendent of a fox brush. It has just been flowered, no doubt for the first time in Europe, by Mr. T. Christy, who most kindly forwarded very good materials from Malvern House, Sydenham. The plant was alluded to before in these columns, when I published Saccolabium mimus, an introduction of Messrs. J. Veitch & Sons. *H. G. Rchb. f.*

MASDEVALLIA INFLATA, *n. sp.*†

The typical Masdevallia corniculata, originally introduced by Messrs. Backhouse & Sons, who most kindly sent me a fine living plant, has since also appeared at the Pine-apple Nursery of Messrs. Henderson & Son under Mr. O'Brien's skilful management, and now with Mr. Bull—in this latter instance, however, with a very surprising plant, the object of this memorandum.

The plant is very near Masdevallia corniculata, though its appearance is widely distinct. The

* *Saccolabium Græffei*, Rchb. f.—Foliis ligulatis latis apice retuso-bilobis ; pedunculo validissimo distantissime vaginato apice densifloro subsecundifloro ; bracteis minutissimis sepalis tepalisque cuneato-oblongoligulatis acutis conniventibus, labelli lamina concava trifida, laciniis lateralibus obtusangulis acutangulisve, lacinia mediana triangula carinula depressa transversa ante basin ; calcari cylindrato obtuse medio constricto nunc flexo ; columnæ rostello producto. Ins. Vitiens. Dr. Græffe. *H. G. Rchb. f.*

† *Masdevallia inflata.*—Aff. Masdevalliæ corniculatæ, bractea breviori latiore ; perigonio bene breviori inflato ; sepalo impari triangulo brevissimo ; cauda elongata sepalorum lateralium triangulis abbreviatis ; tepalis rhombeis supra basin angulatis apice acuto papulosis, labelli laciniis lateralibus oblongis antice obtusangulis, lacinia mediana oblongo ligulata crenulata, per discum seriebus papularum asperulis.—Ex coll. cl. Bull. *H. G. Rchb. f.*

triangular bract is much wider and shorter, strongly keeled at the back. The flower is shorter, essentially the part consisting of the two lateral sepals, very much inflated, and orange-yellow. The lip has a much narrower, cuneate, not hastate middle lacinia covered with asperities.

Connecting specimens between this and M. corniculata may occur. As the materials are given now I think it is better to distinguish both, especially as their shape and colour are so distinct. *H. G. Rchb. f.*

LÆLIA PERRINI (*Lindl.*) IRRORATA, *nov. var.*

This is a fine variety, of the lightest rose colour. The lip is nearly white with a pale yellow disk and a light purple apex. It is a chaste beauty, kindly sent by Mr. B. S. Williams, who had it from Mr. W. Lee, the possessor of the fine collection at Leatherhead. *H. G. Rchb. f.*

LYCASTE DEPPEI (*Lindl.*) *var.* PUNCTATISSIMA, *nov. var.*

This is one of the recent Guatemalese introductions of Mr. B. S. Williams, who kindly sent me two flowers. Sepals and petals whitish-green, covered with innumerable purple spots. The lip is yellow, with radiating dark purple lines on the side laciniæ and five similar blotches on the middle lacinia. It has all the features, colour excepted, of the Mexican Lycaste Deppei, even the most remarkable one of a strong keel running from the lobed flat callus down to the base of the lip. *H. G. Rchb. f.*

STELIS GROSSILABRIS, *n. sp.**

This curious plant was sent by Mr. W. Bull in a fine state, though the locality whence it came was kept secret. It is cæspitose, and has a certain resemblance to Stelis spatulata, Pöpp. Endl.; the short bracts, however, make a quick end to the illusion. Then I thought of the original Stelis tenuilabris, Lindl. I. (Herb. Hook. vix Lindl.). It is remarkably like it, but the spatulate acute leaves are far more cuneate. The small flowers are light greenish, and would not attract the curiosity of usual visitors to Orchid-houses. They are in racemes which are shorter than the leaves. The lip is, however, quite distinct, since it is a membranous body in Stelis tenuilabris, a thick fleshy mass in our species. *H. G. Rchb. f.*

MICROSTYLIS VENTILABRUM, *n. sp.*†

A fine Microstylis of the group of Microstylis Rheedii. I obtained from my friend, Mr. F. C. Lehmann, a sketch of the leaves and bulb. The former are light green, with brownish hue on the nervation. The flowers are of fine yellow, with a very broad, large square lip, sagittate at base, with seven to nine teeth at the top. Column white, with two green wings. It was introduced from the Sunda district by the firm of Hugh Low & Co. *H. G. Rchb. f.*

TRICHOCENTRUM HOEGEI, *n. sp.*‡

This new species is the first in the genus with a strong spur going out into a rounded emarginate apex. It is a small plant with very robust horny cuneate oblong acute leaves, and a zig-zag peduncle, bearing a very large flower. The sepals and petals are greenish-yellow, with a purple middle area (nearly as in T. zonale and T. Favii). The lip is pandurate, undulate, emarginate at the top, with two blunt yellow calli at the base, white, with a number of lines and blotches of the clearest and most resplendent purple at the base. The column is short, yellowish-green, with two small white lacerate wings and a white echinate anther.

It was discovered by the ardent and skilful Hamburg entomologist, Herr Hoege, in Mexico, no doubt in Cordoba territory. It has just flowered in the Hamburg Botanic Garden under Herr Donat's care. It is not only the first Trichocentrum with a clavate spur, but the first one found in Mexico. *H. G. Rchb. f.*

* *Stelis grossilabris*, n. sp.—(Polystachyæ) caule secundario vaginis pluribus arcte vaginato; folii lamina a petiolari basi oblonga acuta carnosa subæquilonga (0.05 longa, ante apicem, 0.009 lata); racemis vulgo geminis tenuissimis parvifloris viridifloris folio bene brevioribus; bracteis triangulis ovaria pedicellata non æquantibus; sepalis triangulis, apiculatis trinerviis, nervillo nunc uno adventitio; tepalis subquadratis retuso; incrassatis cum apiculo-trinerviis, labello pandurato apiculato cum canali mediano; columnæ brachiis obtusangulis.—Ex coll. cl. Bull. *H. G. Rchb. f.*

† *Microstylis ventilabrum*, n. sp. — Affinis Microstylidi Rheedii: foliis oblongis acutis (pallide viridibus brunneis nervosis) plicatis; pedunculo minute angulato; racemo plurifloro anthesi distantifloro; bracteis triangulis acutis ovario pedicellato ter brevioribus; sepalo impari ligulato acuto sepalis lateralibus cuneato-oblongis acutis, labello transverso basi lata abrupta utrinque margine externo semi-sagittato utroque latere retuso antice septem dentato, dente mediana producto, dentibus externis bidenticulatis. Flores parvi pulchre flavi; labellum aurantiacum; columna alba utrinque viridis.—Ex ins. Sondaicis imp. dom. Hugh Low. *H. G. Rchb. f.*

‡ *Trichocentrum Hoegei*, n. sp.—Foliis cuneato-oblongis acutis carnosissimis; pedunculo flexuoso racemoso unifloro (nunc plurifloro?); sepalis lanceolatis acutis, tepalis latioribus, labello pandurato antice undulato, callis geminis obtusis in basi, calcari apice clavato ovario pedicellato breviori; columnæ alis parvis laceris; anthera mitrata echinulata—Mexico, Hoege. *H. G. Rchb. f.*

NEPENTHES NORTHIANA, *Hook. f., sp. nov.**

(*For illustration see Supplementary sheet.*)

This is a noble addition to a genus already remarkable for the singularity and boldness of its characteristics. Its history is also noteworthy. Among the very numerous faithful and spirited drawings of flowers executed in various tropical lands by Miss North, which that lady, as generous as enterprising, has lately made over to the public, and for whose reception she is building a suitable gallery at her own cost in the Royal Gardens, Kew—among these drawings is one of the Nepenthes to which, at the desire of Messrs. Veitch, her name is now affixed. Miss North met with the plant at Sarawak, in North-West Borneo, and there made the drawing in question. This having caught the eye of Mr. Harry Veitch, his well-known enthusiasm was kindled, a willing minister was found, and Mr. Curtis was despatched to Borneo to seek and secure the treasure. The specimen from which Miss North's drawing was made was procured by Mr. Herbert Everett of the Borneo Company, who "traversed pathless forests amid snakes and leeches to find and bring it down to the artist." "Only those," writes Miss North, "who have been in such places can understand the difficulties of progress there. The specimens grew on the branches of a tree about 1000 feet above the sea on the limestone mountains of Sarawak. When I received them I tied them in festoons all round the verandah, and grumbled at having only one small half-sheet of paper left to paint them on."

Our illustration is reduced from a tracing taken by Miss North from her original drawing. Messrs. Veitch's living plants are, of course, at present only

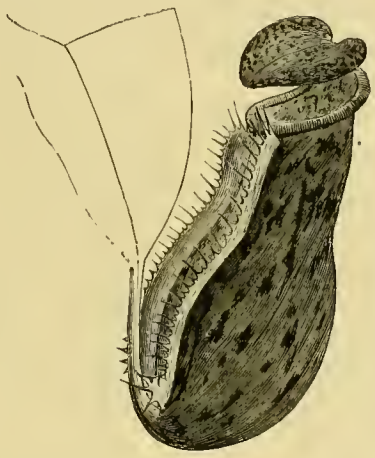

FIG. 144.—NEPENTHES NORTHIANA: YOUNG PITCHER.

small; their pitchers are only 2 inches or so long, but Mr. Curtis has also brought home noble dried specimens fully a foot in length, tubular, and with a broad plaited frill round the mouth, like a lady's collar. Although we have seen neither the inflorescence nor the flowers, and are therefore unable to say precisely to which section of the genus as monographed by Sir J. D. Hooker it belongs, yet the material before us, living and dried, is ample to show that we have to deal with a species of great beauty, and of which Sir Joseph Hooker, coinciding in our opinion, has kindly furnished the subjoined description.

In the young living plant the leaves are closely set, coriaceous, oblong-obovate, acute, tapering at the base into a short broad amplexicaul stalk. The pitchers, borne as usual on tendril-like extensions of the midrib, are 2½ by 1 inch, greenish-red, striped and and spotted with purple, flask-shaped, slightly distended at the base, elongated into a cylindrical neck, and with two membranous dentate-fimbriate wings on the posterior surface (anterior if the pitcher as detached from the axis be considered, posterior or superior as it grows on the plant). The mouth is very oblique elongated towards the dorsum, and surrounded by a narrow striated margin; the lid is cordate roundish depressed in the centre, red-spotted and smooth, with a short bifid or laciniate spur at the back.

The adult pitchers, of which we have two fine dried specimens before us, are nearly 1 foot in length, 3½ inches wide (but attain as much as 16 inches in length by 5 inches in width), subcoriaceous or membranous, purple-spotted, elongate, cylindric, slightly curved, and with two membranous dentate-fimbriate wings; the mouth is elliptic elongated very oblique, 4 by 1¾ inches, and surrounded by a broad (2 inches) everted, closely and finely ribbed margin or peristome; the lid is ovate-oblong (4 by 1½ inches), smooth, shining on the inner surface, where it is sprinkled with small black dots.

It will be seen from the illustration that the shape of the pitchers varies, as is the case in N. Rafflesiana; the upper pitchers, which swing unsupported in mid-air, are trumpet-shaped, while those which rest on the ground are larger and more distended. The significance of this will be apparent. *M. T. M.*

* *Nepenthes Northiana*, sp. nov.—Caule tereti glabriusculo; foliis coriaceis glabrescentibus oblongo-obovatis acutis, basi in petiolum brevem latum amplexicaulem angustatis; ascidiis junioribus (plantæ vivæ) 2½ poll. long., 1 poll. lat. viridi-rubentibus purpureo-maculatis cylindrato-ampulliformibus, ore obliquo postice protenso, peristomio crebre costato, operculo cordato-suborbiculari medio superne depresso intus glabro, alis anticis membranaceis altis dentato-fimbriatis: ascidiis adultis (ex specim. siccis) 12—16 poll. long., 3 poll. lat. membranaceis, purpureo-maculatis cylindratis basi vix dilatatis anguste alatis, alis dentato-fimbriatis, ore obliquo elongato 4½—5 poll. long., 1½ poll. lat., peristomio lato (2 poll.) everso regulariter costato-sulcato, operculo ovato-oblongo acuto 4—4½ poll. long, 1—1½ poll. lat., siccitate inflexo intus nitente, punctisque parvis nigrescentibus consperso nervis duobus divaricatis valde prominentibus. *J. D. Hooker.*

POTATOS AT BIRMINGHAM.

THE annual exhibition of Potatos held in connection with the great show of fat cattle at Bingley Hall, Birmingham, took place during the past week. The Potatos here shown are more representative of the products of the farm than of the garden, hence size and cropping qualities are somewhat more important than mere form and quality. The entries were not so numerous as usual, and some of those whose names appeared in the list of exhibitors were conspicuous by their absence, entailing some extra trouble on the managers. The quality of the exhibits themselves was very good and fairly up to the average of former years. The largest and most successful exhibitor was Mr. John Perry, of Acton Pigott, Condover, Shrewsbury, who obtained out of the fourteen classes seven first prizes and several seconds, also the Silver Medal, value 2 gs., for the best dish of Potatos in the show. Potato growing, or, rather, exhibiting like this must be a paying game, and it again shows what can be done by steady perseverance and determination. Some few years ago, when Mr. Perry first exhibited at Bingley Hall, he was unsuccessful, but was advised to try again, and the result, both last year and the present, is success. Mr. Perry's crop during the past year was exceptionally good, the sample very fine, and not much affected by disease. They were grown, we were informed, on farm land, the soil somewhat dry, aided by a specially prepared manure from a French house, and recommended for the purpose by Mr. Badger, the able and indefatigable steward of the exhibition.

In the class for twelve varieties, distinct, the 1st prize of £5, and an extra prize of 5 guineas given by Messrs. Sutton & Sons, Mr. Perry was placed 1st, with International, Trophy, Magnum Bonum, Manhattan, Purple Kidney, Woodstock Kidney, Blanchard, Matchless, Schoolmaster, Bresee's Peerless, and Scotch Blue, all very fine. In the 2d lot, from Mr. Howard, Canterbury, were some very fine Schoolmaster. For eight varieties, including Magnum Bonum, Mr. Perry was again 1st, with similar varieties to preceding; Mr. George Dunkley, Little Houghton, Northampton, being 2d. For six varieties Mr. Perry was again 1st, with Schoolmaster, Early Rose, Red Fluke, Pride of America, Scotch Blue, and Early King; Mr. Finlay, Wroxton Abbey, Banbury, 2d. For two varieties there was very close competition, the 1st prize going to Sir Frederick Smythe, Bart., Acton Burnell, Shrewsbury, with rather large but very fine examples of International Kidney and Vicar of Laleham; Mr. Perry 2d, with Woodstock Kidney and Vicar of Laleham. The class set apart for Ashleaf Kidneys did not contribute anything of merit, nor that for the Lapstone Kidneys either; and Regents or Dalmahoys were positively coarse. What a sorry appearance this Potato always has at an exhibition. The class for Scotch Champions was even superior. Schoolmaster, on the other hand, was represented, as this Potato always is, on the exhibition table by many very fine examples, although the growers of it know full well it is often very coarse and ugly. Mr. Perry was again 1st. In the class for any white-skinned long or kidney-shaped, Magnum Bonum, Woodstock, and International were the most prominent; and amongst the coloured-skinned an American Purple and Trophy. White rounds were represented by Bresee's Prolific and Mammoth Pearl; and coloured rounds by Vicar of Laleham, Grampian, and Radstock Beauty.

The Silver Medal for the best dish of Potatos in the show was awarded to Mr. Perry, for Woodstock Kidney; the other competing varieties for this honour being Schoolmaster, Magnum Bonum, Snowflake, Matchless, and Scotch Blue.

NEW PLANTS CERTIFICATED

AT THE ROYAL BOTANIC SOCIETY'S EXHIBITIONS, 1881.

**** B.C., Botanical Certificate; F.C., Floral Certificate; both being equal to a First-class Certificate.*

Actinopteris radiata var. australis	B. S. Williams, March 30—B.C.
Agave Huntii	Croucher, April 27—B.C.
,, Parryi	Croucher, April 27—B.C.
Amaryllis Cecilia	Veitch, March 30—F.C.
,, Empress of India	Veitch, March 30—F.C.
,, Madame Albani	Veitch, March 30—F.C.
,, Storr's Beauty	Veitch, March 30—F.C.
Anguloa Turneri	B. S. Williams, May 25—B.C.
Anthurium Andréanum	Veitch, March 30—B.C.
,, Kalbreyeri	Veitch, July 6—B.C.
Antigramma brasiliensis	Bull, July 6—B.C.
Aphelandra punctata	Bull, July 6—B.C.
Aralia Chabrieri	Bull, Veitch, May 25—B.C.
,, Kerchoveana	Veitch, April 27—B.C.
Asparagus tenuissimus	Veitch, April 27—B.C.
Asplenium apicidens	B. S. Williams, May 25—B.C.
,, contiguum fissum	B. S. Williams, May 25—B.C.
,, Saundersoni	B. S. Williams, March 30—B.C.
Astilbe Thunbergii	Veitch, May 25—B.C.
Auricula Hilda	Douglas, April 27—F.C.
,, Mrs. W. Brown	Turner, April 27—F.C.
,, (alpine) John Ball	Turner, April 27—F.C.
,, ,, Lizzie	Turner, April 27—F.C.
,, ,, Philip Frost	Turner, April 27—F.C.
Azalea indica Phœbus	Little, May 25—F.C.
,, ,, Roi Leopold alba	Veitch, March 30—F.C.
Begonia Daviesii flore-pleno superba	Veitch, May 25—F.C.
,, Mrs Sheppard	Veitch, May 25—F.C.
Caladium Comtesse de Condeuxa	Laing, July 6—F.C.
,, Fred. Bause	Gen. Hort. Co., April 27—B.C.
,, J. R. Box	Laing, July 6—F.C.
,, Madame Margottin Scheffer	Laing, July 6—F.C.
,, Mithridate	Laing, July 6—F.C.
Carnation Gloire de Nancy	Veitch, July 6—F.C.
,, (tree) Mrs. Maclaren	Turner, May 25—F.C.
,, ,, Mrs. G. Hawtrey	Turner, May 25—F.C.
Cattleya dolosa	Veitch, July 6—B.C.
,, MacMorlandii	Veitch, July 6—B.C.
,, Mendelii superba	Croucher, May 25—B.C.
Clematis George Elliot	Noble, May 25—F.C.
,, W. E. Gladstone	Noble, May 25—F.C.
Cœlogyne cristata alba	Richards, March 30—B.C.
Croton Austinianum	B. S. Williams, May 25—B.C.
,, Baron Frank Selliere	Gen. Hort. Co., July 6—B.C.
,, Bergmanni	Gen. Hort. Co., July 6—B.C.
,, Lady Zetland	B. S. Williams, April 27—B.C.
,, Laingii	Laing, July 6—B.C.
,, Princess of Wales	Veitch, May 25—B.C.
,, rubro lineatus	Veitch, July 6—B.C.
Cyclamen Queen Victoria	Smith, March 30—F.C.
,, Ruby Gem	Little, March 30—F.C.
Cyperus laxus variegatus	Gen. Hort. Co., April 27—B.C.
Davallia elegans polydactyla	Veitch, April 27—B.C.
,, Lorrainei	Bull, July 6—B.C.
,, Mariesii cristata	Veitch, July 6—B.C.
Dieffenbachia insignis	Bull, May 25—B.C.
Dracæna Alexandræ	Gen. Hort. Co., April 27—B.C.
,, Leopoldi	Gen. Hort Co., May 25—B.C.
,, Lindeni	Veitch, April 27—B.C.
,, majestica	Gen. Hort. Co., May 25—B.C.
,, recurva	Gen. Hort. Co., April 27—B.C.
,, Rossii	Gen. Hort. Co., April 27—B.C.
,, salmonea	Gen. Hort. Co., May 25—B.C.
Globba coccinea	Veitch, July 6—B.C.
Gloxinia Brantome	Veitch, May 25—F.C.
,, Christopher Colomb	Veitch, May 25—F.C.
,, Mrs. Abbey	Gen. Hort. Co., May 25—F.C.
,, Mrs. Bause	Gen. Hort. Co., April 27—F.C.
Goniophlebium lachnopus	Veitch, April 27—B.C.
Gymnogramma schizophylla	Veitch, March 30—B.C.
Haworthia Bolleri	Boller, March 30—B.C.
Hedera Helix madeirensis variegata	Osborn, May 25—B.C.
Helliconia aurea striata	Veitch, May 25—B.C.
,, nigra punctata	B. S. Williams, May 25—B.C.
Heliotrope White Lady	Cannell, July 6—F.C.
Hyacinth Magnificence	Veitch, March 30—F.C.
,, Primrose Perfection	Veitch, March 30—F.C.
Kæmpferia Gilberti	Bull, July 6—B.C.
Kennia costata	B. S. Williams, May 25—B.C.
Lælia Dominiana rosea	Veitch, July 6—B.C.
,, harpophylla	B. S. Williams, Mar. 30—B.C.
Lastrea membranifolia	B. S. Williams, May 25—B.C.
Lilium Parryi	Bull, July 6—B.C.
Mammillaria Caput-Medusæ	Boller, March 30—B.C.
Masdevallia Harryana atrosanguinea	Bull, July 6—B.C.
Microstylis metallica	Bull, May 25—B.C.
Narcissus Pseudo-Narcissus plenus albo-aureus	Barr & Sugden, Mar. 30—F.C.
Nepenthes superba	Gen. Hort. Co., May 25—B.C.
Odontoglossum Alexandræ giganteum	B. S. Williams, May 25—B.C.
,, crispum grandiflorum	Croucher, April 27—B.C.
,, Pescatorei grandiflorum	Veitch, March 30—B.C.
,, polyxanthum	Bull and B. S. Williams, May 25—B.C.
,, vexillarium giganteum	Croucher, July 6—B.C.
,, ,, rubrum	Bull, July 6—B.C.
Pelargonium (decorative) Annie Hemsley	Little, July 6—F.C.
,, ,, Bridesmaid	Little, May 25—F.C.
,, ,, Decoration	Little, May 25—F.C.
,, ,, Lucy Lemoine	Little, July 6—F.C.
,, ,, Madame Thibaut	Little, July 6—F.C.
,, (Ivy-leaved) Lemoinei	Little, July 6—F.C.
,, (show) Britomart	Little, July 6—F.C.
,, ,, Christobel	Little, July 6—F.C.
,, ,, Formosum	Little, July 6—F.C.
,, ,, Sunbeam	Turner, July 6—F.C.
Phalænopsis violacea	Veitch, July 6—B.C.
Philodendron elegans	B. S. Williams, April 27—B.C.
,, Wallisii	Gen. Hort. Co., April 27—B.C.
Pleopeltis albo-squamata	Veitch, May 25—B.C.
Pteris tremula var. crispa	Gen. Hort. Co., May 25—B.C.
Reseda odorata flore-pleno prolifera aurea	Balchin, May 25—F.C.
Rhododendron Daviesii	Davies, May 25—F.C.
,, exoniensis	R. J. Veitch, April 27—F.C.
,, Lady Alice Fitzwilliam	Fisher & Co., April 27—F.C.
Rhodea japonica aureo variegata	Gen. Hort. Co., April 27—B.C.
Ribes alpinum pumilum aureum	Osborn, May 25—B.C.
Rose Ferdinand Chaffolte	Paul & Son, April 27—F.C.
Saccolabium Hendersoni	Veitch, July 6—B.C.
Sarracenia flava erythropus	Bull, July 6—B.C.
,, flava limbata	Bull, July 6—B.C.
Schizanthoglottis crispata	Veitch, May 25—B.C.
Utricularia Endresii	Veitch, July 6—B.C.
Yucca Peacockii	Croucher, April 27—B.C.

A SYNOPSIS OF THE GENUS CROCUS.

BY GEORGE MAW, F.L.S., &c.

Section II. FIBRO-MEMBRANACEI: *continued from p. 623.*

53. ‡ †*C. Olivieri*, Gay; C. Aucheri, Boiss. (?); C. lageneæflorus; var. *Olivierianus*, Herbert.—Corm from ½—¾ inch broad, and about ½ inch high, nearly spherical; tunic membranous, with narrow, flat, parallel fibres towards the base. Basal tunic of flat, radiating fibres. Sheathing leaves falling short of the proper spathe, and containing one or two scapes. Proper leaves appearing with and reaching to the level of the flowers, exceptionally broad, ⅛ inch wide, keel very narrow, and with the margins of the blade ciliated. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat glabrous; segments bright orange, obtuse, from 1—1¼ inch long, and about ⅜ inch broad. Anthers orange, about twice the length of the papillose, orange filament; the style dividing near the throat, and produced into about six divisions of the capillary yellow stigmata, which scarcely reach the level of the summit of the anthers.

A native of Greece and the Cyclades, flowering in February and March, and said to have a considerable range of altitude. There is some doubt as to the synonymy of this species, and also as to whether it extends into Asia Minor. Mr. Baker does not hesitate to identify Boissier's C. Aucheri with Gay's C. Olivieri, and tells me that C. Aucheri was founded on Aucher-Eloy's specimen 5349 from Guenivè, in Asia Minor, identical with Gay's original specimen of C. Olivieri, from Scio, and he identifies it with specimens from Argolis, collected by Spruner. I believe that M. Boissier considers that the broad leaved C. Olivieri of Gay is limited to Europe, and that the narrow-leaved allied species from Asia Minor, described by Herbert as C. Suterianus, is his C. Aucheri. I think it is clear that there are but two species included by the three names, and I prefer to leave the question of synonymy *sub judice* for the present. I have no hesitation in viewing the plant I have in cultivation, from several localities in Asia Minor, as a species distinct from the Greek plant, grown in English gardens under the names of C. Olivieri and C. Aucheri.

54. ‡†*C. candidus*. Clarke; C. lageneæflorus, var. candidus, Herbert; C. Kirkii, Maw. — Corm globose, about ⅔ or ¾ inch broad, and ⅔ inch high; the tunic, resembling that of C. aureus, membranous, with vertical, narrow, fibroid divisions, which are united at the apex into parcels of three or four; basal tunic of fibroid flat rays. Sheathing leaves falling short of the proper spathes, enclosing several scapes. Proper leaves appearing with and just reaching to the flowers, produced at maturity to a length of 18 or 20 inches, ¼ inch wide, keel very narrow, the margins of the keel and blade ciliated. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat yellow, glabrous; segments from 1—1¼ inch long, white, yellowish towards the base, the outer surface of the outer segments occasionally suffused with purple, or feathered with purple. Anthers orange, about equalling the yellow filament; the style dividing at the base of the anthers, and produced into about a dozen capillary sub-divisions of the cream-coloured stigmata, which are on a level with the summit of the anthers.

A native of the Troad, flowering in March, where it was discovered by Dr. Clarke the traveller, in the year 1806. Clarke's specimens had, however, been lost sight of till the autumn of 1879, when I had the good fortune to find them (without a name, and merely labelled "Troas") in the Webb Herbarium at Florence, but unquestionably the plant described in a foot-note at p. 145, vol. ii., of *Clarke's Travels*. In the spring of the same year I had met with specimens in the Edinburgh Herbarium, collected by Dr. Kirk, in March and April, 1856, near Renkioi, Dardenelles, which I then believed was a new species, and described it in the *Gardeners' Chronicle* as C. Kirkii; Boissier having erroneously identified Clarke's C. candidus with Gay's C. Fleischeri. The corm and foliage show it to be a near ally of C. aureus, but the finely divided capillary stigmata and the colour of the flowers readily distinguish it from that species.

55. ‡†*C. aureus*, Sibthorpe and Smith; C. mæsiacus, Ker; C. lageneæflorus, Haworth, Herbert, and Sabine.—Corm oblate, 1 inch broad and ¾ inch high; tunic membranous, with vertical, narrow, fibroid divisions, splitting up from the base. Sheathing leaves enclosing several scapes, and falling short of the proper spathe. Proper leaves appearing with the flowers, and produced at maturity to 1 foot in length, ⅛ inch wide, the keel very narrow with ciliated margins. Proper spathe generally diphyllous, reaching nearly to the throat, consisting of a tubular valve, and a very narrow ligulate valve, which is sometimes wanting. Perianth: bright orange, the throat glabrous; the segments about 1½ inch long, and ½ inch broad; the outer segments, which are occasionally marked with a few grey lines towards the base, are a little longer than the inner segments. Anther hastate, tapering upwards, and divergent from the summit of the yellow papillose filament, which is about half as long as the anther; the yellow style dividing at the level of the middle of the anther, and immediately produced into yellow stigmata, the separation of which is generally obscure. The stigmata in the type plant are always lower than the summit of the anthers, and are occasionally orange in colour. The capsule closely enveloped by the remains of the proper spathe. Seed crimson, with a shining surface, hairy; the chalaza, raphe, and caruncula very prominent, delicate rose coloured, and also covered with marginal hairs.

C. aureus is a native of Western Bithynia, Greece European Turkey, the Banat, and Transylvania generally occurring at low elevations, and flowering in February.

It was one of the first species introduced to cultivation, and is the parent of our yellow garden or "Dutch yellow" crocus, and of a number of old horticultural varieties—lacteus, sulphureus, sulphureus pallidus, sulphureus striatus, &c.—the history of which is unknown; they are not known to occur in a wild state and are all sterile.

56. ‡†*C. Korolkowi*, new species, Regel and Maw.—Corm about ¾ inch in width and height; tunic membranous, with an intermixture of true parallel fibres tending to a reticulated structure. Sheathing leaves falling short of the proper spathe, and enclosing several scapes. Proper leaves from eight to twelve in a corm, reaching nearly to the throat at the flowering time, $\frac{1}{10}$ inch wide, the margins irregularly ciliated, reflected over the narrow lateral channel and approaching the keel, which is more than half the width of the blade. Proper spathe of one or two membranous valves. Perianth: throat apparently unbearded; segments orange, the three outer divisions externally suffused with brown, ⅝ inch long and ¼ inch broad, the inner a little shorter than the outer segments. Anthers orange, $\frac{5}{12}$ inch long, oblong, scarcely tapering and not divergent, as in C. aureus; the style dividing at the level of the middle of the anthers, and shortly produced into entire orange stigmata, which scarcely reach to the level of the anthers. Capsule and seed unknown.

C. Korolkowi is generally distributed between 40° and 45° N. lat., and 67° and 71° E. long., around Samarkand and in Western Turkistan. The occurrence of this species so far east is of great interest—no orange Crocus has before been found east of the borders of the Black Sea, distant 1300 miles west of Samarkand—and its habitat is intermediate between the West Caspian district and the Ala Tau Mountains in Central Asia, the home of C. alatavicus. These discoveries open up an immense region hitherto so little explored, in which more species of the genus may yet be met with. C. Korolkowi has the aspect of a vernal species, though no record of the date of collection accompanies the specimens. I received them last year from Dr. Regel under the name of C. aureus, Sib. and Smith, and at his request described the species in the seventh *fasciculus* of his *Descriptiones*, p. 213.

(*To be continued.*)

NEW ROSES.

PROBABLY there is no case wherein the proverbial difference between promise and performance is more conspicuous than in the descriptions given of new Roses, and the appearance of those Roses when they are brought into the full blaze of public exhibition and general criticism; there is always a desire on the part of Rose growers, whether they are exhibitors or not, to ascertain what of novelty, combined with excellence, the year may produce, and although already there are Roses which it seems well-nigh impossible to excel, yet those who grow their Marie Baumanns, Charles Lefebvres, Duke of Edinburghs Maréchal Niels, Devoniensis, Marie van Houttes, &c., when they begin to talk about Roses are sure amongst their first questions to ask, Is there anything

new? This craving for novelty, this desire to possess something better than what we already have, or, at any rate, something distinct, has been for a number of years very carefully attended to by our neighbours across the Channel, and every year has seen a formidable array of names with descriptions in which well-nigh every eulogistic adjective of the French language has been employed. Formerly our nurserymen used to rush very boldly into the race for these novelties, but so often were they doomed to disappointment that more caution was exercised, and as some of our English growers began to raise seedlings, which were supposed, at any rate, to equal some of those raised in France, this caution was the more easily exercised; still the supply from abroad does not cease, and every now and then a veritable Koh-i-noor is found. It might seem almost impossible to rival such a flower as Marie Baumann, but a most formidable one has appeared within the last three or four years in Alfred K. Williams, and while old Rose growers are unwilling to cede the place occupied by the older flower, yet we must remember that there are various types of Roses, and the imbricated form of Alfred K. Williams is to many more pleasing than the semi-globular one of Marie Baumann. It has been, indeed, objected by one of themselves that the English nurserymen are falling into the same groove as the French—are sending out Roses with the most glowing descriptions which are either not equal to those descriptions or else bear a very striking similarity to those which are already in existence, and that therefore in the course of a few years they are quite in the background.

There have been recently published in two of your contemporaries two lists which will be most valuable to Rose growers, and which throw some considerable light on the subject I am now dwelling upon: one is the list of the Roses "sent out during the last fifty years," by Mr. Shirley Hibberd, in the *Gardeners' Magazine*, and the "Election of Roses," by Mr. Hinton, of Warminster, in the *Journal of Horticulture*. In both of these the raiser's name and the date of introduction are given, and all are thus enabled to see the proportion which recent Roses bear to the older varieties, and also the English to the French. In the former list we find that nearly 1400 Roses have been sent into commerce during the last fifty years, and although I have not been able to go into the list carefully, I believe that it will be found that more than one-half of these have been introduced within the last twenty years; but the Election of Roses is still more remarkable in its teachings. These lists were sent in by sixty-seven persons: of these, we are told, twenty were nurserymen and the remainder amateurs, most of whom, in both sections, are well known to fame as Rose growers and Rose exhibitors; about ninety names of Roses are given, and of these only fourteen are of an older date than 1871, while some date so far back as 1838 and 1844. Take again the English-raised Roses—in the first twenty-five I find but one, Duke of Edinburgh, sent out by Messrs. Paul & Son, of Cheshunt, in 1868; in the next twenty-four there are only five more of English-raised Roses, and of these one, Beauty of Waltham, was sent out nearly twenty years ago; another, Devoniensis, in 1838, forty-three years ago; a third, John Hopper (Ward), in 1862, nearly twenty years; Reynolds Hole (Paul & Son); the other two being Star of Waltham (W. Paul & Son), in 1875, and Sir G. Wolseley (which is by many considered only a synonym for Ferdinand de Lesseps, and his two too-much-alike comrades, Maurice Bernardin and Exposition de Bric. In an election like this, the very new Roses can hardly be expected to find a place, but in giving this, the catalogues of Roses, say of the last three years, it is astonishing how few of the newer kinds remain either fixed in our memory as of surpassing excellence, or are likely to have an enduring place in our gardens. Another remarkable fact is, that not one Hybrid Tea Rose, whether of English or French origin, is found in the list. Even Cheshunt Hybrid, which as a garden Rose is so much appreciated, is found deficient in colour and form as an exhibition Rose; and is hence, I imagine, excluded from the best ninety Roses. It may be asked then, what has the season of 1881 done for us in the way of new Roses? I think the reply must be, Very little indeed. Can any one recollect a season when fewer of the new French varieties were exhibited; and is here one of them concerning which anything more than hopefulness can be expressed?—while of English-raised Roses I can only recall to mind two new ones, which are likely to be of any value as exhibition Roses—Mrs. Gretton (Cranston), and Sir Evelyn Wood (Cant). The following notes refer, then, not to the very recent Roses, but to those which may nevertheless be characterised as new Roses:—

A. K. Williams.—Sent out by Schwartz, of Lyons, in 1877, and said by him to have been raised as a chance seedling by one of his men. It is hardly possible to overrate the beauty of this Rose in form, size, and colour; it leaves nothing to be desired in that section of Roses possessing an imbricated form. With many it will be preferred to Alfred Colomb and Marie Baumann.

Madame Gabriel Linget.—Sent out by Liabaud in the same year. A most lovely Rose, of an exquisite shade of pink, but, as far as I have seen, not of so strong a constitution as one would wish.

These two Roses I believe to be the greatest acquisitions of the French growers during the past four years.

Jules Finger (Lacharme), 1879.—A soft peach, very lightly shaded, very much in the style of Captain Christy, which it is likely to supersede, as it does not when open show such a confused form as that flower assumes.

Gloire de Bourg la Reine (Margottin père), 1879.—Very brilliant in colour, but deficient in fulness; and, unless it improves in this respect, very unlikely to be useful as an exhibition flower.

Catharine Soupert (Lacharme), 1879.—Soft peach colour, large and good in form, vigorous in habit.

Comtesse de Mortmarte (Margottin Fils) 1879.—In some catalogues named Comte Montmarte, but not to be confounded with Marquise de Mortmarte; fine clear rose, having the imbricated shape of Centifolia.

Egeria (Schwatz), 1878.—A light rose, very much in the style of Princess Mary of Cambridge, but of better constitution.

Wilhelm Kölle (Pernet), 1878.—Much was at one time thought of this Rose, but it is so like Alfred Colomb in shape, colour, and habit, as to give some colour to the allegation that some of the French raisers are buying up old Roses with new names.

Louis Doré (Fontaine).—A bright and pleasing flower, but its position as an exhibition Rose somewhat doubtful.

Madame Lambard (Lacharme), 1877.—A most lovely Tea, and of a most varying colour, sometimes bright rose, sometimes of a beautiful salmon and copper colour, and of fine habit.

Madame Angèle Jacques (Guillot), 1879.—A Tea Rose, like the preceding, very varying in colour—yellowish-white shaded with rose, and lighter on the edges, but, I hear, somewhat inconstant. These two Teas I regard as the best that have been as yet seen of the new varieties of this charming class.

I come to the English-raised Roses; these we have better opportunity of seeing, but at the same time there is the greater difficulty in speaking of their merits, for it is proverbially difficult for parents to see the defects in their own children, and they are oftentimes tetchy on this point.

Julius Finger (1879).—Tea. Great confusion exists as to this and the H.P. of the same name, as to whether one or both should be Jules or Julius, and if so, which. It is a fine Rose, soft peach with light shading.

Mrs. Jowitt (Cranston & Co.), 1880.—Raised, I believe, in the North, but sent out by the Cranston Company. A very brilliant Rose, somewhat in the style of Marie Rady, but brighter in colour; very robust in habit and very fragrant.

Harrison Weir (Turner), 1879.—Rich velvety crimson and scarlet; flowers large, of good substance, and very fragrant. When better known will be much valued.

Duke of Teck (Paul & Son), 1880.—One of the brightest Roses we have, bearing some analogy to Duke of Edinburgh, better form and freer habit, bold and upright growth. As near a scarlet Rose as can well be.

Brightness of Cheshunt (Paul & Son), 1880.—A very high-coloured bright red, too small for exhibition except as a front row flower, but a good garden Rose.

Duchess of Bedford (William Paul & Son), 1879.—Bright light crimson Rose, globular form; raised by Mr. Postans, and sent out by this well-known firm.

Countess of Rosebery (Wm. Paul & Son), 1879.—Soft carmine-rose, very bright and fresh, large and finely shaped. Another of Mr. Postans' seedlings.

Mrs. Harry Turner (Turner), 1880.—Dazzling crimson-scarlet, rich maroon shading; very free flowering, and as a garden Rose very excellent.

Marquis of Salisbury (Paul & Son), 1879.—Very deep rose, with carmine shading; free blooming, especially in autumn.

Dr. Sewell (Turner), 1879.—Light purplish crimson, good cupped form; blooms well and freely in autumn.

George Baker (Paul & Son), 1880.—Lake, shaded with cerise; incurved globular flower; full, somewhat like Dupuy Jamin—no small recommendation.

Other new Roses of English origin are announced, but little has been seen of them, and therefore it would be unwise to form any opinion on their merits. It will be seen that the English-raised Roses all run upon the darker coloured flowers—we have nothing of the lighter colour amongst them; and doubtless this more falls in with our English tastes, and indeed with the character of our climate, which brings out the darker colours, while it is too often fatal to the purity and freshness of the lighter flowers: we can much more often depend on having a good Charles Lefebvre, Xavier Olibo, or Camille de Rohan, than a Countess de Serenye, Madame Lacharme, or Madame Noman. That there is still a large field open for success in new varieties is evident, but it is a pity that some new departure cannot be made and that Rose growers should continue so much in the same groove. *Wild Rose.*

THE KEW ARBORETUM.

The Maples.

(*Continued from p. 590.*)

Acer creticum, L.; Loudon, *Encyclop. of Trees and Shrubs*, fig. 142, p. 94, and fig. 163, p. 121; Boissier, *Flora Orientalis*, vol. i., p. 950; Gordon, in the *Garden*, vol. iii., p. 143 (with figure). A. orientale, Tournef., Koch, *Dendrologie*, theil i., p. 540. A. trilobatum, Hort.—Asia Minor.

In most gardens there exists much confusion respecting this plant. Not only is the name "creticum" indiscriminately applied to the little Acer heterophyllum—which although in all probability coming under creticum botanically is for all practical arboricultural purposes abundantly distinct—but also to monspessulanum. The smooth, dark glossy green, short-stalked leaves are of various outlines, generally more or less bluntly three-lobed. The greenish-yellow flowers are produced in terminal corymbs, and the wings of the samaræ are parallel. According to Gordon, probably the finest specimen of this Maple is the one at Syon House, for the following measurements of which I am indebted to Mr. Woodbridge:—Circumference of stem at 2 feet from ground, 3 feet; height of ditto, 3 feet; total height of tree, 32 feet; spread of branches, 49 feet one way 46 feet the other. This tree flowers and fruits abundantly at Syon House, but seeds, it appears, are never ripened there. It would be interesting to learn if such is the case elsewhere in Britain. A. creticum was first introduced to this country in 1752.

Acer heterophyllum, Willd., *Berlinische Baumzucht*, p. 10, tab. 1; Gordon, the *Garden*, vol. ii., p. 283 (with figure). A. creticum, L., var. cuneatum, Spach, Boiss., *Flora Orientalis*, vol. i., p. 951. A. creticum, Hort. (in part). A. sempervirens, Hort. A. microphyllum, Hort.

A much branched round spreading bush, with a tendency like creticum to retain its leaves during mild winters. I have seen this plant grown in company with A. creticum under widely different conditions, but the two, as far as my experience goes, always retain their distinctive peculiarities. The present plant has much smaller, toothed, subsessile, coriaceous, smooth, green leaves, with the young shoots reddish, and minute brown ovate buds. The Kew specimen never flowers, and Mr. Lynch writes me that the Cambridge one, which is 5 feet high, has not, as far as he can ascertain, ever flowered. In the herbarium of the British Museum is a specimen from Roemer and Schultz, with "*Ne fleurit point*" written on label. The lower figure on p. 121 of *Loudon's Encyclopædia of Trees and Shrubs* (prepared "from a young plant in garden of London Horticultural Society") is exactly identical with both the Kew and Cambrige plants, both of which are old ones.

Acer laetum, C. A. Mey.; Boissier, *Flora Orientalis*, tome i., p. 949.—Native of the Caucasus.

This species differs from the Norway Maple (A. platanoides) in the entire lobes of the leaves, in the smaller samaræ, &c. It is often confounded with A. Lobelii, Ten., but differs from that species in its compound corymbs, narrower sepals and petals, and samaræ with horizontal wings.

Acer Visiani, Nyman, *Conspectus Floræ Europeæ*, i., p. 135. A. macropterum, Vis., *Plantarum Serbicarum Pemptas* p. 2, tab. vi. (non Guss.).—Servia.

A handsome Maple, which, it is to be hoped, will ere long find its way into this country. It belongs to the Pseudo-platanus group, has striking foliage, somewhat like that of A. Heldreichi already figured in these column, and large fruits with bright red wings, nearly 2 inches in length, and more than ¾ inch broad.

(*To be continued.*)

FRUIT NOTES.

The Profits of Fruit Growing.—As you kindly invite growers of fruit to give their experience, I give a brief description of how matters stand at the present time after a year of abundant crops and in a locality where fruit-growing is a leading industry. It is evident your correspondent, a "Victim to Pomona," is in the dark in the first rudiments of how to make fruit pay, for I will guarantee that ninety-nine out of every hundred of fruit growers in this locality will tell him that he will never make such varieties as he mentions pay as market fruits by the bushel; they are very good for private gardens on walls or as trained trees on trellises, but there are so many better that I believe no one who knew their business would accept at a gift of two out of three of the sorts mentioned. Your correspondent gives figures to support his argument; I therefore send three invoices as a sample from many hundreds as to what the prevailing price of real market Pears, such as Williams' Bon Chrétien, Crasanne, and Marie Louise and similar sorts has been in the Borough Market during the present season, for we do not find it pay to lose a bushel by rotting for every bushel sent to market, and you will observe that, packed and sent from under the tree, they all realised more money than the sorts your correspondent has stored and lost half in the operation. I could quote well-known growers here who would tell your correspondent where the fault rests, for the surprise that I have heard freely expressed has been, considering the quantity of fruit of all kinds grown, that it sold so well during the past season. But we must all admire the real British pluck that has kept this "Victim to Pomona" going on living by the loss for twenty-four out of twenty-five years, for he has not the solitary comfort that the salesmen have had his profits, for he was his own salesman and carrier too. I am afraid in this part we are a very prosaic lot of people, for if it did not pay it would be given up in half the time. There are plenty of grievances requiring redress, not only with the land and its heavy burden of rates, &c., but also in getting cheaper transit and more ample market accommodation, but we do not improve our chance of getting one or the other by exaggerated statements, and it is no proof that fruit growing does not pay because some have failed to make it do so by their method of procedure. Let me tell this "Victim to Pomona" that the growers that I know make the business pay. They have a telegram down most mornings in the busy season of gathering, and regulate what they will send by the prices current in the market; and it is the universal opinion that fruit culture for market is only in its infancy, and that the demand will increase to dimensions never dreamed of in the good old days, when fruit was a luxury only to be enjoyed by the favoured few. It must become more and more an article of daily food and a necessity of our existence, and there can be no question but that the middle and working classes will use fruit in any quantity as soon as it can be sold at a price within their reach; but, as you have wisely observed in leading articles on fruits, &c., there must be a great change in the market and rail charges, and growers must bring more brains, as well as more money, into their calling before they make it pay. *Pomona, Kent.*

[The invoices received may be quoted as follows—

Sept. 1.—9 bushels of Williams' Pears, £2 14s. 6d.; less railway and commission charges, 8s. 6d.	£2	5	6
,, 3.—15 bushels of Williams' Pears, £3 18s. 9d.; less railway and commission charges, 14s. 5d.	3	4	4
Oct. 1.—33 half-bushels of Crasanne Pears, £4 2s. 6d.; and 7 half-bushels of Marie Louise Pears, 19s. 3d.; less railway and commission charges, £1	4	1	9

We have excised a portion of "Pomona's" letter, in which he draws certain inferences from the remarks made by "A Victim to Pomona," but which we are sure the latter never intended them to bear, and therefore it would serve no useful purpose to point them out. EDS.]

Apple The King of the Pippins or Golden Winter Pearmain.—There are not many Apples so well known to the general public as the highly popular, handsome, and withal excellent dessert fruit that is generally known under this name, and yet the confusion about the name is perhaps greater than that about any other variety grown. The well known and popular King of the Pippins Apple of the London markets and London nurseries, &c., is not the King of the Pippins Apple of our greatest pomologist. The variety described by Dr. Hogg in the *Fruit Manual* as being "the original and true King of the Pippins" is a very different fruit, and described as "one of the richest flavoured, early dessert Apples, and unequalled by any other variety of the same season. It is ripe in the end of August and beginning of September." The false but popular King of the Pippins Apple is not in season until October, and lasts from October to Christmas, and it cannot by any stretch be called richly flavoured. Having thus far made out negatively what it is not, it remains to be proved what it is. The *Fruit Manual* says, "King of the Pippins—see Golden Winter Pearmain," and there under this name we have a very correct and excellent description of the popular King of the Pippins Apple under notice. Thompson used to call it the English Winter Gold Pearmain, but always mentioned it as a synonym of King of the Pippins. Admitting Golden Winter Pearmain as correct—and it is so—it is very liable to confusion with Golden Pearmain; the names are very similar, and, what is more, the fruits—at least many of the fruits—are very much alike. The description of the Golden Pearmain in the *Fruit Manual* is very correct. It is altogether an inferior Apple in appearance, is greener and coarser, and in most of the fruits the peculiar oblique insertion of the stalk and the fleshy protuberance on one side of it, with scarcely any cavity, &c., is very distinctive, but the eye is large and open, like the King of the Pippins, and there are not wanting examples in both varieties that would puzzle any one to tell which was which. In individual specimens and in the mass the distinction betwixt one variety of fruit and another may be quite decided, whilst other examples are almost identical. As a fact, we have noticed at exhibitions during the present season examples of Golden Pearmain under the name of King of the Pippins, and it has been often remarked the extraordinary diversity of the examples of this well-known Apple that are to be met with. This may be partly owing to admixture with this worthless Golden Pearmain or to its own well-known variable character, for in many parts the King of the Pippins is considered to be of very fine quality; in others it is found chippy, dry, and tasteless, and we have further noted to-day that here the larger fruits are sweet, and fine in quality, and of tender flesh, whilst the smaller are acid and hard and inferior. It would be interesting to trace, if it could be done, the history of this Apple, and to ascertain how the name got misapplied; and it is to be hoped that in all future fruit lists the now popular name, King of the Pippins, may be adopted. At Hereford, famed for pomological lore, it is grown under the name of Seek-no-Further; but this is evidently wrong, if we are to accept the authority of Dr. Hogg, the Seek-no-Further of the *Fruit Manual* being an entirely different fruit. Messrs. Cranston, of Hereford, have also an Apple named Princes Pippin, which is stated to be of different quality, but which appears identical. In France it is known as Reinette de Versailles, and in this country many other synonyms are applied, but it is always recognised as King of the Pippins. The King of the Pippins and Seek-no-Further of the *Fruit Manual* are unknown to us, and we do not observe their names in any fruit catalogue. *A. F. B.*

Gros Colmar Grape.—I think we are now beginning to find out the treatment best suited for this noble Grape. Certainly it was never seen in such generally fine condition as it is this year. Probably early starting and early maturing is the secret. In a note I saw the other day from an old, extensive, and well-known Covent Garden salesman, he stated that the Gros Colmar Grapes now being sent from Clovenfords were the finest Grapes that he had ever seen in that market. The Messrs. Thomson devote much space to it, and it is satisfactory to know that it is doing so well in their hands. *M.*

Pearson's Golden Queen Grape.—I cannot understand your correspondent "J. S." condemning this Grape by saying that at its best it is only third-rate in flavour, and at the same time admitting, as he does in last week's Fruit Notes, that he has not given it a fair trial. I am not at all surprised at its being so, with the treatment he has given it. I should be very sorry to condemn a Grape, or anything else, without giving it an honest and fair trial. What he intends to infer by saying that I must have got my Grapes "mixed up," I do not know; but I know this, that I have Golden Queen "true," and Muscat of Alexandria also, and as good in flavour as it usually is. I should not for one moment think of putting Golden Queen in competition with Muscat of Alexandria; although as regards appearance, it is quite able to hold its own; and I still adhere to every word I have said in its favour, and maintain that, taking it in all its points, it is, with me, the next best white Grape to a Muscat, and quite second-class as regards flavour. *J. Wallis, Keele Gardens.*

—— Your correspondent, "J. S.," seems to question the statement of Mr. Wallis regarding the Golden Queen Grape; I beg to endorse all that Mr. Wallis has said in its favour, having seen it, moreover tasted it, two consecutive years in the month of August, when it has been all that one could wish as regards flavour and finish. The bunches were not so large as are generally seen, but I believe Mr. Wallis takes the point of the bunch off when the Grapes are thinned, which gives the bunch a close compact growth, and at the same time keeps the foliage thin. "J. S." may rest assured it is Golden Queen, as I have been acquainted with the Grape from the time the parent bore the first bunch in the Chilwell Nursery, where it is still well grown, but does not get the finish as at Keele. *Henry Gadd, Wollaton Hall, Nottingham.*

Good Pears for a Northern Climate.—Really good Pears are not very numerous in the cold parts of North Yorkshire, especially in cold sunless seasons like the last three; and when one or more comes to the front that is not much known or grown in this cold part, they should be made known. I have before pointed out in your columns that Doyenné du Comice was one well deserving of culture in the North; I still maintain that opinion, as some grown here this season have been very fine and good in quality. I have found Conseiller de la Cour to be a fine autumn Pear for this damp cold climate; grown on a wall facing the east it proved to be excellent in quality. Brockworth Park Pear, growing here on an espalier, grafted on the Quince, has proved to be very good, and deserves a place in our cold climate; it is a good bearer. Beurré Sterckmans, after three or four years' trial, I find to be not worth growing, except for stewing. *William Culverwell, Thorpe Perrow.*

On Nectarines.—Perhaps there is no kind of fruit more generally appreciated on account of its flavour than is a good Nectarine; indeed, the best varieties, where well grown, are amongst the most delicious of all fruits, and have, I think, in this respect a decided advantage over their near relative, the Peach. The latter is, however, the most extensively cultivated, owing, no doubt, to its superiority in point of size, and consequently appearance in the dessert. It has likewise had the most attention from raisers of new fruits, that is, if the greater number of varieties enumerated in catalogues is a criterion. But the Nectarine has also had attention from raisers, and several good kinds have of recent years been added to our lists of sorts; perhaps the most useful of these is Lord Napier, a handsome early one, which is quickly winning its way into favour, and which will doubtless become the most popular variety for early forcing. I was lately told by a well-known successful fruit grower and judge that he should not be satisfied until he had one or more full grown trees of it in each of his several houses that are devoted to Peach and Nectarine culture. I look upon this as sufficient proof of its great excellence. Two other excellent although later kinds than Lord Napier, raised of late years, are Humboldt and Pine-apple—seedlings, I believe, from that grand old variety Pitmaston Orange, which they greatly resemble; they both possess exquisite flavour, as do most of the yellow-fleshed kinds, and are very handsome, the large fruits of the former being particularly so, and its rich colour cannot be well surpassed. It is a moderately strong grower and free bearer, and ripens about a week later, and is more hardy than Pitmaston Orange, which it may on that account supersede. The Victoria is another handsome Nectarine, it is late, and is said to deserve a place in all collections; but we have had no experience in growing it. The Prince of Wales is the latest kind we have; but it is not a favourite here, for its flavour with us is not first-rate, in fact it is extremely acid when grown in an unheated house. It might be better if assisted with a little artificial heat; its fruit is large, but not handsome, for although it has a bright cheek next the sun, the unexposed portion is pale green in colour, and not at all tempting, for it looks quite as sour as it is. *Thos. Coomber, Hendre Gardens, Monmouth.*

DISEASE OF CARNATIONS.

THE accompanying illustration (fig. 145) is an attempt to show the nature of the disease of Carnations adverted to by the Rev. M. J. Berkeley in the *Gardeners' Chronicle* for November 19, 1881, p. 662. The plant illustrated at A is one of the examples forwarded by Mr. Thomas Moore to Mr. Berkeley, and by Mr. Berkeley to me with a request that I would illustrate and describe it. The disease is caused by the presence of a nematoid worm belonging to the genus Tylenchus, as stated by Mr. Berkeley; and as it is to this gentleman that we are almost entirely indebted for our knowledge of nematoids in plants it is not without some hesitation that I accept the Bow of Ulysses, though in this instance proferred by Ulysses himself. When Mr. Berkeley first wrote on this subject his statements did not receive the attention they deserved, for, as is usually the case, some people could not and others would not see the nematoids. The symptoms of this disease in Carnations are manifested by large whitish or livid patches on the leaves, chiefly at and near the collar or crown of the plant, as shown in the figure: at times these patches are higher up on the leaves. When a leaf is cut transversely through one of the livid spots and magnified ten diameters the cuticle is seen to be more or less disengaged from the cellular tissue on both sides of the leaf, as at B. If a good section is selected, the worms will be seen amongst the intercellular spaces of the substance of the leaf, as illustrated, and in some instances the eggs of the worms will be seen just within the skin, as shown at B. In the specimen illustrated the majority of the eggs were in the collar of the plant, near the root. At D is seen a fragment of the diseased Carnation leaf magnified 80 diameters, with the worms still within their eggs, emerging from them, and quite free: the worms are seen coiled up within the semi-transparent eggs at the bottom of the illustration at D, the common cells of the plant are seen on the right and left, with vessels belonging to one of the leaf veins at E

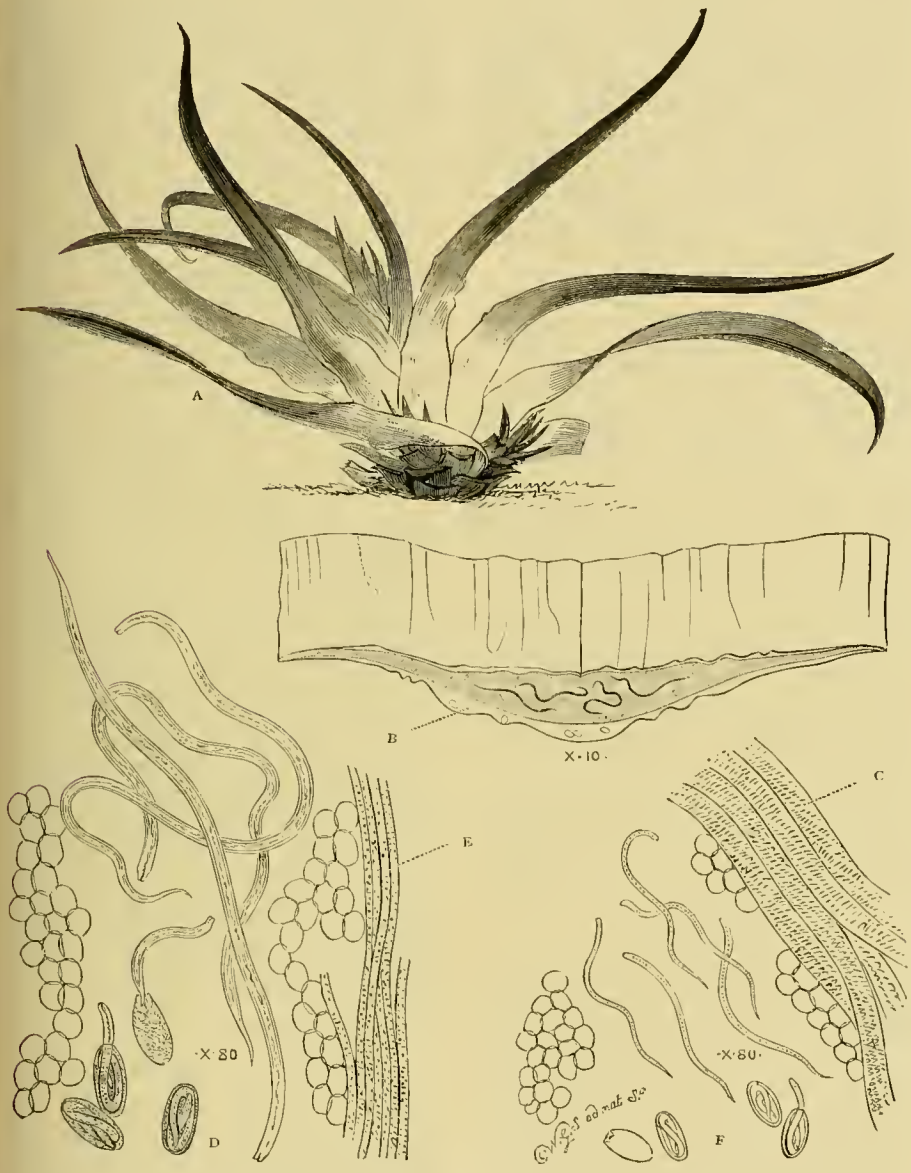

FIG. 145.—DISEASE OF CARNATIONS. (FOR REFERENCES SEE TEXT.)

One of the first things that struck me in the examination of these worms was their large size in comparison with the minute nematoids belonging to diseased Cucumbers as originally described and illustrated many years ago by Mr. Berkeley, in the *Gardeners' Chronicle*. On referring to my own drawings of the nematoids of Cucumbers I found the difference in size very striking, and for the sake of comparison I have engraved the nematoids of Cucumbers at F to the same scale of those from the Carnation at D, the eggs and worms belonging to the Cucumber are seen in the middle of the illustration at F, the cellular tissue of the plant at right and left, and a group of vessels at C. Whether this difference in size is permanent, or whether it is of specific or of any importance I cannot say. The worms are no doubt (as suggested by Mr. Berkeley) derived from the soil. In this instance they appear to attack the collar of the plant, and at this position get inside; here they lay their eggs, which, when hatched, produce other worms, and these different generations of nematoids eat their way upwards inside the leaves, and their presence of course causes the dead and livid patches. Few plants can survive such serious injuries, for it is by the leaves that to a great extent plants are able to carry on their existence. Burning the plants is generally recommended as the only means for the extirpation of the nematoids, and no doubt this is the best plan with already ruined plants; but if the worms are first of all in the soil (as no doubt they are), one would think they could be easily reached by some slightly corrosive dressing. The worms (as seen under the microscope) are very readily destroyed by the application of caustic materials. *W. G. Smith.*

COLONIAL NOTES.

NEW ZEALAND.—The twelfth annual report of the Botanic Garden Board of New Zealand has been issued, from which it appears that the gardens are in a somewhat starved condition, and that the powers that be do not fully appreciate the importance of a botanical garden as a centre for the introduction and diffusion of useful and ornamental plants.

New Zealand has special facilities, in its climate and position, for becoming the head centre for the cultivation and diffusion of the plants of the southern hemisphere; and in the material interests of the colony, as well as for scientific purposes, it is greatly to be wished that more energetic efforts could be made in this direction.

"A further advance has been made in the preparation of the ground for the systematic collection of plants intended for the use of botanical students; but, until the Board can feel justified in spending a sum of about £70 on it, this most desirable addition to the gardens must remain in abeyance.

"From the share of the Calitornian seeds, imported last year by Government, that was placed at the disposal of the Board, about 2700 young trees have been raised. From last year's stock 479 trees have been distributed to various public institutions for planting their grounds.

"The keeper of the gardens was sent in April last to the Tararua Mountains, and, with a small expenditure of about £5, succeeded in obtaining a fine collection of live alpine plants from an altitude of 5000 to 6000 feet, among which were several novel or rare species.

"A valuable collection of plants, hitherto almost unknown in the live state, has also been obtained for the gardens by the taxidermist to the museum, who accompanied the *Stella* on the annual trip to the Auckland Islands, in March last.

"The board has been indirectly the means of introducing to the colony a consignment of Japanese fruit and foliage plants, which will, it is expected, prove of great value, as being suitable to the climate. It was represented to Government that Mr. Tiffin, of Napier, was about to visit Japan on a horticultural expedition, and that it would be a good opportunity for getting Japanese plants for distribution selected by a thoroughly competent and enthusiastic collector. The suggestion was cordially entertained, and, as a result, in April last, twelve cases were received, containing 1800 plants, of which the following is a list:—50 Oranges, 1000 Persimmons, 300 Kiakie, 100 giant Chestnuts, 150 Maples, 200 Bamboos."

SYDNEY: *Oct.* 9.—I have sent you the enclosed account of, I believe, the first exhibition of native flowers that has been inaugurated in this or any other colony. It was a great surprise when we beheld so great a variety of bouquets, baskets of flowers, wreaths, &c., all formed of native flowers; not a plant or a flower was admitted that was not indigenous to Australia, and for the most part of New South Wales. The effect produced by the bright flowers of the Waratah (Telopia) and those of the gigantic Lily (Doryanthes) was very fine, and the yellow spikes of the rock Lilies (Dendrobium) and the beauty of the Clianthus Dampieri added to the effect. The collection of native Ferns was very good, and afforded a bright green contrast to the other exhibits. They consisted of Tree Ferns, Lycopodium, Bird's Nest Ferns (Asplenium), Stag's-horn Ferns (Platycerium alcicorne), Gleichenia, Davallia, &c. It is much to

be regretted that the wild flower collectors are in the habit of not being satisfied with culling the flowers, but tear the plants up by the roots and leave them on the ground; the result has been that in some localities where many indigenous plants were formerly abundant there is now not one to be obtained. The following is a list of the exhibits:—

Acacia stricta
Actinotus Heliaothi
,, minor
Anthropodium cirrhatum
Astrotricha floccosa
Banksia ericifolia
Blandfordia nobilis
Boronia ledifolia
,, pionata
,, serrulata
Bossiæa Scolopendrium
Calythrix tetragona
Chloanthes Stæchadis
Clematis aristata
Clianthus Dampieri
Comesperma retusa
Conospermum longifolium
,, taxifolium
Correa speciosa
Dampiera stricta
Darwinia fascicularis
Dillwynia cinerascens
,, ericoides
,, floribunda
Dodonæa triquetra
Drosera binata (Sundew)
Epacris longiflora
,, microphylla
,, paludosa
Eriostemon salicifolius
,, buxifolius
Eucalyptus pilularis
Gompholobium grandiflorum
Grevillea buxifolia
,, linearis
,, sericea
Hakea dactyloides
Hemigenia purpurea
Hibbertia virgata
,, volubilis
Isopogon anethifolium
Kennedya rubicunda
Kunzea capitata
Lambertia formosa
Lasiopetalum ferrugineum
Leptospermum attenuatum
,, myrtifolium
,, parvifolium
Leucopogon appressus
,, lanceolatus
,, microphyllus
Lillypilly (Acmena elliptica)
Mirbelia reticulata
Monotoca elliptica
Native Fuchsia (Correa virens)
Native Currant (Leptomeria acida)
Persoonia salicina (or Jibbong)
Philotheca australis
Phyllota phylicoides
Pimelea linifolia
Pittosporum
Platylobium formosum
Pultenæa hispidula
,, stipularis
Ricinocarpus pinifolius
,, rosmarinifolius
Sowerbæa juncea
Sprengelia incarnata
Staphelia viridiflora
Stylidium lineare
Styphelia læta
Tecoma australis
Tetratheca ericifolia
,, thymifolia
Velvet or Flannel Flower
Westringia rosmarinifolia
Wooden Pear-tree (Xylomelum pyriforme)
Zieria lævigata
,, Smithii

George Bennett, M.D., F.L.S.Z.I.

[We are pleased to see that the plan we have advocated so often and for so many years—the development of local resources, rather than the servile imitation of European flower-shows—has at length been thought worthy of adoption. EDS.]

SAHARUNPORE.—The annual report of the Government Botanic Gardens at Saharunpore and Mussoorie for the year ending March 31, 1881, has been issued. Mr. Duthie, in his report, makes no distinction between facts of scientific and those of practical interest. "There is no hard and fast line of division between results of scientific and those of practical interest . . . for science does not cease where practice commences, but is rather made manifest by its application. There are certain subjects which may be rightly termed practical, and others unmistakably scientific; there is also a third set, which may be said to partake of the characters of both. It is the preponderance of this latter in my present report which has made it impossible for me to divide it satisfactorily into the two sections."

Henbane and Taraxacum are grown for medicinal purposes. European vegetables grown from seed ripened in India do not do well, so that it is suggested that seed should be annually imported from Europe. Flower seeds, on the contrary, grown in the garden are satisfactory in their produce. Australian forage grasses are inferior to the Indian dúb.

Under the name Santung a Cabbage of a peculiar character is mentioned, which "in appearance can hardly be distinguished from a Cos Lettuce," but the flavour is that of a Cabbage, and it seems specially useful for feeding stock.

"*The Flowering of the Bamboos.*—The present year will be a remarkable one in the history of the 'kattang bans' (Bambusa arundinacea), which is now in flower in this district, and in Dehra Dún, where it has formed magnificent clumps of over thirty years' growth. The destruction of these, which is the inevitable result after flowering, if left to themselves, will deprive Dehra for a time of one of its most beautiful features. Among the remedies which have been suggested for keeping them alive under these circumstances is one known very well to natives, and is said to have been successful. As soon as the flowers begin to appear all the stems are cut down close to the ground, after which the roots are covered over with manure and litter, and set fire to. When the rainy season comes on it is said that an abundant crop of young shoots will break out from the old roots. It is not difficult to understand the cause of death under ordinary circumstances when we consider how the plants must be weakened by the sudden production of such an enormous mass of flowers; and at the same time, being almost devoid of leaves, the plants are thereby deprived of the means of obtaining their proper nourishment by the action of the roots. The effect of fire being applied may possibly be to seal up the points from which the remaining strength or sap of the plant was issuing, and to cause it to be stored up just as Nature does in the case of bulbs, tubers, and other fleshy underground organs, and which, under suitable conditions, are capable of perpetuating the plant."

Orchid Notes.

SLUGS IN ODONTOGLOSSUM-HOUSES. — Some time since I wrote to inquire whether any of your readers could give me any hints how to destroy slugs in my Odontoglossum-houses, or prevent their eating the spikes of flowers. I have wadded the spikes with cotton-wool, floss-silk, &c.; I have scalded the moss, and baked the peat—perhaps not sufficiently, for I still kill hundreds of slugs, and lose nevertheless scores of flower-spikes. I caught a slug this morning letting itself down from the rafter. It had let itself down a distance of 6 feet from rafter by a very thin thread proceeding from its tail. When it had got to the ground, 7 feet from rafter, I killed it—a small black one, about 1 inch long when fully stretched out. Is there any locality where slugs do not abound in the peat or moss? I once saw a fine collection of Orchids very much disfigured by the garlic-smelling shell-snail. I am only troubled with slugs in the Odontoglossum-houses. *Robert Warner, Broomfield, Chelmsford, Nov. 26.*

ORCHIDS AT SOUTHAMPTON.

A noteworthy feature of the late exhibition at Southampton was a group of thirty-six Orchids in flower from the collection of H. J. Buchan, Esq., Wilton House; they were certainly very creditable to the gardener, Mr. T. Osborn. Oncidium Wentworthianum had a long spike of yellow and brown flowers. Zygopetalum Mackayi, a Brazilian species, introduced so long ago as 1825, should be in every collection, as it is in most. Mr. Buchan's plant had five very fine spikes; the flowers are large, and very attractive from their pleasant perfume, and the large white labellum spotted and barred with bluish-purple. Oncidium tigrinum was represented by four nice plants, the flowers, of a pale yellow or straw colour, are not showy, but they are sweetly scented, which makes them valuable in November. A good plant of Cypripedium Sedeni had three spikes, and a healthy plant of Sophronites grandiflora was quite glowing with eleven of its crimson-scarlet flowers. The useful Cypripedium insigne was represented by two good masses, well-flowered. A nice plant of Oncidium ornithorhyncum, and some good forms of Lycaste Skinneri. There were also some well-grown plants of the ever-welcome Odontoglossum crispum, and they were fine varieties; one had sepals and petals of the purest white, with a few spots and blotches of pale rosy-purple. *J. D.*

EPIDENDRUM PURUM.

At the same exhibition a large specimen of Epidendrum purum was exhibited in a collection of plants from the gardens of Haas Sloane Stanley, Esq., Fultons, Romsey (Mr. R. McMillan, gr.). Introduced from Caraccas in 1842, it is not much grown; it cannot be called one of the popular Orchids, but as it was exhibited here, with twenty-one spikes, it is an interesting and striking plant. The sepals and petals are narrow, greenish-yellow, 2½ inches long, the labellum pure white, divided up the centre and very prettily fringed. The plant added greatly to the effect of the collection of plants. *J. D.*

PHALÆNOPSIS STUARTIANA.

We learn from Mr. Low, of Clapton, that this fine and interesting species is now in bloom at his nurseries. Professor Reichenbach's note on the subject says its flowering "marks one of the best red-letter days of the orchidic calendar." We shall give in our next issue Professor Reichenbach's detailed account of this plant, whose beauty is such that, as he says, "no doubt there will be a great pilgrimage to Upper Clapton to look at the fresh beauty under that mighty expanse of glass, the great theatre of Lowian activity."

THE PHALÆNOPSIS-HOUSES

in the Clapton Nurseries are also in great beauty at present. P. amabilis, in numerous distinct and beautiful varieties, forms the principal feature. Some of them are snowy-white, with scarcely any markings on labellum or petals. Others are very distinctly and beautifully marked on the labellum and the inner lower portion of the petals. In some cases there are rich crimson lines and spots, and in one case the portion of the petals referred to is distinctly marked with bright gold. P. Schilleriana was not quite so far advanced on November 25, but there were many varieties with most distinct and well-marked leaves, and a large proportion in flower, showing, as in P. amabilis, many shades of colour. P. casta was in flower, showing very conclusively that it is a hybrid between P. amabilis and P. Schilleriana. It is a very distinct and beautiful variety. Of P. Portei there are some good branched spikes, showing that it is a plant of vigorous development, quite as much so as the others. It is evidently allied to P. rosea and P. amabilis. *J. D.*

DENDROCHILUM COBBIANUM.

In a cooler house there is a fine batch of recently imported plants of Dendrochilum Cobbianum; on one of the plants there is a perfectly developed flower-spike. This may not become so popular, nor command such a high price for so long a period as D. filiforme, but nevertheless it is a pretty thing, with its creamy sepals and petals, and yellow lip; it is also sweetly scented. *J. Douglas.*

The Poultry Yard.

STRAW FOR EXHIBITION HAMPERS. — I do not know if old hands at poultry showing approve or not of having their birds fed on a long journey, but beginners, as a rule, are always afraid that their pets will become hungry by the way, and suffer much in consequence. We have seen a good many different plans tried to prevent this, but the best way of all, to our mind, is to use unthreshed straw for the bottoms of the baskets. Fowls generally are very fond of picking at straw when they have nothing else to do, and in the baskets they soon find out the grain attached to the straw, and make use of it as their appetites may dictate. The other day, when our fowls were going a long journey, and returning in the same basket from a distant show, we put a good lining of Wheat straw in the bottom of the hamper, and every grain had been taken out of it when they returned. Some of it could be felt in their crops, and they had not that hungry look about them which we have sometimes seen. Very often the time fowls are in the train, even on a long journey, is short compared with the time they remain about stations and in show places before they are penned, and at such times they are sure to be on the look-out for food amongst the straw, and it certainly must be an advantage when they find it readily. If a quantity of grain is thrown amongst the straw it soon goes to the bottom, and is not seen or found by the fowls. Any kind of meal mixture goes in much the same way; and when bread, or any such thing, is suspended in the basket it soon becomes too dry and hard to be of any use, more especially on the return journey, but straw with the grain in it remains good and accessible for almost any length of time. The evil resulting from fowls wanting food for a great length of time in going to and coming from shows has often been pointed out in the poultry papers, but I feel sure the plan I now suggest will be found an excellent one in every way. *Henwife, South Wales.*

Garden Operations.

PLANT HOUSES.

STOVES.—According as room may be at disposal in the propagating-pit, a fresh lot of well-coloured shoots of the best of the Crotons may be taken off, and inserted singly in small pots. It is far better to keep up the necessary stock of these and other decorative plants by occasional strikings, than to attempt to keep any that have become the worse for use, or that may be growing too large for the work. Some cuttings of Gardenias should be struck; if done now they will start off freely into growth in the spring, thus saving a little time. Dwarf plants of Eranthemum pulchellum that were struck from old stools after being set for flower, are now commencing to open their blossoms. These plants come in useful for decorative work in combination with Aphelandra aurantiaca Roezlii or nitens. Epiphyllum truncatum Russelianum comes in handy now as a succession to the earlier kinds. These latter that have ceased flowering may be kept in a cool-house for a while, and rather dry at the root, to give them a little rest after extra exertions. Ardisia crenulata is a pretty berried plant for the stove during the winter, but very liable to attacks of scale. Keep a watch on them, and take remedial measures as soon as any trace of this pest is seen. It would be advisable to sow some of the seed to keep up a young stock; somewhat longer patience

is required with this plant than many give to it. If a good stock is grown of Poinsettias, some of those that are most fully developed may be used advantageously for the decoration of the conservatory; place them where they are not exposed to draught, and withhold water gradually. In mild weather give attention to hints in last Calendar.

Temperate or Forcing Houses.—At no season of the year perhaps is the need of these felt more than from this time onwards till the spring. A house that can be kept at a temperature about 50° at night, with a corresponding rise during the day, will give a good return from such plants as Bouvardias and Tree Carnations in pots. Cyclamens also will push up their flowers more freely. Dutch bulbs that were potted early can be brought on gradually. Such as Roman Hyacinths, Paper-White, and early Roman Narcissus, should be introduced at intervals into a slightly increased temperature. These are the very best for early work. Single crowns of Lily of the Valley should be placed in heat if a supply is wanted at Christmas. Selection should be made from the stock of Indian Azaleas, choosing those with best developed buds. Lilac Charles X. may also be brought on now. All those things will be appreciated in a cut state for the house.

Greenhouse, Cold Pits, &c.—Where the stock of Chrysanthemums, for the purpose of producing a larger display of flower, have been thickly grouped, it will be advisable to secure an early batch of cuttings before the young growths become drawn. As soon as the requisite stock is struck, the old stools may be turned out into a sheltered border if it is desirable to keep them; if not wanted consign them to the rubbish heap at once. If a severe frost should set in, any Tea-scented or Noisette Roses grown in pots for forcing, will be all the safer if they can be protected in a cold pit or frame, covering the pots with a few dry leaves. Hybrid perpetuals in pots should have a good covering of litter to protect them a bit at the roots. Any stock of Cinerarias still in cold pits must be looked after sharply if frost occurs. They will be all the safer if room can be given in a cool-house, where the frost is just excluded. Herbaceous Calceolarias should be treated likewise. Do not let these latter become pot-bound yet awhile, or a premature crop of flower-spikes may make their appearance. All the stock of Chinese Primroses will thrive better if they can be placed in a somewhat dry position, damp being detrimental to their well-being. Mignonette that is filling its pots with roots should be liberally fed with guano-water. On no account allow this plant to suffer for want of water, or the leaves will quickly turn yellow. Keep the later batches of these as near to the glass as possible, giving abundance of air during mild weather. Autumn sown Stocks should be kept rather dry at the root when in pots at this season. Those intended for spring blooming for the conservatory should be stood on a dry bottom in a cold frame; the same position will suit Nemophila insignis, grown for a similar purpose. Strong clumps of Christmas Rose (Helleborus niger) may be potted, and placed in a cold frame; these will be serviceable in a cut state or for conservatory decoration after the Chrysanthemums are over.

Conservatory.—Camellias growing in borders will now be swelling their flower-buds fast, if an early growth has been secured. If any are set too thickly it will be well to thin them down to two at least on each point. Some sorts can be better relied on than others not to throw their buds. Of the former may be named Imbricata, Countess of Orkney, Chandler's Elegans, and the old Variegata; these can be thinned much more freely than such as Alba-plena, Lady Hume's Blush, or Verschaffeltii. If any are infested with scale they should be sponged over: besides killing the insects the appearance of the plants will be much better with clean, glossy foliage. Where fresh climbers are to be planted Lonicera semperflorens minor may be advantageously included. Habrothamnus elegans is still one of the the best climbers or pillar plants that we have; with me it is now gay with flower, and scarcely ever troubled with insects. Watch closely after any young growths from Lapagerias; if any slugs are about, they will be sure to find them out. A slight sprinkling of fresh lime occasionally will be a preventive. *James Hudson, Gunnersbury House, Acton, Nov. 29.*

HARDY FRUIT GARDEN.

Continued mild weather will admit of good progress being made with the pruning and renailing of fruit trees, which is now the most urgent operation in this department. Plum trees, being very full of bloom-buds, are exceedingly promising, and of this advantage can be taken to reduce the size of any old spurs, or to thin them out where too thick, as the closer portions of the spurs promise to carry more than a sufficiency of bloom for a full crop of fruit. All growths of the current year that were closely pinched-in during the summer for the purpose of forming spurs, as previously recommended, will require no further shortening, as any cutting-back at this time is liable to leave nothing but bloom-buds, and to cause the loss of the spur after fruiting. Plums are especially liable to the loss of spurs, and the surest way to avoid it is to do no shortening-back at the winter pruning, but to confine the operation to the entire removal of the larger portions of old spurs, and to thinning them out where they happen to be overcrowded. It is most necessary to prevent the undue extension of large spurs by the annual removal of a portion by cutting them back to their closest lateral spur, but it is not advantageous to carry the operation to extremes, and it is well to bear in mind that a Plum tree will be able to carry and finish quite double the crop of fruit when a moderate extension of spur is allowed to it that would be borne by one too closely spurred-in. See to the removal of all tight ties on the stronger branches where most liable to be overlooked, and in retying observe that those branches that appear securely fastened be given at least two or three fresh ties, to ensure them against becoming loosened by high winds or the weight of heavy crops during the summer, when it will be exceedingly inconvenient to attend to them. Where any scale is present it will be necessary to remove all old ties or shreds, under which the insects will probably be found most numerous, and remove as many as possible of them by scraping the parts affected with any blunt instrument. The worst portions of the branches may be carefully dressed with paraffin oil, and where any scale has spread to the spurs they may be dressed with a weak infusion of it in water applied through a syringe and repeated in the spring if found necessary, but avoid using undiluted oils of any description on the buds or young wood.

The remarks on Plum spurs apply equally to those of the Apricot, to which it will be found beneficial to allow a fair extent of spur development, only avoiding extension to an unsightly distance from the walls. Any dead spurs must be cut out as closely as possible, to allow of the scar healing over. Such young growths as have been retained for fruiting may be nailed in at full length if well ripened and the tree will not become crowded by so doing. Where any wall space is available, it is advisable to put in one or two young trees to be coming on to such size that the sudden failure of any established Apricot tree can be speedily rectified by the substitution of the supernumerary at hand.

Peaches and Nectarines are in many gardens left unpruned until the spring, but if time permits and the weather is favourable it is much better to have them pruned and nailed now than to put off until a busier, and what, also, often proves a colder time of the year. Each tree, before commencing to prune, will require to be loosened from the wall, leaving only a sufficient quantity of fastenings to keep the branches in position. With the branches thus free from the wall, the removal of the shoots that have done duty as fruit bearers can be effected expeditiously with a sure and clean cut, without risk of injury to the growths retained. Shoots for extension will require little if any cutting back when well-ripened. After cutting out all growths that are not required, or are likely to crowd the tree, the shoots that were laid in from the base of those that are now removed can be shortened to such a length as to supply the space up to the corresponding shoot next above on the same branch, taking care that the cut be made to a triple bud, of which the centre promises to produce wood. Where growths from any of the main branches are too numerous they should be cut-in to form spurs. Any very gross shoots may be entirely removed, as, if they are only cut back, they will probably produce others of a like nature another season, but the formation of such shoots plainly points to the necessity of attention to the state of the roots, which will prove to be either in too rich a soil or too far from its surface, and in either case they should be lifted as recommended in a previous Calendar. Young Peaches will require to have their shoots merely shortened where insufficiently ripened, or cut back to furnish more growth in any part that is not at present adequately supplied with branches, and to have all weakly spray removed. *R. Crossling, Castle Gardens, St. Fagan's.*

FRUIT HOUSES.

Pines.—Discontinue syringing the plants overhead for the winter, but keep the atmosphere at all times in a humid state. If adequate appliances are not available in the shape of steaming-troughs to keep the atmosphere genial when there is recourse to hard firing, a few portable zinc troughs made to fit over the pipes will give additional moisture when it can be either increased or decreased as required. The troughs should be filled with water three or four times a-day, and not be allowed to become dry through the night. The troughs should be at some distance from the plants, so that the hot steam does not come in contact with the leaves. Nothing is more injurious to Pines in any stage than an arid temperature, and during hard firing this should be guarded against under all circumstances. Syringe the walls and damp the paths with tepid water three or four times during the twenty-four hours. If pits or houses are heated by flues the heat is of a drier nature, therefore a sufficient amount of moisture must at all times be present in the atmosphere either by sprinkling or evaporation. If dust or any deposit accumulates on the leaves a slight syringing of the plants with tepid water is beneficial. This may be done every fortnight. Choose a bright day for the purpose, and see that no water is standing in the axils of the leaves at the time. This keeps the plants clean, and frees the respiratory organs. Avoid overcrowding succession plants, and more especially young rooted suckers, for if weakened and drawn by this cause they will never assume the same vigour in after stages. Examine all rooted suckers, and give those that are likely to become pot-bound before February a slight shift without delay. Any strong suckers in 8 or 9-inch pots that are much pot-bound had better be put into fruiting-pots at once. It is one of the causes that induce the plants to fruit prematurely, which is not only a disappointment but a great loss both in time and plants. Stake the fruits before they are too large, for if left too long the stems become twisted, which prevents the fruits swelling properly. *D. Wilson, Castle Hill, Devon.*

Vines.

The earliest vinery will now be swelling up the buds fast, and the temperature can be steadily increased to 60° at night with a rise of 10° by day, or a few degrees warmer if the weather continues very mild. Up to the present time little fire-heat has been required where fermenting materials are used on inside borders. Attend to the fermenting materials on both inside and outside borders, and add fresh material as the heat declines, mixing the old and new together. Admit a little back air on bright days when the temperature reaches 73°, closing the house early while the sun has full power. Continue to keep the rods syringed with tepid water several times daily, and damp the walls and paths when they become dry. Examine the border, and if dry, water with clear tepid water at 85°; but if thoroughly watered before starting they will not require water yet. Hamburghs still hanging on the Vines will require great care and attention to keep them well. Keep the atmosphere as dry as possible, and admit abundance of air on bright days with a little fire-heat, turning it off early in the afternoon, reducing the air early, so that the house will be nearly closed before the dew falls, and leaving on a very little back air all night with only sufficient heat to keep the air circulating and dry. On foggy days give very little air, and that only by the back ventilators. Look over the bunches daily and take out the bad berries as soon as they can be seen. Where they are cut and hung in the fruit-room no fire-heat will be required if the atmosphere is dry. Keep the temperature as equal as possible, for if it varies very much they will not keep so well. Succession-houses can be pruned and cleaned as recommended in my last Calendar. After pruning, let them be kept as cool as possible to ensure thorough rest. Muscats will now require very little fire while the weather remains mild, as they are not subject to damp, but a little used carefully will always benefit them, for if the temperature is kept too low the berries will turn brown, and be spoiled in appearance. A safe temperature is 55° while the weather remains mild, and lower it to 50° when the nights are cold, giving air carefully on all favourable occasions. Late houses of Grapes for keeping through the winter must have the bunches looked over often for decayed berries, for if allowed to remain they soon spoil many more, and disfigure the bunches. Examine the borders, and do not let them become dust-dry, but only let them have sufficient water to keep the berries plump, for if watered and covered with Fern or litter as recommended in previous Calendars, they do not usually want any water at this time of the year. As the leaves turn yellow and fall off gather them up every few days, and give abundance of air on all favourable occasions. Keep the outside borders covered with shutters to throw off the rain until the Grapes are cut, they will then be better taken off at once. Vineries newly planted can be pruned as the leaves fall off, taking care to well cover the cuts with styptic after pruning to prevent bleeding, and if the Vines are clean they will not require washing, but if plants have been grown in the houses and there is any fear of bug, wash them, as recommended in previous Calendars. Pot Vines started early will now be breaking, and the temperature can be steadily increased so that the night temperature will be 65° by the time they are showing bunches, or a few degrees more if the weather is very mild. Keep the paths and beds damp with tepid water, and syringe the rods several times daily, taking care to give them liberal supplies of clear tepid water at the roots. Add fresh fermenting material as the heat declines, to keep the bottom-heat steady at 75°. As soon as the Vines are broke tie them up before the growths get long, or they may get broke in the operation. Give air on bright days when the temperature reaches 73°, and close early in the afternoon. *Joshua Atkins, Lockinge Gardens, Wantage.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 5	Smithfield Club Show opens. Sale of Dutch Bulbs, at Stevens' Rooms; and at the Auction Mart, by Protheroe & Morris.
TUESDAY,	Dec. 6	Sale of Camellias, Azaleas, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	Dec. 7	Sale of Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Dec. 8	Sales of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Dec. 9	Sale of Lilium auratum and other Bulbs, at the Mart, by Protheroe & Morris.
SATURDAY,	Dec. 10	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

HOW grievously the growers feel the pressure of the low prices they obtain in the market is the matter of frequent comment in our pages, and how much the public feel the unwarrantably high charges made for vegetables in London is evident from the statement of such a well known market grower as Mr. LOBJOIT, of Putney, who some time ago contributed a series of notes on market gardening to our columns, and who gave evidence on the subject before the Royal Commission on Agriculture. Mr. LOBJOIT stated "that there were large city firms who declined to provide their numerous *employés* with fresh vegetables more than once a week, on an average;" of course, because of the high price to be paid for them. He then makes a most valuable suggestion, which is that heads of large firms and other establishments should contract with growers for supplies in hampers from the gardens direct, so as to have the vegetables not only fresh but at cost price.

This is an important contribution to the discussion now being raised as to the best methods of bringing growers and consumers of garden products into more immediate contact. The middleman who gets on both sides so roughly used is, under our present very imperfect system of distribution, a necessary evil. He has his part in the work of distribution to perform, and he will have his profits. Still farther, if the very absurd custom is persisted in of sending nearly all our garden produce for the metropolitan consumption to one or two central points, that it may be redistributed again all over London and the suburbs back to the very place where the vegetables are grown, how can it tend otherwise than to add largely to the cost of the products to the consumer? But there is another element in the dealings connected with large establishments which needs to be taken into account. Just as the growers have salesmen and middlemen to abstract large profits, so have large establishments to be dependent upon buyers, and if between these and those with whom they deal there is collusion, prices may well be put up 20 per cent., to the detriment of the consumer? It must not be imagined, as well meaning, unsuspecting people will imagine, that if the bills are duly submitted to managers, or directors, or heads of establishments, that a satisfactory safeguard is established. They must be unsuspecting indeed if they have never heard of commissions and percentages for the go-between, but which Mr. LOBJOIT's suggestion, if carried out in its entirety, might extinguish.

As to the closer connection of the grower and the consumer, that cannot be effected until we have a very large increase to our present market accommodation, not huge central ones, but many dispersed around the suburbs to which grower and consumer may alike resort. This is one of the reforms that can come only from a municipality that shall represent all London. At present the public interests are made subservient to those of certain persons, bodies, or the jealousies of individual communities. The radius within which vegetables for the supply of London cannot be grown is every year getting larger and larger. Few, indeed, can be grown within eight miles of Covent Garden Market, and the majority have to be brought distances of over ten miles, thus carting into a centre that by other hands it may be carted back again. Of few things have Londoners more reason to be ashamed than of its present utterly incompetent market accommodation.

Mr. LOBJOIT stated as one reason why vegetables were last year so profitless that they were, owing to the very growing nature of the season, too large and coarse, so that greengrocers refused to purchase Cabbages of giant size. If growers find that such things —literally cattle food—cannot be sold, why do they grow them? Surely a breadth of Coleworts, dwarf early Cabbages, and Ulm or dwarf curled Savoys, would meet with a readier sale than others as big as bushel-baskets. No wonder the public refuse to purchase products that the growers would not consume themselves but think excellent food for cows. At the risk of being thought heretical we may even hint that the market growers, especially those who, like Mr. LOBJOIT, live pretty near to London, are just a little too profuse in the employment of strong manures, and that much of their products are coarse and strong in consequence. As a rule the soil literally reeks of manure, it is saturated with its odour, for as crop follows upon crop dress follows upon dress, until the soil becomes almost a vast dung-heap. It may well be worthy of consideration whether some more frequent change in the cropping, perhaps needing less cost, labour, and thicker planting of the Cabbage tribe to secure a greater quantity of less size, would not prove more profitable and to the consuming public more beneficial.

—— THE "NORTH" GALLERY, KEW.—Our illustration at p. 725 shows the exterior of the building now in course of erection at the charge of Miss NORTH, and which is destined in due time to receive the numerous drawings of tropical vegetation made by that lady. It appears from the report of the Royal Gardens that the "gallery measures 50 feet long by 25 in breadth, with a small studio and caretaker's house attached to it. The main building is erected in red bricks, with Bath-stone dressings, in a plain classical style, with a low-pitched roof, covered with zinc, and terminating in pediments at either end. The mode of lighting is not by skylights, as is usual in picture galleries, but by windows between pilasters in the upper part of the walls below the ceiling, and immediately above a narrow gallery that runs all round the room. The building is now so far finished that the effect of this arrangement can be judged of, and, in so far as the exterior is concerned, is certainly ornamental and pleasing." The building is now finished and the drawings in course of arrangement. When the gallery is sufficiently advanced to allow of its being open to the public we shall take another opportunity of alluding to it. Meanwhile we may state that the illustration of the magnificent Nepenthes given in our present issue is a copy, by Miss NORTH herself, from her original drawing in oils, which forms part of the collection.

—— STERNBERGIA LUTEA.—The bright golden-yellow Crocus-like flowers of this bulbous plant are at this somewhat dull season of the year truly welcome. We were pleased a few days since in meeting with it in the York Nurseries, where its numerous upright blossoms formed an attractive feature; the bulbs were growing in pots—the pots plunged in river sand.

—— AUTUMN PRIMROSES. — Nothing more strikingly illustrates the wonderful mildness of the season than the profuse flowering of the common Primrose. At Hastings the other week bunches of the common yellow Primrose were hawked about as freely almost as in the month of April instead of dark November; and at Knap Hill last week, in the nurseries of Mr. ANTHONY WATERER, nothing was more charming than a great patch of seedling varieties of Primroses in flower. Here were scores, yea, hundreds of strong plants full of flower of all shades of colour, from the normal pale yellow and white to lilac, and all the varied hues of purples and reds. Many of the flowers were individually good, but all were beautiful at this season. A cold frame filled with some of the finer plants just lifted from the open beds were almost as gay as Mr. CANNELL's banks of Chinese Primulas lately displayed at various exhibitions.

—— CELERY.—This is a Celery season, by which we mean that Celery is of unusually fine quality this year. It is not only in general large and solid, but is remarkably tender and crisp in the flesh, and sweet and nutty in flavour. We do not remember ever to have tasted it of finer quality. This is no doubt to be accounted for by the wet autumn, Celery being naturally almost an aquatic. But how is it that Celery is so dear? Our greengrocer asked 4*s.* per dozen sticks last Saturday! We wondered what the grower received.

—— GILBERT'S DOUBLE PRIMULAS.—In Messrs. OSBORNE'S nursery at Sunbury, there is now a fine display of these charming winter flowers. They are unequalled at this season for bouquet work; every flower will wire by itself, and the colours—pink, white, and blush—are exceedingly chaste for making up ball bouquets or for ladies' hair. The plants, as seen at Sunbury, have a good constitution, are vigorous growers and free flowerers, and are a great acquisition to our stock of winter flowering plants. To the private gardener they are invaluable, as well as to the florist, and, once obtained, a stock is annually kept up from cuttings, which are best taken in the spring and rooted in a gentle heat. The flower-spikes are bold, erect, and of considerable substance. They are grand plants for vases in pairs to match, and for cutting they completely eclipse all other double-flowered varieties. Three reliable varieties in point of colour are Lord Beaconsfield, pink; White Lady, a very delicate white; and Princess, a beautiful blush.

—— THE DUBLIN MUSEUM OF NATURAL HISTORY.—We notice that the Lords of the Committee of Council of Education have appointed Mr. ALEXANDER GODMAN MORE, M.R.I.A., F.L.S., to the important post of Curator of the Museum of Natural History, Department of Science and Art, Dublin, in succession to the late Dr. CARTE.

—— SMOKE ABATEMENT EXHIBITION. — The exhibition of grates and other apparatus destined to secure the more complete combustion of fuel, and the consequent abatement of waste and prevention of pollution of the air, was opened at the Albert Hall on Wednesday last. This is a matter in which Londoners and dwellers in large towns are greatly concerned, and plant lovers in particular are specially interested and have special means of gauging the ill-effects of an atmosphere loaded with carbon in suspension, and sulphurous and other gases. Roses and Conifers furnish excellent tests of the purity of the atmosphere. We observe with satisfaction that the President of the Royal Horticultural Society, Lord ABERDARE, appropriately took a leading part in the proceedings. We shall have occasion to revert to this very important subject.

—— OSBORNE NURSERY, LITTLE HEATH.—We understand that Mr. JAMES BUTTERFIELD, who for the past twenty-one years has carried on a nursery trade at the above address, is retiring from business, and has disposed of the whole of his stock of trees and shrubs to Mr. EDWARD BENNETT, of the Vineyard, Holly Bank, Potter's Bar, N.

—— THE PHYLLOXERA LAWS.—The following modifications have been made in the convention relating to the transit of plants in certain countries of Europe—we quote from the *Revue Horticole*:—"Plants and shrubs of all sorts except Vines coming from nurseries, gardens, or conservatories are admitted to free international circulation, but only through certain duly specified custom-houses. These objects must be carefully packed, but in such a manner as to allow of the necessary investigation (*constatation*), and must be accompanied by a declaration on the part of the consignor and a certificate from some competent authority setting forth—(*a*) that the plants came from a locality separated by a distance of at least 20 metres (65 feet 7 inches) from any Vine, or by some other obstacle considered sufficient by the competent authority; (*b*) that no Vine grows in the locality whence the plants come; (*c*) that no Vines are stored there; (*d*) that if Vines attacked with Phylloxera have been in the locality in question they have been destroyed, insecticides applied repeatedly, and means taken during three years to ensure the

complete destruction of the insects and the Vines." It is sad to have to record that sensible men, as those who drew up these rules are supposed to be, should still affix their names to such ridculous regulations. Do they imagine that a distance of 20 metres is not to be passed over by a Phylloxera?

—— ILLUSTRATIONS OF BRITISH FUNGI.—The fifth part of this useful periodical, intended to serve as an atlas to COOKE'S *Handbook of British Fungi*, has been issued. It contains fifteen coloured plates of Agarics, and extends the plates from sixty-nine to eighty-four.

—— DIE CULTUR DER BLUMENZWIEBELN.—This is a brief treatise on the culture of tuberous and bulbous plants drawn up by F. C. HEINENANN, nurseryman, of Erfurt. A very wide signification is given to the terms bulb and tuber, inasmuch as Hoteia japonica, Hepaticas, and other plants are included.

—— A NEW SANDAL-WOOD.—M. PIERRE describes in the *Bulletin de la Société Linnéenne de Paris*, 1881, p. 290, two species of Sandal-wood growing in Cochin-China, and forming large trees, the timber of which is used for ornamental uses, while the oil derived from it is used for medicinal purposes. When rubbed or burnt it emits an odour of Sandal-wood, on which account it is employed as incense in the temples. The two species are called respectively Epicharis Loureiri and E. Bailloni.

—— FUNGUS FORAYS.—An American botanical periodical, commenting on the fungus forays now so popular with our local naturalists, suggests that we should have lichen liftings, moss meanderings, Fern frolics, and exogenous excursions. Why did our contemporary not add endogenous incursions?

—— JASMINUM NUDIFLORUM.—It appears to be a work of supererogation to write of this old favourite, but it is now flowering very finely in the open air during the prevalence of the fine open weather. We recently came upon a west wall against which had been planted the nude-flowered Jasminum and Ivies, and the effect was surprisingly agreeable on a bright autumn day. Jasminum nudiflorum seems to adapt itself to any circumstances of soil and position: in dry and moist soils alike the plant grows and blooms freely. Some plants can now be found literally sheeted with golden blossoms, that look as fresh and bright as any summer flowers when the sun shines. How well this associates with the common red Cratægus pyracantha, which this season presents such a front of coral-red berries that has not been seen for years. Clusters of these almost hide from view the leaves on the branches that are coated with berries. Add to the two foregoing subjects Pyrus japonica, Chimonanthus fragrans, Garrya elliptica, Forsythia viridissima, and some variegated Ivies, and we get a batch of very useful flowering subjects for use in winter and spring.

—— THE SHOW-HOUSE AT KEW.—This is particularly gay for the season. Lucuelia gratissima and Cestrum aurantiacum are both in flower, and Rhodochiton volubile, Lapagerias and Tacsonias embellish the rafters, while the beds and stages are filled with small well-grown stuff, including, of course, Chrysanthemums, African Marigolds, Schizanthus—always done well at Kew, Witsenia corymbosa, Erica hyemalis, Azalea amœna, Primula sinensis, Phlox Drummondi, Browallia alata, Ruellia isophylla, Salvias, Epacris, Scabious, Centaurea, Roman Hyacinths, Fuchsias, berried Solanums, and very many others.

—— CELERY FOR EXHIBITION.—As it is the practice to cut Celery when competing at late summer and autumn shows, the act of doing so often makes known the fact that many a stick of otherwise excellent quality becomes valueless through imprudent earthing-up: it is hurriedly and carelessly done, and the soil gets between the leaf-stems and finds its way into the hearts of the plants, producing disfigurement if not entire rot. Several instances of this have appeared on the exhibition table this season. It is the custom of some who grow Celery for exhibition to wrap rolls of paper round the stalks, which prevents the ingress of anything like dirt or any vermin likely to disfigure by gathering up the leaves in a compact form with the left hand, drawing the soil up to the stalks with the right. It is possible to earth-up Celery too early. It is a work that should not be done in haste. It may be reasonably inferred that the act of earthing-up checks the growth, and so it is best to defer it so long as the growth proceeds favourably. It has been said that many gardeners commit the mistake of earthing-up Celery too soon and too much, and in the endeavour to save time and labour they lose in weight and size and general excellence of the crop. The handsome and symme-

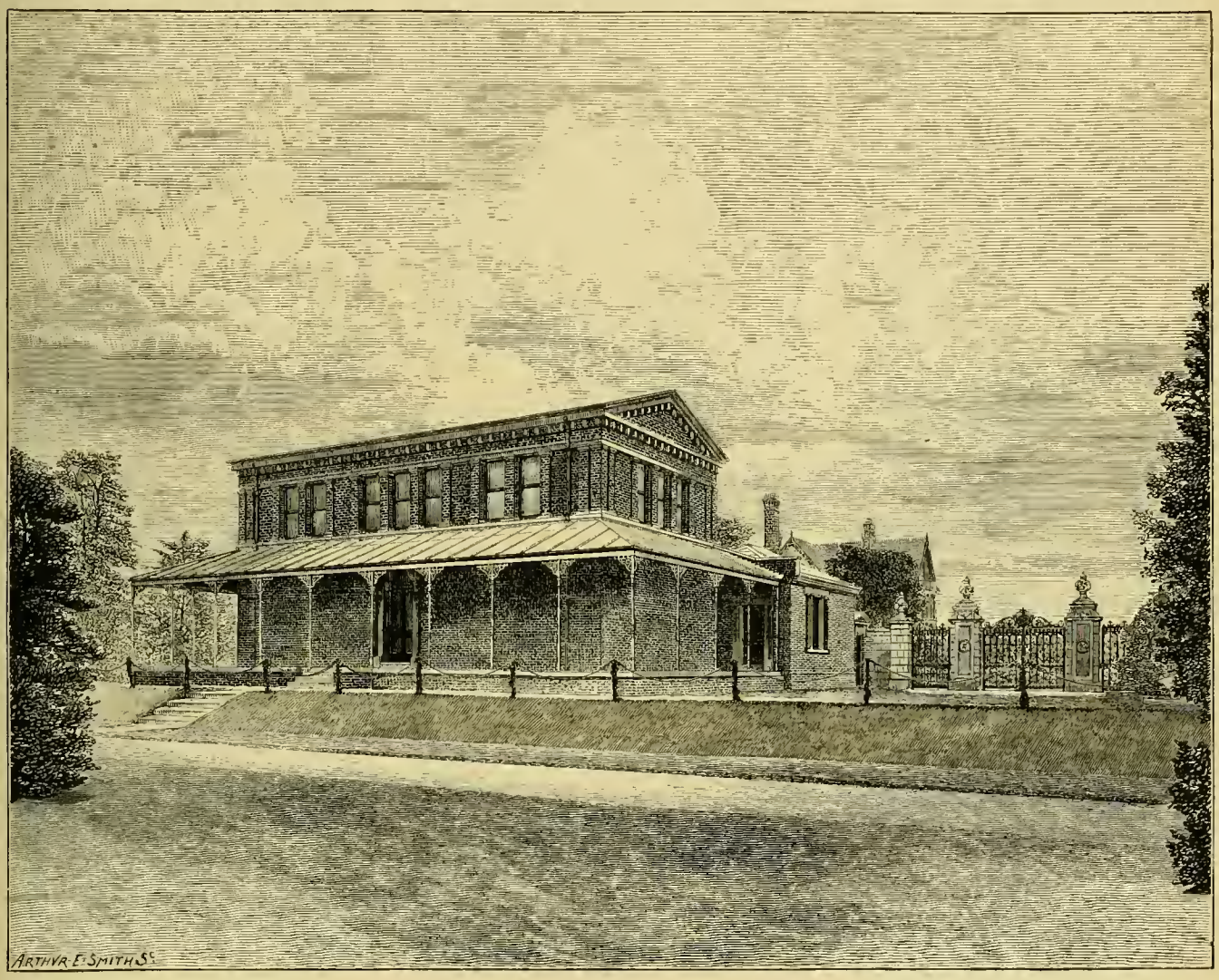

FIG. 146.—THE "NORTH" GALLERY IN THE ROYAL GARDENS, KEW. (SEE P. 724.)

trical appearance judges like to notice in sticks of Celery on the exhibition table, can be to a considerable extent promoted by tying up the stalks, so that no soil can penetrate between the stems, and keeping all close and compact. There is a good deal in strains of Celery, and those who grow for exhibition should endeavour to save their own seed from a select stock, or procure such from a noted grower, or from a seedsman whose strains can be relied on.

—— THE LATE EXHIBITION AT SOUTHAMPTON. —In our report of this exhibition at p. 701, we erroneously credited Mr. F. HALL with the honour of winning four books and a Certificate of Merit, instead of Mr. JOHN ALLEN, gr. to J. BAILEY, Esq., Elmfield Hill, Southampton, who was successful in carrying off most of the prizes.

—— FUGITIVE FLOWERS.—There can be little doubt but that all those spring flowers which just now are so freely blooming in gardens are somewhat out of season, and in regard to their unwonted appearance may well be described as fugitive. In reality they are the products of an altogether abnormal season, one that has largely turned things topsy-turvy, and now at its near termination finds many plants throwing up their flowers in a sort of blank amaze at their forwardness at a time when not summer but winter is advancing. The long heat and drought of summer sent plants to rest weeks before their usual time, and indeed many were unable fully to complete their customary growth ere they were under the exhausting influences of great heat fairly lulled to sleep, only to receive a rude awakening in August by the long-continued rains that brought slumbering vegetation into active life. This early arrest and early excitement has been productive of strong crowns and precocious bloom that could not be held in check except through the instrumentality of great cold, but that has not come. So far from that being the case the late autumn has been one of unusual mildness, and though not without fierce storms they have not been so much marked by wintry features as by softness and a temperature at times quite summerish. In all directions spring flowers are unusually abundant, and everywhere the local Press teems with floral instances of the mildness of the season. We have heard many persons in past winters bewail the fact that their Christmas Roses would not bloom till long after the festive season was past; now they are in bloom a month before it is due. The earliest Forget-me-Not is not to be behind, and in its thousand stars of cœrulean blue furnishes lovely adjuncts to the whiteness of the Hellebore. Rich coloured Primroses, radiant in hue as the loveliest Rose, peep forth from their leafy beds in sweet companionship with the delicately odorous Violet. Anemones burst up out of a wealth of elegant leafage; Pansies bloom finely and freely; Wallflowers, pot Marigolds, Lothian Stocks, Polyanthuses, Aubrietias, indeed scores of hardy plants, are blooming prettily, almost leading to the belief that it is March and not November.

—— WATER FOR NOTHING. — A shilling pamphlet by Mr. HIBBERD, published a year ago, was, by the author, withdrawn from circulation, but the demand for it being constant, he has yielded to the persuasions of his publisher, and a re-issue of the paper is now on sale by Mr. EFFINGHAM WILSON, 11, Royal Exchange.

—— ROWDYISM AT FLOWER SHOWS. — The disappointed and indignant exhibitor is a well-known character at flower shows, and sometimes he acts in a singular and somewhat loutish way. At the exhibition of the Birmingham Chrysanthemum show on the 23d ult., one exhibitor, disappointed in a competition in which the award of the judges was, with this solitary exception, concurred in, ordered the removal of his exhibits on the morning of the second day of the show, and left their places vacant. The removal appears to have been accomplished without notice, and before any one of the officials was present to interfere. Such conduct is wholly unjustifiable. The plants were staged under the conditions of the schedule, which required that they should be exhibited for two days, and for the time being were in the custody of the managers of the show, and should not have been removed without their consent. If the line of conduct above stated were generally followed, flower shows would almost be impossible. What it is right should be done in such a case it is difficult to say, but all fair-dealing and well-disposed persons will heartily join in condemnation of the act. The offender was a nurseryman. This much should be stated in the interests of the large body of gardeners who do so much towards making the Chrysanthemum show at Birmingham such a conspicuous success.

—— THE COMING WINTER.—No more natural subject for conjecture is now presented to gardeners than the coming winter. Will it be a hard one; will it be mild; or will it be of a very ordinary kind? Aleady we find some of our Scotch friends speculating upon a topic so uncertain and indefinite; and so acute an observer as Sir ROBERT CHRISTISON seems to anticipate a mild winter, because we had some sharp frosts in October, whilst Mr. D. T. FISH thinks the winter will "probably be a severe one," although no reason is given for such belief. Under ordinary conditions the winter should be severe; indeed, if the weather is not severe, it is not winter, just as we say if we get no heat we have no summer. But the futurity of our seasons is ever problematical, and forecasts must ever be speculative. If the Meteorological Department, to which is specially committed study of the weather, cannot really forecast the weather conditions for one day with certainty, what hope is there that we can determine the weather aspects for several months? Keen observers draw their conclusions less from actual scientific knowledge than from comparison. What has in past years followed such an autumn as we are experiencing, may not unnaturally be looked for now, and in this respect careful notes and observations will prove the best guide. The famous old shepherd of Salisbury (RAIN) who foretold rain so accurately, simply by observing the habits of an animal in his flock, proved in this respect even a more reliable guide than meteorological science, and indeed there is fear, so subject is the weather to extraneous influences, that it will ever prove too erratic to make it subject to the same rigid and absolute laws as are those which guide astronomers and other scientists to exact conclusions. As to the product of former observations it seems not improbable that these, in the majority of cases, will point to a comparatively mild, moist, blustrous winter season—one of floods rather than of frosts—of heavy rainfalls rather than of snow. Those who wish to prepare for eventualities will naturally find themselves disturbed by uncertainties. The wisest advice to give, perhaps, is, that they should be prepared for all, as far as human foresight and means will permit of.

—— BOUVARDIA ALFRED NEUNER.—Some flowering plants of this new double white variety shown in a collection of plants by Mr. W. SPINKS, manager to Mr. HANS NIEMAND, of the nurseries, Harborne Road, Birmingham, attracted much attention at the meeting of the Birmingham Chrysanthemum Society last week. It was the first time this plant had been seen in bloom in the district, and it won general admiration. It promises to be very useful for decorative and especially for cutting purposes, and it appears to be as free as a single variety. What better praise can be given to a new plant? The new Adiantum Lathomi was also shown by Mr. SPINKS, in excellent condition; it is a Maidenhair of fine appearance and elegant proportions, distinct, and likely to be very useful. A large and striking panel of Cyclamens, containing a preponderance of rich coloured varieties, edged with small Ferns, was a conspicuous feature at the show.

—— CALOTROPIS PROCERA.—Amongst the Hindoos this is rather an important plant. Preparations of it as well as from C. gigantea are used in cases of epilepsy, paralysis, dysentery, leprosy, bites of poisonous animals, &c. Part of the Mudar-bark of commerce is obtained from C. procera, which is now flowering in the Succulent-house at Kew. In this bark a substance called mudarine was discovered, which possesses the singular property of congealing by heat, and again becoming fluid on exposure to cold. C. procera is also of interest from the fact of its having been considered by some observers to be the plant which bore those "Dead Sea fruit, which tempt the eye but turn to ashes on the lip." The more probable conclusion respecting the Apples of Sodom is that of Canon TRISTRAM, who says:—"Observations of the relative abundance, and of the geographical distribution of the plants of the Dead Sea, would lead me to the conclusion that the simile of the Vine of Sodom is taken from the Colocynth (Citrullus Colocynthis), which has long, straggling tendrils or runners, like the Vine, with a fair fruit to look at, but nauseous beyond description to the taste, and, when fully ripe, merely a quantity of dusty powder with the seeds inside its beautiful orange rind."

—— DWARF SCABIOUS FOR AUTUMN AND WINTER.—The admirable examples of these growing in pots shown at the last meeting of the Royal Horticultural Society by Mr. J. ROBERTS, of Gunnersbury Park Gardens, proved an ample and complete vindication of their usefulness for the purpose sought by Mr. ROBERTS—a supply of flowers during the late autumn and winter months. We are indebted to the Continental florists for this useful dwarf strain of Scabious, and Mr. ROBERTS and others have demonstrated their great usefulness for pot culture. The seed is sown about the middle of July, and the best and strongest plants are selected for potting, and are placed first in 60, then in 32, and eventually in 24-sized pots; and being treated to good soil and well looked after they grow into bushy specimens, and at the blooming period throw up successionally a large number of flowers. There is no "coddling," and those who attempt to grow these Scabious in pots should carefully avoid it. During the summer the pots are plunged out-of-doors in a bed of cocoa-fibre or some such material, and well looked after in the matter of watering, and the plants are not housed till some protection is necessary. Unless it is desired to expand some of the flowers quickly, it is not wise to give them a strong heat—a house from which frost is excluded is sufficient in mild open weather, but during frost or cold rain a little fire-heat is necessary. One characteristic of the dwarf Scabious is especially noticeable—that of throwing up successional flowers in great abundance. On some of Mr. ROBERTS' plants were flowers much finer than we have seen in the open ground, showing that careful culture does much good in the way of developing fine blooms.

—— RHIPSALIS HOULLETTII.—The genus Rhipsalis affords several examples of plant mimicry; R. salicornioides, for instance, bears a very marked resemblance to our native Marsh Samphire, and others might be mistaken (when out of flower) for plants belonging to widely different natural orders. R. Houllettii is a distinct and desirable plant, with long leaf-like branches from the axils of the teeth, of which the pretty straw-coloured scented blossoms are freely produced. Nothing definite is known of the history of this species, though it is probably a native of Brazil. A figure appeared in the *Botanical Magazine* some half-dozen years ago, and the incidental remarks of Sir JOSEPH HOOKER as to the difficulty in running down the names of garden plants, may be reproduced with advantage at the present time. This difficulty, he says, "is, through obvious causes, becoming immense, and will soon be insuperable. I can recommend no more useful object to a Horticultural Society, than the organising a committee for the collection and classification (with references) of the names of all plants introduced into cultivation, together with the countries the plants come from, and their date of introduction."

—— ORIGIN OF THE ADVENTITIOUS ROOTS AND LEAF-BUDS ON THE LEAF-CUTTINGS OF SOME SPECIES OF PEPEROMIA.—A very interesting account of this phenomenon, by Dr. E. BEINLING, will be found in COHN'S *Beiträge zur Biologie der Pflanzen*, vol. iii., p. 25, pl. 4 and 5. The questions the author has endeavoured to answer are three, namely:—How do the tissues change at and above the cut surface of the cuttings? How do the roots originate? How do the buds originate? We have only space to say that Dr. BEINLING traced the origin and development of the adventitious roots in the cambial region of the vascular bundles, and the buds in the fundamental parenchyma just under the cut surface, never in the vascular bundles.

—— DAPHNE PAPYRACEA.—This is an important as well as ornamental species of a genus containing not a few valuable garden plants. The present one is represented amongst economic plants at Kew by a nice example now bearing a number of its pretty white flowers. As a greenhouse or conservatory plant the species is well worth cultivating, although the interest attaching to it be altogether put aside.

From its bark is prepared in India a paper which is of some value on account of its great durability and comparative immunity from insect attacks. For these reasons it is used for genealogical records, deeds, &c. According to MURRAY many of the books in Nepaul, written on this paper, are of considerable age, and the art of making paper there seems to have been introduced about 500 years ago from China, and not from India.

—— YEW BERRIES.—A CAUTION.—A case of poisoning occurred last week at Glasnevin from incautiously eating the berries of the Yew. The victim in this case was a little girl, aged six years, daughter of a labourer in the Botanic Gardens, named M'CABE, It was, however (says the *Irish Farmers' Gazette*), while in the Glasnevin Cemetery with two or three other little companions that the child picked the berries from some of the Irish Yews that border the walks, and swallowed them. It does not appear that the other children suffered, though in all probability they, too, ate some of the berries; but it would appear from the inquest that the poor little victim to its temerity was a weakly subject and constitutionally delicate.

—— CRYSTAL PALACE SCHOOL OF GARDENING.—On November 30 Mr. F. A. FAWKES delivered the last of his series of illustrated lectures to the students and the public on "Horticultural Buildings." The first part of his remarks was devoted to show-houses. Starting with the assumption that a conservatory must be regarded as one of the reception rooms of the dwelling-house, and that consequently the conservatory must be constructed to approximate architecturally to the other part of the dwelling-house, he proceeded to show the futility of regarding the functions of a growing and a show house as identical. From the disregard of a clear appreciation of these points innumerable mistakes are multiplied, for gardeners are too prone to condemn a conservatory because it may not be suitable for growing plants, and architects too often tack a hideous excrescence on to a dwelling-house because they feel fettered by the requirements of growing purposes. Mr. FAWKES then discussed at some length the various conditions which go to make up a practical, useful, artistic, architectural conservatory. Sketch plans of various legitimate ornamental details, most useful to those who have to design conservatories, were illustrated and explained. Heating by hot water was then dealt with. The principles involved were glanced at, and their simple application explained. Then, by means of diagrams, the audience was led up by easy stages till the description of a complicated apparatus was reached. Tables of the amount of pipe required in various classes of houses to produce various temperatures, also the means of arranging the piping in the best manner, were then shown. The functions and data connected with mains, expansion-boxes, supply cisterns, air-pipes, and joints were given; and the proper and effective measurement of boilers, as well as the various classes of boilers, received attention. "In conclusion," said the lecturer, "I may mention, as you have doubtless already observed, that a knowledge of the construction of horticultural buildings embraces, and, in fact, necessitates, a knowledge of the details of a great many trades—the excavator, the bricklayer, the mason, the joiner, the smith, the engineer, the painter, the glazier, &c. I have, in a very cursory manner, explained to you as many of these details as I could introduce in the time at my disposal. It is for you to follow up this interesting subject in the course of your professional career, and to bring to bear upon it your horticultural experience. As Lord BROUGHAM once said: "It is very necessary for your success in life that you know something of everything; but it is quite as necessary that you also know everything of something!" The next lecture is to be on the "Culture of the Heath," by Mr. H. E. MILNER, A.M.I.C.E., illustrated by practical demonstrations of the methods of propagation by Mr. B. MALLER, of Lee.

—— BEGONIA INSIGNIS.—For flowering in November this fine old variety is still unrivalled. It would be hard to name any modern purpose of decoration to which it may not be turned to good account. As a single vase plant it is just the thing, and may be grown of any size, whether large or small. The drooping habit of the plant is a merit in itself. In a cut state it hangs gracefully over Fern fronds, and if the plants are kept close to the glass when the flowers are opening the rich pink tinge comes out much more brightly, instead of the pale white colour of the flowers when grown under dense shade.

—— HARDY PLANTS.—The following plants, which are as yet not common, are now flowering in the open air in Mr. J. S. WARE's nursery at Tottenham:—Hyacinthus romanus, Galanthus Elwesii, Iris alata, Leontice vesicaria, and Hellebores and Hepaticas in varieties.

—— RHIPSALIS CASSYTHA.—In the succulent-house at Kew this singular, and moreover rather pretty, plant is now bearing a crop of its pretty Mistleto-like berries. It has fleshy-jointed, cylindrical, leafless branches and white flowers. Although it succeeds perfectly under cultivation, grown just like other succulents in any sandy, well-drained loam, yet in the West Indies it is found as an epiphyte suspended from the branches of trees. In that charmingly written and wonderfully interesting book of travel, KINGSLEY's *At Last*, the author thus alludes to the species:—"And last, but not least, that strange and lovely parasite, the Rhipsalis Cassytha, which you mistake at first for a plume of green sea-weed, or a tress of mermaid's hair, which has got up there by mischance; and then for some delicate kind of pendent Mistleto; till you are told, to your astonishment, that it is an abnormal form of Cactus—a family which it resembles, save in its tiny flowers and fruit, no more than it resembles the Ceiba tree on which it grows, and told, too, that, strangely enough, it has been discovered in Angola—the only species of the Cactus tribe in the Old World." In the English edition of *Le Maout and Decaisne*, the editor (Sir J. D. HOOKER) mentions the fact that a Rhipsalis has been discovered in Ceylon.

—— FERTILISATION OF RHEXIA VIRGINICA.—In the *Torrey Bulletin* for September Mr. W. H. LEGGETT describes the mode of fertilisation in this pretty North American Melastomacea, figured in *Gardeners' Chronicle*, 1878, vol. x., p. 269. Like most members of its natural order it has singularly constructed anthers; the only opening in the anthers of this particular plant being a very small, almost invisible pore at the apex. This pore has been regarded by many writers as of insufficient capacity to permit the escape of the pollen; Mr. LEGGETT's investigations led to the discovery of the mode in which the pollen is expelled. He says:—"If we open the bud of a Rhexia just about to expand we find the pistil [style] rising considerably above the circle of eight stamens which surround it, but with the lobes of the stigma yet unseparated. In this stage the stamens are inflexed, so that the anther is enclosed between the filament and the style, the back of the connective resting on the style, and the polliniferous tube confined between the connective and the filament. . . . When the flower expands, the stamens arrange themselves in two sets, four on each side of the style. Each anther stands on the top of its filament, so that while the vertex is turned toward the lower part of the flower it is, nevertheless, much more elevated above the floral plane than the puffed-out lower portion. The polliniferous portion of the anther consists of a single sac, which may be described as consisting of three parts—an inflated lower portion, a narrow tube, and a very small oblate spheroid, flattened parallel to the upper surface of the anther. The upper pole of this tiny sphere contains a pore so small as to be scarcely discernible to the naked eye. Under the polliniferous sac is the connective, reaching from the top to near the lower end, and there issuing in a small spur-like process, which presses with its point against the upper part of the filament. While the stamens are attaining their position the style elongates, bends downward and turns up its stigma, which thus becomes considerably below and behind the anthers. At the same time its lobes separate, and the viscid, stigmatic surface is exposed. In this position the stigma affords the first resting-place for a bee alighting on the flower, and must catch any pollen that may be adhering to its abdomen. As the bee advances upwards towards the tube of the calyx he treads upon the inflated sacs at the base of the anthers, which yield to the pressure, and, acting like bellows, force through the minute pore a jet of pollen directly upon the rear or side of the intruder, and away from the stigma." Mr. LEGGETT adds that he could not get near enough to see the action when effected by a bee, but that it may be easily seen by touching the bellows with a blunt point, when a surprising quantity of pollen is discharged upon the instrument. When touched in this way the anther springs forward simultaneously with the ejection of the pollen, and then immediately springs back to its former position.

—— ESCHYNANTHUS SPLENDIDUS.—Had not this been a stove plant its usefulness for furnishing baskets in winter would no doubt have received more attention; as it is, the natural habit of the plant, and the glowing colour of its flowers, is worthy the notice of those who have much to do with this particular branch of furnishing. An intermediate temperature for a week or two before such plants are taken into rooms would prepare them for a change of temperature, and the effect produced is worth more than the trouble involved in preparing the plants.

—— CULTIVATION OF USEFUL PLANTS IN COSTA RICA.—In a report from San Jose, Costa Rica, it is stated that besides Coffee, which will always be the principal article of export from the country in consequence of the soil being so well suited for its cultivation, Beans, corn, Rice, Sugar, and Cocoa are also grown for home consumption and but for the costly conveyance to the port would be more largely cultivated for export. The only new features to be observed under this head is the cultivation on the coast of Bananas and Cocoa-nuts on each side of the railway between the River Sucio and Limon which in time promise to be articles of considerable export, the want of a railroad hitherto for conveying the fruits to Limon having to a large extent prevented their cultivation.

—— PUBLICATIONS RECEIVED.—*The Walnut, Chestnut, and Filbert:* by D. T. FISH (*Bazaar* Office, Strand).—*Hydro-Incubation, its Theory and Practice* (seventh edition): by THOS. CHRISTY, F.L.S. (155, Fenchurch Street, E.C.).—*The City Diary*, 1882 (COLLINGRIDGE).—WARD & LOCK's *Illustrated History of the World*, part 2.—*Amateur Work Illustrated*, a new monthly magazine, edited by the author of *Every Man his Own Mechanic*, and published by WARD, LOCK & CO.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending November 28, issued by the Meteorological Office, London:—The weather has been generally rough, squally, and unsettled. Heavy rain has fallen in nearly all places; in many localities frequent and vivid lightning has been observed, and in some districts thunderstorms have been experienced. The temperature has again been above the mean, the excess varying from 6° in "England, S.," to only 1° in "Ireland, N." The maximum readings ranged from 54° in "Scotland, E.," to 59° over central England and in "Ireland, S.," and to 61° in "England, N.W.;" while the minima, which occurred generally on the 26th, were as low as 31° in Ireland and the N.E. of England, and from 32° to 35° elsewhere. The rainfall has been more than the mean in all districts, the excess being most striking in Ireland and the West and South of England. Bright sunshine shows a decrease in nearly all places; the percentages very low, ranging from 14 in "Scotland, W." to 37 in "Ireland, S." Depressions observed:—This period has been marked by exceedingly rapid changes in pressure accompanied by furious gales. On the 22d a very deep depression lay off the north of Scotland, causing exceptionally heavy gales at all our more northerly stations, and fresh gales in the south. As this disturbance travelled towards Scandinavia the violence of the wind abated, but on the 24th the barometer fell again quickly in the west, and strong southerly winds and gales were experienced on all our western and north-western coasts. On the following day the wind was generally moderate; but another, and still deeper, depression approaching us from the Atlantic during the 26th and 27th, south and south-west gales of great force again set in, and raged with slowly increasing energy until the morning of the 28th.

—— GARDENING APPOINTMENTS.—Mr. ROBERT MCKENNA, late Foreman, The Gardens, Charleville Forest, Tullaghmore, has been appointed to succeed the late Mr. CARPENTER as Gardener to the Right Hon. the Chief Secretary, at The Lodge, Phœnix Park, Dublin.—Mr. JOHN GOUGH, late Manager to the Sutton Coldfield Crystal Palace Company, near Birmingham, as Head Gardener to GEORGE WEBSTER, Esq., Harefield Grove, Rickmansworth.—Mr. W. SIMPSON, late Gardener at Norman Court, Salisbury, as Gardener to Sir GEORGE JENKINSON, Bart., Eastwood Park, Gloucestershire.

SHRUBLAND.

This princely residence, now the seat of Sir George Broke Middleton, is in the Italian style of architecture, and stands on high commanding ground overlooking the fertile valley of the Gipping, which narrow silvery stream threads its course through low-lying meadows, rich in pasture, till it joins the lovely Orwell, and mixes with its tidal waters. There are two carriage approaches to the mansion, the one leading out of the fine broad Norwich Road from Ipswich, passing in through the gates of a lofty commodious lodge into the park, where, owing to the light sandy nature of the soil, the trees are small and poor; and the other from Codenham, which is at a much greater elevation, but the land is deep and rich, and the timber remarkably fine, which gives to this portion of the domain an air of grandeur that only such arboreal ornaments like those seen here can afford. The most remarkable trees, however, about the estate are some Sweet Chestnuts, standing by the side of a broad walk to the right of the house, which trees are supposed to be not less than 1000 years; besides their great size, making them very noticeable, they are knotted and gnarled in the most peculiar manner, and have, as is common in such trees, a singular spiral twist in the bark.

The ground from where these Chestnuts are growing dips very rapidly, and on the slope of the hill, leading to a long, straight walk, fine clumps of Rhododendrons are growing. This is the only place in the grounds where these shrubs succeed, as in all other parts there is more or less chalk, which is fatal to Rhododendrons, but which just suits Box, as may be seen at a glance by the luxuriant health the plants here are all in. Passing along the walk referred to on the right, and running its entire length, is a ribbon border, and on the left Nature holds sway, and appears battling with Art, and if she could snuff out man's handiwork here and in other parts, and assert her own, the gardens of Shrubland would most assuredly gain by the change. As, however, there are some 50 acres of ground, there is room for all styles, but where the mistake has been is in bringing them in violent contrast, as is generally the case when architects get meddling and doing the work of landscape gardeners, for instead of trees and shrubs being used for ornament, we get statuary and stone, which, instead of improving with age, perish, and entail on the owners an endless expense. For all this, Shrubland would perhaps have been incomplete without the terrace, as the mansion is so situate as to almost require one; and the view from it looking down the broad flight of steps to the fountain and panel garden below, and the pleasure-grounds and country beyond is striking and grand. The beds on the terrace garden are large and bold, with a broad band of turf as a margin, and then a stone edging, which raises them above the level of the gravel walks about 6 inches and gives a much better effect. The panel garden at the foot of the steps is sunk about 18 inches, and has grass slopes, and the beds laid out with Box on gravel, and at the time I saw them they were well filled, the centres ones on each side having Calceolaria amplexicaulis quite in perfection.

Leaving this part of the ground, we now wend our way over a rustic bridge clothed with Vines and other suitable plants, through a wild part to the pleasure-ground, where there are fine expanses of lawn with large natural looking irregular shaped beds, planted with suitable trees and shrubs, till we come to the summer-house, which is a building constructed principally with split Larch poles, and which was covered with Virginian Creeper and ornamental Gourds. Near here, in suitable positions, are the fine-foliage beds, the principal plants used to fill them being Giant Hemp, Maize, Castor-oil, and Cannas. Next to these comes the Rose garden, which is surrounded with arches covered with climbers, the arches terminating in one bigger and loftier, over a seat, from which the Roses in the beds can be seen and enjoyed. We now pass on to the fountain garden, where there are numbers of beds cut out on grass, and all filled with the usual class of bedding stuff, arranged with great judgment and taste. Bedding, however, does not end here, but extends on in different forms up to the hardy fernery, which is under the shade of trees, and fashioned by the use of large tree stumps and roots.

From here, the upper lawn leading on to the conservatory is reached, passing on the way a small summer-house, in the back of which is what looks like a mirror in a frame, but which when peered into is found to be an illusion, and instead of scenery behind being reflected, a magnificent landscape is seen stretching itself far out beyond.

The conservatory is attached to the mansion, and the floor of it is considerably below the level of the room looking into it, and from which it is reached by flights of steps, and shows to much advantage from the windows, so much above the heads of most of the plants. The pillars supporting the roof are furnished with Abutilon Thompsoni, Habrothamnus elegans, and Bougainvillea speciosa; and these, and a Maréchal Niel, with Passifloras and Bignonia, also go partly over the girders. The permanent subjects below are large Palms, Camellias, and Orange trees, in boxes or tubs, and the spaces between these are filled up with flowering plants as they come on in their season. Numbers of plants also are grown and used for embellishing the hall, staircase, and rooms of the mansion, and the houses for cultivating these in are at the kitchen garden, where small semi-span structures are filled with a lot of young useful stuff that will afford a quantity of flowers during the winter. The principal things grown for this season are Eucharis amazonica, Euphorbia jacquiniæflora, Poinsettias, Browallias, Sericographis Ghiesbreghtii, Gesneras of sorts, and Heterocentron roseum. The stove is a span-roofed house, about 50 feet long and 15 feet wide, and has a bed in the middle, in which, at equal distances, three plants of Musa Cavendishii are grown; and these, besides yielding huge clusters of fruit, are valuable on account of their bold foliage, which gives character and is always handsome to look on. The shelves and stages on the north side are filled with Ferns, among them being numbers of Adiantum for cutting from, and, as they get plenty of light, the fronds are hard, and therefore last well in water. On the sunny side of the house Dracænas, Crotons, and variegated Pines are chiefly grown, the last named being very short and stocky in the leaves, and coloured up better than I ever remember to have met with before. The Pelargonium-house, 50 feet by 15 feet, is a very light useful structure, in which there is a rising stage to set the plants on, so as to bring them well up near the glass, where they keep free from spot and always grow short-jointed and strong. Some zonals standing out in the full sun and only potted in 6-inch pots were pictures, they being very dense and bushy, and just such as one may depend on to yield a fine harvest of bloom during the short dull days now coming upon us. One of the most useful structures at Shrubland is a north house, a high lean-to, where during summer plants may be retarded at will, and in winter it comes in very serviceable for storing Azaleas or any half-hardy things that may be required for forcing. In the frame-ground, every part not needed for pathways is utilised by having temporary beds made up for bedding stuff, and as this is cleared off the vacant places are at once refilled with Solanums, Linum trigynum, Cyclamens, Libonias, Chrysanthemums, and such-like, that are all planted out to make their growth there during the summer. Not only do they keep much healthier and make far better plants in this way, but there is much time and labour saved in watering, as they require far less attention than when their roots are confined to the limited area of a pot.

The vineries and early Peach-house form a long range of lean-to's, in six divisions; and as the Vines in these were getting old and unsatisfactory Mr. Blair, the able gardener to Sir George Broke Middleton, has made new borders and had them fresh planted, and, judging from the fine rods the Vines have already formed, a splendid show of Grapes will soon be the result. The second early Peach-house is a span-roofed building attached to the stove, and has a trellis in the ordinary way up near the glass, on which the trees are trained, and are full of ripe bearing wood, the sorts being Violette Hâtive, Noblesse, Barrington, and Salwey, which afford a long succession of fruit. To yield a supply after these there is a large orchard-house, having a semi-span top and sliding front sashes about 6 feet high, which let in a flood of light and sun, so that besides the trees which furnish the back wall there is a row of bush Cherries and Plums along the side of the pathway, and as the air can play fully on these they always set well and give magnificent crops. The Fig-house is a similar kind of structure, and here the trees are confined to the wall, where they are tied to strained wires, and the front is utilised for growing Tomatos. Pines are grown in close snug houses, with plenty of command of heat both top and bottom, which is afforded by one of the large Trentham boilers, which does the greater part of the work in this large and important gardening establishment.

Melons are had nearly the whole year round, and in such quantities as are seldom seen. The way they are managed in the houses, which are very small semi-span, with a narrow pathway through the back and a bricked-up bed in front, is to have a little sweet fermenting material of dung and leaves, on which sods of fresh cut loam are laid. This loam is not more than 6 inches deep, but the plants, after a time, strike through and their roots then thread about the decomposing dung and leaves, which helps them very materially in the swelling off and perfecting their fruit. The favourite sorts are Read's Scarlet-flesh, Colston Basset and Bath, but several others are grown for the sake of variety. Strawberries in pots for forcing are here in their thousands, the kinds being Vicomtesse Héricart de Thury, for first earlies, followed by Keens' Seedling, President, Sir Charles Napier, Dr. Hogg, and British Queen, the Keens and Queens being those most depended on. Physalis edulis, the Cape Gooseberry, and Eugenia Ugni are also grown, the former being trained on any low vacant parts of walls and the latter as large bushes in pots, from which many dishes of fruit are gathered.

The kitchen garden is in several compartments, the main one being divided into quarters, with pyramidal Pears and Apple trees planted along the sides of the walks. Raspberries are grown tied to strained wires, which is the most economical way of supporting the canes, as stakes soon rot and require frequent renewal. The principal portion of the Apples is obtained from standard trees, and where quantities are required there is nothing like these for filling the shelves in a fruit-room, and as standards can be grown in orchards with grass under, it is much better to have trees there than to occupy valuable space in a garden. *J. Sheppard.*

THE ZONAL PELARGONIUM

As an Annual, a Bedding, and a Winter-flowering Plant.

The Pelargonium is a very comprehensive genus of exceedingly beautiful plants, so valuable from a decorative point of view that it is possibly unsurpassed by any other group of plants. It comprises various distinct sections, the flowers of which are nearly all very handsome, and some of which are also very fragrant. The whole of this extensive genus of plants is somewhat inconsistently included in the popular but erroneous term of Geranium. In the now generally accepted arrangement of plants, viz., known as the "Natural Arrangement," the Pelargonium is placed in the order Geraniaceæ, which also contains the Geranium and the Erodium, with other less known genera, such as Monsonia and Sarcocaulon, all, or nearly all, the species of which are, like the Pelargonium, indigenous to the southern hemisphere, while the Geraniums and the Erodiums are mostly natives of the northern hemisphere. Some of them, such as Erodium cicutarium and Geranium pratense, G. Robertianum, G. lucidum, G. sanguineum, and G. molle, are natives of Britain.

My remarks at present, however, are intended to apply to the varieties of the Zonal Pelargonium, which, in common with many other groups of decorative plants, has of late years undergone very great improvement; indeed, it would appear that successful efforts had been made to improve what are now known as the "show" varieties of the Pelargonium, long before any one seriously took in hand the improvement of the zonals. The latter are supposed to be in a great measure the result of the blending of two allied species which were introduced to the gardens of this country from the Cape of Good Hope in the early part of the last century, viz., Pelargonium zonale and Pelargonium inquinans, the first-named having its leaves marked with a zone or horseshoe, while the leaves of the latter are plain. But a considerable time must have elapsed after their introduction before any marked improvement in them was effected, as there are no doubt many now alive who are old enough to remember the time when there only existed two or three varieties of the old scarlet or horseshoe Pelargonium. It would hardly be possible now to say with certainty to whom belongs the credit of being the first to effect improvement in this now much appreciated race of ornamental plants, or to

whom we owe the introduction of the modern zonals; but as regards their more recent improvement there need be little hesitation in ascribing great credit to the late Mr. Donald Beaton, the late Mr. Pearson, of Chilwell; Mr. Ball, of Chelsea, Dr. Denny, of Stoke Newington, and several others, who have now furnished us with numerous varieties of great beauty, having flowers of nearly all shades of colour, from the purest white to the most intense scarlet and the richest purple, even approaching to blue, fine in form, and with double as well as single flowers.

If this plant be treated as an annual it is quite possible that the cultivator may derive from this method the greatest amount of pleasure, as the probability of obtaining new and improved varieties of any particular family of plants seldom fails to prove interesting to the cultivator, and it is only by raising plants from seed that new varieties are likely to be obtained. It is true that new forms are sometimes obtained from what are known as "sports," but these are not of frequent occurrence, and there are no known means of inducing their production with certainty.

With the view of securing as far as is possible the early flowering of seedling plants of this family, the seed should be sown as soon as it can be obtained, that is, as soon as it is ripe—say any time during the month of August or up to the middle of September. If it cannot be secured until later than this, it is advisable to defer the sowing of it until the early part of February. If sown during August most of the plants will probably be in bloom by the end of the following June if retained in pots and kept under glass. If planted in the open air about the end of May their flowering may commence somewhat later, but this will afford a better opportunity to judge of the merits of individual plants than when all are retained in pots under glass. If the object of raising such plants from seed is that of obtaining improved or desired varieties, then care must be exercised in the selection of the parent plants, and the blooms must be fertilised artificially, and means used to prevent self-fertilisation. If, on the other hand, seed is merely required, and the plants intended to bear seed—probably all of one variety—are placed in an airy and sunny situation under glass they will generally seed freely enough, although it is at the same time advisable to occasionally distribute the pollen by the aid of a small soft brush or camel-hair pencil; and this should be done on the mornings of fine days.

The seed when ripe may be sown in well-drained pots 5 or 6 inches in diameter, filled to within half-an-inch of the rim with any ordinary light soil; the seeds may be sown tolerably thick, and gently pressed into the soil, and slightly covered with a portion of the same, finely sifted; the soil should then be watered with a fine rose, and the pot covered with a pane of glass, and placed in a temperature of say 65°, more or less, and in little more than a week most of the seeds will have vegetated, when the pane of glass should be removed; and as soon as the seedling plants are large enough to be handled they should be pricked into seed-pans, and kept near to the glass in a temperature similar to what has been named, until the plants have fairly got hold of the fresh soil, when they may afterwards be wintered in an ordinary greenhouse temperature, still keeping them pretty close to the glass. About the end of February, or early in March, the plants should be potted singly into 3-inch pots, in which they may be allowed to remain in cold pits or other structures, where frost is excluded, until the time arrives when they may be bedded out in the flower garden; or, if the plants are intended to be flowered in pots under glass, they should be be transferred into pots some 5 or 6 inches in diameter during the month of April, and most of them will be in flower by the end of June or early in July.

Having thus endeavoured to show how the zonal Pelargonium may be successfully grown as an ordinary annual, which will bloom some ten months from the time of the seed being sown, the value of this plant as a bedder in the flower garden or parterre may now be briefly alluded to, and for this purpose it is certainly indispensable. To feel perfectly convinced of the truth of this assertion, we have only to imagine for a moment the flower garden entirely divested of all its numerous varieties. It is true, indeed, that it has of late become the fashion to exclaim, more loudly perhaps than was quite necessary, against the so-called glare and vulgarity said to be produced by this and other plants having warm or bright-coloured flowers when arranged together in the parterre, and it cannot be denied that a too free use of such plants has in many instances been indulged in. This, however, we may be allowed to think, hardly justifies the condemnation and ridicule which it has been attempted to cast upon them; and in spite of which, plants with bright flowers will continue to be admired and appreciated when judicious use is made of them in the flower garden and elsewhere.

It has already been said that if the seed of zonal Pelargoniums is sown sufficiently early, the plants raised therefrom will commence to bloom early in the summer, and such plants may, if desired, be used for the purpose of bedding-out in the flower garden. The mixture of colours in the flowers of such plants, as well as the dissimilarity in habit of growth, might in some cases be objectionable. This, however, can to a great extent be obviated by saving the seed from one variety only, the plants of which should, as far as possible, be isolated from other varieties when in bloom; then the probability will be, that the seedling plants will, to a great extent, "come true," as it is said, that is, be all alike, or nearly so; and such will form very effective beds or borders, and they will generally bloom pretty freely, particularly if planted in light, and not too rich soil. But even if they are somewhat later in coming into flower than propagated plants of the same kind, the neat and tree-like habit of seedling plants, with their fresh and healthy leafage, will in a great measure compensate for any apparent paucity of bloom or for late flowering. Propagated plants, however, are what are mostly used for furnishing the flower-beds, and these are so easily increased by means of cuttings taken off pretty early in the autumn, and inserted in light sandy soil, in pots, pans, or boxes placed in the open air, or even inserted in the open border, that little need be said with regard to their propagation. When such cuttings are inserted in boxes or pots they are generally wintered in the same, protected of course from severe cold and frost, and they should be potted off singly in spring. In many instances, however, it is not found to be convenient to do this, and they are retained in such boxes or pots until they can be transferred to the flower-beds. Plants, however, struck in the open border must necessarily be taken up and potted before it becomes very cold. The old plants from the beds may also, if required, be potted, and cuttings taken from them in spring, but autumn-struck cuttings are now generally preferred.

For the purpose of winter flowering there are certainly few groups of decorative plants capable of furnishing a more beautiful and varied display of flowers than the zonal Pelargonium when specially treated for this purpose, and the most fastidious, it may be hoped, will hardly object to or complain of the brightness of their blooms during the dull dark days of winter. Moreover, it so happens that the sun's declining rays, or other influence, results in developing in the flowers of these plants tints and shades of colour much more lovely than the same flowers produce during the bright and sunny days of summer-tide.

In preparing plants for winter flowering, a good deal necessarily depends upon the selection of sorts; and the selection should be made not later than the beginning of March. The plants selected for the purpose should have been struck as cuttings during the previous autumn, unless larger specimens may be desired, when well-balanced suitable plants may be selected from the flower-beds, or elsewhere, cut back, and potted before the autumn is far advanced, and afterwards treated in the way now to be recommended for younger plants struck as cuttings in the autumn. If such plants are in small 3-inch pots, they should, early in March, be transferred into pots at least a size larger, and in the early part of May should again be shifted into pots some 6 inches in diameter. Some of the stronger growing kinds may have pots a size larger than this, if large specimens are desired. The soil best suited for them is a rather stiff turfy loam, with a portion of leaf-mould, [and a few lumps of charcoal, and the pots should of course be well drained. The plants may then be placed in a cold pit, near to the glass, with abundance of air by night as well as by day when the weather will permit, and by the beginning of June they may be fully exposed. All trusses of bloom should be removed as soon as they appear; over-luxuriant shoots should be stopped, and, if necessary, removed; others may be regulated by means of stakes, so as to give form to the plants, and to admit light and air in order to thoroughly ripen the wood.

Early in October the plants should be placed in their winter quarters, which should be pretty near to the glass, and abundance of air should be admitted to the structure containing them whenever the weather will permit. The stopping of the shoots and the removal of embryo blooms should now be discontinued. The plants should have water as required, and water, holding soot in solution, may be freely given with great advantage to them, together with sufficient fire-heat to prevent the temperature falling under 55°. So treated the plants will be generally in full bloom by the beginning of November, and with proper care will flower throughout the winter months.

Several of the double and semi-double sorts, as well as the single-flowered varieties, are found to be useful for this purpose, but the single-flowering kinds are no doubt the best for this purpose, such as Burns, a light scarlet, with white eye; Culford Rose, a strong-growing plant, with large, rose-coloured trusses; Colonel Seeley, scarlet, with white eye; Dora Charlton, crimson, with white eye: Jennie Dodds, magenta colour, and free flowerer; Lizzie Brooks, salmon-scarlet; Louisa, lilac-pink; Marguerite Ponton, salmon, with white eye; Salmon Vesuvius, salmon-coloured; Sybil Holden, lilac-pink; Rosa Bonheur, magenta-coloured, and very fine; Vesuvius, fine scarlet; and possibly New Life, a scarlet-striped variety—as well as many others. *P. Grieve.*

GREENHOUSE FLORISTS' FLOWERS.

Amaryllis.—We have now placed our whole collection on the back stage of a vinery where the Grapes are yet hanging, and the dry rather warm atmosphere will tend materially to mature the bulbs. When they get dusty dry it is as well to give them some water; probably this may be done about two or three times, before the time for repotting the bulbs and starting them into growth again.

Azaleas.

A few plants of the early white-flowered varieties may be placed in heat at once, and if the buds are very forward they would be in flower about Christmas. Successional plants must be put into heat at intervals of two or three weeks, according to the requirements of the place. The whole collection of plants should be now in a position near the glass where they will be freely exposed to light and air. Do not give the plants any water at the roots until they really require it, and then give a thorough watering. They must not be allowed to become dust-dry, else the roots will be injured. See that no insect pests are allowed to remain on the leaves; they must be destroyed either by dipping in diluted tobacco-water or by fumigating.

Chrysanthemums.

Our plants were out rather too late; but, independent of that, none of them seem to be quite so good as usual. I fancy the very hot weather we had during the summer gave them a check that they have not recovered from. It seems that the stems were hardened, or injured in some way, which checked the flow of sap up the main channels. This is apparent from the fact that suckers from the base have been produced early, and they are much stronger than usual. This may answer very well for nurserymen who require a large stock of plants, but amateurs generally have more than they require; indeed we have found it necessary to thin them out very freely.

Calceolarias.

Plants that have been propagated by cuttings should be potted off as soon as it is seen that roots are formed, and the same with seedlings; they are very small at first, but by shifting them on into single pots from the pans in which they had been pricked out they soon grow away freely. Indeed the secret of doing any of these free-growing soft-wooded plants well is to keep them growing on in a suitable temperature freely up to the time they come into flower. The Calceolaria can stand more cold than any of the others, but it is dangerous to allow frost to get in. If the plants are yet in cold-frames, or pits, they should be protected by double mats at night if frost is likely to be severe. Watch very carefully for green-fly; if this pest gains any advantage it is most difficult to

dislodge, and sadly injures the plants. Tobacco-smoke is the best remedy by far.

CHINESE PRIMULAS.

The double white variety, White Lady, is now finely in flower; and what a useful decorative plant it is, and the flowers are excellent for cutting to work into bouquets; they, as well as the single varieties, seem to do best in a warm greenhouse. Later sown stock should be potted on as they require it. The plants ought to be placed near the glass, to be well exposed to the light, to bring up the colour in the flowers.

CINERARIAS.

The earliest plants are now opening their flowers, and have been removed to the greenhouse. Plants for succession must now be placed in a heated house or pit. They do not like a cold, damp, confined atmosphere at this season, as it causes the plants to lose their bottom leaves. The cold east wind we have had lately has also been injurious to them, or would have been, if we had not taken care to keep it from blowing directly on them; at the same time the plants require plenty of fresh air. Still continue to tie out the flowering growths to form good specimens to flower in the spring. When the pots are well filled with roots weak cow-manure water imparts richness in colour and quality to the flowers.

HYACINTHS.

Pots of the earliest should now be placed in a house where they can be gently forced. Let them be near the glass; give water freely when the flower-spikes appear, and weak manure-water at every alternate watering. Quality and richness of colouring in the flowers can only be obtained by keeping them near the glass. They require full exposure to the sun at this season. The same instructions apply to Tulips and the Polyanthus Narcissus.

PELARGONIUMS.

A main point now is to keep the houses dry; avoid spilling any more water than is absolutely necessary. Instruction as to dryness is not so important as it was some years ago, when the houses contained so much more timber and woodwork than they do now; still it is best to keep a dry airy atmosphere, and the plants should yet be encouraged to make good growth. More than many other plants the Pelargonium delights in being kept clean. The woodwork and glass should now be made quite clean, and also the stage on which the plants are placed. Let sufficient space be permitted between each plant; remove decaying leaves at once, and tie out into form the most forward specimens.

ZONAL PELARGONIUMS.

These are now the most valuable decorative plants we have. Their rich and varied colours are admirable for furnishing greenhouse or conservatory with a rich store of brilliant flowers. All they require is a warm dry atmosphere to bring them into flower; in other respects they receive the same treatment as other soft-wooded plants. *J. Douglas, Loxford.*

PLANT PORTRAITS.

ACER MACROPHYLLUM, Pursh., *Monatsschrift d. Ver. z. Bef. d. Gartenb.* 1881, t. 8.—Flowers, fruit, and leaf of this, one of the noblest of the genus.

APPLE STIRLING CASTLE, *Florist*, Oct., 1881.—Leaves broadly ovate, shortly acuminate, coarsely serrate; fruit large, globose, green, speckled with black spots, orange-red on the sunny side; stalk short, in a deep basin; eye large, half-closed; flesh white, subacid. Valuable as a market fruit, being a free-bearing variety, coming into use in September.

ARISTOLOCHIA ALTISSIMA, Desfontaines, *Bot. Mag.*, t. 6586.—Climber, with glossy cordate ovate-acute leaves, and purplish curved trumpet-shaped flowers. The Levant. It needs protection in winter. Hort. Kew.

AZALEA ALBA SPECIOSA PLENA, *Iconogr. Azalea*, tab. 1.—Flowers large, very double, purest white. Raised by Mr. Schulz.

AZALEA ANTIGONE, *Iconogr. Azalea*, t. 3.—Flowers large, symmetrical, semi-double, ivory-white, striped, spotted and dotted with violet. Raised by Mr. Schulz.

AZALEA INDICA ANTIGONE, *Revue de l'Horticulture Belge*, November 1.—Flowers white, semi-double, striped and blotched with red.

AZALEA MADAME PAUL DE SCHRYVER, *Iconogr. Azalea*, tab. 2.—Flowers large, very double, bright violet-rose. Jos. Vervaene.

BABIANA SOCOTRANA, Hook. f., *Bot. Mag.*, t. 6585.—One of the most remarkable of Dr. Bayley Balfour's discoveries in the island of Socotra, the genus being previously known only in South Africa, south of the Transvaal. It is a small plant with a fibrous-coated bulb, glabrous lanceolate plicate leaves, 3—4 inches long, and solitary lilac flowers. Hort. Kew.

BEGONIA JAMES MCINTOSH, *Floral Magazine*, t. 470.—Flowers large, of good substance, crimson-red. Royal Horticultural Society, Chiswick.

BULBOCODIUM PERSICUM, Boiss., VAR. TURKESTANICA, *Gartenflora*, t. 1058.—A variety of Merendera persica, differing in the shorter leaf-sheath.

CAMPANULA ALLIONII, Villars, *Bot. Mag.*, t. 6588.—A species with a slender creeping rhizome, from which are thrust up the slender stems 3—5 inches high, with linear-lanceolate pilosulous leaves and large terminal bell-shaped lilac-blue flowers. Alps of Piedmont. Introduced by Mr. Maw.

CYPRIPEDIUM LÆVIGATUM, *Revue de l'Hortic. Belge*, June, 1881.—Leaves oblong-lanceolate, rather obtuse; sepals ovate, tail-pointed, white, with purplish brown stripes; lateral petals very long, narrow, twisted, yellow and warted at the base, elsewhere purplish-brown; lip obtuse, hooded, yellowish. Philippines.

CYPERUS LAXUS VARIEGATUS, *Floral Magazine*, t. 471.—A variegated form of this elegant plant, and like it adapted for room decoration. General Horticultural Company.

DROSERA CAPENSIS, Linn., *Bot. Mag.*, t. 6583.—A species with a short erect stem, bearing a tuft of long-stalked, oblong, strap-shaped leaves, studded with stalked glands; the rosy-lilac flowers are borne in long stalked racemes. See *Gard. Chron.*, iv., p. 105, f. 20, B. Cape of Good Hope. Hort. Kew.

HEATHS, NEW HYBRID VARIETIES, *Florist*, Oct., 1881.—A beautiful plate, representing several lovely hybrids raised by Mr. Turnbull, of Bothwell Gardens. 1, Lord Dunglas, flowers in heads, elongate, flask-shaped, glossy crimson; 2, Turnbullii superba, flowers flask-shaped, rosy-red, limb white; 3, Dr. Masters, flowers elongate, flask-shaped, white with a rosy-pink throat; 4, Savileana bothwelliana, flowers ventricose, neck short, pale rose, in loose terminal clusters; 5, ferruginea bothwelliana, flowers flask-shaped, pink, limb white; 6, Shannoni bothwelliana, flowers long, flask-shaped, white.

HELICOPHYLLUM LEHMANNI, *Gartenflora*, t. 1056.—An Aroid from Turkestan like our common Arum, with lanceolate leaves, and dark violet spathe and spadix.

LEONTICE ALBERTI, *Gartenflora*, t. 1057(2).—A very pretty herbaceous plant from Western Turkestan, where it was discovered by Albert Regel. The corm is subglobose, and sends up a solitary much divided palmate leaf, violet at first, subsequently green. Flowers closely set in terminal racemes, orange-yellow, each in the axil of a violet bract.

LILIUM POMPONIUM, *Garden*, Oct. 22.

MERENDERA RADDEANA, Regel, *Gartenflora*, t. 1057(1).—A Colchicum-like flower, but produced with the leaves. Native of the Caucasus.

MONTBRETIA CROCOSMIFLORA, *Floral Magazine*, t. 472.—Resembles Tritonia aurea, but the flowers are in two-ranked spikes. Cape of Good Hope. M. Victor Lemoine.

NUNNEZHARIA TENELLA, Hook. f., *Bot. Mag.*, t. 6584.—"This is, perhaps, the smallest known Palm." The male plant is exactly 9 inches high, and the female 7 inches. The stem is slender, erect; the leaves oblong obovate, deeply cleft into two lanceolate divisions at the apex. Spikes stalked, axillary, slender, and elongated.—Mexico. Hort. Kew. It is the Chamædorea tenella of Wendland.

PEAR EMILE NYSSENS, *Bulletin d'Arboriculture*, June.—A seedling from Passe Colmar, raised by M. Daras de Naghyn. Fruit of medium size, elongate, pyriform, slightly oblique at the insertion of the short stalk; eye flat, open; skin yellowish-brown, speckled; flesh white, juicy, musky. Season, October.

PINK MDLLE. ELSE DE BLICHRÖDER, *Illust. Horticole*, t. 436.—A Pink, like Souvenir de la Malmaison, but with flowers of a rose-pink colour.

PLEUROTHALLIS BINOTI, Regel, *Gartenflora*, t. 1058.—Distinguished from all the species of the elongated section by its cordate elliptic leaves, and sepals twice as long as the petals.—Brazil, Binot. Flowers reddish-yellow.

PYRUS HOSTII, *Garden*, Oct. 8, 1881.—The beautiful rose-coloured variety of the White Beam, or perhaps a distinct species. One of the prettiest of hardy flowering shrubs, but rarely met with.

RHODODENDRON BOOTHII, Nutt., *Revue de l'Hort. Belge*, August, 1881.

STANHOPEA TRICORNIS, *Floral Magazine*, t. 469.—Flowers yellowish-white, becoming tinted with ochre colour. Messrs. Veitch.

TROPÆOLUM HERMINE GRASHOF, *Garden*, Oct. 15.—A Tropæolum raised in Germany. It is of scandent habit, with long wiry stems, and large symmetrical double scarlet flowers of much beauty. Raised in Germany and introduced into England by Messrs. Cannell, of Swanley.

VERONICA CARNOSULA, Hook. f., *Bot. Mag.*, t. 6587.—A miniature shrub, much branched, with decussate elliptic, fleshy, glaucous leaves. The flowers are small, whitish, in terminal heads. Native of the middle island of New Zealand. It is sometimes grown under the name of pinguifolia, which is very like it, but has deep green leaves. Hort. Kew, where it is described as "not quite hardy."

Home Correspondence.

What is a Fruit?—From the article in last week's *Gardeners' Chronicle* I gather that we are not to call the Apple a fruit, but a peduncle-top. This, I think, would in common parlance be impossible, in descriptive botany very inconvenient, and theoretically still very uncertain. The best short definition of a fruit is the one you give—"that part of plants which contains the seeds;" and, as explained in the definitions prefixed to the Colonial Floras, as sanctioned by the late Sir William Hooker, it consists of the ovary and whatever other parts of the flower which are persistent at the time the seed is ripe. This definition is practical, and neither entails the recognition of, nor is opposed to, any theoretical explanation of the origin of the fruit. In the case of the Apple there are different explanations, which have been strongly advocated by different botanists. The core is either the whole pericarp or only the endocarp. The surrounding flesh may be formed from the adnate calyx-tube or summit of the peduncle alone, or by its close combination with a succulent exocarp. In plants with an inferior ovary the calyx is often so perfectly continuous with the peduncle that different botanists have differently assigned the line of separation to the base of the ovary, to the summit of the ovary, or to the top of a tube crowning the ovary where the petals are affixed. We must also remember that in a large number of drupaceous fruits the endocarp, when ripe, is so totally free from the exocarp as to show no trace of its original connection. As we have as yet no means of absolutely determining these theoretical questions, I think that botanists, as well as the world at large, must still call the Apple a fruit. *G. B.* [With the greatest deference to our correspondent, whose opinion must always carry great weight, and fully admitting the impossibility of saying where flower-stalk ends and calyx-tube begins, we must yet in reliance on the course of development of the young flower, as well as on comparative morphology, maintain the view previously expressed. It is the one, moreover, now generally accepted in botanical text-books and taught by botanical teachers. EDS.]

Replanting Large Trees.—At this place over forty years ago a fine Cedar of Lebanon was blown over with the fury of the gale; and, although Clumber is considered the home of the Cedars, it was not wishful that this one should be lost if it was possible to save it, as in the pleasure-grounds here, and likewise in the park, there are a number of grand specimens of large dimensions, which add greatly to the beauty of the Dukeries. The late Mr. Moffat told me himself that he had the prostrate Cedar pulled up with a builder's crab, and although it is not quite perpendicular it is still a grand ornament to the private pleasure-grounds. At 1 foot from the ground it measures in circumference 13 feet, and at 5 feet it measures 12 feet 6 inches. Although of little or no use, three of the strong Oak props still

remain firmly dovetailed into the tree, while the lower ends are embedded in the soil. Six years ago two large Cedars of Lebanon fell with the weight of a heavy fall of snow; they belonged to a group of five standing in the park a short distance from the principal entrance to the house, and being the two trees which stood next the house, the loss of them sadly marred the beauty of the group. The circumference of the remaining three at 5 feet from the ground is 15, 15½, and 17 feet, with a breadth of branches of 40 yards diameter. The greater portion of the Cedars here have been planted a little over 120 years. The date when our largest Cedar tree was planted is not known; its circumference 1 foot from the ground is 20 feet, while the circumference of ten of the branches at 5 feet from the ground just makes 64 feet. It has lost many fine limbs from the weight of snow upon its branches, and from the late gale it suffered severely, yet with all its dilapidation it remains a grand tree. Fifty years ago a batch of memorial Cedars of Lebanon were planted by the sides of a new drive, which have made good progress, all fine healthy trees from 50 to 60 feet high, and well furnished with branches. The snow, so destructive to Cedars with their spreading horizontal branches, has not begun to affect them yet. During the late gale I may mention that at Welbeck some fine Cedars of Lebanon, some 50 or 60 feet high, were blown down, and as they were in the centre of an ornamental line near the Abbey it was almost absolutely necessary to get them up again, if possible, or their absence would cause an ugly blank in the row; Mr. Carr has therefore successfully reinstated them, and from all appearances I have no doubt but they will again establish themselves, and become in time ornaments of beauty. *J. Miller, Clumber.*

Seedless Medlar.—Your note *re* Bishop's-thumb Pear in a recent *Gardeners' Chronicle* reminds me of a seedless Medlar we have here as a grafted branch on the common fertile and large-fruited kind. I enclose fruits of both, having purposely chosen fruits of the large kind with larger development of the calyx lobes than is usual. The seedless and smaller fruited kind has also smaller foliage. It was brought here in Mr. John Bain's time as grafts by the late Archbishop Whately, of Dublin, and Mr. Bain engrafted one upon the common large-fruited Medlar (itself originally worked on the Hawthorn), and both the tree and the graft now form a special feature of interest in the garden. Our old gardens are specially indebted to Mr. Bain for much good and thoughtful work of this kind—Mistleto growing upon many different trees, and a noble collection of Hollies, &c. We had some curious examples of hermaphrodite Maize (Zea) heads this season. Branch tubers of Vitis gongylodes, as figured by Mr. Lynch in the Linnean Society's *Journal* a year or two ago, are also now interesting. *F. W. Burbidge.*

Resting Caladium Tubers.—Your correspondent, Mr. Wood, referring to my letter of a previous date, is of opinion that the practice I recommended is "wrong in theory and ruinous in practice." Under the treatment Mr. Wood recommends I have not the slightest doubt but what he is successful, but he is not to suppose on that account that the treatment I have recommended is "ruinous" and unsuccessful. The treatment I recommended is no mere speculative one, but is what I have seen in practice, and I have every confidence in speaking highly in favour of it. *George Drummond, Broxmouth Gardens, N.B.*

Myosotis rupicola.—As this beautiful perennial alpine Forget-me-Not is, with us, of very easy culture, we are trying what effect will be produced by a "bedding out" combination. On the lawn there are three small beds of it—one planted (as well) with Snowdrops, and the other with various Crocuses. The prospect at present seems good of a fine display in spring. We raise it freely enough from our own saved seeds. It does not vary, and is easier to manage than M. dissitiflora or any other. A small bed of it planted about twelve months ago, was very fine last spring. *T. D. H.*

Verbascum Blattaria.—This very elegant yellow flowering plant is very useful for decoration at this time of the year. It is easily propagated by cuttings in the spring, or raised from seed. During the summer months it should be plunged out-of-doors, and the flowers be kept picked off, and with a little artificial warmth they may be had in flower any time during the winter months. I have some small plants mixed with Primulas, Cyclamens, and Maidenhair Ferns, and the effect is certainly very pretty. *O. Orpet, Cirencester.*

Easy Mushroom Growing.—Last winter and spring I saw in the cellars underneath the large hotel at the Crystal Palace, Sutton Coldfield, near Birmingham, one of the finest crops of Mushrooms I ever beheld, the beds being made up on the floor of the cellar with manure procured from the London and North-Western Company's railway stables. These beds were about 15 inches thick, of considerable width, were spawned with Cutbush's Milltrack Mushroom spawn, and covered with hay. These beds for six months produced an abundance of fine fleshy well flavoured Mushrooms, which could not be surpassed. Mr. John Gough, who was the manager at this place, has always been famous for Mushroom culture, and the plan I have alluded to is so simple that any one having a good dry cellar can grow Mushroooms easily *Agaricus.*

Eucharis amazonica.—This charming flower has been seen this autumn in great perfection at Lochbrae, near Glasgow, under the care of Mr. Niven, the gardener there. The plants are grown exceptionally well, in 14-inch pots, and have produced as many as twenty spikes to each, most of them carrying from six to eight flowers, open at the same time. It is not uncommon to see it well grown in very large pots or tubs, but so abundant a display of fine blooms, in pots of a moderate size, and with such simple management have made the above highly attractive objects for some weeks past. *W. L.*

Old-fashioned Plants.—The enquiries of your correspondent, "Alpha," after old and well-nigh lost plants have interested me much. I am glad to see that he has been to Chester and seen how carefully and successfully Messrs. Jas. Dickson & Sons have propagated the two old Calceolarias—Pavoni and tricolor—which I had the pleasure of sending them a year or so ago. I received them originally from Mr. Chas. Green, of Bletchingley. Some twelve years ago I used to grow both C. arachnoidea and C. Fothergilli, but I have lost them both. I had them from the Rev. T. G. Nelson, Rector of Aldborough, and I think he told me last year that they had died out with him. Mr. Ware has C. plantaginea under the name of C. Kellyana. When at Messrs. Dickson's nursery this autumn I was delighted to see there another fine old plant, which I thought was lost, viz., Pentstemon cordifolius. In the Glasgow Botanic Gardens I saw two old Fuchsias, very rare in cultivation—F. alpestris and F. integrifolia; F. excorticata is also there, and I think at Chester; F. lycioides is cultivated at the Oxford Botanic Gardens, and by Rev. H. Ewbank at St. John's, Ryde. F. conica is both at Oxford and Chester; I have often had it here. F. coccinea I still possess, and Calceolaria crenatiflora. Who grows Pentstemon baccharidifolius? *H. Harpur-Crewe, The Rectory, Drayton-Beauchamp, Tring, Nov. 26.*

Mr. Rochford's Boilers.—Your correspondent, "T. B." (p. 664), refers to Mr. Rochford's boilers as being so powerful and economical that he has put in two others, and that a hot-water engineer has expressed his opinion that they are "the boilers for a poor man," and "do too much work for the money they cost." To a certain extent this may be true, but with all respect for "T. B.'s" and for Mr. Rochford's experience, I question if they will be truly economical in ordinary circumstances. A boiler and stokehole occupying 20 feet long by 4 or 5 feet wide, requires a space that in many gardens would be as valuable as the increased first cost of an improved saddle boiler; then the excavation and brick-setting and covering in of such a space must be a large item, and its after consumption of fuel—though less extravagant than with an upright tubular—must still be very large in proportion to the benefit or heat obtained. A boiler of this kind, though easily made, is also easily rendered useless by a slight blow in stoking, and the risk of such an accident must be counted by any one putting in a boiler like this. I do not doubt that many nurserymen do, or will (I know one who will not) adopt this make of boiler, because they generally look at the first cost only and take their chance of the future, but it is a fact that there must be a larger body of fire under a boiler of this size than in one 5 feet long only, and, if there is a larger fire it must cost more to keep it going than a smaller one, and it will require very strong evidence to convince me that 2 cwt. of fuel costs less than 1½ cwt. of the same kind. It is not the mere length of a boiler that gives it an advantage over a shorter one, but the greater amount of boiler surface in contact with the greatest direct heat imparted by the burning fuel, and though, theoretically, you get a greater surface in a tubular form than with a flat surface, it is the worst form for direct heat impact. Supposing, even, that there is not more actual fuel in the longer boiler—that it is, say, 10 feet long and 9 inches deep—this fire will not give as great a heat as a fire 5 feet long and 18 inches deep, both being of the same width. In such a long boiler the flame or heat is drawn longitudinally with such force that it has hardly time to touch the upper convex surface, but must strike the end and be absorbed by the bricks or tiles if it does not escape quickly into the chimney; while a shorter saddle with a large concave surface, or solid water-jacket, immediately surrounding a compact fire, will receive and absorb a much more intense heat with slower combustion than is possible with the tubes and elongated quick burning fire. I can produce a 5 feet-long boiler to heat 3000 feet of 4-inch piping as quickly as Mr. Rochford's 15 feet long one will, which, though it may cost £12 or £15 more to start with, will save £20 worth of fuel in three years' time if continually in use, besides being more durable; or the tube boiler can be so improved upon that three-fourths of the length will do the work as easily and with less fuel, by an additional first cost of about £2; so much depends on the arrangement of flow and return connections. I have heard lately of a boiler 8 feet long being used up in a few years through furring or incrustation inside, which furring was caused more by the want of judiciously placed outlets than anything else, and the same thing will most probably occur within the same period in these 15 feet pipe boilers unless some special precaution is taken. *B. W. Warhurst.*

Reports of Societies.

Birmingham and Midland Counties Chrysanthemum, &c., Exhibition: *Nov. 23 and 24.*—This was the twenty-first annual exhibition of this Society, and both as a floral display and a financial venture it appears to have been a great success. The different methods of arrangement adopted in regard to the exhibits in the huge gallery was a decided improvement, and the productions here made a pretty display in themselves. The best nine plants came from T. W. Webley, Esq., Selby Oak (Mr. W. H. Dyer, gr.), whose specimens were of uniform size, 4 to 5 feet through, and carrying each from fifty to seventy good blooms; the foliage also was in excellent condition. The sorts were Prince Alfred, Mrs. G. Rundle, Bronze Jardin des Plantes, Mrs. Dixon, Guernsey Nugget, John Salter, Jardin des Plantes, George Glenny, and Prince of Wales, a distinct and good lot of exhibition varieties. The 1st prize in this class is a Silver Cup given by the Society. The best six plants came from J. Jaffray, Esq., J.P., Edgbaston (Mr. F. Denning, gr.), who had well grown and flowered examples of Jardin des Plantes, Lord Derby, John Salter, Golden Empress of India, Prince Alfred, and Empress of India. Mr. Dyer had the best three plants, having Golden Empress of India, John Salter, and Mrs. Dixon in good form; and the best single specimen came from Mr. W. H. Dyer, who had an excellent plant of John Salter, a variety that appears well adapted for cultivation in pots. Mr. Dyer was also 1st with the best six Pompon Chrysanthemums, having well grown and flowered plants of the white, yellow, and lilac varieties of Cedo Nulli, Rose Trevenna, St. Michael, and Mdlle. Marthe. Mr. Dyer also had the best three, staging good examples of the lilac, golden, and white Cedo Nulli. The best specimen Pompon was white Cedo Nulli. In the class for the best specimen Japanese Chrysanthemums, Messrs. Dyer and Denning were 1st and 2d with Elaine,

Primulas were, as is always the case, a special and very striking feature. Better plants for the season of the year can scarcely be imagined, and it would be difficult to find their equal. The production of fine specimens has been much stimulated by good and numerous prizes, and the plants of Primulas staged on this occasion would have made a very interesting group in themselves. As usual, Mr. J. Tomkins, Sparkhill Nurseries, was 1st in the nurseryman's class, with twelve splendid specimens, six red and six white, and showing much variation of colour. In the gardeners' class for twelve Primulas, six red and six white, W. Matthews, Esq., Edgbaston (Mr. G. Caldicott, gr.), was 1st., having very good specimens. In the class for six plants, T. Tonks, Esq., Harborne (Mr. W. Shingler, gr.), was 1st. The class for six Fern-leaved varieties brought some very fine specimens from Mr. Tomkins. Mr. T. B. Thomson, seedsman, High Street, Birmingham, offered special prizes for twelve Primulas, not less than three varieties, and this brought a large and exciting competition, Mr. F. Denning being well 1st. A very fine new Fern-leaved variety, with pale pinkish-lilac tinted flowers, was shown by Mr. J. Tomkins, and appears to be first-rate in every respect.

The class for a miscellaneous collection of nine plants brought a very fine group from Mr. Wilson's garden at Edgbaston, and Mr. Jinks deserves the highest praise for the fine culture showed by the specimens. These were Croton Andreanus, a splendid example, perhaps one of the best in the country; C. Weismanni, C. Veitchii, Plumbago rosea, with over fifty spikes of finely coloured flowers, Areca lutescens, Dracæna Youngii, Chorozema splendens, Eupatorium odoratum, a large, pyramidal-trained specimen densely flowered, and a fine Dieffenbachia Bausei. This was a very bright and attractive collection. In the class for six plants, Mr. G. Caldicott was the only exhibitor, having good examples of Croton Johannis, Erica hyemalis, Anthurium crystallinum, Chorozema Hendersoni, Kentia Fosteriana, and Corypha australis. Mr. Dyer was well ahead with three pots of Poinsettias, having large and well-grown specimens with fine heads of grandly-coloured bracts; Epacris, Mignonette, and berried Solanums were shown in groups of three; and there was a class for two Epiphyllums, as well as for six Cyclamens. In this class there was a good competition, Mr. Denning taking the 1st prize. In the class for three Cyclamens Mr. W. Millnard was 1st.

Special prizes were offered for a bank of naturally-grown Chrysanthemums, in which quality of the bloom, variety, and general effect were to be considered. These groups were staged in a position not calculated to show them to advantage, but there could be no doubt as to the marked superiority of that shown by Mr. Dyer, to whom the 1st prize was awarded.

In the class for twelve table plants there was a good competition for the special prizes offered by Mr. B. S. Williams and others. The judges had to choose between medium sized but even plants in good condition; and others of larger growth, uneven in size, and not in the best condition. They decided in favour of the former. Mr. Denning was 1st. The special prizes given by Mr. Petch for six double Primulas brought a good competition, as did Mr. Tomkins' special prizes for six single Primulas, and those for a specimen plant of Eucharis amazonica.

Turning to the cut flowers, the principal class for eighteen blooms of incurved Chrysanthemums brought a very good competition, the 1st prize going to Mr. F. Faulkner, The Gardens, Woolton Hall, Liverpool, who had superb examples of Princess of Wales, Prince Alfred, Empress of India, Mr. Howe, Queen of England, Golden Empress of India, White Venus, Mr. Bunn, Beverley, Barbara, White Beverley, Jardin des Plantes, Princess Teck, Cherub, Venus, Little Pet, Mr. Gladstone, and Hero of Stoke Newington. Special prizes having been offered for the finest blooms of Chrysanthemums in the show, that of Barbara in this stand was selected for the premier award. A very fine bloom of Princess Teck in a stand of flowers from P. Southey, Esq., Bampton, Oxford, competing in this class, was selected as the second best bloom in the show. Mr. Shingler had the best twelve blooms. The competition in this class was confined to growers living within three miles of Stephenson Place. In the open class for twelve blooms, Mr. Faulkner was again 1st, with fine blooms of Queen of England, Golden Queen of England, Mr. Howe, Empress of India, Barbara, Princess of Wales, White Venus, Mr. Bunn, Little Pet, General Bainbrigge, Lady Talfourd, and Princess Teck. Some capital stands of Japanese Chrysanthemums were shown by Messrs. P. Southey, R. Bradley, and G. A. Everitt, and in each case extra prizes were awarded. Camellias in twelves and sixes were well represented by pretty varieties.

The classes for bouquets are always well contested at Birmingham, especially that for nurserymen. In the latter the 1st prize went to Mr. Hans Niemand, Harborne Road Nurseries. In the class for gentlemen's gardeners, Mr. H. L. Hayman, Edgbaston, had the best bouquet. The best epergne of flowers came from Mr. C. E. Matthews. A beautiful memorial wreath, staged by Mr. R. H. Vertegans, of the Chad Valley Nurseries, was much admired.

Of fruit there was a very good display. The best collection of six dishes came from H. Amer, Esq., Bristol (Mr. Bannister, gr.), who had White Muscat and Lady Downe's Grapes, Medlars, Blenheim Orange Apples, a small late red Plum, and Alexander Lambre Pear. In the class for four dishes, the competition confined to growers residing within 3 miles of Stephenson Place, Mr. Shingler was 1st, with Buckland Sweetwater and Black Hamburgh Grapes, Pears and Apples. The best three bunches of black Grapes (Alicante) came from G. A. Everitt, Esq., Knowle Hall (Mr. W. Comfort, gr.). Mr. W. H. Clarke was 1st with two bunches of white Muscats; Mr. Comfort had the two best bunches of white Grapes other than Muscat, staging White Nice.

Pine-apples were of but moderate quality. The best twelve dishes of Apples—six culinary and six dessert—were staged by Mr. R. Dean, Ranelagh Road, Ealing, who also had the best six dishes. Pears were only poorly represented; in the class for twelve dishes the 1st prize was withheld. In the class for six dishes the 1st prize was awarded to Mr. C. H. Clissold, nurseryman, Warwick. Cucumbers and Mushrooms were well represented.

The show was greatly helped by contributions from nurserymen and others. Mr. T. Hewitt, nurseryman, Solihull, had some stands of good and bright cut zonal Pelargoniums; Mr. Hans Niemand, Ferns and Cyclamens, elsewhere referred to; Messrs. Pope & Sons, King's Norton, zonal Pelargoniums in pots, finely bloomed, quite small plants, bearing trusses of fine quality; baskets of Calanthes, Poinsettias, Azaleas, Bouvardias, Cocos Weddelliana, Begonia insignis, and Sisymbrium millefolium from the Canary Islands, a very elegant foliage plant, and nearly hardy, from Mr. R. H. Vertegans, Chad Valley nurseries, Edgbaston; cut flowers of zonal Pelargoniums, and Primulas in pots from Mr. H. Cannell, nurserymen, Swanley; a group of artificial plants from Mr. T. R. Thomson, seedsman, High Street; a collection of thirty-six dishes of Apples from the Cranston Seed & Nursery Company, Hereford; and a beautiful collection of skeleton leaves, &c., from Mrs. E. H. Hodgkins, Hyde Grove, Manchester.

Wellingborough Floral and Horticultural: *Nov.* 25 *and* 26. — This Society, finding great difficulty in securing a proper site for a summer show, determined to hold an autumn show of Chrysanthemums, &c., in the spacious Corn Exchange. As this was the first attempt at a Chysanthemum show the competition was a little limited in extent, but there is every promise, if the show is continued another year, that a marked improvement will be witnessed in 1882. The plants, &c., were nicely arranged, and the effect was very pleasing. Specimen plants of large flowered Chrysanthemums were of small size, but nicely grown and bloomed; the best six came from R. Hower, Esq., Northampton (Mr. J. W. Abraham, gr.), who had Mrs. G. Rundle, Mrs. Dixon, Prince of Wales, Hero of Stoke Newington, George Glenny, and John Salter. In the class for six Chrysanthemums, grown naturally, Mr. C. J. K. Woolston was 1st. These plants were grown upright, but, as a matter of course, had the assistance of stakes. The varieties were similar to those already named. Mr. T. Manning had the best specimen plant, showing a nice example of George Glenny. Pompon Chrysanthemums were scarcely so well shown as the large-flowered varieties. The best four consisted of the golden and white Cedo Nulli, Shirley Hibberd and Mdlle. Marthe; the best specimen was white Cedo Nulli. Two pyramidal-trained plants of the Japanese variety Elaine were shown by Mr. Glayson; they were admirably grown and flowered, and made a conspicuous feature. In the class for ten plants, C. J. K. Woolston, Esq., was a good 1st, with a group that proved of great service in giving effect at the lower end of the hall; the leading subjects were Encephalartos villosus, Dracæna australis, D. lineata, Areca sapida, Latania borbonica, a fine Eucharis amazonica, &c.

In the class for six Ferns, Mr. C. J. K. Woolston was again 1st, with good examples of Dicksonia antarctica, Microlepia hirta cristata, Gleichenia semivestita, Adiantum gracillimum, very fine; a very good A. farleyense and Davallia Mooreana. The best six plants of Primulas came from Mr. Brockhurst, who had very well grown and bloomed specimens of Mr. Gilbert's new double varieties, supplemented by the old double white.

In the amateurs' classes (the term amateur being defined as one who employs but one gardener) there was a fairly good competition, the leading class being for six incurved Chrysanthemums, the best coming from Mr. W. F. Henman, who had well grown specimens of George Glenny, Mrs. Sharpe, Mrs. G. Rundle, Lady Talfourd, Mrs. Dixon, and Faust. Mr. P. Manning had the best specimen, staging George Glenny. The Pompon varieties were somewhat past their best. In the class for six Ferns, Mr. D. Percival was 1st with well grown specimens of Alsophila excelsa, Pteris cretica albo-lineata, Adiantum cuneatum, A. formosum, &c. Mr. T. Clayson had the best six flowering plants, staging Epiphyllums, Pelargoniums, Celosia cristata, &c.

Of cut blooms there was a fairly good lot, locally grown; the best twelve in class seven came from Mr. C. J. K. Woolston, whose best flowers were John Salter, Empress of India, Bella Donna, Mrs. Shipman, Prince Alfred, Mr. Corbay, George Glenny, Jardin des Plantes, and Princess Teck. In the class for twenty-four blooms, Mr. Abraham was 1st, his best flowers being Mr. Howe, Guernsey Nugget, Pink Venus, White Venus, Lady Slade, Princess Teck, Hero of Stoke Newington, &c. In the amateur classes some fairly good blooms were staged.

The best collection of fruit in six varieties came from Mr. D. Percival, who had very fine Gros Colmar and Buckland Sweetwater Grapes, two dishes of Pears, and two of Apples. Mr. Percival was also 1st with two bunches of Grapes, namely, Gros Colmar in grand form, and a fine bunch of Alicante. In the amateurs' class for two bunches of Grapes Mr. Percival was again 1st, having, as before, fine bunches of Gros Colmar and Buckland Sweetwater. In the class for a dish of dessert Apples some good fruit was shown, the best being Blenheim Orange, Ribston Pippin, and Wyken Pippin. In the class for culinary Apples the best were Waltham Abbey Seedling, Bedfordshire Foundling, Alfriston, and Wellington.

In the vegetable classes there was a good competition, the leading one being with five dishes of Potatos. Here Mr. W. F. Herman, Great Houghton, was 1st, with International Kidney, Magnum Bonum, Model, Schoolmaster, and Snowflake, a good lot. Eight lots competed in this class. In the cottagers' classes there was a similar competition, and the Potatos very good; indeed, the cottagers' productions throughout were very good, and the plants of Chrysanthemums, Primulas, Ferns, &c., worthy of high praise. Cottagers at Wellingborough comprise in the main operative shoemakers, and other trades, and some of them put up a little house, in which they manage their plants with great success.

Aylesbury Chrysanthemum Show: *Nov.* 24. —Since the establishment of this Society three years ago the exhibitions have gone on increasing in popularity, as evinced by the augmentation in the number of entries, and the increase in the number of visitors. The exhibits were placed to the best possible advantage, and there was not a bad flower in the show. Taking it altogether it certainly surpassed a great many other exhibitions of greater pretensions which have been held elsewhere. The Chrysanthemums were arranged round the walls of the room, each corner being banked. All the varieties shown were of exceptionally good quality. Mr. C. Threlfall, who took the lion's share of the prizes, showed a remarkably fine selection. The two collections shown in competition for the prize offered by the Native Guano Company, the second and third being given by the Society, were very good indeed.

The Pompons were also of exceptional merit, while the Anemone-flowered and Japanese Chrysanthemums constituted quite a feature of the show, notwithstanding that the division was limited to two classes. In the amateurs' section the same high order of merit was observable, in fact Chrysanthemums, unlike many other cultivated articles of less beauty but no less utility, appeared to have thriven remarkably well this year.

The centre of the room was devoted to the vegetable classes, and in this department the excellence of the articles vied with that of the flowers. In the classes open to members, for fruit, vegetables, &c., the exhibits attracted much attention, both fruit and vegetables being of very superior quality. In this department Mr. W. Robins, gr. to Mr. E. D. Lee, exhibited a remarkably fine collection of Potatos not for competition. Mr. J. E. Bartlett showed a splendid collection of cut Pelargoniums not for competition, for which he was awarded a high commendation. Messrs. Ingram and Whitfield also exhibited several choice bouquets and a memorial wreath, composed of choice blossoms and Ferns, and which were generally admired for the taste displayed in their arrangement. A very fine collection of foliage plants staged down the centre of the middle table, was also shown by this firm. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 30, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°			In.
24	29.82	+0.14	52.5	41.5	11.0	47.8	+ 6.2	45.3	91	S.W.: W.	0.00
25	29.49	−0.20	52.5	45.0	7.5	48.8	+ 7.2	47.1	91	S.: S.W.	0.74
26	29.18	−0.52	54.3	41.0	13.3	46.8	+ 5.2	44.5	92	S.	0.15
27	28.89	−0.82	54.0	42.5	11.5	45.8	+ 4.2	44.3	95	S.W.: S.S.W.	0.63
28	29.29	−0.42	52.0	42.0	10.0	46.4	+ 4.8	45.2	96	S.W.: S.S.W.	0.05
29	29.89	+0.18	47.5	36.5	11.0	40.9	− 0.8	39.7	96	S.W.: S.S.W.	0.00
30	29.90	+0.18	47.0	36.0	11.0	42.0	+ 0.3	39.6	91	S: S.W.	0.00
Mean	29.49	−0.21	51.4	40.6	10.8	45.5	+ 3.9	43.7	94	S.W.	1.57

Nov. 24.—A fine but windy overcast day. A thin rain at night, strong wind.
— 25.—A dull rainy overcast day and night.
— 26.—A fine bright morning, a dull rainy afternoon, a gale at night.
— 27.—A wild squally morning, a gale of wind, a stormy day, with a gale at night, and bright sunshine, occasionally lightning with hail.
— 28.—A dull damp morning. Fine bright afternoon. Clear night.
— 29.—Morning rather cold; sun shining brightly; fog between 4 and 5 P.M.. Fine clear night. This is the first day since November 3 that the mean temperature was slightly below its average; from November 4 to November 28 the average daily excess of mean temperature has been 6°.9.
— 30.—A fine morning, but dull and overcast both day and night.

LONDON: *Atmospheric Pressure.*—During the week ending November 26, the reading of the barometer at the level of the sea increased from 30.04 inches at the beginning of the week to 30.05 inches by 9 A.M. on the 20th, decreased to 29.53 inches by 9 A.M. on the 21st, increased to 29.75 inches by 3 P.M., and decreased to 29.69 by midnight of the same day, increased to 30.01 inches by midnight on the 22d, decreased to 29.86 inches by 9 A.M. on the 23d, increased to 30.14 inches by midnight of the same day, decreased to 29.59 inches by 3 P.M. on the 25th, and was 29.03 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.87 inches, being 0.26 inch lower than last week, and 0.08 inch lower than the average for the week.

Temperature.—The highest temperature in the shade during the week was 58°, on the 22d. On the 24th and 25th the temperature did not rise above 52°.5. The mean of the seven high day temperatures was 54°.2.

The lowest temperature in the week was 41°, on the 24th; on the 21st the lowest temperature was 48°.5. The mean of the seven lowest temperatures was 43°.5.

The greatest range of temperature in one day was 15°, on the 22d; the smallest was 4°.5, on the 21st. The mean of the seven daily ranges was 10°.7.

The mean daily temperatures were, on the 20th, 50°.4; on the 21st, 51°.2; on the 22d, 49°.3; on the 23d, 47°.4; on the 24th, 47°.8; on the 25th, 48°.8; on the 26th, 46°.8—and these were all above their averages by 8°.7, 9°.5, 7°.6, 5°.7, 6°.2, 7°.2, and 5°.2 respectively. The mean temperature for the week was 48°.8, being 0°.3 higher than last week, and 7°.2 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 98° on the 20th and 23d; the highest on the 25th was 53°. The mean of the seven readings was 79°.7.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 36°, on the 23d and 24th. The mean of the seven readings was 38°.7.

Rain.—Rain fell on five days, to the amount of 1.09 inch, of which 0.74 inch fell on the 25th.

ENGLAND: *Temperature.*—During the week ending November 16 the highest temperatures were 59°.1 at Cambridge, 59° at Sunderland, and 58°.5 at Leicester. The highest temperature at Bradford was 54°.2, at Wolverhampton was 55°.4, and at Brighton was 55°.7. The mean from all stations was 57°.2.

The lowest temperatures in the week were 32°.3 at Wolverhampton, 34° at Leicester, and 35°.5 at Liverpool. The lowest temperature at Plymouth was 43°,

at Brighton 41°.5, and at Blackheath 41°. The mean from all stations was 37°.7.

The greatest ranges of temperature in the week were 24°.5 at Leicester, 23°.1 at Wolverhampton, and 23° at Sunderland. The least ranges were 14°.2 at Brighton, 15° at Plymouth, and 15°.6 at Bradford. The mean from all stations was 19°.5.

The mean of the seven high day temperatures was highest at Plymouth and Cambridge, 55°.9, and at Truro 55°.7; and lowest at Sheffield, 51°, at Wolverhampton 51°.3, and at Hull and Bradford 51°.9. The mean from all stations was 53°.5.

The mean of the seven low night temperatures was highest at Plymouth, 48°.7, at Truro 46°.3, and at Bristol 45°; and was lowest at Hull and Wolverhampton, 39°.4, and at Sunderland, 41°. The mean from all stations was 42°.9.

The mean daily range was greatest at Sunderland, 12°.8; at Cambridge and Hull, 12°.5; and was smallest at Plymouth, 7°.2, at Bradford 8°.4, and at Sheffield 9°.6. The mean from all stations was 10°.6.

The mean temperature for the week was highest, 52°, at Plymouth, 50°.8 at Truro, and 49°.4 at Cambridge; and was lowest at Wolverhampton, 45°. at Hull 45°.5, and at Sheffield 45°.8. The mean from all stations was 47°.9.

Rain.—The largest falls were 2.12 inches at Truro, 2.04 inches at Brighton, and 1.75 inch at Sheffield. The least falls were 0.21 inch at Sunderland, 0.39 inch at Leeds, and 0.72 inch at Nottingham. The general mean was 1.15 inch. It fell on every day at many places, and the general average was six days.

SCOTLAND: *Temperature.*—During the week ending November 26 the highest temperature was 58°.5, at Glasgow; at Dundee the highest temperature in the week was 53°. The general mean was 55°.2.

The lowest temperature in the week was 31°.5, at Glasgow; at Greenoch and Leith the lowest temperature was 36°. The general mean was 33°.9.

The mean temperature for the week was highest at Greenock, 45°.9; the next in order was 45°.8, at Glasgow; and lowest at Aberdeen, 43°.3. The general mean was 45°.2.

Rain. — The largest falls were 2.04 inches at Greenock, and 1.11 inch at Leith. The smallest falls were 0.62 inch at Aberdeen, and 0.89 inch at Edinburgh. The general mean was 1.10 inch.

JAMES GLAISHER, F.R.S.

Obituary.

WE greatly regret to hear of the death, on the 21st inst., of Dr. G. W. SONDER, of Hamburg, well known for his collaboration, with the late Prof. Harvey, in the *Flora Capensis*, the completion of which is greatly to be desired. In addition to the *Flora Capensis*, Dr. Sonder is known for his "Monograph of Heliophilæ," "Flora Hamburgensis," and other works. He was well versed in Seaweeds. It was to him that botanists looked for a monograph on the genus Erica.

Enquiries.

He that questioneth much shall learn much.—BACON.

HOW TO PROPAGATE TILLANDSIA LINDENI. — I shall be obliged if you will inform me how and when I can propagate Tillandsia Lindeni. I removed a strong sucker for the purpose, but found that the leaves separated at once and left no substance. My plant seems to be very vigorous, but has hardly any root. I have it in a small pot, with rough peat, sphagnum moss, and crocks, treating it almost like an Orchid. It has flowered well, and there are two strong suckers pushing up. *J. W.*

IRIS ROBINSONIANA.—Has any one flowered Iris or Morea Robinsoniana from Lord Howe's Island? I have got a strong plant of it with leaves 4 feet long and 4 inches wide, planted out in a greenhouse, but it shows no symptom of flowering. *E.*

RED BERGAMOT.—What is the plant so called? *X.*

Answers to Correspondents.

ANNUALS: *G. S. K.* The best, where there are so many, is greatly a matter of taste. We should take:—

Phlox Drummondii (there are some wonderfully fine forms now to be had in the seed-shops)	(of which there are various colours, the best, perhaps, being the new Empress of India)
Zinnia elegans, flore-pleno	Leptosiphon densiflorus, or androsaceus
Calliopsis Drummondii	Nemophila insignis
Tagetes signata	Petunia violacea (of which splendid mixtures may be bought)
Amberboa suaveolens	
Viscaria cardinalis	
Tropæolum majus nanum	

Some few of these, as the Petunias, Phloxes, and Zinnias, require sowing in a gentle heat, the Petunias rather early, so as to be strong plants by May. One or two of the best German Stocks and Asters may be substituted if the taste lies in that direction.

BOOKS: *A. C.* Thompson's *Gardeners' Assistant*, published by Blackie & Co.

CALANTHE SYLVATICA: *J. A. H.* Drain the pots thoroughly, and pot in a mixture of sandy loam and broken crocks. The tubers should be covered by about half-an-inch of this material. Water often enough to keep the soil moist. A stove or East Indian temperature must be given.

CARFERAL: *G.* We are informed that this is a mixture of carbon, spongy iron, and alumina, the word being coined from the first syllables car-fer(rum)-al. We can give no opinion as to its alleged property of fixing ammonia.

CHICORY: *M. I. J.* It will grow anywhere like a common weed. Any seedsman will supply you with seeds. In this country it is most largely cultivated in Lincolnshire for the roots, but many gardeners grow it for forcing in winter.

CHRYSANTHEMUMS BLIND: *T. Dodds.* The buds, we believe, have been eaten up with the thrips; for, although we did not find any living insects about them, the distorted florets were covered with excreta.

CINCHONA: *H. K.* Try Allen & Co., Waterloo Place.

ERRATUM.—At p. 684, col. 3, eighth line from the bottom, for "wanted" read "vaunted."

FLOWERS GOING "BLIND:" *Gardener, Beechlands.* The frosted glass of the roof of your conservatory is not at all desirable, but with the front of plain glass we cannot suppose that the light is so deficient, *in summer*, as to cause the plants to go blind. We should rather attribute this result to extreme atmospheric aridity, which you mention as being the existing condition during summer, while the obstruction of light might have some influence in this direction during the winter months.

FUNGUS: *H. T. B.* The name of the fungus is Peziza aurantia.—*H. J.* The vegetable growth in your Mushroom-bed is the spawn of a fungus named Xylaria vaporaria. It was described and illustrated in the *Gardeners' Chronicle* for April 15, 1871. It is sometimes a great nuisance in Mushroom-beds and flower-beds. We know instances where immense masses of it have been pulled out like string, or thin ropes. At times it is a great nuisance for several years and then suddenly vanishes. It is not "dangerous," but it occasionally ousts the Mushrooms and flowering plants completely. *W. G. S.*

IMANTOPHYLLUM: *Enquirer.* I. miniatum is the one most commonly grown, but there are several others of the same tone of colour.

INSECTS: *Jno. Smith.* The Bean-beetle (Bruchus granaria, see fig. 147). We will make inquiries with reference to your other questions.

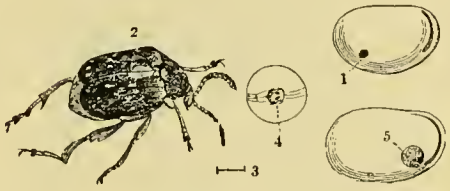

FIG. 147.—BRUCHUS GRANARIA.

NAMES OF FRUIT: *Keynes & Co.* We believe your Apple to be Waltham Abbey Seedling.—*J. C.* 1, Sturmer; 2, Dumelow's Seedling; 3, Court of Wick; 4, Sam Young; 5, Duck's-bill; 6, Swan's-egg.—*W. H. Divers. Pears:* 1, Beurré Sterckmans; 2, Joséphine de Malines, very poor; 3, Jean de Witte, or small Glon Morçeau. *Apples:* 5 might be Alfriston; 6, Cat's-head; 7, Beauty of Kent; 8, probably Hoary Morning; 10, Early Nonpareil; 12, resembling Pearson's Plate. The others are not recognised—most probably local seedlings.—*W. H. B.* 1, Vicar of Winkfield; 2, Beurré d'Aremberg; 3, Winter Nelis; 4, Beurré Diel; 5, Easter Beurré, very fine; 6, Beurré Clairgeau; 8, Bergamotte d'Esperen; 9, Ne plus Meuris; 7 and 10, not recognised, worthless.—*X.* Yours are a very strange lot—many quite distinct from any we have ever seen; most probably old local seedlings unnamed. In quality they are very inferior. No. 4 is similar to Rymer; 13 probably Downton; 2 is not Dumelow's Seedling, neither is 7 the Snow Apple—we do not recognise them.

NAMES OF PLANTS: *T. Dodds.* 1, Onychium japonicum; 2, Polystichum capense; 3, Pnlebodium aureum; 4, Adiantum hispidulum; 5, Asplenium Fabianum, apparently, but not very satisfactory specimens.—*J. R. M S.* Sparmannia africana.—*H. R. Sandbach.* Picea orientalis, Carr. P. obovata, Ledeb., is a totally different plant. The former is often found in nurseries under the name of obovata.—*Leeds.* Oncidium verrucosum.—*W. B. S.* Abies canadensis, and Atriplex Halimus.—*Old Subscriber.* Echinops Ritro, probably; but there are several blue-flowered species distinguished by height, foliage, &c., to which you give no clue.—*Subscriber.* Calanthe vestita rubro-oculata.—*Laytonite.* 1, Selaginella flabellata; 2, S. Martensii; 3, Asplenium bulbiferum; 4, Selaginella Martensii, var.; 5, Fuchsia thymifolia.—*J. M.* 1, Acacia pubescens; 2, next week; 3, Pteris hastata macrophylla; 4, Dracæna, probably cannæfolia; 5, Duranta Ellisia variegata; 6, Cotyledon, not recognised.—*J. G. H.* Liquidambar styraciflua.

ORCHID SEEDS: *R. P.* Sow the seeds as soon as they are ripe on living sphagnum moss, and keep the same in a moist situation where it will not be disturbed until the seeds germinate. It is important that from the time of sowing the seeds they should never be allowed to get dry.

PESCATOREA LEHMANNII: *J. A. H.* Fill the pots for this plant two-thirds of their depth with drainage. The compost should consist of sphagnum two-thirds and peat one-third. Grow the plant at the coolest end of the East Indian house. Never let it get dry, nor yet see an atom of sunshine. It has flowered, and has been pronounced by an excellent authority to be a very beautiful Orchid. It has flowered at the York Nurseries, and Mr. Backhouse informed me it was not only beautiful, but the arrangement of colour was very remarkable. *J. C. Spyers.*

TECOMA JASMINOIDES: *A Subscriber.* Plant it out in a border, and let it run over the roof of your greenhouse. It will flower freely enough then.

TUBEROSE: *A Young Beginner.*—Pot them singly in 5 or 6-inch pots, in a mixture of half peat and loam, and a little manure and sand. Place them in the warmest part of a stove, and give one good watering, and no more until they start into growth.

VIOLET: *G. P. M.* Fusion of two flowers, one of which had two spurs instead of one only.

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CATALOGUES RECEIVED.

LITTLE & BALLANTYNE, Carlisle—General Nursery Stock.

MAURICE YOUNG, Milford Nurseries, Godalming — General Nursery Stock.

WOOD & INGRAM, Huntingdon — General Nursery Stock.

H. & F. SHARPE, Wisbech—Seed Potatos.

J. LE CORNU & SON, High View Nurseries, Jersey—Roses, Fruit Trees, &c.

DICKSON & ROBINSON, 12, Old Millgate, Manchester—Forest and Ornamental Trees, &c.

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Markets.

COVENT GARDEN, December 1.

Our market has been very dull, and all classes of Apples have receded consequent upon the arrivals o Canadian and American consignments. Large quantities of St. Michael Pines are to hand, prices being lower. Kent Cobs dull. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0- 3 6	Pears, Eng., ½-sieve	2 6- 5 6
Grapes, per lb.	1 0- 4 0	— French, per doz.	1 6- 4 0
Kent Cobs, p 100 lb.	75 0-77 6	Pine-apples, Eng., lb.	1 6- 3 0
Lemons, per 100	4 0- 6 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0- 6 0	Herbs, per bunch	0 2- 0 4
Asparagus, French Sprue, per bundle	1 6- ..	Horse Radish, bund.	4 0- ..
— New Fr., bundle	5 0- ..	Lettuces, Cabbage, per doz.	0 6- 1 6
Barbe de Capucin, per bundle	0 8- ..	— Engl. Cos, score	1 6- ..
Beans, French, p. lb.	1 0- ..	Mint, green, bunch	0 4- 0 6
Beet, per doz.	1 0- ..	Mushrooms, p. baskt.	1 6- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bushel	4 0- ..
Carrots, per bunch	0 4- 0 6	— Spring, per bun.	0 6- ..
Cauliflowers, English, dozen	2 0- 4 0	Parsley, per bunch	0 4- ..
Celery, per bundle	1 6- 2 0	Potatos (new), punnet	1 6- ..
Cucumbers, each	0 6- 1 0	Radishes, per bun.	0 2- 0 6
Endive, per doz.	1 0- 1 6	Salsify, per bundle	1 6- ..
Garlic, per lb.	1 0- ..	Seakale, per punnet	2 0- 2 6
		Small salading, pun.	0 4- ..
		Spinach, per busbel	2 6- ..
		Tomatos, per lb.	0 9- 1 0

Kent Regents, 10*s.* to 11*s.*; Roses, 8*s.* to 9*s.*; Myatt's, 10*s.* to 12*s.*; Magnum Bonums, 9*s.* to 11*s.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d
Aralia Sieboldii, per dozen	18 0-42 0	Evergreens, in var., per dozen	6 0-24 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ferns, in variety, per dozen	4 0-18 0
— (common), dozen	6 0-12 0	Ficus elastica, each	1 6- 7 0
Begonias, per doz.	6 0-12 0	Foliage Plants, various, each	2 0-10 6
Bouvardia, per doz.	9 0-18 0	Myrtles, per doz.	6 0-12 0
Chrysanthemums, per dozen	6 0-18 0	Palms in variety, each	2 6-21 0
Cissus discolor, doz.	18 0-24 0	Pelargoniums, scarlet, per dozen	3 0- 6 0
Cyclamen, per doz.	12 0-24 0	Poinsettia, per doz.	12 0-18 0
Cyperus, per dozen	6 0-12 0	Primula (single), per dozen	4 0- 6 0
Dracæna termicalis	30 0-60 0	Solanums, per dozen	9 0-12 0
— viridis, per doz.	12 0-24 0		
Epiphyllum, per doz.	18 0-30 0		
Euonymus, various, per dozen	6 0-18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 6	Marguerites, 12 bun.	4 0– 6 0
Anemone, 12 bun. ..	4 0– 6 0	Mignonette, 12 bun.	6 0– 8 0
Azalea, 12 sprays ..	1 0– 2 0	Pelargoniums, 12 sprays	0 6– 0 9
Bouvardias, per bun.	0 9– 1 0	— zonal, 12 sprays	3 0– 6 0
Camellias, 12 blooms	3 0– 6 0	Poinsettia 12 blooms	6 0–12 0
Carnations, 12 blms.	1 0– 2 0	— small, 12 blooms	3 0– 6 0
Chrysanth., 12 bun.	6 0–12 0	Primula, double, per bunch	1 0– 1 6
— 12 blooms ..	2 0– 4 0	— (siogle), 12 bun.	6 0–12 0
Cyclamen, 12 blooms	0 3– 0 6	Roses (indoor), doz.	1 0– 3 0
Epiphyllum, 12 blms.	0 9– 1 0	— Tea (French), per dozen	1 0– 2 0
Eucharis, per doz. ..	4 0– 8 0	Stephanotis, 12 spr...	9 0–12 0
Gardenias, 12 blms..	4 0– 9 0	Tropæolum, 12 bun.	1 0– 3 0
Heliotropes, 12 sp. ..	0 6– 1 0	Tuberoses, per dozen	3 0– 6 0
Hyacinths (Roman), 12 sprays	2 0– 3 0	Violets, 12 bunches..	1 6– 2 0
Lapageria, white, 12 blooms	4 0– 6 0	— (Fr. Parme), bun.	4 6– 5 0
— red, 12 blooms..	1 0– 3 0		
Lilac (Fr.), p. bunch	8 0–10 0		

SEEDS.

LONDON: *Nov.* 30.—No inclination to buy Clover seeds has yet shown itself; in fact, all dealings therein seem tacitly postponed until the new year. Meantime, values generally keep firm. For American red prices on the other side continue to derive support from the Continental demand. The fine new English Alsike meets with favour. Bird seeds are cheaper. For Blue Peas and Haricot Beans former terms are realised. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday demand was restricted. Good qualities of English Wheat were nominally the same as on Monday se'nnight, inferior unsaleable. Foreign ruled 6*d.* to 1*s.* lower on the week for all but fine qualities. There was a fair sale for the grades of flour, but inferior as well as finest qualities were difficult to sell. Prime malting Barley sustained late value, and grinding sorts were depressed. Beans and Peas remained unaltered. Maize was 3*d.* down on the week. Oats met a very slow sale, and were fully 3*d.* lower.—On Wednesday there was but a poor attendance, and but very little inquiry for any kind of grain. English Wheat remained nominally unaltered. Calcutta Wheat still showed a drooping tendency. Other foreign without appreciable change. Flour was dull, and the small rates of Barley, Beans, and Peas were at previous rates. Common Russian Oats were easier, but other descriptions unaltered.—Average prices of corn for the week ending Nov. 26:—Wheat, 45*s.* 4*d.*; Barley, 33*s.* 6*d.*; Oats, 19*s.* 11*d.* For the corresponding period last year:—Wheat, 44*s.* 5*d.*; Barley, 33*s.* 6*d.*; Oats, 21*s.* 5*d.*

CATTLE.

At Copenhagen Fields on Monday the beast supplies were more than adequate to demand, and though first quality cattle cleared off steadily at full to rather dearer prices, the plain and middling descriptions were a difficult sale and often cheaper. The sheep trade was not so good as on Monday week, and generally, though not in all cases, 2*d.* per stone reduction had to be conceded to close sales. Prime English calves were scarce and quite as dear; rough and foreign depressed. Quotations:—Beasts, 4*s.* 2*d.* to 4*s.* 8*d.*, and 5*s.* 2*d.* to 6*s.*; calves, 4*s.* 8*d.* to 6*s.*; sheep, 5*s.* to 5*s.* 8*d.*, and 6*s.* 2*d.* to 7*s.*, occasionally 7*s.* 2*d.*—Thursday's cattle trade was firm. For beasts there was more demand than on Monday, and prices were quite as high as on that day. Sheep sold readily at full quotations, and calves were rather scarce and dear.

HAY.

Tuesday's Whitechapel report states that the trade was very dull, especially for Clover, but supply was not heavy. Quotations:—Prime Clover, 120*s.* to 135*s.*; inferior, 75*s.* to 90*s.*; prime hay, 115*s.* to 124*s.*; inferior, 55*s.* to 85*s.*; and straw, 30*s.* to 50*s.* per load.—On Thursday there was a fair supply of hay and straw on sale. Trade was very dull, but prices were without any alteration.—Cumberland Market quotations:—Superior meadow hay, 126*s.* to 135*s.*; inferior, 84*s.* to 110*s.*; superior Clover, 134*s.* to 140*s.*; inferior, 100*s.* to 110*s.*; and straw, 48*s.* to 50*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies are moderate, and trade steady at the following prices:—Victorias, 60*s.* to 100*s.*; Regents, 60*s.* to 100*s.*; Champions, 50*s.* to 70*s.*; Roscoff flukes, 100*s.* to 105*s.*; chardons, 50*s.* per ton; German reds, 2*s.* 2*d.* to 4*s.* 6*d.* per bag.—The imports into London last week were—76,468 bags Hamburg, 800 Bremen, 301 Dantzic, 100 Rouen, 317 St. Nazaire, 370 Boulogne, and 400 tons Roscoff and Barfleur.

COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 15*s.* 9*d.*; East Wylam, 18*s.*; Walls End—Hetton, 18*s.*; Hetton Lyons, 16*s.* 6*d.*; Lambton, 17*s.* 6*d.*; Original Hartlepool, 18*s.*; Wear, 16*s.* 6*d.*; Tunstall, 16*s.* 6*d.*; Chilton Tees, 17*s.*; Harris Deep Navigation, 18*s.* 6*d.*; Cambrian, 18*s.*; Radford Navigation, 18*s.*

Government Stock.—The closing price of Consols on Monday was 100½ to 100⅝ for both delivery and the account. Tuesday's closing figures were 100½ to 100⅝ for delivery, and 100 13/16 to 100 15/16 for the account. Wednesday's final quotations were 100½ to 100⅝ for delivery, and 100⅞ to 101 for the account. The closing figures on Thursday were 99 to 99½ ex div. for delivery, and 99 5/16 to 99 7/16 ex div. for the January account.

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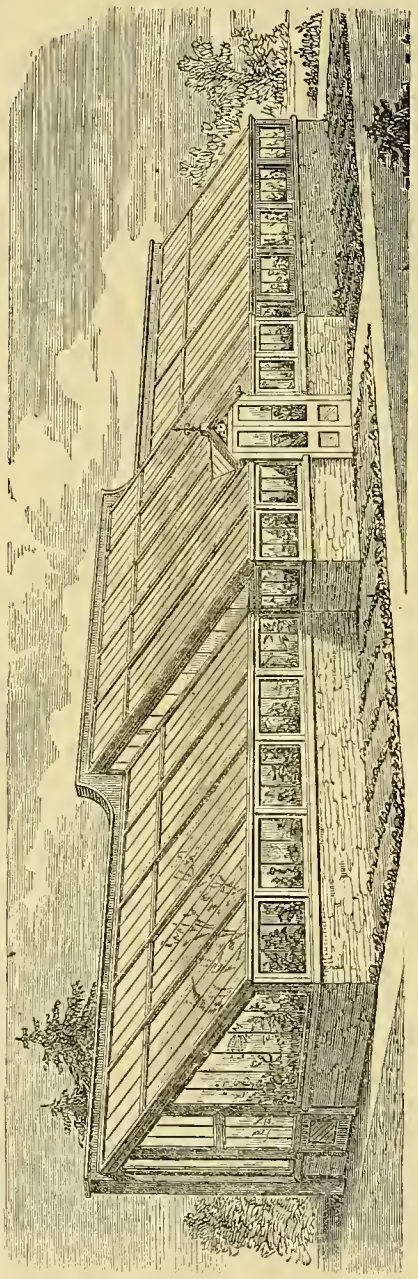

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Manufacturers of Wrought-Iron, Welded, and Rivetted Boilers of all descriptions.

Patentees of the Cast-Iron Tubular Saddle Boiler.

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MANGEL, Orange Globe.
RADISH, Red Turnip.
SPINACH, round, extra.
We shall be pleased to make special offers of the above.
HOWCROFT AND WATKINS, Seed Merchants, Covent Garden, London, W.C.

SEED POTATOS.—Magnum Bonum, £4 per ton; Myatt's Prolific, £5 per ton; Red-skinned Flourball, £3 10*s.* per ton; Schoolmaster, £6 per ton. Terms cash.
THOMAS PERKINS AND SONS, 31, Drapery, Northampton.

CHOICE HERBACEOUS CALCEOLARIAS, clean, healthy stuff, 3*s.* and 4*s* per dozen.
CINERARIAS, 2*s.* 6*d.* per dozen.
Extra strong QUICKS, 20*s.*, 25*s.*, and 30*s.* per 1000.
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TO BE SOLD, at a low price, ½ Acre of RHUBARB ROOTS; also several thousands of young FRUIT TREES. Apply, by letter, to
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H. LANE AND SON have a very large stock of well-ripened Canes to select from. The numerous Gold Medals awarded for collections of Grapes is a guarantee that our mode of growing them is right.
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SPECIAL OFFER TO THE TRADE.
THORN QUICKS, Seedling, 6 to 12 inches, fine.
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FIR, Larch, transplanted, 2 to 3½ feet, fine.
,, Scotch, transplanted, 1 to 1½ foot, fine.
PINES, Austrian, transplanted, 1½ to 2 feet, fine.
HAWS, per Cwt. or Ton.
Prices on application. The above will be sold cheap for Cash, or reference.
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JOHN FRASER, of the Nurseries, Lee Bridge Road, Leyton, has still on hand a quantity of ERICA HYEMALIS, GRACILIS, and a few other varieties of WINTER FLOWERING HEATHS. The plants are full of flower-buds, which are just opening. Price 9*s.*, 12*s.*, and 18*s.* per dozen.
Plants presented gratis, in proportion to quantity ordered, to pay expenses of carriage, &c.

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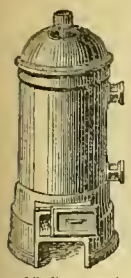


Independent Slow Combustion Boiler for Small Greenhouses.

TO HEAT BY HOT WATER; REQUIRING NO BRICKWORK.

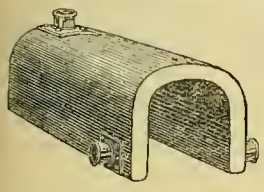
Specially adapted for small greenhouses; for quick heating or slow combustion. Quite portable, and will heat properly for twelve hours. Made with strong wrought-iron cylinder set in a cast-iron base, with fire-bars and sliding door. Only one-tenth the cost of heating by gas, and much more effectual. Fitted with two 2-in. cast sockets, door for feeding, and socket for smoke-flue.

Cash Prices—Carriage paid.

of Boiler complete, as shown in illustration, but exclusive of piping:—

Size.	Total Height.	Diameter.	To heat 4-in. Piping.	Price.
1	27 in.	16 in.	40 ft.	£3 10 0
2	30 in.	16 in.	60 ft.	4 0 0
3	33 in.	16 in.	80 ft.	4 10 0
4	36 in.	16 in.	100 ft.	5 0 0

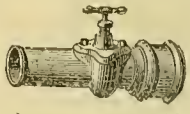
Plain Saddle Boiler.



Plain Saddle Boilers are generally used for heating from 100 feet to 300 feet of 4-in. piping; above that quantity it is more economical to use our Check-end Boiler, as one of these, 3 feet long, will heat double the quantity of piping a 3-feet Plain Saddle will.

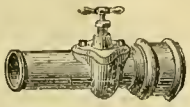
Size of Sockets.	Size of Boiler inside arch. Length.	Width.	Height.	Heating Power 4-in. Piping.	
Fitted with three 2-in. Sockets.	18 in.	12 in.	10 in.	100 ft.	Prices on application.
	21 in.	12 in.	10 in.	125 ft.	
	24 in.	12 in.	12 in.	150 ft.	
	27 in.	14 in.	14 in.	200 ft.	
	30 in.	14 in.	14 in.	250 ft.	
	36 in.	16 in.	16 in.	300 ft.	

The Perfect Throttle Valve.



2-in. .. .. 10s. 6d.
3-in. .. .. 12s. 6d.
4 in. .. .. 15s. 0d.

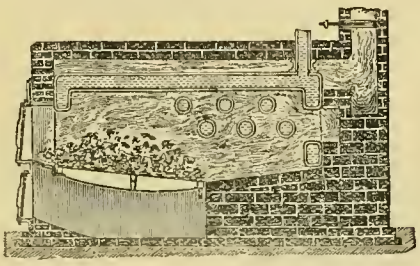
Screw Valves. Tight under any Pressure.



2-in. .. .. 15s. 0d.
3-in. .. .. 20s. 0d.
4-in. .. .. 25s. 0d.

The whole of the working parts of these valves can be removed without disturbing or cutting the pipes.

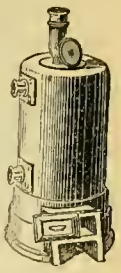
Patent Check-end Saddle Boiler.



Check-end Saddle Boiler, simple and durable.

No.	Outside Length.	Outside Width.	Outside Height.	Cross Tubes.	Heating Power for 4-in Piping.	Price: Boiler only.
1	30 in.	20 in.	18 in.	1	300 ft.	£8 10 0
2	36 in.	20 in.	18 in.	1	500 ft.	10 10 0
3	42 in.	22 in.	18 in.	1	750 ft.	13 0 0
4	48 in.	24 in.	20 in.	1	1000 ft.	16 0 0
5	48 in.	27 in.	20 in.	1	1250 ft.	20 0 0
6	54 in.	27 in.	22 in.	2	1500 ft.	23 0 0
7	54 in.	30 in.	22 in.	4	1750 ft.	26 0 0
8	60 in.	33 in.	24 in.	6	2000 ft.	30 0 0

The Phœnix Slow Combustion Boiler.



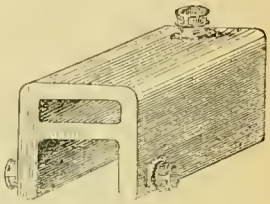
We claim for our Phœnix Upright Boiler the following good qualities, viz.:—It is made of the best materials; has no parts that are liable to failure; is provided with a flue that cannot be choked with fuel; will heat effectually the quantity of pipes stated with the smallest amount of fuel; can be easily regulated; and will hold fuel sufficient for keeping up the proper heat twelve hours; requires no brickwork, and takes up the smallest space of any boiler of its power.

Sockets can be placed in any position.

Cash Prices—Carriage paid.

Size.	Total Height without Feed Hole.	Diameter of Boiler.	Heating Power for 4-in. Piping.	Price.
1	25 in.	16 in.	150 ft.	£6 0 0
2	29 in.	16 in.	200 ft.	7 0 0
3	30 in.	16 in.	300 ft.	8 10 0
4	32 in.	18 in.	400 ft.	10 0 0
5	36 in.	18 in.	500 ft.	12 0 0

The Terminal End Saddle Boiler.



This Boiler is much used, and is one we can confidently recommend.

Total Length.	Size of Boiler. Inside the Arch. Width.	Height.	Outside Measure. Width.	Height.	Heating Power for 4-in. Piping.	
30 in.	16 in.	16 in.	22 in.	27 in.	500 ft.	Prices on application.
36 in.	16 in.	16 in.	22 in.	27 in.	750 ft.	
42 in.	18 in.	16 in.	24 in.	27 in.	1000 ft.	
48 in.	21 in.	18 in.	27 in.	30 in.	1300 ft.	
54 in.	24 in.	18 in.	30 in.	30 in.	1600 ft.	
60 in.	24 in.	18 in.	30 in.	30 in.	2000 ft.	

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Of which £25,000 are taken by the Vendor at the option of the Directors in part payment of his purchase money (namely, £10,000 in Cash and £25,000 in Shares), and £50,000 are now offered for Subscription.

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THIS Company has been formed for the purpose generally of developing portions of the vast Petroleum Oil resources now known to exist on the European Continent, and in particular to acquire a valuable lease of mining rights from the Hungarian Government, covering over 50,000 acres, to be selected by the purchasers in the Royal Domain of Unghvar, in the Carpathians, which is known to be rich in Oil and other mineral wealth.

In Galicia, on the Northern side of the Carpathians, and at a short distance from the field of operations of the present Company, immense quantities of Petroleum have been and are extracted, although the processes of working are most primitive. The Hungarian deposits form part of the same field, and in the opinion of experts are equally rich. The Oil is of a heavy character, peculiarly adapted for *lubricating purposss*, which gives it a value in the market far superior to the ordinary American oils.

Apart from the value of the Oils for illuminating, the demand for lubricating Oils is increasing with the constant increase of machinery, and the market for a cheap lubricant is unlimited.

The Oil fields of the European belt offer to the investor a fresh and exceptional opening, the results of successful exploration of good Oil territory far exceeding those of the richest mines of gold or silver.

Mr. FRANK DALE, an experienced oil driller, from Pennsylvania, who has for some time resided on the property, and Mr. W. H. MCGARVEY, the well-known Canadian expert, have made special reports. Their opinions indicate that the Company's property promises to rank with some of the best oil-producing tracts in the world.

Mr. DALE says, in his Report:—

"There is no possible room for doubt as to the actual presence of Petroleum at several different points in this country, *especially so here at Luch* (the Company's concession), as at every place visited I have had evidence of the same by every sense necessary to convince me of it." (*Vide also official Government Reports.*)

Mr. MCGARVEY says:—

"The property of the Company is without doubt *on the Oil belt*, which, so far as developments have demonstrated, crops out in the Province of Hanover, in Germany, where a thick heavy oil is obtained, and extends in a S.E. direction to the Caspian Sea. . . . *The great storehouse of the American Oil belts in Pennsylvania is in a formation exactly similar to that which exists upon the property of the Company, viz., Sand Rock, and particularly in the pebble or conglomerate sand rock, which is so conspicuous in the rocks upon the property of the Company and the vicinity.*"

Mr. DALE is now on the spot with a complete set of machinery for drilling, which, with the plant and the large derricks lately erected, are transferred to this Company, and arrangements have been made, in accordance with the recommendation of the experts, to contract with experienced Canadian oil-drillers to place on the spot, within a short period, machinery of the newest and best character, to drill a number of wells across the belt, and so to tap the richest portions of the supply.

The evidences of the existence of Oil in large quantities upon the estate are indisputable; the fact that it emerges from the soil in all parts of the property indicates the existence of a large reservoir in the vicinity, and all that is needed is capital for developing the full capacity of the district. The immense fortunes realised in America by a judicious selection of locality and expert management are now historical, and there is every reason to believe that there remains to be created in the European field a similarly lucrative industry to that of the kindred oil tracts of the United States and Canada.

An idea of the possible profits may be formed from this fact, that a single well of 100 barrels a day—no unusual find in America—will yield a return of £35,000 per annum, from a well costing £1000 or under, according to circumstances. Even 10 bbl. and 20-bbl. wells offer a handsome profit on the capital expended.

The chief feature in estimating the relative value of the European Oil Wells, compared with those of the United States and Canada, is the richness of the product, and the ease and simplicity with which it can be refined; also that the Crude Oil can readily be sold on the spot in almost its natural state for the lubrication of Railway and Tram Car Axles, and a variety of similar purposes.

An idea of the consumption of refined Petroleum alone on the Continent of Europe may be gathered from the exports of this article from New York during the year 1880, which amounted to **49,041,198 gallons**, of which over 10,000,000 gallons went to Trieste, for Austria-Hungary, besides vast imports through Bremen and Hamburg. Most of this finds its way into the interior at a heavy cost for transport, as well as serious loss by leakage, and the local production is protected against foreign competition by an import duty of about 1½*d.* per gallon.

This property offers a good prospect of large returns. The greatest care has been taken to get reliable opinions, and, while in regard to all mining investments it is impossible beforehand to acquire a certainty of success, the present offers a most promising opportunity of a lucrative investment.

Full Prospectuses can be obtained upon application to the Bankers, Brokers, or Secretary.

English Yews.

SANDY AND SON have a very fine stock of all sizes of the above. Price per dozen or 100 on application The Nurseries, Stafford.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

3*d.* per bushel; 100 for 20*s*; truck (loose, 250 bushels), 30*s.*; 4-bushel bags, 4*d* each.

LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*: 12 for 45*s.*, or 36*s.* per ton.

BLACK FIBROUS PEAT, 5*s* per sack, 5 sacks 22*s.*; 12 for 40*s.*, or 34*s.* per ton; sacks, 4*d.* each.

COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* half ton, 26*s.* per ton; in 1 cwt. bags, 4*d.* each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1*s.* per bushel.

SPHAGNUM MOSS, 8*s* 6*d.* per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.

H. G. SMYTH,

17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1*s.*; 15 bags, 12*s.*; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3*s.* (truckload free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

To Nurserymen and Gardeners.

COCOA-NUT FIBRE REFUSE.—Seven Bags for 6*s.*, fifteen Bags for 12*s.*, thirty Bags for 20*s.* (Bags included); Truck-load, loose, 25*s.*; Van-load, at Works, 4*s.* Terms Cash with Order.

WILLIAM TOMLIN, Cocoa-nut Fibre Works, 100, Barrowfield Street, Glasgow.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1*s.* each; 15 Sacks, 12*s.*; 30 Sacks, 20*s.* (all Sacks included); Van-load at Works, 4*s.*; ditto delivered within 5 miles, 10*s.*; Truck-load (equal to about 300 bushels when dry), free on rail, 25*s.* Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,

CHUBB, ROUND AND CO.,

Fibre Works, West Ferry Road, Millwall, London, E.

Special Offer.—Trade Only.—Cash.

THIRTY SACKS of PEAT, containing 4 Bushels each, free from waste, ready for potting, and rom which may be selected Peat suitable for any kind of plants. £3 cash, on rail here—Ringwood; 15*s.* extra charged for bags not returnable. Own sacks filled if sent carriage paid. This quantity comes under the two-ton rate for minerals.

Excellent Peat for Rhododendrons and common purposes, £3 per truck of 4 tons, on rail here, Cash.

F. G. GATERELL, Manager, Chief Depôt and Office, Ringwood, Hants.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas Heaths, American Plant Beds, 15*s.* per ton per truck. Sample bag, 5*s*; 5 bags, 22*s.* 6*d* 10 bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per bag.

SILVER SAND, Coarse or Fine, 52*s* per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 tons. GRAVEL, good colour, 25*s.* per truck of 6 tons.

WALKER AND CO., Farnborough Station, Hants

PEAT.—Brown, fibrous Peat for Orchids, Ferns, &c., £2 10*s.* large size Great Eastern Trucks put on rail at Lynn Station. Sample bags, 2*s.* each, for Cash.

A. DRAKE, Pilot Street, King's Lynn, Norfolk.

To Grape Growers.—Nothing can Surpass

CORRY AND SOPER'S NICOTINE SOAP for Dressing the Bark of Vines, which one trial will thoroughly prove.

Makers, CORRY, SOPER, FOWLER AND CO. (Limited), 18, Finsbury Street, E C.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1856, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6*d.*, and 1*s.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

Under the Patronage of the Queen.

J. SMITH'S IMPERISHABLE STRATFORD LABELS.

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.

J. SMITH, The Royal Label Factory, Stratford-on-Avon.

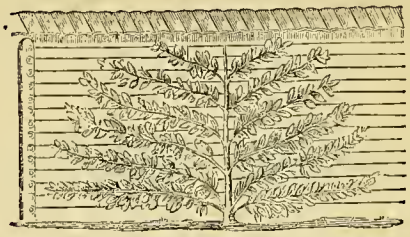
GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of

WATSON AND SCULL, 90, Lower Thames St., London, E C.

Aubert's Patent Seeateurs.

CORRY, SOPER, FOWLER AND CO. (Limited), Sole Importers Special quotation to the Trade on application —18, Finsbury Street, London, E C.

GARDEN WALLS WIRED.



Strong Wiring, suitable for good Garden Wall, by Estimate.

PEACH TRELLISES—Circular or Straight.

VINE TRELLISES, and other Internal Wiring made and fixed in a substantial manner.

ESPALIERS, for Garden, with Circular Tops.

STRAINED WIRE FENCING.

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"PHEASANTRY" IRON AND WIRE WORKS,

Beaufort Street, Chelsea, S.W.

T. MILLINGTON AND CO., 43, Commercial Street, E.

PLATE, SHEET, CROWN GLASS.

SHEET GLASS, IN CASES, FOR CUTTING UP.

Common ..	15-oz., 300 feet,	35*s.* 0*d.*,	if 21-oz.,	200 feet,	35*s.* 0*d.*
Fourths ..	,,	,, 37*s.* 6*d.*	,,	,,	37*s.* 6*d.*
Thirds ..	,,	,, 41*s.* 0*d.*	,,	,,	41*s.* 0*d.*
Seconds ..	,,	200 feet, 40*s.* 0*d.*	,,	,,	47*s.* 0*d.*
Best ..	,,	,, 50*s.* 0*d.*	,,	,,	60*s.* 0*d.*

Also 26 oz., 28-oz., and 32-oz. Glass.

SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½ × 5½	..	9*s.* 6*d.*, 10*s.* 6*d.*,	11*s.* 6*d.*, 12*s.* 6*d.*
8 × 6 to 10½ × 8½	..	10*s.* 0*d.*, 11*s.* 0*d.*,	12*s.* 0*d.*, 13*s.* 0*d.*
11 × 9 to 14 × 10	..	11*s.* 0*d.*, 12*s* 6*d.*,	13*s* 6*d.*, 14*s.* 6*d.*
15 × 10 to 18 × 12	..	11*s.* 0*d.*, 12*s.* 6*d.*,	13*s.* 6*d.*, 14*s.* 6*d.*
20 × 12 to 20 × 18	..	12*s.* 0*d.*, 13*s.* 0*d.*,	14*s.* 0*d.*, 15*s.*; if 21-oz., 15*s.*, 16*s.* 6*d.*, 18*s* 6*d.*, 20*s.*

SHEET LEAD, WHITE LEAD, OILS, TURPENTINE, and COLOURS.

HORTICULTURAL WINDOW GLASS,

15-oz and 21-oz., in Boxes containing 200 feet.

Carriage Paid to any Railway Station in England.

Price Lists on application.

ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 6 and 8, Pentonville Road, London, N.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities of

BETHAM & SON,

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B. & Son have always a large stock in London of 20-in. by 12-in., 20-in. by 14 in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting up purposes, in 200 ft. and 300-ft. cases.

Glass—Glass.

GLASS—Special.—100 feet superficial, good quality Sheet Glass, in squares 9½ × 6½, and 8½ × 6½; 216 squares in former, and 260 squares in latter. Price 9*s* 6*d.* Case 2*s.* extra, which is allowed for when returned.

HENRY WAINWRIGHT, Glass and Lead Merchant, Alfred Street, Boar Lane, Leeds.

Wholesale Russia Mat Merchants.

MARENDAZ AND FISHER, James Street, Covent Garden, W.C., have received a special importation of new ARCHANGEL MATS; also a large consignment of PETERSBURG MATS, MAT BAGS and RAFFIA FIBRE.

FRESH ARRIVALS OF

ARCHANGEL MATS, best colour and quality; also ST. PETERSBURG MATS and RAFFIA. SEED BAGS and SACKS, NETTING and SHADING, &c. Prices on application.—WM. PETERS, 44, Teuter Street South, Goodman's Fields, London, E.

ARCHANGEL AND PETERSBURG

MAT MERCHANTS and IMPORTERS.

All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description RAFFIA FIBRE, NETTING, and TIFFANY, TARPAULINS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to

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Manufacturers of ROPES, TWINES, SACKS, TARPAULINS, HORSE-CLOTHS, COCOA MATS and MATTINGS, SADDLERS and HARNESS MAKERS, ARCHANGEL and PETERSBURG MATS, RAFFIA FIBRE, NETTING, &c. COCOA-NUT FIBRE REFUSE, single sacks, 1*s.* each; 15 sacks, 12*s.*; 30 sacks, 20*s*; truck-load, delivered to any station in London, 25*s.* Try our HEMP SASH LINE, made especially for Greenhouses and Heavy Sashes—the best in the Trade.

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RUSSIA MATS

For COVERING GARDEN FRAMES.

SEED BAGS and SACKS.

BEST ROLL TOBACCO PAPER. RAFFIA FIBRE.

TARPAULINS and HORSE-CLOTHS.

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THOMSON'S STYPTIC

PREVENTING VINES BLEEDING.

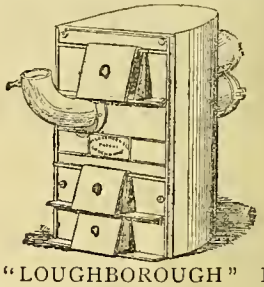
PREVENTING CUTTINGS FLAGGING.

As a substitute for Grafting Wax.

Sold by all Nurserymen and Seedsmen, 3*s.* per bottle.

Wholesale Agent: W. E. DIXON, Edinburgh.

REIGATE SILVER SAND.—Owing to the original caves having been closed for many years, Earl Somers has been induced to break into the same fine vein on another part of his estate, and can now offer Silver Sand of the best quality at 7*s.* 6*d.* per Ton, on Rail at Reigate Station. Apply to H. SIMS, The Priory, Reigate, Surrey.



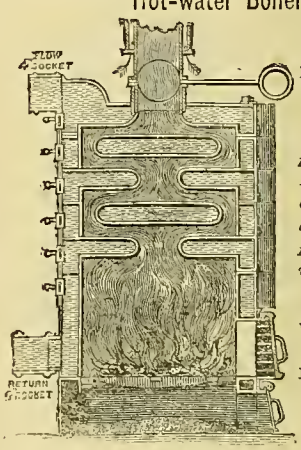
THE "LOUGHBOROUGH" BOILER, now introduced, is intended to supply a want long felt, of a cheap Boiler for small Greenhouses, requiring neither brick setting nor iron case. The Boiler is placed in the wall of the Greenhouse, so that the heat from the Boiler itself is utilised in heating the house. Price with fittings, £2 12*s.*, delivered. Capable of heating 70 feet of 4-in. pipe.

The apparatus for a Greenhouse, 20 feet by 10 feet, complete, for £6 10*s.* Prices and full particulars on application.

MESSENGER AND CO., Loughborough.

Sole English Medallists at Philadelphia for the Best Hot-water Apparatus.

Wright's Patent "Endless-Flame Impact" Hot-water Boilers.



New Malleable Iron and Tubular Series.

Descriptive Pamphlets. New Price LIST of 175 Boilers, Opinions of the Press, and 24 pages of Reports from those at work, on application.

Over 400 at work.

Wm. Wright & Co.,

AIRDRIE,

Near Glasgow, N.B.;

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STOVES.

Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Healthy Heat twenty-four hours or longer for about 1*d.*, without attention. For Bedrooms, Greenhouses, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,

112, Victoria Street, Westminster, S.W.

PIPES and FITTINGS,

FOR HEATING APPARATUSES.

The largest stock in the Kingdom. 4-inch pipes, 1*s.* 6*d.* per yard.

SILVESTER & SAINSBURY,

Castle Hill Foundry, Newcastle, Staffordshire.

The Best System of Heating is by Hot Water.

The Best Hot-Water Joint is Jones' Expansion Joint.

JONES & ATTWOOD

ENGINEERS & IRONFOUNDERS

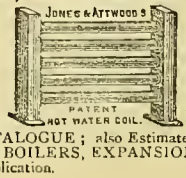
STOURBRIDGE.

THE BEST

HOT-WATER JOINT.

Medal Awarded, Horticultural Show, Aston, 1875.

SIMPLE, DURABLE, NEAT, CHEAP.



Specially adapted for CHURCHES, SCHOOLS, MANSIONS, PUBLIC BUILDINGS, &c.

Illustrated CATALOGUE; also Estimates for Heating with the most improved BOILERS, EXPANSION JOINT PIPES or COILS, on application.

FOSTER & PEARSON,

HORTICULTURAL BUILDERS.

First Prize for Best Greenhouse, June 8, 1881,
Royal Horticultural Society—Sixteen Competitors.

First Prize for Best Greenhouse, July 30, 1881,
Liverpool Horticultural Society—Four Competitors.

First Prize for Best and Most Durable Greenhouse, August 23, 1881,
International Fruit Show, Manchester—Ten Competitors.

BEESTON, NOTTS.

THE THAMES BANK IRON COMPANY

UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete stock in the Trade to choose from.

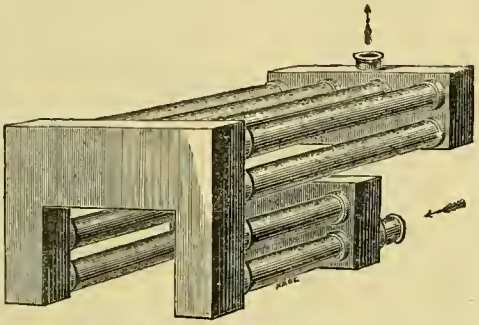
Hot-water Boilers,

PIPES,

and Connections,

and all Castings for Horticultural purposes.

Their New Illustrated CATALOGUE, 12th Edition, now ready, price 1s.



NEW HORIZONTAL TUBULAR BOILER, made from 6 to 14 feet long.

Hot-water & Hot-air

APPARATUS

erected complete,

or the Materials supplied.

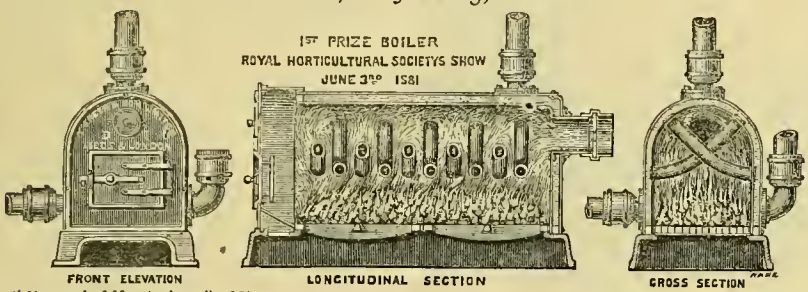
PRICE LIST

on application free.

GREEN'S PATENT TUBULAR SADDLE BOILER

Had the First and Highest Prize, a Silver Medal.

Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.



FRONT ELEVATION — LONGITUDINAL SECTION — CROSS SECTION

The "Journal of Horticulture" of June 9 says:—

"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The "Garden" of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

Descriptive Illustrated Price LIST free on application to

THOMAS GREEN AND SON (LIMITED),
SMITHFIELD IRONWORKS, LEEDS,
And 54 and 55, BLACKFRIARS ROAD, LONDON, S.E.

Now Ready, a Revised Edition of the

COTTAGER'S CALENDAR OF GARDEN OPERATIONS.

ORIGINALLY COMPILED BY THE LATE SIR JOSEPH PAXTON, M.P.

Price 3d., Post Free 3½d.

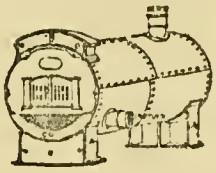
W. RICHARDS, 41, WELLINGTON STREET, STRAND, LONDON, W.C.

REDUCED PRICES.

STEVENS'

TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most SIMPLE, ECONOMICAL, EFFECTUAL, and LASTING BOILER extant; recently improved.

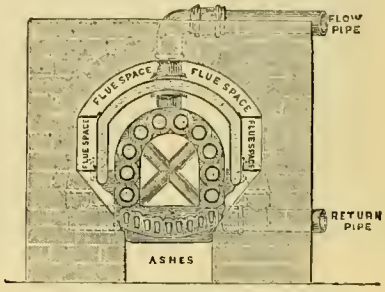


Sole Makers,
SILVESTER & SAINSBURY,
CASTLE HILL FOUNDRY, NEWCASTLE, STAFFORDSHIRE.

RICHARDSON'S PATENT

HOODED TUBULAR BOILER

For Heating Horticultural Buildings, Churches, Chapels, Schools, Mansions, &c.



CERTIFICATE of MERIT
Awarded at the Grand International Horticultural Exhibition, Manchester, 1881.

Apply for particulars of Boilers and Horticultural Buildings

W. RICHARDSON & CO.,

Horticultural Builders & Hot-Water Engineers,
DARLINGTON.

THOS. W. ROBINSON,

DENNIS PARK IRONWORKS, STOURBRIDGE,
MANUFACTURER OF

HOT-WATER PIPES,

IMPROVED "EXPANSION JOINT" PIPES,

BOILERS,

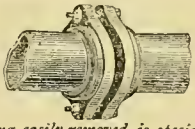
SPOUTING, PUMPS, TANKS, WROUGHT-IRON TUBING, And every description of Ironwork for Horticultural and Building Purposes.

SOCKET HOT-WATER PIPES.

	s. d.	s. d.	s. d.
Pipes (6 ft. long)—2-in.,	1 9 ..	3 in., 3 0 ..	4-in., 3 10 each.
,, (9 ft. long)— ,,	— ..	,, 4 3 ..	,, 5 3 ,,
Elbows (No. 12)— ,,	1 1 ..	,, 1 8 ..	,, 2 0 ,,
Tees (No. 33)— ,,	1 5 ..	,, 2 4 ..	,, 3 3 ,,
Syphons (No. 23)— ,,	1 3 ..	,, 2 0 ..	,, 3 0 ,,

"Expansion Joint" Hot-water Pipes.

The "Expansion Joint."



The Best and Quickest Made.

This Joint, being easily removed, is specially adapted for Tenants.

	s. d.	s. d.	s. d.
Pipes (6 ft. long)—2-in.,	1 8 ..	3-in., 2 8 ..	4-in., 3 4 each.
,, (9 ft. long)— ,,	— ..	,, 4 0 ..	,, 5 0 ,,
Elbows (No. 3)— ,,	0 8 ..	,, 0 10 ..	,, 1 0 ,,
Tees (No. 13)— ,,	0 11 ..	,, 1 2 ..	,, 1 4 ,,
Syphons (No. 16)— ,,	1 0 ..	,, 1 4 ..	,, 1 6 ,,

Joint complete, with Rubbers and Pins, 2-in., 1s. each; 3-in., 1s. 3d.; 4-in., 1s. 6d.

Delivered into Trucks or Boats. Illustrations and Price Lists free.
Terms—Cash against Invoice less 2½ per Cent. Discount.
Estimates for Heating given from Plans.
ALL CASTINGS SUPPLIED OF FIRST QUALITY ONLY.

ECONOMY IN FUEL.

Toope's Asbetos Covering Company

(LIMITED)

Manufacture an easily fitted and removable Patent Covering for Hot-water Pipes of any diameter, which effectually prevents any loss of heat in pipes passing from the boiler to the Glass-houses, no matter what the distance.

It will be found invaluable where used.

Price 10d. per superficial foot.

NUMEROUS TESTIMONIALS.

Send circumference of pipe, and length required, to the Factory,
BEN JONSON'S ROAD, STEPNEY, LONDON, E

Hooper's—
The Covent Garden Seed Warehouse

SUPPLY EVERY GARDEN REQUISITE
In the Highest Quality.
Also every Good Thing Advertised.

CATALOGUES READY.

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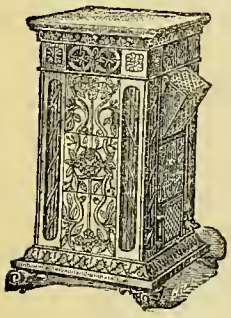
DOULTON'S RADIATING TILE STOVES.



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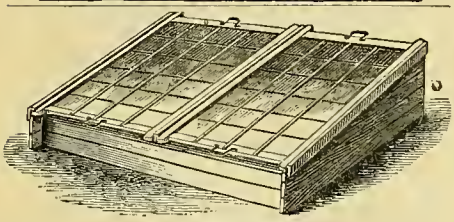

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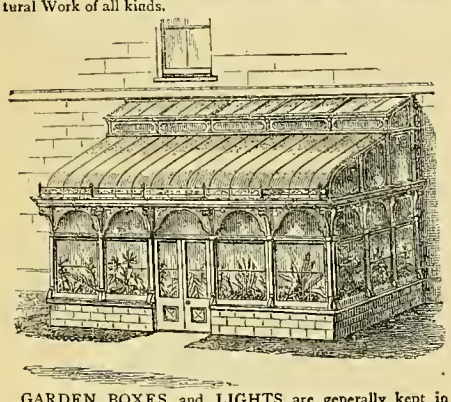

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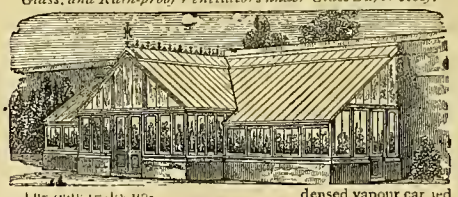

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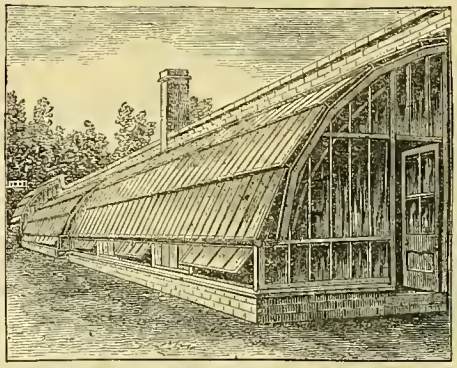

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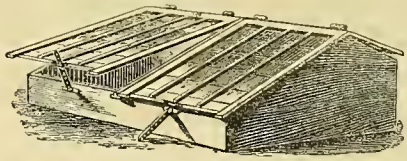

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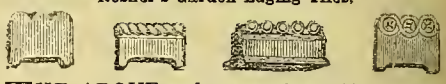

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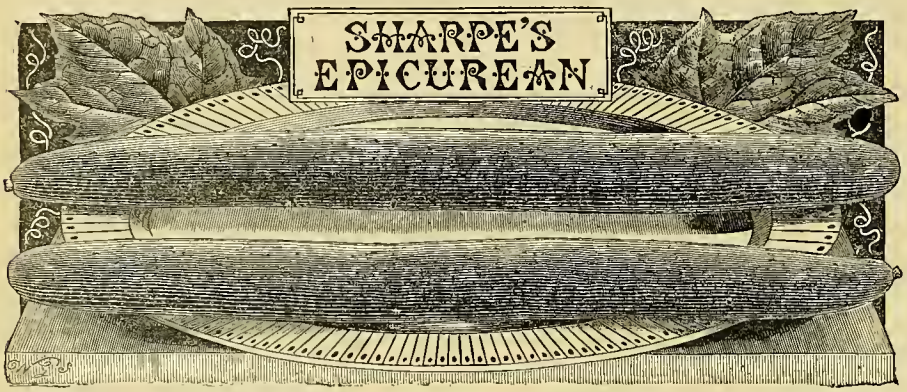
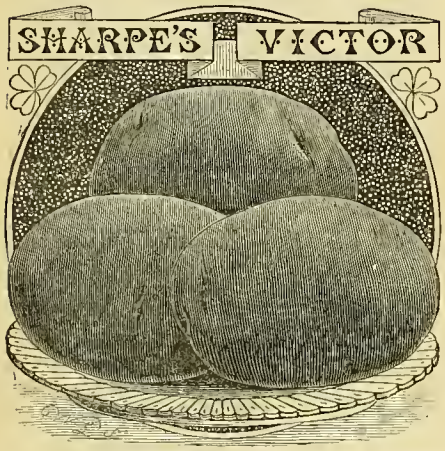


This, the perfection of frame Cucumbers, is a cross between Telegraph and Tender and True; in form it has a resemblance to Telegraph, but is of a darker green and much longer—fruit 31 inches in length having been cut from it. In flavour it is superior to Tender and True, but its chief recommendation is its marvellous productiveness, in which it excells everything that has come under our notice, as many as 300 and 400 fruit having been cut at one time from twelve plants, in a three-light pit, three-quarter span.

For succession it is unequalled, bearing as abundantly at Christmas as Midsummer—and in addition to its handsome form and lovely colour, it is a variety that seldom produces seeds, not one in a hundred containing a trace. This peculiarity has delayed sending out the stock for a year or two, and at one time it was so nearly lost that only by striking cuttings could it be preserved.

Retail price—per Packet, 3s. 6d.

THE EARLIEST OF ALL POTATOS.



SHARPE'S VICTOR.

Sharpe's Victor is a seedling raised from the Alma Kidney and the old early short top round Potato. It is earlier than any present variety, and having a very short top, is especially suitable for frame cultivation; its precocity is such that it has been fit for the table in nine weeks from the time of planting, and the raiser assures us that at this date, October 17, he is now growing his fifth successive crop this year (since lifted on Nov. 25), the first being lifted in January. Thus there is no difficulty in securing new Potatos for the table every day in the year. Victor is a flattened roundish oval in shape, with a beautiful clear skin and extremely shallow eyes, being one of the handsomest as well as the heaviest cropper of any variety adapted for frame-work, or for a first early crop outdoors. It is dry and mealy when cooked, and the flavour and quality of the flesh are superior to nearly every other variety at present in use.

Sprouted sets now ready for planting in frames or pots.

Retail price, 1s. per Pound.

THE DESIDERATUM IN POTATOS.

SHARPE'S DUKE OF ALBANY.

The Editor of the *Gardeners' Chronicle*, in the number for September 24, 1881, makes the following remarks in his report of the International Potato Exhibition, held at Manchester :—

> "But we want other improvements; we want more large cropping, earlier kinds, and of the late sorts considerable disease-resisting powers. First early sorts are rarely affected by the destructive fungus. Their season is short, their haulm growth usually of a medium character, and, as a rule, they ripen ere the disease becomes dangerous. Large cropping kinds, that will give a big bulk of good tubers capable of carrying on the needful supply for the family or for the nation till Christmas, yet lifted ripe in August, would be an immense boon; and these, it is hoped, may come soon, because well directed efforts in the shape of cross-fertilisation to secure the desired end are being made . . . . Although no special prizes were offered for these there can be no doubt but that the special encouragement given to new sorts will tend to promote that desirable object."

Duke of Albany so exactly corresponds to the requirements above indicated, that, had it been written for us as a description, it could not have been more exact.

Duke of Albany is a white Kidney—a cross between Beauty of Hebron and Early Goodrich; it has a short haulm with a pale flat leaf, is quite as early as Myatt's Prolific, as large in size and as heavy a cropper as Magnum Bonum, than which it is ten weeks earlier; it is ripe early in August, and will keep until spring, being a first-class Potato from the middle of July until the month of March. For flavour, quality of flesh, and good cooking properties, it leaves nothing to be desired.

Retail price—per Pound, 6d.

SPECIALITIES

CULVERWELL'S GIANT MARROW PEA.

This, the most recent of Mr. Culverwell's introductions, is decidedly the best Pea he has raised. It is a Blue Wrinkled Marrow, growing from 5 to 6 feet in height, with a strong branching habit, the haulm being covered from top to bottom with Giant Pods, containing from ten to thirteen very large Peas of the most exquisite flavour. As a main crop Pea for the Gentleman's Gardener who requires a long succession of Peas, or for the Amateur growing for Exhibition, it is unequalled.

The Giant Marrow should not be sown early, its special qualification is its adaptability for a late crop, or for a late Exhibition Pea.

2s. 6d. per packet.

SHARPE'S INVINCIBLE PEA.
2s. 6d. per quart.

SHARPE'S TELEGRAPH CUCUMBER.
1s. per packet.

ASWARBY PARK MELON.
1s. 6d. per packet.

RAUCEBY HALL MELON.
1s. 6d. per packet.

NISBET'S VICTORIA TOMATO.
1s. per packet.

SHARPE'S CONQUEROR BEAN.
1s. per pint.

SHARPE'S EMPEROR BEET.
1s. per packet.

EARLY SNOWBALL CAULIFLOWER.
2s. 6d. per packet.

ECLIPSE CAULIFLOWER.
1s. 6d. per packet.

SHARPE'S "LINCOLN GREEN" PARSLEY
6d. per packet.

SHARPE'S PRIZE WHITE SPANISH ONION .. 1s. per packet.

EDELWEISS .. .. 1s. per packet.

SHARPE'S CHOICE CALCEOLARIA
2s. 6d. per packet.

SHARPE'S CHOICE CINERARIA.
2s. 6d. per packet.

SHARPE'S CHOICE PRIMULA SINENSIS.
2s. 6d. per packet.

SOLD BY ALL NURSERYMEN AND SEEDSMEN.

PRICE TO THE TRADE AND SPECIAL TRADE LIST ON APPLICATION.

CHARLES SHARPE & CO., SLEAFORD.

Editorial Communications should be addressed to "The Editors;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

NEPENTHES NORTHIANA: PITCHERS CRIMSON-SPOTTED. TWO-THIRDS NAT. SIZE.

THE

GARDENERS' CHRONICLE.

Established 1841.

No. 415.—Vol. XVI. { New Series. } SATURDAY, DECEMBER 10, 1881. { Registered at the General Post-office as a Newspaper. } Price 5d. Post Free, 5½d.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

Now Ready, in cloth, 16s.,

THE GARDENERS' CHRONICLE,
Volume XV., JANUARY to JUNE, 1881.
W. RICHARDS. 41, Wellington Street, Strand, W.C.

ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $6.35 for Twelve Months.
Agent for America:—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE.—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M.; Scientific, at 1 P.M.: General Meeting for the Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, Dec. 13.
PRIZES offered by Messrs. JAS. CARTER & CO., for the Best Collection of 12 DISHES of VEGETABLES (without restrictions to varieties), to include 12 Onions, 12 Turnips, 3 Cauliflowers, 3 Celery, 50 Brussels Sprouts, 12 Kidney Potatos, 12 Carrots, 12 Parsnips, 3 Red Beets, 12 Round Potatos, 6 Leeks.

1st Prize ..	£3 0 0	4th Prize	£1 0 0
2d ,, ..	3 0 0	5th ,, ..	0 10 0
3d ,, ..	1 10 0	6th ,, ..	0 7 6

Admission, 1s.

ALEXANDRA PALACE, N.
CHRISTMAS FRUIT SHOW
AND HARDY EVERGREEN PLANTS,
from December 24, 1881, to January 7, 1882.
J. FORSYTH JOHNSON, Horticultural Director.

ALEXANDRA PALACE, 1882.
PERMANENT EXHIBITION OF HORTICULTURAL APPLIANCES.
The Lessees are prepared to LET SPACE (covered) for the Exhibition of Garden Furniture, Tools, Machinery, &c.
Medals will be awarded to noteworthy articles by the Judges of the Monthly Exhibitions.

CHRISTMAS TREES.
Fine SPRUCE FIRS, 5 to 15 feet, well feathered.
Prices on application.
EDMUND PHILIP DIXON, Hull.

Calceolarias and Cinerarias.
H. CANNELL AND SONS have now, perhaps, the most model-like small plants ever offered, so clean and vigorous that they would be sure to give satisfaction: 1s. 6d per dozen; in small pots, 2s. 6d. per dozen. All are from our own well-known, the best of all, strains. Special quotations for large quantities and larger plants.
The Home for Flowers, Swanley, Kent.

GARDEN POTS — GARDEN POTS. — From 2 to 30 inches diameter, unequalled in quality. RUSTIC WINDOW BOXES and every description of GARDEN POTTERY. Price List free.
MATTHEWS, Royal Pottery, Weston-super-Mare.

SUTTONS' CHOICE FLOWER ROOTS, CARRIAGE FREE.
For Prices and full particulars, see
SUTTONS' AUTUMN CATALOGUE,
Gratis and post-free on application.
SUTTON AND SONS, The Queen's Seedsmen, READING.

ROSES.—A few hundreds of fine Standards still on hand. Price on application.
SPHAGNUM MOSS, fresh, 2s. 6d. per bushel; bags included.
WANTED, a few Thousand MANETTI STOCKS. State price, &c.
BATCHELOR AND DRURY, Harlow Heath Nurseries, Harrowgate.

NOTICE to SENDERS.—STEPHANOTIS, GARDENIAS, TUBEROSES, ARUM LILIES and other CHOICE FLOWERS are now in request. Also GRAPES, CUCUMBERS, TOMATOS, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

Floral Commission Agency.
WANTED, all kinds of CHOICE WHITE FLOWERS.—Nurserymen and others having the above will please communicate with W. CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.

WANTED, CUT FLOWERS in large or small parcels. Good price returned. Send to
A. BRAY, The Floral Depot, Richmond, Surrey.

WANTED, in quantity, HOLLY, well-berried, and other CUT EVERGREENS, for decoration. Quote price to
LIVERPOOL HORTICULTURAL CO. (Jno. Cowan), Limited, Vineyard and Nurseries, Garston, near Liverpool.

WANTED, 100 BOUVARDIAS, mostly Vreelandi and Maiden's Blush, with remainder Hogarth. State average number of Buds. Also Wanted PELARGONIUM Maid of Kent, and AZALEA NARCISSÆFLORA, with average number of Buds.
X., Mr. McFarlane, Prestonkirk.

WANTED, MANETTI STOCKS.—Send samples and price to
JOHN STANDISH AND CO., Royal Nurseries, Ascot, Berks.

WANTED, MANETTI STOCKS; also DE LA GRIFFERAIE STOCKS. Address, with Price per 1000, to
WM WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

WANTED, strong CRAB STOCKS, Common LAUREL, 3 feet; Small Chinese ARBOR-VITÆ, and STANDARD ROSES. Sample and price to
T. EVES, Gravesend Nurseries.

WANTED, Perpetual or Autumn-flowering CLEMATIS, good 2-yr. old plants. State price per 100 or 1000 to
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

WANTED, several hundred LIME, PLANE, and other TREES.—State price, &c., and when last lifted. Must be extra strong.
J. ORSMAN, Florence Road Nursery, New Cross, S E.

WANTED, well-grown ENGLISH OAK, 3 to 4 feet. State price per 1000. Also a few 5 to 6 feet.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

WANTED, 10,000 clean grown well-rooted common ASH, 4 feet and above. State lowest price for cash to
S. MAYOR, 6, Coronation Street, Albion Steeet, Leeds.

WANTED, in any quantities up to 10,000, of each of the following, or of any Hardy Plants about same value:—LAURELS, EVERGREEN PRIVET, BERBERIS, LAURUSTINUS, CUPRESSUS MACROCARPA, AMERICAN ARBOR-VITÆ, EUONYMUS, and IVIES. Send price, delivered into railway trucks, to
W. WILLETT, Offices, The Drive, Hove, Sussex.

WANTED, strong APPLE STOCKS, fit for working Sample and Price to
CRANSTON'S NURSERY AND SEED CO. (Limited), King's Acre, Hereford.

WANTED, 5000 MUSSEL PLUM STOCKS. Price to
OSBORN AND SONS, The Fulham Nurseries, London, S.W.

WANTED, RHUBARB ROOTS, enough to plant several acres, of Champagne, Victoria, or Albert. Price to
GARDENER, Deacon's Advertising Offices, Leadenhall Street, E.C.

WANTED, a quantity of BEET ROOT and PARSNIPS. Price per ton,
W. P. LAIRD AND SINCLAIR, Seedsmen, Dundee.

Schoolmaster Potatos.
WANTED to PURCHASE, a quantity of the above. Apply, stating lowest price and what quantity to offer, to C. F., 104, Friar Street, Reading.

ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz. 12s. and 15s.; extra selected, for potting (specimens), 18s. per doz.
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The Best Dwarf Roses in the Trade.
JAS. GARAWAY AND CO. offer the above, 100 in Best Leading Varieties, their selection, packed and carriage paid to any railway station, on receipt of Post-office Order for 60s.; 50 for 33s.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

Standard and Half-Standard Roses.
FREDERICK PERKINS has still a few hundred good Standard ROSES, of the best varieties, at 30s. and 36s. per dozen. Trade price on application. Post-office Orders payable to
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QUICKS.—500,000 fine transplanted, from 20s., 25s., 30s., 40s., and extra strong at 50s. per 1000.
Address WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

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Messrs. JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

Spruce Firs.—Spruce Firs for Christmas Trees.
SPRUCE FIRS, 1½ to 2 feet, 5s. per 100, 30s. per 1000; 2 to 3 feet, 8s. per 100, 50s. per 1000.
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OUR NEW CATALOGUE of SPRING FLOWERING PLANTS of all kinds is now issued, and will be sent post-free to all applicants.
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LILIUM AURATUM, splendid sound bulbs, at 4s., 6s., 9s., 12s., and 18s. per dozen; 30s., 40s., 50s., 75s., and 100s. per 100; extra strong, 30s. and 42s. per dozen.
LILIUM HUMBOLDTII, beautiful, hardy and easily grown, 18s. and 30s. per dozen; gigantic roots, 42s. per dozen.
LILIES OF VARIOUS SORTS, either for Greenhouse, Conservatory, or Open Border, by the dozen, 100, or 1000.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Cypripedium japonicum, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 54) is just published, and will be sent free on application.
Lion Walk, Colchester.

SPRUCE FIRS for CHRISTMAS TREES.
See advertisement, December 3, p. 710.
WM. JACKSON AND CO., Nurseries, Bedale, Yorks.

TO be Sold, at a very moderate price, Two Fine Specimens of the ARAUCARIA EXCELSA (Norfolk Island Pine), about 14 feet high, and of good shape. For further particulars apply to
Mr. JAMES, Gardener, Stratford House, Stroud, Gloucestershire.

Gladiolus Brenchleyensis.
R. VAN DER SCHOOT AND SON, Florists, Hillegom, near Haarlem, Holland, beg to offer 100,000 GLADIOLUS BRENCHLEYENSIS. This species is highly recommended for Bedding purpose, by its brilliant scarlet colour. Sample and price may be had on application.

ABIES DOUGLASII.—Specimen plants, 4, 5, and 6 feet high, 12s., 18s., and 24s. per dozen—all balled up. Transplanted May 1880. Will travel any distance.
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STRONG PLANTING CANES of BLACK HAMBURGH and MUSCAT of ALEXANDRIA, 36s. per dozen.
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RASPBERRY CANES. — Fastolf, 20s.; Carter's, 30s. per 1000.
R. BATH, Crayford, Kent.

SEAKALE for FORCING.—Magnificent Roots. Price on application.—ATWOOD AND SON, Market Gardeners, Chaldon Road, Fulham Fields, W.

SALES BY AUCTION.

Monday Next.
DUTCH BULBS, LILIUM AURATUM, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, at half-past 11 o'Clock precisely, 8000 unusually fine LILIUM AURATUM, from Japan; a choice assortment of HARDY ENGLISH GROWN LILIES, BORDER and GREENHOUSE BULBS, LILY of the VALLEY, and about 500 lots of First-class HYACINTHS, TULIPS, CROCUS, and NARCISSUS from Holland.
Catalogues at the Mart, and 8, New Broad Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch Street, E.C.
CONSIGNMENT from GHENT for Absolute SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, December 13, at 12 o'Clock precisely, a choice collection of about 200 Double CAMELLIAS and AZALEA INDICA, compact plants, 1½ to 3 feet, beautifully set with bloom-buds; about 300 Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ SHRUBS, AMERICAN PLANTS, with a collection of DUTCH BULBS, Winter Blooming ERICAS, PRIMULAS, &c.
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Friday Next.
12,000 splendid BULBS of LILIUM AURATUM from Japan, a very fine collection of ENGLISH-GROWN LILIES, consisting of unusually large roots of L. giganteum, L. Humboldtii, L. pardalinum, L. Szovitzianum, L. Brownii, and many other varieties; 2000 BERLIN CROWNS of LILY of the VALLEY, DISA GRANDIFLORA, and CYPRIPEDIUM SPECTABILE from the Cape, a varied assortment of Hardy and Greenhouse BULBS, DUTCH FLOWER ROOTS, &c.

MESSRS. PROTHEROE AND MORRIS WILL SELL the above at the Auction Mart, Tokenhouse Yard, City, E.C., on FRIDAY NEXT, December 16, at 12 o'Clock precisely.
Catalogues at the Mart, and 8, New Broad Street, E.C.

10,000 Lilium auratum from Japan, in fine condition.
(Sale No. 6011.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, December 12, at half-past 12 o'Clock precisely, an importation of 10,000 bulbs of LILIUM AURATUM, just received from Japan in the finest possible condition. Also English-grown LILIES, including Lilium Browni, L. Leichtlini, L. Batemanni, L. giganteum, L. pomponium, and others; some fine established clumps of DISA GRANDIFLORA; quantity of immense roots of the lovely ERYTHRINA HERBACEA; thirty cases of BELLADONNA LILIES, and a fine assortment of miscellaneous HARDY BULBS and PLANTS from various parts of the world.
On view the morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6013.)
PLANTS and BULBS from HOLLAND.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, December 14, at half-past 12 o'Clock precisely, a consignment of Standard and Dwarf ROSES of sorts, variegated HOLLIES, FRUIT TREES, ORNAMENTAL FLOWERING TREES, CONIFERS, &c., from Holland; a small COLLECTION of ORNAMENTAL STOVE and GREENHOUSE PLANTS, the property of a gentleman; a choice assortment of RARE HARDY BULBS and PLANTS, including many scarce species; also an importation of choice named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUMS, and other BULBS, RUSTIC GARDEN-WORK, &c.
May be viewed the morning of Sale, and Catalogues had.

Imported Orchids.—(Sale No. 6014.)

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 15, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co., IMPORTED ORCHIDS, including Odontoglossum Pescatorei, in splendid condition and grand masses; O. crispum (Alexandræ), O. Phalænopsis, O. hastilabium, Ada aurantiaca, Anguloa Clowesii, Comparettia rosea, Maxillaria venusta, and others.
On view morning of Sale, and Catalogues had.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

APPLE TREES with MISTLETO growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

PARKER AND SONS, St. Michael's Hill Nursery, Bristol, offer the following:—
LARCH, 2 to 3 feet
SCOTCH, 1½ to 2½ feet.
SPRUCE, 1½ to 2½, and 2½ to 3½ feet.
THORN, 2 to 3 feet.
Prices on application.

THORN QUICK, strong, 4-yr. transplanted, 20s. per 1000. LARCH, fine, 1½ to 2½ feet, twice transplanted, 17s. 6d. per 1000. MAHONIA AQUIFOLIA, 2 to 3 feet, 50s. per 1000. AUSTRIAN PINE, 2 to 3 feet, twice transplanted, 50s. per 1000.
W. JACKSON, Blakedown, near Kidderminster.

TO THE TRADE.
SEAKALE, extra strong, 80s. per 1000.
" strong, 60s. per 1000.
" good planting, 40s. per 1000.
For cash with orders only.
RICHARD LOCKE, Royal Nurseries, Red Hill, Surrey.

FRISBY'S EXCELSIOR BEET.—The best and most distinct Beet in cultivation. It is excellent both for the Flower Garden and for Table use. The top is small, with dark shining leaves; Root growing about double the length of most kinds, is of fine tapering form, with very dark skin; flesh deep crimson, of fine quality and exquisite flavour. Price per ounce packets, 1s. 6d.
EDMUND PHILIP DIXON, Hull.

POTATOS.—30 Tons Magnum Bonum' £4 per Ton.
T. EVES, Gravesend Nurseries.—Established 1810.

Special Offer.
AUCUBA.—One of the largest stocks in the country, 2 to 4 feet, 40s. per 100.
Immense stock of FRUIT TREES of every description, very cheap.
T. EVES, Gravesend Nurseries.—Established 1810.

NEW CHRYSANTHEMUM—LADY SELBORNE.
One of the Best Whites yet raised.

MR. H. JAMES, of Castle Nursery, Lower Norwood, Surrey, has now the pleasure of announcing to his numerous Customers and Friends that he intends sending out the NEW CHRYSANTHEMUM, LADY SELBORNE—raised by Mr. C. Salter, and which has already gained Three First-class Certificates—on January 1, 1882. Price 5s. each.
P.O.O payable at Thomas Terrace, Lower Norwood, S.

To the Trade.

W. WISEMAN AND SON, NURSERYMEN, Elgin, N.B., can still offer many millions of Seedling and Transplanted Scotch FIR and LARCH. The Scotch Fir are all grown from seed collected for us in the celebrated forests of Strathspey.
Samples, with special low Prices, on application.

To the Trade.

SWEET BAYS.—Good plants, 2 to 2½ and 2½ to 3 feet. Prices on application.
JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

FOR SALE.—Several hundred Dwarf ROSES, H.P., cheap for Cash; good plants in leading sorts.
GEO. BOLTON, Wyddeal, Buntingford, Herts.

RHODODENDRONS, with bloom-buds; fine plants for immediate effect, 2 to 5 feet high. Also EVERGREENS, FRUIT TREES, ROSES, and VINES. Apply for CATALOGUE.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

Gooseberries and Black Currants.

GEORGE BUNYARD AND CO. can offer the above in large or small quantities, in the best Garden or Market kinds, as recommended in *Fruit Farming for Profit.*
The Old Nurseries, Maidstone.

HALF-STANDARD H.P. ROSES, in large or small lots.
GEORGE BUNYARD AND CO., Maidstone.

TO THE TRADE.—
A considerable quantity of the following for disposal:—
ALDER, Common, 2 to 3 feet, and 3 to 4 feet.
ASH, Common, 2 to 3 feet
HAZEL, 2 to 3 feet.
LARCH, 2 to 3½ feet.
SYCAMORE, 2 to 3 feet.
PRIVET, Evergreen, 3-yr. transplanted.
SCOTCH FIR (Native), strong, about 1½ to 2 feet.
THORNS, 3-yr. transplanted, about 2 to 3 feet.
The above are thoroughly healthy, robust, and well rooted. Cheap Railway Rates to all parts of England and Wales.
Samples and special quotations on application to
ALEXANDER ANDREW, Nurseryman, Kilmarnock, N.B.

SINGLE DAHLIAS.
YELLOW DWARF, 1s. 6d. each, 15s. per dozen.
SCARLET GEM, 1s. 6d. each, 10s. per dozen.
COCCINEA, 1s. 6d. each, 15s. per dozen.
A pot-root of each of these splendid kinds, post-free, 4s. 6d.
We have the most complete collection of doubles, and always grow not less than 10,000 pot-roots, and can therefore offer best in cultivation.
H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent.

LILIUM AURATUM, and other LILIES, the best picked Bulbs only. Size No. 1, 9d.; No. 2, 1s.; No. 3, 1s. 6d.; and the largest Bulbs imported, 2s. each. Equally low prices for other Lilies, and Special LIST of Orchids forwarded on application to
WM. GORDON, City Office, 10, Cullum Street, London, E.C. Special Price to the Trade.

NOTE.—CABBAGE PLANTS, &c.—Fine autumn-sown Drumhead, Enfield, Sugarloaf, Schilling's Queen, Early Rainham, Nonpareil, Drumhead SAVOY, Thousand-headed, Green Curled KALE and ASPARAGUS KALE, 2s. 9d. per 1000. CAULIFLOWER PLANTS, 6s. per 100. Early and Late BROCCOLI, 5s per 100. BRUSSELS SPROUTS, 3s. 6d per 1000. Bath Cos, Wykeham Giant White Cos, and Lee's Immense Hardy Green Cabbage LETTUCE PLANTS, 4s. per 1000. Red Picking CABBAGE PLANTS, 3s 6d. per 1000. Can supply above in any quantities.
N.B. All Plants packed well in crates and hampered free of charge.
EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

To the Trade.

R. AND A. MORRISON, The Nurseries, Elgin, beg to offer the following Seedling and Transplanted Forest Trees:—
LARCH, true native. Price on application.
" Tyrolese, £4 10s. per 100 000.
" Transplanted, 12 to 18 inches, 12s. 6d. per 1000; 18 to 24 inches, 15s. per 1000; 2 to 3 feet, 17s. 6d. per 1000.
SCOTCH FIR, true native Highland Pine, 1-yr. Seedlings, £7 10s. per 100,000; 1-yr. 2-yr. Transplanted, 7s. 6d. per 1000; 12 to 18 inches, 10s. 6d. per 1000
PINUS AUSTRIACA. P. LARICIO, P. MARITIMA, and MONTANA, 1-yr. Seedlings, 2s. 6d. per 1000; 2-yr. 2-yr. Transplanted, 10s. 6d. per 1000.
ELMS, WYCH, 1-yr., 1s. 6d.; 2 yr., 2s. 6d.; and 1-yr. 1-yr., 5s. per 1000
OAKS, ENGLISH, 1-yr, 2s. 6d. per 1000.
Trade CATALOGUE may be had on application.

"The Celebrated North of Ireland Roses."

THE ONLY ROSES in IRELAND having any claim to such a title are those grown by us, and we repudiate the right of any other Nurserymen to claim such "celebrity."
Having gained many hundreds of First Prizes at the leading shows all over the country, WE ALONE have thus made North of Ireland Roses celebrated. Our stock of Standards and Dwarfs numbers over 100,000 plants, in the finest possible health, and embraces every good variety in cultivation.
Descriptive CATALOGUES may be had on application to
ALEX. DICKSON AND SONS, Nurseries, Newtownards; or, HUGH DICKSON, Belmont Nursery, Belfast.

NOTICE OF REMOVAL TO No. 12, EXETER STREET, STRAND, W.C.
(Immediately at back of Exeter Hall.)
We beg to intimate that we have now removed to our New Premises at above address.
The continued increase of our business has made it compulsory for us to go into larger and more commodious Warehouses, where we shall now be able to execute all Orders entrusted to us with greater despatch and facility.
WATKINS & SIMPSON,
Seed and Bulb Merchants, late of 1, Savoy Hill, Strand.
Seed and Trial Grounds at Feltham and Twickenham, Middlesex.

Special Notice.

MESSRS. WM. CUTBUSH AND SON would be greatly obliged to their Friends and Patrons if they will kindly address all Business Communications to HIGHGATE, and *not* to their *Branch Nurseries at Barnet*, as much time is saved thereby.
HIGHGATE NURSERIES, LONDON, N.

FLOWER ROOTS for FORCING
DIELYTRA SPECTABILIS, 6s. per dozen Clumps.
SPIRÆA JAPONICA, 6s. per dozen Clumps.
LILY of the VALLEY, 12s. per dozen Clumps.
" " German breed, single crowns, 1s. per dozen, 7s. per 100.
General CATALOGUE of Bulbs on application.
OSBORN AND SONS, The Fulham Nurseries, London, S.W.

DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, mixed varieties, 3s. 6d., 5s. 6d., 7s. 6d., per 100; 30s., 42s., and 63s. per 1000; named varieties, 10s. 6d., 12s. 6d., and 15s. per 100; 84s. and 105s. per 1000.
Descriptive LIST on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

STRONG QUICK, for Hedging; extra strong ditto, for Gapping. Prices on application to
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries Edinburgh.

To the Trade.
SEED POTATOS.

H. AND F. SHARPE, having secured their Crops of SEED POTATOS in fine condition, are prepared to make special offers of all the leading varieties worthy of cultivation. The Prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

6000 Grape Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

LARCH and QUICKWOOD PLANTS for SALE.—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet; 2,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, 3 to 4 feet; 100 Weeping Ash, Elms, Poplars, Pears, &c.; also Scotch Fir, Weeping Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply,
FRANCIS BELL, Nurseryman, Easingwold.

Chrysanthemums—Chrysanthemums.
The Finest Named Varieties.

STRONG STOCK PLANTS, in 5-inch pots, our selection, 4s. per dozen; 12 varieties, to name, 25s. per 100, in 50 varieties.
STRONG CUTTINGS, post-free, our selection, 12, in 12 named varieties, 1s. 6d.; 50, in 25 varieties, 5s.; 100, in 50 varieties, 8s.; 100, in 100 varieties, 10s. 6d.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

LILIUM AURATUM.—Splendid direct Imported and Home-grown Bulbs, 30s., 40s., 50s., 60s., 75s., and 100s. per 100.—SANDER AND CO., St. Alban's.

To the Trade.

THOMAS IMRIE AND SONS draw special attention to the following SURPLUS STOCK, all clean grown, healthy, well rooted, and in excellent condition for removing, for which special quotations will be sent on application:—
PINUS AUSTRIACA, 1 to 1½ foot.
" LARICIO, 1 to 1½ foot.
LARCH FIRS, 1½ to 2, 2 to 2½, 2½ to 3, and 3 to 4 feet.
" " extra fine, with perfect leaders.
SCOTCH FIRS, true Native, 2-yr. 2-yr., and 2-yr. 3-yr., extra fine.
SILVER FIRS, 6 to 9, and 9 to 12 inches.
SPRUCE FIRS, Norway, 6 to 9, 9 to 12, and 12 to 18 inches, very bushy.
ALDER, Common, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet, twice transplanted.
ASH, Mountain, 5 to 6 and 6 to 8 feet, grown singly, and good stems.
BEECH, Common, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 8 to 12, and 12 to 24 inches.
HAZEL, 12 to 18 inches, and 2 to 3 feet, twice transplanted.
LIMES, 3 to 4, 4 to 5, 5 to 6, 6 to 8, and 8 to 10 feet; all grown singly, and several times transplanted.
POPLARS, sorts, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet, all twice transplanted.
PRIVET, Evergreen, 1-yr. cuttings, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
SERVICE TREE 4 to 5, and 5 to 6 feet, good stems, and grown singly.
THORNS, or QUICKS, 1-yr. 1-yr., 9 to 12 inches, 12 to 20 inches, and 1½ to 2 feet.
Also ORNAMENTAL TREES—consisting of Plane or Sycamore, Flowering Chestnuts, Purple Beech, Ash, and Elms, sorts, &c.
The Nurseries, Ayr, N.B.

RASPBERRY CANES.—100,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 100 for 5s. Also 50,000 Fastolf, at £1 per 1000, 250 for 6s, on rail. The Canes are small, but being well rooted are equally as good as large grown ones. Payments to accompany orders. Postal Orders on Knockholt. Apply to
A. AND E. BATH, Colgates Farm, Sevenoaks, Kent.

Christmas Roses.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland, have an immense stock of the above, fine flowering plants, in vigorous growth; have not been so fine for years—can be highly recommended. Price and all particulars on application. Any quantity can be supplied.
Also SPIRÆA PALMATA (Red)
CATALOGUES of Hyacinths, Tulips, &c., sent post-free on application.

Hardy Rhododendrons and Azaleas.

ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.
Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands
AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.
Knap Hill Nursery, Woking, Surrey.

Gardenia intermedia.

MESSRS. JOHN STANDISH AND CO. have to offer a very extensive stock of GARDENIA INTERMEDIA of all sizes, every plant being in the most robust health, and guaranteed perfectly clean. Nice plants in 6-inch pots at 2s. 6d. each; larger, 3s. 6d. to 10s. 6d. each. Specimens, fine bushy plants, with plenty of bloom-bud on them, 1, 1½, 2 and 3 guineas each.
Royal Nurseries, Ascot, Berks.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

CONTINENTAL SEEDS.—O. KNOPFF & Co., Erfurt (Established 1832), offer their well known FLOWER SEEDS to the Trade. For CATALOGUES, &c., apply, BECK & POLLITZER, 211, Upper Thames Street, E.C.

SPIRÆA PALMATA, the largest stock of forcing plants in Europe.
DWARF ROSES, good, 9s. per dozen.
RHODODENDRONS, covered with buds, for forcing.
STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.
CHARLES NOBLE, Bagshot.

Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.
The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

WINTER BLOOMING and DECORATIVE PLANTS.
CALCEOLARIA BURBIDGEI—This most distinct and valuable winter-blooming variety can now be supplied in strong flowering plants, at 18s. and 24s. per dozen.
CHAMÆROPS EXCELSA—Fine plants, with from six to eight leaves, 21s. per dozen.
CORYPHA AUSTRALIS—Fine plants, six to eight leaves, 24s. per dozen.
DRACÆNA AUSTRALIS—Fine plants, ten to twenty leaves, 12s. per dozen.
CONGESTA and RUBRA—Fine plants, twenty to thirty leaves, 18s. per dozen.
EUPATORIUM GRANDIFLORUM—This is the finest of all—a strong growing plant with immense heads a foot or more across, of pure white flowers, which are produced in winter and early spring. Very strong plants, in 6 and 8-inch pots, 18s., 21s., and 30s. per dozen.
GREVILLEA ROBUSTA—Fine plants, 9s. per dozen.
PITTOSPORUM EUGENOIDES—A most distinct Myrtle-like shrub, admirably suited for window decoration, bushy plants, 9s. and 12s per dozen.
SEAFORTHIA ELEGANS—Fine plants, 12s. and 18s. per doz.
PALMS—Large plants of various species, extra well grown, 60s. to 84s. per dozen.
RODGER, McCLELLAND AND CO.,
Nurserymen, &c., Newry.

Large Ornamental Evergreen Shrubs,
FOR IMMEDIATE EFFECT.

W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester, have a very extensive collection of the above, all recently transplanted and in fine condition for removal, and now offered at greatly reduced prices to effect a clearance.
FRUIT TREES, the largest and best stocks in the Kingdom. Prices on application.

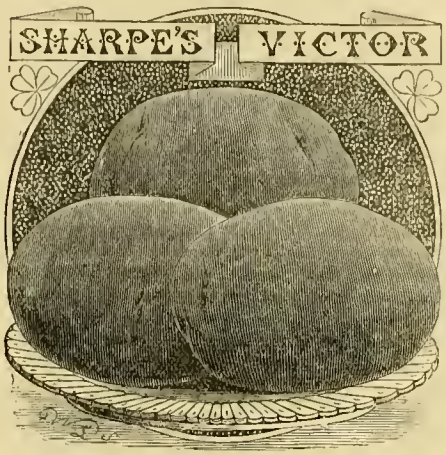
SPECIAL OFFER.

		s.	d.	
ALMONDS, standard flowering		12	0	per doz.
ASH, Weeping, 8 to 10 feet		24	0	,,
,, ,, 10 to 12 feet		30	0	,,
AZALEA AMŒNA, in pots		12	0	,,
CEANOTHUS DENTATUS, in pots		6	0	,,
CHESTNUT, Scarlet Horse, 6 to 8 feet		9	0	,,
,, ,, ,, 8 to 10 feet		12	0	,,
ELM, Chichester, 8 to 10 feet		12	0	,,
,, ,, 10 to 12 feet		15	0	,,
,, English, 8 to 10 feet		12	0	,,
GUELDER ROSE	3s. and	4	0	,,
LILACS	3s. and	4	0	,,
WEIGELAS, in sorts	3s. and	4	0	,,
APPLES, pyramids, 3 to 4 feet (J. G. & Co.'s own selection of varieties.)		15	0	,,
,, ,, 4 to 5 feet		16	0	,,
CURRANTS, Red and Black		10	0	per 100.
FILBERTS, transplanted layers		20	0	,,
PEARS, pyramids, 4 to 5 feet		15	0	per doz.
,, ,, 5 to 6 feet		18	0	,,
,, ,, Beurré Diel and Marie Louise, 6 to 8 feet		30	0	,,
PLUMS, pyramids, 4 to 6 feet		18	0	,,
,, ,, extra strong		21	0	,,
WALNUTS, 6 to 8 feet		12	0	,,

JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

CHARLES SHARPE & CO.,
SLEAFORD.

THE EARLIEST of ALL POTATOS.



SHARPE'S VICTOR.

Sharpe's Victor is a seedling raised from the Alma Kidney and the old early short top round Potato. It is earlier than any present variety, and having a very short top is especially suitable for frame cultivation; its precocity is such that it has been fit for the table in nine weeks from the time of planting, and the raiser assures us that at this date, October 17, he is now growing his fifth successive crop this year (since lifted on November 25), the first being lifted in January. Thus there is no difficulty in securing new Potatos for the table every day in the year. Victor is a flattened roundish oval in shape, with a beautiful clear skin and extremely shallow eyes, being one of the handsomest as well as the heaviest cropper of any variety adapted for framework, or for a first early crop outdoors. It is dry and mealy when cooked, and the flavour and quality of the flesh are superior to nearly every other variety at present in use.

As an instance of the precocity of this new Potato, we give an extract from the note-book of the raiser, detailing his successive crops during the last twelve months:—

Planted in pots under glass,	Nov. 11, 1880,	lifted,	Jan. 13, 1881
,, frame ,,	Jan. 27, 1881,	,,	Mar. 19 ,,
,, open air ,,	April 5 ,,	,,	June 7 ,,
,, ,, ,,	June 22 ,,	,,	Aug. 18 ,,
,, ,, ,,	Sept. 2 ,,	,,	Nov. 7 ,,

Thus five generations were brought to maturity in 300 days, so that six might have been grown in less than twelve months, which has never yet been accomplished with any other Potato yet introduced.

Sprouted sets now ready for planting in frames or pots.

Retail Price, 1s. per Pound.

THE DESIDERATUM IN POTATOS.
SHARPE'S DUKE OF ALBANY.

The Editor of the *Gardeners' Chronicle*, in the number for September 24, 1881, makes the following remarks in his report of the International Potato Exhibition, held at Manchester:—

"But we want other improvements; we want more large cropping, earlier kinds, and of the late sorts considerable disease-resisting powers. First early sorts are rarely affected by the destructive fungus. Their season is short, their haulm growth usually of a medium character, and, as a rule, they ripen ere the disease becomes dangerous. Large cropping kinds, that will give a big bulk of good tubers capable of carrying on the needful supply for the family or for the nation till Christmas, yet lifted ripe in August, would be an immense boon; and these, it is hoped, may come soon, because well directed efforts in the shape of cross-fertilisation to secure the desired end are being made . . . Although no special prizes were offered for these there can be no doubt but that the special encouragement given to new sorts will tend to promote that desirable object."

Duke of Albany so exactly corresponds to the requirements above indicated, that, had it been written for us as a description, it could not have been more exact.

Duke of Albany is a white Kidney—a cross between Beauty of Hebron and Early Goodrich; it has a short haulm with a pale flat leaf, is quite as early as Myatt's Prolific, as large in size and as heavy a cropper as Magnum Bonum, than which it is ten weeks earlier; it is ripe early in August, and will keep until spring, being a first-class Potato from the middle of July until the month of March. For flavour, quality of flesh, and good cooking properties, it leaves nothing to be desired.

Retail price—per Pound, 6d.

CHARLES SHARPE & CO.,
SLEAFORD.

SEAKALE CROWNS, for Forcing, 12s. 6d. per 100.
CURRANT TREES, Warner's Large Red, and Wilmot's Large White, each, 2s. per dozen.
RHUBARB, for Planting (Royal Albert), 2s. per dozen.
Special Prices for large quantities. Cash with order.
JOHN MEYERS, Boston Road, Brentford, Middlesex.

ASPARAGUS PLANTS.—Strong Roots of the above, 1-yr. old, 2s. per 100; 2-yr. old, 2s. 6d. per 100. Prices to the Trade on application.
J. C. also begs to intimate that his Special Trade LIST of Home Grown Seeds is now ready, and may be had on application.
JOHN CATTELL, Nurseryman and Seedsman, Westerham, Kent.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection, which was again awarded first prizes at all the London great Flower Shows. Sealed packets, free by post, 1s. and 2s. 6d. each. All first quality. The Trade supplied.
JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

FOREST and ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, FRUIT TREES, ROSES, &c. Thoroughly transplanted, very hardy and well rooted. Immense Stock to select from.
New Priced CATALOGUE on application to
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.
Plans and Estimates furnished.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 15s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.
BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

English Yews.

SANDY AND SON have a very fine stock of all sizes of the above. Price per dozen or 100 on application. The Nurseries, Stafford.

SPECIAL OFFER TO THE TRADE.
THORN QUICKS, Seedling, 6 to 12 inches, fine.
,, ,, transplanted, 2 to 3 feet, fine.
FIR, Larch, transplanted, 2 to 3½ feet, fine.
,, Scotch, transplanted, 1 to 1½ foot, fine.
PINES, Austrian, transplanted, 1½ to 2 feet, fine.
HAWS, per Cwt. or Ton.
Prices on application. The above will be sold cheap for Cash, or reference.
GEO. R. DAVIDSON, Nurseryman, Newry, Ireland.

Grape Vines.

H. LANE AND SON have a very large stock of well-ripened Canes to select from. The numerous Gold Medals awarded for collections of Grapes is a guarantee that our mode of growing them is right.
The Nurseries, Berkhamsted, Herts.

LARCH FIRS—400,000, transplanted. Not to be equalled. May be seen and prices obtained at EDWIN HOLLAMBY'S Nurseries, Groombridge, Tunbridge Wells.

Deutzia gracilis.

WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty branches in each plant. Very cheap. Price on application.
Ottershaw Nursery, Chertsey.

Seakale—Seakale—Seakale.
To NURSERYMEN and OTHERS.

FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,
Mr. WILLIAM BAGLEY, Millshot Farm, Fulham, S.W.

Trade—Trade—Trade.

SPECIAL TRADE OFFER of well-grown NURSERY STOCK—prices on application—including the following specialities:—
ASH, Common, 2 to 2½ feet.
,, Weeping, 6 to 8 feet stems.
BIRCH, 12 to 14 feet.
CURRANTS, Red, sorts to name.
CHESTNUTS, Horse, 12 to 16 feet.
,, Spanish, 1½ to 2 feet.
ELMS, Huntingdon, 14 to 18 feet.
,, English, narrow-leaved, 1-yr. seedling.
,, Weeping, 6 to 8 feet stems.
GORSE (Furze) 1-yr. seedling.
HAZEL, 4 to 5, 2 to 3 feet.
LAURELS, Common, 1 to 2 feet.
LIMES, Red twigged, 10 to 12 feet.
PEARS, Standards, in great variety, leading kinds.
POPLARS, Black Italian, 14 to 16, 6 to 8, 4 to 5 feet.
PRIVET, Evergreen, 2 to 3, 1½ to 2 feet.
FIRS, Spruce, 2 to 3, 1½ to 2½ feet.
WILLOWS, of sorts, 4 to 5 feet.
WHITETHORN, QUICK, 1-yr., extra fine.
YEWS, Irish, 4 to 5 feet.
WOOD AND INGRAM, The Nurseries, Huntington, and St. Neot's.

A Handsome Bough of

MISTLETO for 5s. Hamper charged 1s. 6d. extra, but two-thirds allowed when returned in good condition. Special quotation for crates of the above, BERRIED HOLLY, &c. Terms cash with order.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

WHITE EVERLASTING FLOWERS.
First quality. Immense stock of same.
CHARLES AYRES, Wandel Street, Cape Town, South Africa.

PAUL & SON,

The Old Nurseries, CHESHUNT,

Respectfully ask for the Orders of Planters of any of the following well-grown

TREES AND PLANTS.

ROSES. Standards of the best Hybrid Perpetuals.
,, Standard Teas, for Rose or Orchard-house or Conservatory decoration.
They hold the largest Stock of Standard Roses in Europe.
ROSES, Dwarfs, of all the finest varieties, of both Hybrid Perpetuals and Teas, Ground Plants.
,, Pot, in large and very select varieties.
DWARF-TRAINED FRUIT TREES of the best Apples, Pears, Plums, Cherries, Peaches, and Nectarines.
STANDARD APPLES—the finest trees in the country of the best sorts.
PYRAMID FRUIT TREES, all carefully formed and pruned.
CURRANTS, GOOSEBERRIES, STRAWBERRIES, and all the small fruit in variety and in large quantities.
VINES, Fruiting, all from eyes this year

EVERGREENS.

ARAUCARIA IMBRICATA, 2 feet, 3 feet, and 8 feet to 9 feet in height.
BOX, Green and Variegated, in large quantities, 5 feet, 6 feet, and 7 feet in height.
CEDRUS DEODARA, 2 feet, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet to 9 feet in height. Splendid specimens.
CUPRESSUS LAWSONIANA, in some twenty varieties, 1 foot to 6 feet in height.
AUCUBA JAPONICA, extra bushy and fine colour, 1 foot, 2 feet, and 3 feet in height.
HOLLIES, common Green, 1 foot, 2 feet, 3 feet, and 4 feet in height. A splendid lot, in fine nursery condition.
,, Variegated, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet, 4 to 5 feet, 5 to 6 feet, 6 to 7 feet, in very large quantities.
,, Green varieties, 6 feet, 7 feet, 8 feet, and 9 feet in height; splendid specimens.
,, Golden Queen, by the 100 or 1000, in various sizes.
PINUS EXCELSA, extra fine specimens, 10 to 16 feet in height.
,, JEFFREYI, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet in height.
RHODODENDRONS, best named varieties, by the 100; 1 foot, 2 feet, and 3 feet in height.
KALMIA LATIFOLIA, handsome specimens, 3 feet, 4 feet, and 5 feet in height.
PICEA NORDMANNIANA, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 8 feet, and 9 feet in height; fine pyramids.
,, PINSAPO, 2 to 3 feet, 4 to 5 feet, and 5 to 6 feet high.
YEWS, splendid pyramidally-cut plants, 5 feet, 6 feet, and 7 feet in height.

DECIDUOUS.

LIMES, 10 to 12 feet (extra scented), 12 to 14 feet, 14 to 16 feet in height.
PLANES, 12 to 16 feet in height.
CHESTNUT, Horse, 10 feet, 12 feet, to 14 feet in height.
,, Scarlet, 10 feet, 12 feet, 14 feet, and 16 feet in height.
Deciduous Ornamental flowering and fine-foliage Trees in splendid variety.
,, Shrubs, in over 500 sorts.

We advise an Inspection of the above.

THE OLD NURSERIES, CHESHUNT

NEW RASPBERRY,

BAUMFORTH'S SEEDLING.

The greatest acquisition in Raspberries. See Testimonials, &c.: copies sent post-free on application.

Price, per dozen canes, 7s. 6d.; per 100, 50s.

EDMUND PHILIP DIXON,
SEED GROWER, MERCHANT, and NURSERYMAN,
HULL.

GEO. JACKMAN & SON,

(ESTABLISHED 1810,)

Cultivators of
FRUIT and FOREST TREES,
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.

THE CLEMATIS
A SPECIALITY.

Descriptive Priced Catalogues free.
WOKING NURSERY, SURREY.

ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants.

Tens of Thousands of Plants to select from.

MR. WILLIAM BULL

Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

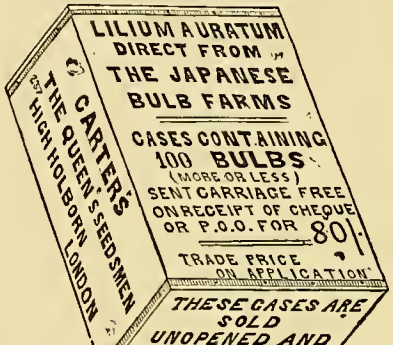
MR. WILLIAM BULL

Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

Establishment for New and Rare Plants,
636, KINGS' ROAD, CHELSEA, LONDON, S.W.

CHRYSANTHEMUMS. — Shaw's Golden Madame Marthe is the finest yellow Pompon in the world. Will be grown by everybody, shown by everybody, and admired by everybody. Plants, 3s. per dozen; twelve very best varieties for Exhibition, including G. M. Marthe and Souvenir d'un Ami, for 2s. 3d., all post-free.
SHAWS, The Leeds Florists, Knostrop, Leeds.

VERY LARGE IMPORTATIONS.



Picked Bulbs, each, 1s., 2s. 6d. and 3s. 6d.
Extra Large, each, 5s.

SURPLUS STOCK.

RHODODENDRONS, White and Rose Varieties, and Mixed Hybrids, 1 to 1½ foot high, bushy, a portion with buds, 9s. per dozen; Hybrid Seedlings of various colours, large bushes, 3 to 3½ feet high, a large proportion with buds, 30s. per dozen; Scarlet, Rose, and White Seedlings, each colour separate, good bushy plants, 12 to 15 inches high, 4s. per dozen, 30s. per 100.
,, FERRUGINEUM and HIRSUTUM, good broad bushes, 6s. per dozen.
AZALEA PONTICA, mostly with buds, 1 to 1½ foot high, 5s. per dozen, 40s. per 100.
,, MOLLIS, for potting, strong plants on own roots, of the fine dark red variety, Baron E. de Rothschild, covered with buds, 2s. 6d. to 3s. 6d. each.
,, ,, Seedlings, nice bushes, well set with buds, 15s. per doz.
HEATHS, Hardy, in variety, including my new Seedling, cinerea superba, 5s. per dozen.
DAPHNE MEZEREUM, Red and White flowering Plants, 15 to 18 inches high, 3s. per dozen, 16s. per 100; larger of the red variety, 4s. per dozen, 25s per 100.
ANDROMEDA FLORIBUNDA, very hardy Evergreen, fine bushes, 1 to 1½ foot high, 9s., 12s., to 15s. per dozen.
BOX, Handsworth Broad-leaved, and other varieties, green bushes, 2½ to 3 feet high, 6s. per dozen.
SKIMMIA JAPONICA, fine bushes, covered with flower-buds, 8s. per dozen, 50s. per 100.
HOLLIES, Common, fine bushes, 2 to 3 feet high, well rooted, 16s. per dozen, £5 per 100.
LIMES, straight, stout, and well rooted, 7 to 8 feet, 6s. per dozen; 8 to 9 feet, 8s. per dozen.
POPLAR, Golden, 5 to 7 feet, 1s. to 2s. each.
BIRCH, Purple, 3 to 5 feet, 2s. to 3s 6d. each.
PICEA NORDMANNIANA, fine symmetrical trees, 3½ feet high, 3s. each.
RETINOSPORA PLUMOSA, nice plants for potting, 1½ foot, 9s. per dozen.
,, ,, AUREA, about 15 inches high, 12s. per dozen.
IVIES, in pots, fancy varieties, including the new Black Ivy, mutabilis, 9s. per dozen.
LILIUM AURATUM, home grown flowering bulbs, 9s. per dozen, 70s. per 100.

Terms Cash, or reference from unknown correspondents
For New Varieties of RHODODENDRONS and AZALEAS see my SELECT LIST, which will be forwarded on application.

ISAAC DAVIES,
NURSERYMAN, ORMSKIRK, LANCASHIRE.

ROSES.

WM. PAUL & SON

Have to offer 500,000 ROSES, of all sorts and sizes, from 30s. per 100 to 42s. each. The largest and best stock in Europe.
See Priced Descriptive CATALOGUE, free by post.

FRUIT TREES.

Several Acres of Standards, Pyramids, Dwarfs, Fan-trained and Horizontal-trained Trees; FILBERTS, GOOSEBERRIES and CURRANT BUSHES, by the thousand; GRAPE VINES, Fruiting and Planting Canes, RASPBERRIES, STRAWBERRIES, &c.
Priced Descriptive CATALOGUE, free by post.

EVERGREEN AND ORNAMENTAL TREES AND SHRUBS.

Several Acres in the finest possible condition for removal, having been frequently transplanted, and having passed through the recent severe winter uninjured by frost.
Priced Descriptive CATALOGUE, free by post.

CAMELLIAS.

The largest and finest stock in Europe; plants with flower-buds, from 2s. 6d. to 30 guineas each.
Priced Descriptive CATALOGUE, free by post.

HYACINTHS, TULIPS, AND OTHER BULBS,

Of the best quality, both for Greenhouse and Outdoor Culture.
Priced Descriptive CATALOGUE, free by post.

**** Large Buyers of the above will be charged at special and reduced rates.*

IMPORTANT.—Please observe the Christian Name and Address—

WM. PAUL & SON,
WALTHAM CROSS, HERTS.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to

CRANSTON'S NURSERY and SEED CO. (Limited),
KING'S ACRE, near HEREFORD.

TREES for AVENUES and STREET PLANTING.—The trees here mentioned have all stout stems, are handsomely furnished well balanced heads, and splendidly rooted. They have always had ample room and thorough exposure, and are without doubt the finest stock of Avenue Trees to be met with in any Nursery in Europe. The girt of the stems is taken at 4 feet from the ground, and not at the base, which is often deceptive:—
ACER DASYCARPUM, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 8 to 9 inches.
,, PLATANOIDES (Norway Maple), 12, 14 to 16 feet, girting 5 to 8 inches.
ACACIA BESSONIANA, 10 to 12 feet, and 12 to 14 feet.
BEECH, Common, 10 to 12 feet.
,, Purple or Copper, 10 to 11 feet.
CHESTNUT, Horse, 10 to 12 feet; 14 to 16 feet, girting 7 to 10 inches.
,, Scarlet, 10 to 14 feet, girting 8 to 10 inches.
LIMES, 12 to 14 feet, girting 5 to 6 inches; 15 to 18 feet, girting 9 to 11 inches.
OAKS, Scarlet American, 12 to 14 feet, girting 5 to 6 inches.
PLANES, Occidental, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 7 to 10 inches.
POPLAR, CANADENSIS NOVA, 12 to 14 feet; 14 to 18 feet, girting 8 to 10 inches.
SYCAMORE, 12 to 16 feet.
,, Purple, 14 to 15 feet.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

To Market Growers and the Trade.

VIOLET, "VICTORIA REGINA."—The largest, sweetest, and most profuse bloomer; flowering from Sept. 1 to May 1. Large roots, suitable for dividing to plant out, at 21s. per 100, £10 per 1000. Also several other of the best varieties, equally cheap. Flowers sent as sample on application.
F. PERKINS, Nurseryman, Regent Street, Leamington.

Ferns a Speciality.

EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.
Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

CRANSTON'S NURSERIES.

(ESTABLISHED 1785.)

NEW CATALOGUES
OF ROSES AND FRUIT TREES
Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED),
King's Acre, Hereford.

NEW DWARF BEAN,

"NE PLUS ULTRA."

Quite distinct; its free-setting qualities and immense productiveness render it far superior to any other variety in cultivation for forcing and early work. It was awarded the only First-class Certificate at the Chiswick Trials, when nearly 200 varieties of Beans were grown.

STOCK LIMITED.

In Sealed Packets, sufficient for a Moderate Sowing, 2s. 6d.; post free, 2s. 9d.

Extracts from the Reports in Horticultural Papers, and from Testimonials received :—

The GARDENERS' CHRONICLE, *August* 20, 1881, *says*:—"This is evidently a first-rate introduction."

From the JOURNAL OF HORTICULTURE, *Sept.* 1, 1881.—"Extremely productive; certainly a very fine Bean."

From the GARDENERS' MAGAZINE, *Sept.* 3, 1881.—"The productiveness is something remarkable, for we took from two plants ninety-three mature pods, and there was not an old or stringy one amongst them."

From the GARDEN, *August* 27, 1881.—"The plants were literally loaded with pods."

From Mr. E. BOURTON, *The Gardens, Lanefield, Kirkby Lonsdale, March* 31, 1881.—"From a sowing of fifteen 8-inch pots on February 14 we have made this week two large gatherings, and still they are fairly clothed with Beans, being ready just one day over six weeks."

From Mr. D. WALKER, *The Gardens, Dunorlan, Tunbridge Wells*.—"It is very productive, and has fine pods; I do not think any one will be disappointed in giving it a trial."

From Mr. JOHN CARTER, *Keighley, August* 9, 1881.—"Your Ne Plus Ultra Bean is one of the very few new things that prove equal to the raiser's description."

NEW BEETROOT—"OMEGA."

This siplendid Beet is remarkable for its handsome shape, rich crimson colour, and more especially for its distinct flavour, which is delicately sweet and agreeable, far surpassing any kind yet offered.

In Sealed Packets, 1s. 6d.

The following Extracts are from a large number of Testimonials received :—

From Mr. T. B. PAYNE, *Gr. to the* Bishop of Bath and Wells, *October*, 1881.—"I consider your new Beet, 'Omega,' far superior to anything I know as regards fine shaped medium-sized roots, splendid crimson colour, and most excellent quality."

From Mr. T. THOMAS, *The Gardens, Sandhey, Liverpool*.—"I have never grown any variety that has received such praise from my employer as 'Omega.' It is a nice size, and splendid colour when cooked. My employer has pronounced it to be superior in flavour to any he has tasted in England."

From Mr. J. HIGGINS, *Gr. to* Lady Hood, Glastonbury, *October*, 1881.—"I am of opinion that yours is the best Beet that has been offered. The colour is beautiful indeed, and the flavour has been most favourably spoken of by all who have tasted it."

From Mr. W. VARKER, *The Gardens, Almora Hall, near Darlington, October*, 1881.—"Your 'Omega' Beet has given me every satisfaction, being one of the best I have ever grown; its qualities have surpassed my expectations."

TRADE PRICES ON APPLICATION.

Electrotype blocks of both of the above may be had.

GEO. COOLING & SON,

NURSERYMEN AND SEEDSMEN, BATH.

IMPORTED ORCHIDS,

INCLUDING :—

ODONTOGLOSSUM PESCATOREI, in splendid condition and grand masses; ODONTOGLOSSUM CRISPUM (ALEXANDRÆ), O. PHALÆNOPSIS, O. HASTILABIUM, ADA AURANTIACA, ANGULOA CLOWESII, COMPARETTIA ROSEA, MAXILLARIA VENUSTA, and others.

MR. J. C. STEVENS will SELL the above, by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 15, at half-past 12 o'Clock precisely.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

RHODODENDRON CATAWBIENSE. Exceptionally fine, with flower-buds, 2 to 3 ft. high.
CHARLES NOBLE, Bagshot.

Vines.—Vines—Vines.

B. S. WILLIAMS has much pleasure in intimating that his stock of VINES is unusually fine this year, the Canes being very strong and well ripened. For List of Prices see B. S. W.'s BULB CATALOGUE for 1881.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

STRAWBERRY PLANTS.—Fine rooted Plants of all the leading varieties, warranted true to name. Prices and Descriptive LIST post-free on application.
JOHN CATTELL, Nurseryman and Seedsman, Westerham, Kent.

Special Notice.

ASH, BIRCH, POPLARS, MAPLE, LIMES, and SYCAMORE, stout handsome trees, 15 to 20 feet high, in good condition for removal; GREEN HOLLIES, 6 to 10 feet; AUCUBAS, 3 to 4 feet, fine specimens; ROSES, Dwarf Hybrid Perpetual, extra fine. Prices on application to
W. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities of STRAWBERRIES also, in pots, to offer. Prices, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

Spruce Firs for Christmas Trees.

SPRUCE FIRS, 1½ to 2 feet, 5s. per 100; 2 to 3 feet, 8s. per 100; 3 to 5 feet, 20s. per 100. Cash (Post-office Order) with order, payable to
J. W. COLE, Holly Nursery, Hundleby, near Spilsby, Lincs.

CHRISTMAS TREES.—Thousands of fine feathered plants, of good colour, from 2 to 5 feet; QUICK, 10s. per 1000; OAK, SCOTCH FIR, &c.
W. GROVE, Tupsley, Hereford.

SPANISH CHESTNUT, HAZEL, ASH, LARCH, SCOTCH, BIRCH, ALDER, WILLOW, and THORN QUICK.—Stout, well-rooted, transplanted. A large quantity to be sold.
GEO. CHORLEY, Coaster's Nursery, Midhurst.

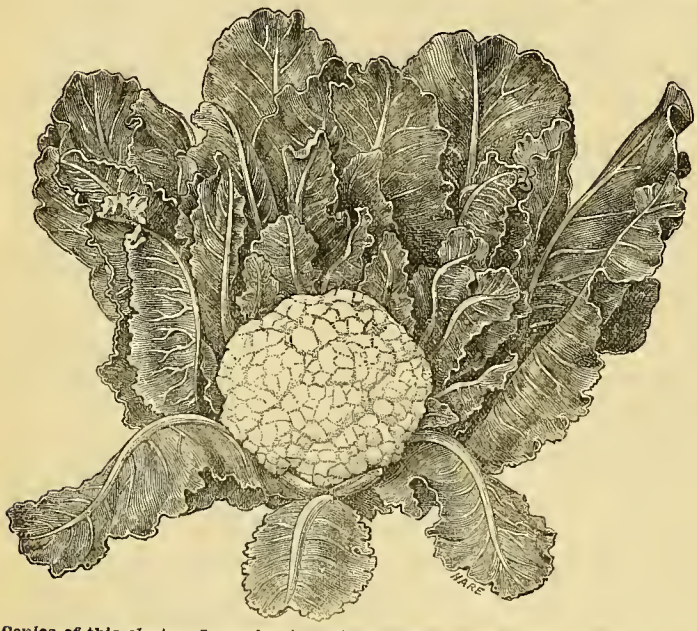
IMPORTANT NOTICE.—First-class NURSERY STOCK, specially cheap for Cash only, to clear the ground by March next.
CATALOGUES on application to
WALTER DAWSON, Nurseryman and Seedsman, Coventry.

CEDRUS DEODARA var. BREVIFOLIUS.—This is the rare variety from Cyprus. A few only to offer, at 10s. 6d. each.
ARALIA QUINQUEFOLIA var. GRACILIS, a very elegant form of this handsome and nearly hardy species. The leaflets are only about one-third the width of the type; it will bear 10° or 12° of frost without injury; it is a first-class plant for table or ordinary room decoration, not requiring more than a cool greenhouse temperature at any time. Good plants, each, 7s. 6d. and 10s. 6d.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

ANTHONY WATERER respectfully invites the attention of intending Planters to the following List of desirable and in every way first-class Nursery Stock :—

BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
YEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
,, Golden, many thousands, 3, 4, 5, to 10 feet high.
The Golden Yews in this Nursery are quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
,, Irish, hundreds of fine specimens, 6, 7, and 8 feet high.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10 and 12 feet high.
,, LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS', and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high.
,, Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high.
,, Golden Queen, many handsome specimens, 4, 5, 6, to 12 feet high.
,, Silver, in variety, 4, 5, 6, to 10 feet high.
,, Waterer's, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 feet high; hundreds.
PICEA PINSAPO, 6, 7, 8, to 10 feet high; hundreds.
,, NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds
CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choice to be met with in no other Nursery.
,, ,, GRACILIS, 4 and 5 feet high.
,, ,, ARGENTEA, 4 and 5 feet high.
,, ,, LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIBOCEDRUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6, and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine plants, 3, 4, and 5 feet high.
THUYOPSIS BOREALIS, 4, 5, and 6 feet high.
,, DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high splendid specimens.
THUYA WEAREANA, an immense quantity of fine specimens up to 10 feet.
,, AUREA, 2, 3, and 4 feet high.
,, SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
,, Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.
The Plants referred to in this Advertisement have all been recently transplanted.
Knap Hill Nursery, Woking, Surrey.

NEW BROCCOLI—"LEDSHAM'S LATEST OF ALL."



WAITE, NASH, HUGGINS & CO.,

Have much pleasure in introducing this splendid Novelty, the whole Stock of which has been purchased by them from the Raiser,

Mr. SAMUEL LEDSHAM, Chester.

Copies of this electro, 5s. each. A smaller electro, size 2 in. by 1⅞, 2s. 6d. each.

The above Illustration (taken from a Photograph) gives a fair idea of its form and size, but the necessary removal of the leaves for the purpose of photographing, prevents its true character, as THE BEST SELF-PROTECTING VARIETY extant, being shown. As the Testimonials appended will show, this is the "LATEST OF ALL" Broccolis, lasting well until the time that the early Cauliflowers are ready. Its robust constitution enables it to withstand the most severe winters, while the mass of leaves by which it is protected prevents the heads from being injured by the summer sun. This variety has been famous in the neighbourhood of Chester for several years, and it is now with the greatest confidence offered for the first time to the general trade.

The following Testimonials speak for themselves;—

Extract from a Letter from Mr. LEWIS SOLOMON, Centre Row, Covent Garden.

"May 14.—Your Broccoli came safely to hand this morning. I have shown it to several good judges. They say, without exception, they are the finest they have seen. I have also been to one of the Committee of the Royal Horticultural Society, who also says they are the very best. If you have fifty dozen ready now we could dispose of them for you."

Extracts from Letters from A. F. BARRON, Esq., Royal Horticultural Society's Gardens, Chiswick.

"June 2, 1880.—After the Committee dispersed, the examples of Cattell's Eclipse arrived, and were compared with yours by myself and several others, and proved to be quite distinct."

"June 23.—I brought forward yesterday the subject of your Broccoli. The Committee commend it highly as a very excellent sort."

"October 12, 1881.—The Committee considered the Broccoli to be a very fine late white variety."

Extracts from the GARDENERS' CHRONICLE.

"May 15, 1880.—Mr. Ledsham, Green Lane, Tarvin Road, Chester, sent examples of a very promising variety of late Broccoli. The heads range from small to medium size, the *beau ideal* of a first-class Broccoli in size, shape, and whiteness, and, as we can affirm, of very delicate flavour."

Extract from the GARDENERS' CHRONICLE.

"May 29.—Mr. S. Ledsham again sent a fine sample of his late white Broccoli, which, considering the winter the plants have passed through, and their fine quality as shown, is a variety of great merit."

Extracts from JOURNAL of HORTICULTURE.

"May 13, 1880.—We have received from Mr. Samuel Ledsham, Market Gardener, Boughton, Chester, some heads of late Broccoli of considerable merit. The heads are extremely solid, and almost as white as early Cauliflowers. They are not large, but quite large enough for a gentleman's table, being 4 inches across and the same in depth, and they are, we think, the heaviest for their size we have noticed. Their whiteness is due to the marked self-protecting character of the variety, the heads being deep down in the plant and closely enveloped with leaves, these not having the twisted form of the Knight's protecting type. This Broccoli is a very good one, and if of dwarf habit and hardy it will prove highly worthy of cultivation, especially if, as we are informed, 'it will continue producing heads for three or four weeks longer.'"

"May 27.—We have received further specimens from Mr. Ledsham, Green Lane, Tarvin Road, Chester, of his late protecting Broccoli. The heads are larger than those referred to on p. 374, and are close, white, heavy, and of excellent quality."

Sold only in Sealed Packets, price 2s. 6d. Price to the Trade on application.

THE FOLLOWING IS A LIST OF FIRMS WHO HAVE ALREADY ORDERED:—

AGRICULTURAL & HORTICULTURAL ASSOCIATION	Deptford, S.E.
BAX, F.	Bishopsgate Street, E.C.
BEATTIE, F., & CO.	Belfast.
BLACK & STEADMAN	Malton.
BLYTON, E.	Horncastle.
COOPER, R.	Southwark Street, S.E.
COVENTRY & CO.	Gray's Inn Road, W.C.
DICKSON, A., & SONS	Belfast.
DICKSON, BROWN & TAIT	Manchester.
DICKSON & ROBINSON	Manchester.
DIXON, S., & CO.	Moorgate Street, E.C.
DOWNIE & LAIRD	Edinburgh.
FINNEY & CO.	Newcastle-on-Tyne.
FISHER, SON, & SIBRAY	Sheffield.
GOUBERT, J. B.	Kilburn, N.W.
HARRISON & SONS	Leicester.
HENDERSON, E. G., & SON	Maida Vale, W.
HOOPER & CO.	Covent Garden, W.C.
HOWDEN & CO.	Inverness.
HURST & SON	Houndsditch, E.C.
LEE, C., & SON	Hammersmith.
MARTIN & SON	Hull.
NUTTING & SONS	Barbican, E.C.
OSBORN & SON	Fulham.
PAGE, CARTER & CO.	53, London Wall, E.C.
PAGE, JAMES	Hornsey.
PEARSON, J. R.	Nottingham.
QUICK, Miss J. E.	Barnstaple.
ROBSON, S.	Altrincham.
ROGER & MCLELLAND	Newry.
SHAW, HIRAM	Sheffield.
SLATER, J., & SONS	Malton.
SUTTON & SONS	Reading.
VEITCH, J., & SONS	Chelsea.
WILLIAMS, B. S.	Upper Holloway, N.
WRENCH, J., & SONS	London Bridge, E.C.
YOUNG, OAKENHEAD & CO.	Cork.

For other Novelties see our SPECIAL LIST of NEW and CHOICE VEGETABLE and FLOWER SEEDS, which will be forwarded, Post-free, on application.

WAITE, NASH, HUGGINS & CO.,

SEED MERCHANTS,

79, SOUTHWARK STREET, LONDON, S.E.

LILIES,

AND VARIOUS OTHER BULBS.

MR. WILLIAM BULL

Has many thousands of the best LILIES to Offer, imported from Japan, California, and their various native habitats. Special quotations can be made of the following, when taken by the dozen, 100, or 1000 :—

HUMBOLDTII"	"PARDALINUM"
"AURATUM"	"SZOVITZIANUM"
"WASHINGTONIANUM"	"BATEMANNÆ"
"TIGRINUM FLORE-PLENUM"	"SUPERBUM"
	"KRAMERI," &c.

Mr. WILLIAM BULL has also received large Importations of various **CHOICE BULBS**, many of them

NEW and RARE,

INCLUDING

CRINUMS,
"COMMELYNI," "ARENARIUM," "SCABRUM," "AUSTRALE," "AMŒNUM."

CHIONODOXA LUCILLIÆ.

FRITILLARIAS,
"LANCEOLATA," "PARVIFLORA."

HESPEROCALLIS UNDULATA (New).

CALOCHORTUS,
"LUTEUS," "SPLENDENS," "VENUSTUS," "PURPUREUS," "ELEGANS," "MACROCARPUS."

EUCHARIS CANDIDA.

PANCRATIUMS,
CARRIBBÆUM," "ROTATUM," "AMŒNUM."

AMARYLLIS TEXANUM (New).

BRODIÆAS,
"GRANDIFLORA," "COCCINEA."

TRITELEIA LAXA.

CYCLOBOTHRAS,
'PULCHELLA," "CŒRULEA," "ALBA."

EURYCLES AUSTRALASICA.

ALLIUMS,
"UNIFOLIUM," "ACUMINATUM," "CŒRULEUM."

IXIOLIRION TARTARICUM.

ERYTHRONIUMS,
"GRANDIFLORA," "AMERICANUM,"

COLCHICUM ERACIFLORUM.

TULIPS,
"GREIGII," "STELLATA," "TRIPHYLLA," "TURKESTANICA."

ZEPHYRANTHES TUBISPATHA.

And various others.

An Inspection is Invited.

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THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 10, 1881.

PLANT-EMBLEMS.

FROM the earliest ages the custom has prevailed of employing plants as emblems and devices. Æschylus described this kind of blazonry of the chieftains at the siege of Thebes, with great minuteness. Its proofs have been found among the oldest relics of the races of the Nile as well as beneath the mounds of Assyria. The symbol of Ceres was an ear of corn, that of the house of Israel was a Palm of the desert, Assyria took the Cedar of Lebanon as her symbol, Egypt the Lotus and Papyrus. The Moorish kings of Grenada selected for their device the Pomegranate, which Henry IV. borrowed, with the motto "Sour yet Sweet," meaning that a king's severity should be mingled with mildness. Katherine of Arragon, first wife of our Henry VIII., derived the same emblem from her ancestors, and a bank of mingled Roses and Pomegranates at a court *masque* typified the union of Spain and England.

Names have been taken from plants from the days of Piso, Cicero, and Lentulus. A friend and executor of the late Earl of Beaconsfield derived his family name from the Rose. One of the few Englishmen who have pretended to astrology bore the name of the spotless Lily. A banker of Suffolk comes of an old family named from the Oak—

> "On earth the forest's honour'd king,
> Man's castle on the sea;
> Who will, another tree may sing,
> Old England's Oak for me!"

A long catalogue of similar names might be compiled. That of the greatest novelist of America, author of the *Scarlet Letter* and the *House of Seven Gables*, was taken from the Hawthorn, and no doubt the gentleman who moved in the matter of Burnham Beeches, and wrote a book on that subject, and obtained from Lord Beaconsfield a charming letter on trees, highly appreciates Heath. In the highlands of Scotland, Heath being common, it formed a distinguishing badge more often worn than any other.

The badges of the clans were not assumed as a mere matter of sentiment, as in the case of the red and white Roses of Lancaster and York. Until the dispersion of the clans after the battle of Culloden they formed the crest of the family confederacy, and were worn in the helmet or bonnet, as the case might be, of the chieftain and his people, and worn, too, not as a mere badge, like that of some retainer of a great English family, but with heraldic pretensions. Confederate clans wore a badge common to all, besides their particular badges. The various emblems were known and recognised even in the lowlands, and when Charles Edward at Glasgow endeavoured to exaggerate his numbers by marching the same men through the Trongate repeatedly, after a short *détour*, the practised eyes of the people discovered the *ruse* by the too frequent repetition of the same badges—the Pine and the Heather came over and over again. Sir Walter Scott had not then written the boat song of the Macgregors, or the banner and bonnets that bore the

Pine might have been thus greeted every three minutes :—

"Hail to the chief who in triumph advances,
Honour'd and bless'd be the evergreen Pine!
Long may the tree in his bonnet that glances
Flourish the shelter and grace of our line!
Heaven send it happy dew;
Earth lend it sap anew."

The plant emblems of great families have been assumed on various interesting occasions in the lives of their distinguished members. Waller the poet derived his Walnut tree from an ancestor who fought at Agincourt, and he handed it on to his successors.

The history of the Rose of England hovers in the imagination of Englishmen. The Rose was recognised at a very early date as a favourite flower of England. The elder Pliny derived the name of Albion from the white Roses (Rosa alba) which abounded in it. Visitors to the cathedral of Upsal may observe that the northern portal is covered with sculptured Roses, and Scheffer, the Upsal historian, thought this an indication that the earliest Christian preachers in the North came from England. Edward I. took the Rose as a badge; it appeared on the great seal of England in the reign of Edward IV., and reappeared on the great seals of all the succeeding monarchs down to James II. The first coin emblazoned with it was the Rose noble of Henry VI. As the distinctive badge of our country the Rose of England, the large red Cabbage Rose of Provence, dates from the Wars of the Roses. Thibault IV., the song-maker King of Navarre and Count of Champagne, had brought a Rose tree from the Holy Land on his return from the Crusades, and planted it in his city of Provins. It became the badge of his family, and afterwards of John of Gaunt, who married Blanche, the heiress of Champagne. It was this red Rose of Lancaster which Somerset plucked in the Temple Gardens on behalf of his faction when Warwick plucked a white Rose on the part of York. The subsequent symbol of reconciliation at the union of the rival houses was a damask Rose with striped flowers of red and white, the Rose of York and Lancaster—and writing of this happy union, Wordsworth aptly says—

"Joy! joy to both! but most to her
Who is the flower of Lancaster!"

According to tradition, the selection of that warlike plant and badge, the Scotch Thistle, with the motto, "Wha daur meddle wi' me?" was due to a characteristic incident in early Scottish history. Some invading Norsemen endeavoured to surprise the Scots at night, and were bearing down upon the camp, when one unlucky wight trod on a Thistle, and cried out with pain. The Scots flew to arms, repulsed the foe, and took for their badge the Thistle—"Begirt with threatening points; strong in defence; unwilling to assault."

In the insignia of the "Order of the Thistle," that prickly plant is twined with sprigs of Rue, the ancient symbol of the Picts, and thus they appear sculptured on the monument of Mary Queen of Scots in Westminster Abbey. This post of honour among the Thistles has been claimed for several species, and currently attributed to four, whose pretensions are equally balanced. The dwarf stemless Thistle seen in the gold bonnet pieces of James V. accords best with the pricking of the Norseman's foot; but Christopher North preferred the Cotton Thistle, 10 feet high, hanging "high over you his radious crown of rubies. There's a flower! dear to Lady Nature above all others, saving and excepting the Rose, and he is the Rose's husband."

As for the Leek of Wales, it is impossible now to say with certainty why on St. David's Day Welshmen "beautify their hats with verdant Leeks." Every farmer is said to have contributed his Leek at the feast of the Cymmatha, the association of neighbours who met to render assistance at the annual ploughing. Every Welsh patriot wore a Leek in his cap on those occasions when St. David "marshalled his Britons and the Saxon host discomfited;" and hence possibly the honour paid to that plant.

The Shamrock of St. Patrick, three-leaved emblem of the faith he preached—"Old Erin's native Shamrock"—completes the list of plants on the flag and shield of England. On the jewel of George III.'s Order of St. Patrick is a wreath of Shamrocks with the significant motto, "*Quis separabit.*" *H. E.*

New Garden Plants.

PHALÆNOPSIS STUARTIANA, *Rchb. f., n. sp.** (See fig. 149, p. 753.)

We have to mark one of the best of red-letter days in the orchidic calendar. Phalænopsis Stuartiana, named in July last in honour of Mr. Stuart Low, of the old firm of Hugh Low & Co., my oldest English correspondent, is now in flower at Upper Clapton. It supplies quite fresh colours to a shape like that of Phalænopsis Schilleriana, and will remarkably improve the *ensemble* of a fine Phalænopsis collection.

I learn from Mr. Low's letter that the roots are flat (whether rough or smooth I do not know). The young leaves are nicely marbled, but as they get older the marbling vanishes to a great extent. The inflorescence is a many flowered panicle, so full of flower that Mr. Boxall, the lucky discoverer, counted as many as 120 on the panicle of a three-leaved plant. Having obtained the dried flowers last July I cannot think living plants were previously in Europe, but now, at the end of November, the flowers appear on the scene.

Those flowers belong, as I stated before, to the affinity of Phalænopsis Schilleriana, having similar anchor-like tails. I obtained a nice lot of dried specimens, and a good many of these rival those of Phalænopsis amabilis in size, but the fresh ones at hand are smaller, as might be expected in the case of first flowers. They are of a delightful colour, like the best Devonshire cream. The sepals are outside of a light sulphur, and inside the inferior halves of the lateral sepals are of the same colour, with dark cinnamon blotches. The side laciniæ of the lip are pure white at the top, but with that exception orange as the callus, and the central lacinia is light sulphur-coloured, with white borders and white tails. All those parts, as far as they are yellow or orange, are covered with dark cinnamon blotches.

A variety I propose to name Phalænopsis Stuartiana nobilis is longer in all the parts of flower, the anterior lacinia of the lip is rhombic, and the whole flower is sulphur-yellow, except the callus, which is orange. There are a few small mauve spots on the petals. I do not know whether they are constantly developed.

When looking at this fresh, young, and grand beauty I had a vague impression as to its resemblance to something I had seen, but which I could not define; finally, however, I came to the point. It was the lip of Cœlogyne (Pleione) Arthuriana and of C. maculata. The white Phalænopsis has the ornaments of those glorious gems.

Is the plant a natural hybrid? I remember an English orchidist who told me in confidence that all these hybrids originated with dear Thomas Lobb, who amused himself by crossing Orchids. I should not like to enter upon guesses myself, the more as my excellent correspondent, Mr. Stuart Low, forgot to give me the exact locality for publication, and did not reveal to me all the details about the plant's neighbours, circumstances, &c.: at all events we may be pretty sure, when regarding Phalænopsis Stuartiana, that it is a tropical Asiatic plant. No doubt there will be a great pilgrimage to Upper Clapton to see the fresh beauty under that mighty expanse of glass which forms the theatre of Lowian activity. *H. G. Rchb. f.*

NEPENTHES MASTERSIANA ×, *Hort. Veitch.*† (Fig. 148.)

This is a hybrid raised by Mr. Court in Messrs. Veitch's establishment between N. sanguinea as the seed-parent and N. Khasyana, the distillatoria of gardens, as the pollen-parent. It is a handsome variety, with cylindrical or slightly distended claret-red pitchers, and is quite distinct from any other form in cultivation. Leaves sessile, glabrous, coriaceous, oblong obovate acute, reddish at the margins, auriculate-amplexicaul at the base, midrib depressed above, prominent beneath. Pitcher $4\frac{1}{2}$ by $1\frac{1}{4}$ inch (but these dimensions will doubtless be exceeded as the plant grows older), deep claret-red, thinly covered with appressed brownish hairs, and here and there purple-spotted, cylindric, somewhat ventricose, and slightly contracted above the middle, wings deep, sharply and irregularly toothed at the margin, mouth rounded, slightly prolonged at the back, and surrounded by a clear shining red closely ribbed margin, throat pinky-cream, coloured with red spots, lid about the size of the mouth, suborbicular, convex, with radiating venation, and with a simple spur at the base. It has the rich colour of N. sanguinea, while in form it is intermediate between its parents. *M. T. M.*

ANGRÆCUM FASTUOSUM, *n. sp.**

I have at hand a plant, no doubt a young one. It has ten cuneate oblong bilobed leaves, as rugose on their upper surface as the bulb of Eriopsis rutidobulbon. They are nearly 3 inches long, and the same in width. Then there is what may be the top of a raceme, bearing three large fine flowers, which equal those of Angræcum caudatum, but with much broader oblong acute sepals, lip narrower, more acute, and a shorter spur. The sepals and petals slender, filiform, 2 to 3 inches long. Column small, thick. Anther with a top apiculus, as in some Galeandras. Rostellum very long, covered by the single caudicula and immersed in the upper part of the spur. This is exceedingly curious, and gives one a fine opportunity of dreaming of new shaped insects *à la dernière mode.* I suppose the flowers are white, and think the plant will prove very attractive. It has just been imported from Madagascar by Mons. Leon Humblot. I had the flowers and the plant sent from Marseilles by Mr. F. Sander. *H. G. Rchb. f.*

A SYNOPSIS OF THE GENUS CROCUS.

BY GEORGE MAW, F.L.S., &c.

(*Continued from p. 718.*)

Section III.—*Annulati.*

Basal tunic of corm separating into annuli.

‡ Vernal species, the leaves appearing with the flowers.

57. ‡*C. cyprius*, Boiss. and Kotschy.—Corm about $\frac{1}{2}$ inch broad; tunic fibro-membranous; the main tunic splitting up from the base into narrow, flat, fibre-like divisions; the basal tunic composed of one or two membranous annuli. Sheathing leaves reaching nearly to the level of the proper spathe. Proper leaves three or four to a corm, glabrous, from 4 to 6 inches long at the flowering time, reaching to the throat or exceeding the flowers, about $\frac{1}{8}$ inch wide, the keel very narrow and prominent, the lateral channels broad and open. Proper spathe monophyllous. Perianth; throat glabrous, purple externally: segments bright lilac with a rich purple blotch at the base, $\frac{3}{4}$ inch long, and $\frac{1}{4}$ inch broad, obtuse. Anthers orange, about twice the length of the bright scarlet filament; the style dividing at the level of the summit of the anthers, and shortly produced into entire, slender, orange-scarlet stigmata.

A native of Cyprus, above the wooded region of the Cyprian Olympus, at an altitude of 5000 feet; flowering early in April.

C. cyprius with its soft membranous corm tunic, forms a connecting link between the fibro-membranous and the annulate series. The bright scarlet filament is peculiar to the species.

58. ‡*C. aërius*, Herbert; C. Sibthorpianus, Herbert.—Corm about $\frac{1}{2}$ inch broad and high; tunic cartilaginous, thinner than that of the following annulate species; the basal tunic composed of two or three narrow annuli. Sheathing leaves falling short of the proper spathe. Proper leaves just appearing and reaching to the throat at the flowering time, very narrow, $\frac{1}{16}$ inch broad, glabrous, the lateral channels containing a prominent rib, produced at maturity to 10 or 12 inches in length. Proper spathe diphyllous, reaching to within $\frac{1}{2}$ inch of the throat. Perianth: throat yellow, glabrous; segments from $\frac{3}{4}$—1 inch in length, and from $\frac{1}{4}$—$\frac{1}{2}$ inch broad, bright bluish purple, the outside of the outer segments variously feathered with dark purple, blotched at the base with purple, or evenly suffused with purple darker than the general colour of the segments. Anthers bright orange, about twice the length

* *Phalænopsis Stuartiana*, n. sp. — Radicibus depressis; foliis juventute marmoratis dein æqualiter coloratis; panicula multiflora; callo stipitato didymo basi extrorsum acuminato-subulato intus bideotato sulcato, callo in laciniis lateralibus obscurissimo. Flores ceterum Phalænopsidis Schillerianæ — Flos lacteus. Sepala lateralia antice sulphurea cinnamomeo-maculata. Labellum, exceptis apicibus summis laciniarum lateralium, margine et caudis laciniæ anticæ albis, flavum maculis que plurimis cinnamomeis. *H. G. Rchb. f.*

† Hybrida inter N. sanguineam fœm. et N. Khasyanam marem.

* *Angræcum fastuosum*, n. sp. — Foliis cuneato-oblongis apice obtuse ac inæqualiter bilobis margine cartilagineis, in superficie superiori rugosissimis; pedunculo plurifloro, racemoso; bracteis cucullatis ovaria pedicellata quartam æquantibus; sepalis tepalisque ligulato-oblongis obtuse acutis, labello angustiori acutiori, calcari filiformi ovario pedicellato plus duplo longiori; columna brevi crassa, anthera apiculata, apiculo apice bidentato, rostello longissimo, cum caudicula incumbente in calcar (?) descendente.—Madagascar. Humblot. *H. G. Rchb. f.*

of the yellow slightly papillose filament; the style dividing towards the level of the base of the anthers, and produced into erect, entire, orange-scarlet stigmata, which reach to about the level of the summit of the anthers. Seed dark red, papillose.

A native of the mountains of Bithynia, Lazistan, and Armenia, at altitudes of from 4000—7000 feet; flowering in May. There is a Crocus in Mr. Ball's herbarium, gathered by Sir Henry Layard in Kurdistan, which is I think C. aërius.

It is more nearly allied to C. biflorus than to any other species, but the red seed and rich purple flower of C. aërius readily distinguish it from that species.

59. ‡*C. biflorus*, Miller; C. pusillus, Tenore; C. annulatus var. biflorus, Herbert; C. circumscissus, Haworth.

Var. 1. *estriatus*, Herbert.—Florence.

Var. 2. *Weldeni*, Gay.—Trieste and Dalmatia.

FIG. 148.—NEPENTHES MASTERSIANA x: PITCHERS CLARET-RED. (SEE P. 748.)

Var. 3. *nubigenus*, Herbert.—Asia Minor.

Sub-var. *Pestalozzæ*, Boiss.—Constantinople.

Var. 4. *Adami*, Gay; Adamicus, Herbert.—Caucasus, Crimea, and Georgia.

Corm oblate, about ½ inch broad; tunic strongly coriaceous, splitting up at the base; the basal tunic a small disc, succeeded upwards by two or three annuli. Sheathing leaves falling short of the proper spathe, containing several scapes. Proper leaves appearing with and reaching to the level of the flowers, glabrous, about $\frac{1}{12}$ inch broad, the lateral channels in some varieties ribbed, in the Italian type form unribbed. Proper spathe diphyllous. Perianth: throat yellow, slightly bearded; the segments varying from lilac to white. In the Italian plant, which I take as the type, the outer surface of the outer segment is coated with buff, and feathered with from three to five purple markings. In the accompanying var., estriatus, the outer segments are of unstriped buff or cream colour, about 1½ inch long, and from ¼—⅜ inch broad. Anthers orange, exceeding the papillose, orange filament. The style dividing at the level of the middle of the anthers, and produced into entire, orange-scarlet stigmata a little exceeding the anthers. Seed globose, bright buff, glabrous.

C. biflorus flowers in the early spring, from January to March, and has a wider range, east and west, than any other species, ranging from Tuscany into Georgia, through 38° of longitude. It is generally a lowland plant, and I know of no record of its occurrence at alpine elevations. No species has a wider range of variation in size and flower-colouring. In Gay's C. Weldeni, from Trieste and Dalmatia, the outer segments are externally freckled with bright purple. Herbert's C. nubigenus is a small Asia Minor form, in which the outer segments are freckled with dull purplish brown; Boissier's C. Pestalozzæ I take to be an albino of this form: they grow intermixed in the neighbourhood of the Bosphorus, and are also accompanied by a feathered variety of similar size. Gay's C. Adami, from Tiflis and the Caucasus, has a bluish-lilac flower, either self-coloured or externally feathered with purple; there are also numerous white varieties, some of which have a yellow throat, and others are uniformly pure white, varying much in size. I know of no good character by which these albinos can be distinguished from the albinos of C. chrysanthus.

The "Cloth of Silver" or "Scotch Crocus," known to horticulturists, appears to be a large variety of the Italian type form. Gussone's herbarium at Naples contains specimens from the neighbourhood of Salerno exactly resembling, and as large as the garden Cloth of Silver Crocus.

60. *C. Crewei*, Hooker: C. melantherus, Boiss. (?)—Corm about ½ inch broad, and from ⅜—½ inch high; tunic coriaceous, splitting up from below and above; the basal tunic consists of one or two coriaceous annuli, with close radiating points on their outer margin. Sheathing leaves falling short of the proper spathe, and including two or three scapes. Proper leaves three or four to a corm, appearing with and reaching to the level of the flowers, and produced to about 1 foot in length at maturity, glabrous, $\frac{1}{16}$ inch broad, the lateral channels containing three prominent ribs. Proper spathe diphyllous. Perianth: throat glabrous, orange; segments scarcely 1 inch long and ⅓ inch broad, the inner segments white, the outer surface of the outer segments suffused with buff, and feathered with dark chocolate. Anthers dark chocolate, about twice the length of the orange filament; the style dividing at the base of the anthers, and produced into entire, orange-scarlet stigmata, reaching to the level of the summit of the anthers.

C. Crewei is closely allied to C. biflorus, and mainly distinguished from that species by its dark chocolate anthers; it flowers in the early spring. It was discovered by Mr. Elwes in the island of Syra in the spring of 1874. He landed there for a few hours, on his way to Asia Minor, and dug up a number of Crocus corms out of flower from the hill above the town. These were liberally distributed; one corm received by the Rev. H. H. Crewe flowered in the following year, and from this the species was figured by Sir J. D. Hooker in the *Botanical Magazine* (plate 6168); two other corms flowered with me in 1876, and I have been successful in preserving the species. I made a careful search in the spring of 1877 in the island of Syra, but was not successful in again finding it, and the efforts kindly made for me by Mr. Quintata, H.M. Vice-Consul at Syra, to rediscover the plant, have been also fruitless.

61. ‡*C. tauri*, new species, Maw; Aucher-Eloy *exsic* No. 2654.—Corm nearly 1 inch broad and high; the tunic a coriaceous membrane splitting up at the base, and produced at the summit into sharp points about ¼ inch high. Basal tunic of thick membranous annuli, the outer circumference of which is surrounded by about a dozen projecting points. Sheathing leaves falling short of the proper spathe, and enclosing from two to four scapes. Proper leaves glabrous, about eight to a corm, 8 inches long, and exceeding the flowers at the flowering time, $\frac{1}{16}$ inch broad. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat glabrous, yellow; segments pale unstriped purple, about 1¼ inch long, and ⅛ inch broad. Anthers yellow, about ½ inch long, twice as long as the filaments, much exceeding the stigmata; the style dividing below the base of the anthers, and produced into short, yellow, entire stigmata, which are expanded at their summit, and scarcely reach to the level of the middle of the anthers. Capsule and seed unknown.

C. tauri is only known from herbarium specimens collected by Aucher-Eloy near the Cilician Gates ("ad Portas Cilicianas") of the Taurus, and, as far as I know, has not since been obtained in Cilicia by any other collector. Mr. and Mrs. Danford, during their adventurous journeys through the Taurus in 1877 and 1879, do not appear to have met with it, but the Kew Herbarium contains specimens of a Crocus collected by Mr. Elwes in Syria which is certainly identical with Aucher-Eloy's plant.

C. tauri is a vernal species, more nearly allied to C. biflorus than to any other, but is readily distinguished by its exceptionally short yellow stigmata, its self-coloured flowers, and its thinner corm tunic, which more nearly approaches that of C. speciosus than the strong coriaceous tunic of C. biflorus. It is also a plant of larger stature and more robust habit than any eastern form of C. biflorus.

(To be continued.)

A GOSSIP ON ASTERS.

CALLISTEPHUS HORTENSIS, or China Aster, was introduced towards the end of the last century, and was raised in the Jardin des Plantes of Paris from seeds sent from China. Of annual duration, numerous varieties have resulted from its extensive cultivation. In the wild state the flowers are single—that is to say, only the outer florets are strap-shaped, and usually of a rosy-lilac tint, with yellowish disk-florets; but under cultivation all the florets have become ligulate or quilled, and a richness and variety of colouring has been developed scarcely surpassed in any one species, ranging from pure white to deep carmine, and violet and blue, though the yellow of the disk in the single form has not been reproduced in the double. We are mainly indebted to the French horticulturists, notably Truffaut, Fontaine, and Vilmorin, for the great perfection to which the different races have been brought. It is worthy of remark that these varieties are so far fixed that they will come true from carefully selected and well-ripened seed,

The garden varieties belong to two distinct classes—(*a*) Pyramidal, including the Pæony-flowered Truffaut's Perfection, and Ranunculus-flowered Pompon; and (*b*) the Anemone or quilled Aster, of which we purpose to speak more fully. We have only to compare an example of the China Aster of forty years ago with the high-centred quilled varieties of to-day, and the contrast is most convincing; and we venture to give a brief outline of the *modus operandi* carried out at the Aster Nurseries, Chipping Norton, Oxon, during the past thirty-six years. In the spring of 1845 a pinch of seed was purchased of Messrs. Butler & M'Culloch, Covent Garden, and this, in due course, was sown. The result for the first ten years was but little in the way of progress; but as interest was awakened more time and space were devoted to their culture, and upwards of fifty shades of colour were secured. These, year after year, were weeded out, and for some time past we have been able to send out seeds in thirty distinct shades of colour.

In 1873 the following varieties were sent out through Messrs. Sutton & Sons, Reading, viz., Grand Duchess Maria, Duke of Edinburgh, Cantab, light blue; and Improved Oxonian, dark blue. These met with so good a reception that Messrs. Carter & Co., of High Holborn, purchased the whole of the seed in 1874, the strain having become popular through four varieties having been sent to the August show at the Crystal Palace in that year. These were Snowball, pure white, most perfect form and true, and obtained a Certificate; Prince of Novelties, red, mottled with white, fine high centre; Queen Victoria, red, white centre; and Purple Prince, very deep purple, grand form and large flower; the batch receiving First-class Certificates at Banbury flower show the following week; a like honour was conferred on them at Brighton a week later. In 1875 three others found their way to the Crystal Palace, viz., Blushing Bride, rosy-lilac, white centre, beautiful form; Bridegroom, delicate lavender, white centre; and Prince Albert Victor, purple flaked with white; the two first-named gained Certificates, an honour again and again repeated that season at later shows. The next year another trio were sent up to the Crystal Palace, viz., Princess Royal, deep grey centre, broad, deep rose guard petals; Princess Alice, white, high centred cushion, flesh coloured ray; and Tom Thumb Oxonian, deep purple border, pure white centre, and dwarf habit. A Certificate was conferred on each. In 1877 Novelty, a beautiful flower, with pale rose border and pure white centre, was the only one sent; while in 1878 Princess Royal and Princess Alice were again honoured with Certificates at Reading and Banbury, other varieties or distinct new colours being reserved until a sufficient quantity of seed could be produced to warrant sending them out.

As is well known, the last two or three seasons have been detrimental to harvesting seed in prime condition; yet we have pleasure in noting that our efforts in the matter of improvement have not relaxed, as this season of 1881 we have had the satisfaction of introducing to the notice of floral devotees another stride in Aster cultivation, no less than a pure white flower, Fair Rosamond, with dark purple guard petals, which same received a First-class Certificate at Banbury, and special honours at Cheltenham on September 21. This is a new line altogether, and we are hoping to create a sensation another season with other new developments. In addition to the varieties named above, we saved seed of the following distinct colours, viz., crimson, white sprinkled with red, lavender, red and white, dark blue sprinkled white, white and purple, bright red, dark lavender, violet, crimson, light centre, deep guard petals; blue light centre, durk purple, crimson sprinkled white, magenta, chocolate, and rose and white.

To enable us to produce the large quantity of seed demanded—and we can fairly well compete with the Continental growers in point of quality—we are compelled to devote a large area to their culture. Visitors to Chipping Norton flower shows have often been struck with astonishment when for the first time they have looked upon the vast array of colour produced by 120,000 plants in full flower, each 4 feet bed, on a gentle slope, stretching across our nursery plot, and appearing as a line or band of blue, or white, or crimson, with the intervening shades, each bed as true as if it were only one plant. Yet, notwithstanding every care and precaution in selecting the seed, we sometimes find a single flower which, from its general character, would suggest that the seed had lain dormant for half a century. Having particularised the varieties and colours raised by us, we proceed to describe our method of cultivation in a few hints as to sowing the seed, planting out, shading, and otherwise preparing blooms for the exhibition table.

SOWING THE SEED.

For several years after I commenced the culture of quilled Asters I always sowed the seed in bottom-heat, but during the last decade the plan adopted has been to sow in a cold frame, under glass, some time between March 26 and April 26, in drills 6 inches apart, and not too thick in the drills. A few days suffices to bring them above the soil, when a liberal supply of air must be given, or the plants will be weak. When large enough they should be pricked out into another cold frame, slightly shading, where they will soon be established; and after they have attained strength enough to handle well plant them out into the beds or quarters where they are to bloom, in well-manured soil, being careful not to break the tender fibres of the roots. Let the rows be 1 foot apart, and plant the strongest plants 12 inches from each other; this should be done in showery weather, when the plants soon get established. If the weather be hot and drying a little water will be necessary till they are rooted, afterwards keep them clear of weeds by hoeing among the plants. About the first week in August top-dress with rotten manure from an old hot-bed, giving a good soaking all over if the weather continue dry. After this, if the blooms are required for exhibition the plants must be tied out to small stakes. As soon as it can be determined which buds will produce the best blooms, thin out or disbud, leaving about five or six blooms on each plant. Exhibition blooms should be of large size, full, with high centres, deep, distinct colour, and solid petals. To secure these qualifications in this England of ours, shading of some kind is necessary. For this purpose we have tried many kinds; one of these, and the most useful during the past stormy season, has been a "tin shade," about 12 inches in diameter, with a spring socket to slide up a square stake, one which we formerly used for shading Dahlias, and which was, we believe, sent out by Mr. C. Turner, Slough, many years since. Wire frames covered with linen or other light material will do as well; all that is required is perfect security against rain and hail-storms. In arranging blooms for exhibition, boxes or stands should be 6 or 7 inches high at the back, and 3 or 4 inches in front, painted green; and, if the blooms are set in a frill of embossed or ornamental edged white paper, the effect is improved, lending an air of elegance and refinement.

SOIL.

Asters like a deep rich soil, and it is only under such conditions that really fine flowers can be obtained and the plants induced to hold out should dry weather set in. Planted in the ordinary way they are mere weeds compared with such as are well fed and can get their roots down deep in search of moisture; and when they can do this the hotter the weather the better it suits them. Confined to the top shallow crust of earth they are soon dried up and the blooms starved; and this is why we so frequently see the poor puny plants that are to be found in borders, where, instead of being able to grow and develope themselves, all they can do is to struggle on for existence. The best way to manage them is to dig and cast off the top spit to one side, handy to be returned to its place again; and then trench and break up the soil below, working in with it at the same time plenty of short manure, thoroughly decomposed, which will have the effect of attracting the roots and affording them ample assistance just as they most require it, when expanding and perfecting their bloom. Trenching, as usually done, brings the crude earth to the surface, and buries that which has been exposed to the ameliorating influences of the atmosphere—a fact that should be borne in mind, as it takes years to get in the condition in which plants will lay hold of it and start away freely. In very light soils a few barrow-loads of clay, chopped up finely and mixed well in, has a capital and lasting effect, and will do more in producing fine Asters than any other help that can be afforded. The thing to aim at is to keep the bottom cool and moist, and, this done, all else is clear sailing, as then, if the weather be favourable, the plants will take care of themselves. When grown in groups of three in a border, similar preparation must be made, or neighbouring plants already in possession are sure to rob them and cut short their beauty long before the autumn sets in.

SAVING SEED.

If the autumn be fairly genial, there is no difficulty in saving Aster seed. Do not allow any one plant to carry more than three or four blooms, and these the finest. If needful to protect from heavy rain, the covering should admit of free circulation of air among the flower-heads. Gather when ripe, and clean through a wire sieve. Carefully selected seed usually produces as good blooms as those from which the seed was saved. Our best kinds, and especially all the new forms and colours, are grown in beds, over which temporary lights are fixed, by which means we are enabled to cut blooms of the purest shade of colour.

POT CULTURE.

Many have written about the kinds best suited for pots; but our practice has been to sow in the open in May, keeping the varieties separate, and then lift about the middle of September (when the buds have partially expanded), and putting three plants into an 8-inch pot, pressing the soil firmly, shading for a few days, and then place them in a cold greenhouse, where they will bloom late on through the autumn. Such as these have a splendid effect in a conservatory among the small kinds of foliaged plants, the only other plants equal in point of colour being the Chrysanthemums.

VARIETIES.

On this head I can only say that, for exhibition purposes, the incurved and reflexed varieties, commonly described as French, are in their way most effective; but among the other sections there are few better than, if equal to, the best quilled Asters. *Abstracted from an article by James Betteridge, in the "Field."*

THE KEW ARBORETUM.

THE MAPLES.

(*Concluded from p. 719.*)

ACER MICRANTHUM, Sieb. and Zucc., *Flora Japonica*, p. 141, tab. 80; Franchet and Savatier, *Enumeratio Plantarum Japonicarum*, vol. i., p. 89; Maximowicz, *Mélanges Biologiques*, tome x., p. 598.—Mountain woods of Eastern and Central Japan.

Medium sized tree. Leaves five to seven lobed; lobes long acuminate toothed, with tufts of hairs in axils of principal nerves. The small greenish flowers are produced in racemes. In autumn the foliage of this species turns to a beautiful bright red. Recently introduced to this country from Japan.

ACER GLABRUM, Torr. and Gray, *Flora of North America*, p. 247; *United States Exploration of the Fortieth Parallel*, v., Botany, p. 52; Watson, Gray, and Brewer, *Botany of California*, i., p. 107. A. Douglasii, Hook., *Lond. Journ. Bot.* 1847, tab. 6. A. tripartitum, Nutt., *North American Sylva*, vol. ii., p. 33 (fig.).—Dwarf Maple, Currant-leaved Maple. From Washington Territory to Colorado, New Mexico, and California. 6000—10,000 feet altitude.

A shrub or small tree recently introduced to this country, very variable in foliage characters. Leaves generally nearly orbicular, truncate, or cordate at base, sometimes so deeply lobed as to be almost trifoliolate. Flowers greenish-yellow. The fine red colour of the bud scales in spring makes this Maple a desirable one for shrubbery or lawn.

ACER MONSPESSULANUM, L.; Loudon, *Encycl. of Trees and Shrubs*, p. 92, fig. 139; p. 120, fig. 161; Koch, *Dendrologie*, theil i., p. 538. A. ibericum, M.B., *Fl. Taur. Caucas.* ii., 447; A. trilobum, Hort.; A. trilobatum, Hort.; A. liburnicum, Hort.; A. heterophyllum, Hort.; A. littorale, Hort.; A. monspeliense, Hort.—The Montpelier Maple. Native of South Europe, from Portugal, West Germany to Greece, Caucasus, mountains of Northern Syria, and South Morocco.

This species forms a dense round-headed tree, from 15 feet to 40 feet in height. It has dark green cordate three (entire) lobed leaves; the pendulous corymbs of pale yellow flowers open in May. The

samaræ have either converging, parallel or diverging wings, and the fruit-stalks vary considerably in length. After a careful examination of a number of trees exhibiting considerable range of variation in the characters just mentioned, but none in others, I do not think it possible to make any satisfactory diagnosis of the forms of this species. The ornamental effect produced by the abundant reddish fruits of this Maple, contrasted with the dark leathery foliage, renders it a desirable and very useful one for the shrubbery or lawn. Introduced to this country in 1739. The figure of A. ibericum which is given by Gordon, *Garden*, vol. iii., p. 179, does not at all agree with the Caucasian specimens in the Kew herbarium.

ACER HYRCANUM, Fisch. and Mey.; Boissier, *Flora Orientalis*, tome 1, p. 950; Koch, *Dendrologie*, theil i., p. 537; Lauche, *Deutsche Dendrologie*, p. 459. A. lobatum, Gordon, in the *Garden*, vol. iii., p. 69 (with figure). A. caucasicum, Hort.; A. tauricum, Hort., in part; A. ibericum, Hort., in part.

This is a neat, compact-habited, slow-growing species, with 5-lobed leaves, the upper lobes somewhat coarsely toothed—bright green above, glaucous below, and the petioles generally a bright red; the samaræ have parallel wings, and are not unlike those of extreme monspessulanum. According to Gordon, the A. lobatum figured by him (which is undoubtedly identical with A. hyrcanum), was introduced into this country in 1838. As already stated under A. campestre, there is a form of that species to which the name "tauricum" is frequently applied in nurseries and gardens. The A. hyrcanum of Loudon's *Encyclop. of Trees and Shrubs*, p. 93, fig. 141, is a totally different plant, and as specimens of A. campestre from the Horticultural Gardens and elsewhere exist in the herbarium at Kew under the name of A. hyrcanum, it is most probable that Loudon's plant was merely A. campestre.

ACER OPULIFOLIUM, Vill., *Hist. des Plantes du Dauph.*, p. 3. A. Opalus, Ait., *Hortus Kewensis*, vol. iii., p. 436; Reich., *Flora Germanica*, v., tab. 4827; Gaudin, *Flora Helvet.*, vol. vi., p. 325 (fig.); Grenier et Godron, *Flore de France*, tome i., p. 321.—Widely distributed throughout the Mediterranean region.

A bush or small tree, with generally 5 lobed red-stalked leaves, which vary considerably in size, outline, hairiness, &c. The fruits, too, vary much in size of cells, and size, form, and direction of wings. The figure given by Gordon, *Garden*, vol. ii., p. 483, certainly does not represent this species; the fruit in the figure just quoted is certainly that of A. campestre. I may add that I possess specimens of luxuriant campestre collected by Gordon, and labelled by himself A. opulifolium, Vill.

Var. OBTUSATUM: A. obtusatum, Kit., Reich., *Flora Germanica*, tab. 4827 B.; Gordon, in *Garden*, vol. ii., p. 257.

A much stronger grower than the type, forming a compact roundheaded tree of 40 feet or more in height. The leaves are larger, of a darker green than those of A. opulifolium, covered with a whitish or rusty tomentum on under-surface, the lobes, too, are generally more rounded. The wings of the mature fruit are more spreading than they are represented to be in Gordon's figure.

Var. NEAPOLITANUM, Ten.; A. neapolitanum, *Flora Neapolitana*, tab. 100; A. aetnense, Ten.; A. hybridum, Hort.; A. obtusatum var. neapolitanum.

This is much like the last, and for ordinary botanical purposes is certainly identical with it. For arboretum purposes it is, however, distinct, and differs in its larger fruits, with long spreading wings, and its undulated leaves with more pointed lobes. Introduced, according to Gordon, in 1825.

Var. LOUDONI: A. Loudonii, Gord. in *Garden*, vol. ii., p. 322.

Leaves large, cordate, acutely and deeply 5-lobed, lobes with a few coarse teeth. In the Kew herbarium is a specimen (consisting of a couple of leaves and a few detached fruits) from Mr. Gordon himself, with "plenty still in Victoria Park" written on the label.

Var. GRANATENSE: A. granatense, Boiss., *Elenchus Plantarum quas in Itinere Hispanico legit.*, p. 19; Gordon, *Garden*, vol. iii., p. 3; A. parvifolium, Hort.

A small-leaved form, with 3—5-lobed leathery, deep green, glossy leaves, pale beneath. Abundant in valleys of Sierra Nevada, in Spain, from whence it was introduced in 1838. *George Nicholson, Kew.*

BEARDSWOOD, BLACKBURN.

THIS place has, for a number of years, been celebrated for its fine collection of plants, and doubtless all who interest themselves in the higher branches of horticulture have from time to time seen the fine specimens that have been exhibited at various shows, notably the Preston and Blackburn exhibitions, which for many successive years have enjoyed the visits of Mr. Dodgson's plants. Great credit is due to Mr. Osman, the gardener, for the manner in which these exhibits are turned out, and I must congratulate him on seeing them so promising for another season. I noticed lately in the East India-house some fine Phalænopsis, such as Schilleriana, amabilis, and grandiflora, also some grand plants of Saccolabium retusum giganteum, fine specimens of the best variety of guttatum and S. præmorsum, several plants of Oncidium varicosum, with their bright yellow flowers, producing a prettily varied effect amongst the white Odontoglots. There is also a fine lot of Masdevallias of various kinds on one side of the Odontoglossum-house. During the past few years these have wonderfully increased, there being many fine plants, and among them some of the best kinds in cultivation, as Mr. Dodgson delights in procuring the best varieties that can be obtained. I noticed some fine M. Harryana, and when in bloom at the Manchester show this year they told well, for their colours were so bright, and intermixed as they were with Cattleyas, Lælias, Dendrobiums, Odontoglots, &c., they looked very charming. I also saw a fine specimen of Masdevallia chimæra, the flowers of which were very large and bright in colour. M. bella, Davisii, ignea and coccinea, were all in bloom, as well as the beautiful white tovarensis. Many others were also in flower at the same time, giving a gay and pretty effect to the house at this dull season of the year.

The collection of Cattleyas grown in a lean-to structure adjoining the dwelling-house is a very fine one, and the plants are promising well for flower. When in bloom they must be a gorgeous sight, especially the C. Trianæ, of which I should imagine Mr. Dodgson possesses the finest plants in the country. I should much like to see them when in flower, although I have seen blossoms of the best kinds. Some of them have been figured in one of the magazines, and I hope to give plates of them in the *Orchid Album*. I will enumerate a few of the best specimens that attracted my attention. Cattleya Trianæ Dodgsoni, is an extraordinary plant, 3 feet in diameter, and showing many flower-sheaths; this is certainly the best variety I have seen. Next to this is a fine specimen, showing many spikes, of C. Trianæ Osmani—one of the most distinct and beautiful of varieties, that has been named in honour of Mr. Dodgson's gardener. There is also another fine variety, which I hope to see blooming again this year—in fact, I consider Mr. Dodgson most fortunate in being the possessor of such excellent varieties of this useful winter-flowering Cattleya. There are other good specimens of this species worthy of distinction, such as C. Warneri, of which there are many fine specimens, some of which have bloomed this year, the flowers being of large size, as well as rich in colour. Of C. Mendelii and Mossiæ there are good specimens; the Lælia purpurata is growing strong, and I was surprised to see such a good plant of the rare Cattleya exoniensis, which had several leading growths that had bloomed this autumn; it is certainly the best variety. In the same house I noticed the choice Lælia gigantea, so rarely seen; it was named and figured by Mr. R. Warner in the first series of his *Illustrated Orchidaceæ*. There does not appear to have been any importation since Mr. Warner received his. Its spotted flowers are most distinct. In another house was a fine specimen of Lælia Dawsoni, showing four spikes, and which when in bloom must be well worth seeing with its pure white flowers.

There is a large stove-house where there are many fine Orchids, such as Dendrobium Schröderi, 2 feet in diameter; also densiflorum, and a wonderful plant of D. Griffithianum, 2 feet across, which produced last year as many as thirty spikes of flower.

Of Calanthes there are a number of plants in bloom; Pleiones were also very fine. I noticed also a fine specimen of Pilumna fragrans, which had had fifty or more spikes of its white, sweet-scented flowers. In the centre of the house are some fine-foliage plants, such as Cocos Weddelliana and other Palms, well grown; a very fine Cycas revoluta, Anthurium crystallinum, with its velvety green leaves; and Dasylirium acrotrichum, a splendid specimen, with extremely graceful foliage. The collection of Crotons includes a well cultivated lot of plants, such as Prince of Wales, and Lord Derby—a fine plant, well coloured, and which does not seem to spot as most specimens we see; also Queen Victoria, well coloured. In the same house are many fine specimens of Dracænas, some 3 feet in height, with foliage to the pots, and of good colour; also some fine Pitcher-plants, suspended from the roof. It is a pity these plants are not more generally cultivated, as they take up but little room, and form a source of great attraction and interest to visitors, many of the pitchers being very handsome.

In the fernery there are many fine specimens of tree and other Ferns, such as Cyathea dealbata, Dicksonia antarctica, and others; also fine plants of Adiantums, Davallias, &c. The next is a greenhouse, where are some excellent Camellias, blooming well, conspicuous among them being alba plena, imbricata, fimbriata, and others. Also fine specimens of Lapageria alba and L. rosea covering the roof: the two kinds blooming together form a charming contrast with their graceful bell-like flowers, which are most useful for cutting and many decorative purposes.

Both Mr. and Mrs. Dodgson are great lovers of plants and flowers, and have been cultivators for many years. They delight in showing their favourites to their friends, and also in sending them to exhibitions, where the public also have an opportunity of seeing them. *B. S. W.*

HINCHINGBROOK HOUSE.

THIS place derives its name from a brook rising at Thurning in Northamptonshire. It is the residence of the Earl of Sandwich, in the parish of St. Mary's, Huntingdon. It is situated a little distance to the west of the town, on the north-west side of a gentle slope, and commands a fine view of the surrounding country, particularly of the vale rendered fertile by the waters of the Ouse. On the south of the pleasure-ground is a high terrace, which overlooks the road from Brampton to Huntingdon, and from which elevation the flower-gardens and grounds look exceedingly pretty. This is indeed a point from which extensive views through vistas of trees are numerous, and from which a direct view of the carpet-bedding (which is exceedingly chaste in design) and a long flower-border are obtained at a glance, the variety of the floral picture and the associations of choice trees and Roses being both pleasant and harmonious. Hinchingbrook was chiefly built by Sir Henry Cromwell, who had the honour of receiving Queen Elizabeth here in August, 1564, after her visit to the University of Cambridge. Sir Oliver, his eldest son and successor, was uncle and godfather to the Protector, and received a visit from James I., at Hinchingbrook in 1603, when the king was upon his progress to take possession of the throne of England. James I. visited Sir Oliver Cromwell again in 1605, 1616, and 1617. In return for his loyalty and hospitality, the king created Sir Oliver a Knight of the Bath, at St. James' Palace, upon July 24, 1603, the day of his coronation. On June 20, 1627, the worthy knight was reduced to the necessity of selling Hinchingbrook with all the lands near it, which had been granted to the family by Henry VIII., to Sir Sidney Montague of Barnwell, Knight, one of the masters of request to King Charles I., in whose family it still continues. The present mansion (see pp. 756, 757) is erected on two sides of an open court, entered by a handsome arched gateway on the northern side, and though irregular in design has a good appearance, which will remind the visitor of an Oxford College. A trifling portion of the ancient nunnery remains in the offices of the building.

The entrance from the park gates to the mansion is cheerfully diversified, and the park itself contains numerous specimens of English Elms, Oaks, and Limes, and large plantations skirting the boundaries, and at other points, in order to convey or direct the eye to certain views, which are either locally famous or historically interesting. In the pleasure-grounds, which are a model of neatness, there are many noble trees, particularly of evergreen and Turkey Oaks, Copper Beech, and Cedars, of elegant symmetry, which are located in positions where they are in full view, and not likely to be injured or encroached upon by swarms of inferior trees, as is too often the case when thinning out does not receive the necessary

annual attention. Upon the south front there is a neat group of flower-beds very tastefully planted or laid out in the carpet style, with central plants of Agaves or some plant of suitable habit in the centre of each bed. The Rose garden is situated upon the east side, which is adorned with many fine trees and shrubs, and the Rose avenue, which lies to the south-west, has a row of fine Fuchsias, bordered with Gnaphalium lanatum, and Tritomas, and Sun Roses, planted among the shrubs. The Italian garden, in front of a block of plant-houses, is very showily planted, and enclosed by ornamental Yew hedges, which are very handsome and beautifully kept, and having the long flower-border, previously referred to, on the north-west side. The garden, I was pleased to see, was planted differently from what is usual in such designs; there was an easy, flowing, and natural style about the arrangement of the plants, which enhanced the enjoyment of the garden. Here are Roses, mixed beds in variety (to my mind the most beautiful of all), beds planted *en masse* with the gayest of flowering plants, and beds dressed in quiet harmony, as if to neutralise and soften down the strong tone produced by the brighter colours. Verbena venosa (one of the best of wet weather plants) was here quite at home, fresh and beautiful after a downpour of a week. It is planted in a mixed bed, and associated with silver-leaved plants.

In the conservatory there are fine old plants of Ficus elastica, choice kinds of Rhododendrons, Passiflora quadrangularis trailing over the roof, and both ends of the house are decorated with Ferns, mosses, Begonias, &c. Large plants of double Pelargoniums are here very floriferous and effective, as they always are when well managed. At each end of the conservatory there is a greenhouse and fernery respectively, the former containing a showy collection of flowering and foliage plants, and the latter a rather large stock of Ferns for furnishing and cutting.

The forcing and plant-houses are within the walled-in garden, which is over 4 acres in extent, and one of the best kept gardens in the kingdom. The new range of fruit-houses, 160 feet long and 12 feet wide, are the chief attraction of the glass department, which is in a very creditable condition, and in which fine crops of fruit and other supplies are grown every season. The first division of the new range is planted with standard Plums along the front border, and white Ischia Figs in pots, and Peaches and Figs are trained upon the back wall. The favourite kinds appear to be Crimson Galande, Royal George, Violet Hâtive, and Nectarine Peaches, and Elruge, Pine-apple, and other well known sorts of Nectarines. In the second division Peaches and Nectarines of the later kinds are well represented in the following varieties, viz., Walburton Admirable, Barrington, Violet Hâtive, Noblesse, Salwey; and of Nectarines Pitmaston Orange, Elruge, and Victoria. Figs, Plums, and several useful and ornamental kinds of Tomatos are also grown in this house. Since the houses have been erected (during March of the present year) the trees have made astonishing progress, which must be satisfactory to the builder, satisfactory to the gardener, and still more satisfactory to the owner, who derives the full benefit of the outlay in a very brief space of time, when trees grow and bear such crops of fruit as they do here. The range of vineries is on the east aspect, and here also Mr. Bowie has thoroughly renewed all the Vine borders with very marked effect in the general condition of the crops of Grapes, which are now much above the average in fertility and quality. The Muscats especially are a fine regular crop of well formed bunches, large berries, and of high colour. Lady Downe's, Alicantes, and other late kinds are doing well, as also the early Hamburgh-house, where the crop has been cut for some time. The early Peach-house is in this range also, and the trees are healthy and ripening their growths in a satisfactory manner, which is an encouraging appearance for a heavy crop next year. It is a mistake to suppose that the interest in fruit-houses is gone when the fruit is gathered; they are interesting to look at in every month of the year, and in none more so than when the trees are about to cast their leaves and take on that auburn tinge which denotes thorough maturity and liberal cultivation. At the end of the range is the plant-stove, containing fine specimens of Adiantums, foliage plants, including the more popular varieties of Dracænas, Epiphyllums, Eucharis in quantity, Strelitzia regina, flowering Begonias, useful creepers ornamenting the roof, and a variety of Ferns and Orchids useful for cutting or decorative purposes as they may be required.

The chief borders in the kitchen garden are gay with the best selection that could be obtained of herbaceous plants, none being tolerated but those that are striking either as showy subjects out-of-doors or for yielding cut flowers for vases. In the fruit department the wall-trees are bearing abundantly, and the crops generally have been abundant—Williams' Bon Chrétien and Louise Bonne of Jersey Pears and splendid crops of Codlin and Pippin Apples. It may be said of the walled-in garden at Hinchingbrook that it is in a high state of cultivation. Wherever there is enthusiasm there is success, and there are few more enthusiastic cultivators of fruits and vegetables than Mr. Bowie. Wall-trees are in such order as is seldom seen now-a-days; in fact, when you enter the garden you are reminded of the fruit and kitchen gardens of ten or a dozen years ago. Every operation is done at the proper time, and the appearance of the trees and plants is the best testimony that their wants are understood, and their requirements looked after.

Vegetable growing, too, is looked upon as being more than garden drudgery. Mr. Bowie is never more happy than when he is discussing the different systems of vegetable culture. His crops of Onions, Cauliflowers, Carrots, Seakale, Rhubarb, &c., are of more than average merit, and, what is more, you can enjoy a look at them without inconvenience. It is a pleasure at any time to look upon fine crops, but it is still more so when you find the approaches to them tidy and orderly, and every other department of the garden correspondingly neat, and bearing the mark of skilled generalship at every step you take, or in whatever direction you may choose to look. *W. H.* [It will be seen that the publication of this article has been unavoidably delayed. EDS.]

FRUIT NOTES.

The Profits of Fruit-Growing.—The demand for any special kind of fruit is as fleeting as the bloom in frost. I remember when Gansel's topped the market; at present they are scarcely asked for. In a few years probably the public will tire of the coarse aroma of Williams', even if the barrenness of that variety has failed to make it obsolete. When we have a Pear large, highly coloured, long and tapering, a first-rate traveller, a first-rate cropper, of fine constitution, thriving on the Quince, and capable of scorning 10° of frost in the blossoming time, we shall have a really "market sort," even though it be no better than raw Turnip. Many opportunities have I won of learning what the Kentish growers grow, for within the last ten years divers of them (having outgrown themselves) have offered me their aid as salesmen or gardeners. We consider them benighted as to fruit-growing; and of Pears, as a rule, they know but little. For a quarter of a century, as before mentioned, have I laboured in the service of the goddess, securing every new Pear as it came from her French lap, trying it carefully on a small scale, but sticking for the main to the well-known "market sorts," or such of them as thrive in this soil and climate. I am not entirely void of observation, and two conclusions are forced upon me which I have no private motive for pronouncing or supposing—1st. The growth of tree-fruit in this English climate, and in competition with larger produce (grown more cheaply and certainly, and imported at freight scarcely higher than our carriage), must tend more and more each succeeding season to centralise itself at Gotham. 2d. To bid the poor farmer who cannot grow Wheat, to grow Pears and Apples and Gooseberries, is to wipe the wet eyes with vitriol, and toss the parched Pea into the fire. Concerning a letter addressed to you by a lady, who calls herself "Pomona," I have time to say just a word or two. No female can argue without "personalities," and into these I need not pursue her. Enough that her tariff of triumph for Pears like Marie Louise and Williams' Bon Chrétien (which nobody who understands the subject would plant now for market kinds, so deceitful are they) is a crown per bushel—a thorny crown for "Pomona's" brows—at intervals of some five years. I have several hundreds of large trees of Marie Louise and Williams' Bon Chrétien: it is years since I have had 50 bushels off them. In my account truly there were two sorts (Late Gansel's and Knight's Monarch), which no one now would plant for market. I have three trees of one sort and six of the other; old friends not to be abolished. They happen to figure in the list that I sent for the only occasion of the season. I know as well as any grower—which is saying little—what varieties one should attempt to grow; but until "Pomona" can dethrone Jupiter, seldom will she fill her bag in England with more sterling substance than wind and frost. The most grateful respects to her from *Her Vitim.*—P.S. I do not send this morning's budget, because most of my fruit came back to its home. The market is glutted and gorged with French produce.

—— In the *Gardeners' Chronicle* of November 26 I read an article by "A Victim to Pomona," who complains of the little profit attending fruit growing. The Editors of the *Gardeners' Chronicle* invite other growers to give their experience also. Here is the experience of a Dutch nurseryman, in Boskoop, Holland. We know a fruit-garden wherein is planted a pyramid of the Pear Doyenné Boussoch (Beurré de Merode). This tree alone produces every year 2½ to 3 hectolitres of Pears, which are sold for £2 10*s.* to £3. On the castle of Binckhorst, near "den Haag," the residence of our king, is planted a Mulberry tree (espalier on wall), that produced in 1879 a great quantity of fruit, which were sold for almost £4—that is, £4 off one tree, in addition to the fruits which the family of the possessor had preserved. In the same garden are also two little pyramids of the Apple Pearson's Plate. The fruits from those trees were sold last year for £4. In the Westland, near "den Haag," are cultivated trees of the Apple Calville blanc d'hiver, on walls; the fruits of this variety were sold easily for 6*d.* each; sometimes they are worth 1*s.*, often at the end of the season 1*s.* 6*d.* In the village of Vlijmen, in the province of Noord-Brabant, are many gardens planted with Gooseberries (the variety Whitesmith); there are growers who get £300 to £350 for the hectare planted with these berries. In 1880 the whole crop of Gooseberries and Raspberries in that village (Vlijmen) produced £6000. In the village of Aalsmeer the crop of Strawberries produces every year £2500 to £3000; in Boskoop also, £2500. In addition to these examples of the produce and profits of fruit-gardens in Holland, I can give many others, but I finish here, and I believe that I have shown that one who is an essentially good fruit-grower need not be a victim to Pomona, at least, not here in Holland. *K. J. W. Ottolander, Boskoop, Holland.*

Apple King of the Pippins.—The reference made to this very popular dessert Apple by "A. F. B." (p. 720) is but another illustration of the value a large exhibition of Apples from all parts of the country, arranged as I have previously urged, would have been to pomologists. It is still farther an apt illustration of the very mixed nature of Apple nomenclature as at present found. In this particular case custom has gone a long way ahead of any pomological authority, and it would be just as easy to induce the thousands who grow "Kings" to call them Golden Winter Pearmains as it would be to compel them to call Wellingtons Normanton Wonders or any other merely local designation. But some feeling of regret must be experienced that in the case of this remarkably popular Apple we have no clue to its origin, as far as I am aware of. I notice that Dr. Hogg also applies to it the synonyms Hampshire Yellow and Jones' Southampton Pippin, and as Hampshire has not been wanting in times past in the production of good things, I see no reason why the old county may not claim its origin. But its association with Southampton must have been remote, and may in some way have been identified with the old family of Jones, which formerly resided on the estate of St. Denys Portswood, in the borough, but that is all conjecture. That it should be found in Herefordshire under the curious name of Seek-no-Further, and in France as Reinette de Versailles, shows that more than one locality may lay claim to its origin. The west country baptiser surely must have been a progenitor of the Kentish individual who but the other day gave to a Pelargonium the expressive appellation, "I have found it." King of the Pippins is an ambitious name, but the exceeding favour which the Apple has found everywhere indicates that such exalted honour has not been unmerited. In this district (West Middlesex), where for market work it is largely grown, trees suffered terribly in the winter of 1879-80, but even this mishap will not, I think, prevent its being the most largely grown dessert Apple for a long time yet. *A. D.*

The Gardeners' Chronicle,] FIG. 149.—PHALÆNOPSIS STUARTIANA. (SEE P. 748.) [December 10, 1881.

Orchid Notes.

WORK IN THE HOUSES. — Whilst the present exceedingly mild weather continues the houses can be kept at their proper temperature with little anxiety on the part of those who have charge of the fires. There can be no doubt that with such weather out-of-doors the treatment now being given is much better for the plants than when there is heavy snow on the ground, and a continuance of severe frosts for days and nights together. Still, whilst it is so mild, the thermometer may safely indicate a few degrees higher than it would be wise to keep if much firing were now being used. The object now, let the weather be what it may, is to induce many to remain in a state of rest, or but slight growth; it will not do, therefore, by excessive heat unduly to excite any into growth, or to hasten on the blooming period. There are always among the cool Orchids some pushing-up flower-spikes, or starting again into growth, and the difference of treatment these require at any period of the year is comparatively slight when the other sections are taken into consideration. These must not be dried off in a bulk, though a partial rest after blooming must be individually encouraged by a slight withholding of water; and so, whatever the season may be, the treatment in this section will be a careful and consistent round of a regular and uniform character, bearing in mind the requirements of individuals. The temperatures of the houses in the early morning, at 7 A.M., should now be as near the following figures as possible: — East India-house, 60°; Dendrobium-house, 58°; Cattleya-house, 55°; Odontoglossum-house, 50° to 53°. If the Phalænopsis, and a few recently imported East India plants, are placed in a separate division, it may range a little higher; but if less air is given it will cause this department to be a little warmer and closer, and will answer the same purpose. When it is practicable, give air on all occasions, especially to the Odontoglossum-house; with the glass outside ranging from 40° to 50°, little fear need be felt that any harm will follow. The rare and distinct Vanda Cathcarti, where it has been secured, should now be well advanced with flower-spikes. This generally commences to show as early as August and September, and the spike and buds come slowly on until the flowers expand by Christmas, or sometimes not till January is far advanced. The flowers last a long time, which is some compensation for the length of time one has to wait for their appearance. This will in some cases grow as free as can possibly be desired; in other instances it is just as difficult to manage. One cause of this I believe to be that it is grown in too much heat. This encourages yellow thrips, and once this pest has settled upon it it seems to have the plant completely in its power. The leaves being of a thin papery texture are soon disfigured, and must be cut away; smoking or dipping must then be resorted to, and repeated if the first operation is not successful. The coolest end of the East India-house, where it can have plenty of light, will suit it best. Being a quick grower naturally, it doubtless soon lifts its head above the plants or foliage at its base, and reaching upward it would therefore enjoy an abundance of light. It is also much benefited when growing by being syringed overhead morning and evening, and is most at command when grown in a pot. Among the late additions to the Dendrobium few were distributed more quietly than the singular-growing Findleyanum, and probably not one has given more pleasure, or caused greater surprise, than this. At first, with many growers, it did not appear very deserving, but now it is admitted to be a most beautiful species—very free in blooming, the flowers of fine size, and the colours soft and pleasing. This is best managed in baskets, and during the summer grows very quickly. It flowers on the new growths whilst the leaves, in some instances, are still upon the bulbs; but if these miss blooming the first year they will generally do so the second. It will now be showing flower along its knotted bulbs, and will soon prove it is worthy of all the care that has been bestowed upon it. Wherever it can be obtained it should be added to the collection without delay. Another choice thing of recent introduction is Maxillaria grandiflora. This succeeds best in a pot, in peat and sphagnum, and, grown in the Cattleya-house during the summer, it will have made stout bulbs and leaves, and will now be flowering from the base of the newly formed bulbs. Its erect showy blooms rival in some respects the rare Lycaste Skinneri alba, and should be represented in the collection by more than a single specimen. Miltonia spectabilis, virginalis, rosea, Moreliana, &c., will now be pushing new growths. Pick out the old peaty soil, and top-dress them with some fresh sphagnum and peat, using some crocks among the soil. Do not shake them out unless it is absolutely necessary, as they do not like to be often disturbed; it causes the leaves to turn yellow and fall off, and the plants become weaker in a very perceptible manner. The Cattleya-house will suit these, as well, too, the taller growers, as Clowesii, Regnelli and its variety purpurea; candida grandiflora requires a little more heat than any of them. *W. Swan, Fallowfield.*

ORCHID SEEDS.

I am not sure that the instructions given at p. 733 are quite sufficient for a beginner in the field of raising seedlings. It would depend very much upon how or where the living sphagnum was placed before I should care to trust Orchid seeds on it. If they were sown on a pot or pan of luxuriant living sphagnum I would not expect to see a plant come up. The method usually pursued, and which I have found successful, is this. For instance, if the seeds to be sown are those of a Cypripedium I would select a plant of the same species as one of the parents that had been potted some time—say six months; and I would prefer one that had not too much living sphagnum about it. The surface where the seeds are to be sown should be one of bits of charcoal, tufts of fibrous peat and potsherds, with live sphagnum at intervals. The seed-pods will ripen on the plant, and the seed should be sown as soon as the pods open. The seed, which resembles very much the dust in the sunbeams, should be shaken out on to the surface; and if there are any thick roots on the surface the seeds may vegetate on them, and nowhere else (at least, I had an experience of that kind once). I merely took the Cypripedium as an illustration, but it is a fact that the best way to rear seedling Orchids is to sow the seeds on the surface of the compost on which other plants of the same kind are growing. There are, however, such an enormous number of seeds in a pod that it is easy to try them in various ways. I think it was the late Mr. Donald Beaton who sowed Orchid seeds in rather an eccentric manner; but he was successful in raising plants, which was the first point gained, although he stated at the same time that he never reared one. Mr. Beaton filled a flower-pot with water, in which were some good-sized lumps of charcoal; his finger were held over the hole in the bottom of the pot. The seeds were then sown on the surface of the water, the finger was withdrawn, and the water rushed out, leaving the seeds attached to the charcoal, which was kept moist afterwards. In this way he raised a large number of plants; but it takes a long time before they are ready to be pricked off, and they did not derive sufficient sustenance from the charcoal to bring them on to that stage. *J. D.*

ORCHIDS IN FLOWER AT GLASNEVIN.

On December 1 there were sixty-one species and varieties of Orchids in flower here, and of these thirty-one were in flower on November 1. The following is a list of them:—

Acropera Loddigesi
Angræcum pellucidum
Calanthe Masuca
,, Veitchii
,, vestita
,, ,, rubro-oculata
Cœlia macrostachya
Cymbidium pendulum
,, elegans
,, Mastersii
Cypripedium venustum pardinum
,, Harrisianum
,, insigne
,, ,, Maulei
,, longifolium
,, javanicum
,, barbatum superbum
,, Stonei
Dendrobium formosum giganteum
Epidendrum inversum
,, alatum
Liparis longipes
Lycaste macrophylla
,, Skinneri
,, Lawrenciana
Masdevallia melanopus
,, Veitchiana
,, Davisii
,, octhodes
,, tovarensis
Masdevallia ignea
Maxillaria lepidota
,, grandiflora
,, pallidiflora
Nanodes Medusæ
Neottia picta maculata
Odontoglossum grande
,, cirrhosum
,, Insleayi leopardinum
,, Rossii majus
Oncidium ornithocephalum
,, flexuosum
,, varicosum
,, ornithorhyncum
,, Forbesii
,, tigrinum
,, Kramerianum
Phalænopsis Lüddemanniana
Pilumna fragrans
Promenæa Rollissoni
Pleurothallis plumosus
Sarcanthus teretifolius
Sophronitis grandiflora
Trichoceros suavis
Vanda cœrulea
,, lamellata Boxalli
,, tricolor
,, furva
Zygopetalum maxillare
,, Mackayi superbum

PILUMNA FRAGRANS.

This is one of the choicest Orchids we have for flowering at this season. Mr. Low has also a large importation coming into flower; and as the flowers open the plants are arranged in two sections. The large-flowered variety is grown under the name of P. nobilis. Why it should be elevated to the rank of a distinct species merely because the flowers are larger does not seem to be so easy to answer. P. fragrans nobilis it ought to be, if a distinctive name is necessary. The large-flowered variety is the best certainly, although both ought to be grown in every collection. The sweetly-scented flowers are of the most delicate white, with a lemon or yellow mark at the base of the labellum. This is also a free-growing plant, and should be potted like Cattleya Mossiae. It favours either the cool or Cattleya-house. *J. Douglas.*

MR. BULL'S COLLECTION.

The following are now in flower at Mr. William Bull's establishment, King's Road, Chelsea, S.W.:—

Ada aurantiaca
Angræcum sesquipedale
Barkeria Lindleyana
Cœlia macrostachya
Calanthe Masuca
,, pleiochroma
,, Veitchii
,, veratrifolia
,, vestita luteo-oculata
,, ,, rubro-oculata
Catasetum macrocarpum
Cattleya maxima
Cœlogyne barbata
Cymbidium giganteum
,, Mastersii
,, sinense
Cypripedium Argus
,, barbatum
,, ,, plumosum
,, ,, superbum
,, Crossianum
,, Dominii
,, Harrisianum
,, Hartwegi
,, Hookeræ
,, insigne
,, ,, albo-marginatum
,, ,, Maulei
,, longifolium
,, niveum
,, Sedeni
,, venustum pardinum
,, virens
Dendrobium chrysanthum microphthalmum
,, formosum giganteum
,, heterocarpum
,, nobile
,, McCarthiæ
,, primulinum
,, ,, giganteum
,, Wardianum
Epidendrum cuspidatum
Goodyera Dawsoniana
Lælia autumnalis
,, ,, atrorubens
,, Dayana
,, Dormanniana
,, marginata
,, præstans
Lycaste mesochlæna
,, Skinneri
Masdevallia Estradæ
,, Harryana
,, ,, atropurpurea
,, ,, cœrulescens
,, ignea
,, inflata
,, militaris
,, peristeria
,, polysticta
,, ,, brevior
,, tovarensis
,, Veitchii
,, violacea
,, xanthina
Maxillaria foveata
Maxillaria grandiflora
,, venusta
Mesospinidium vulcanicum
Microstylis metallica
Odontoglossum Andersonianum
,, baphicanthum
,, bictoniense
,, Chestertoni
,, cirrosum
,, constrictum
,, cordatum
,, crispum (Alexandræ), upwards of 200 spikes in bud and flower
,, crispum grandiflorum
,, crocidipterum
,, gloriosum superbum
,, grande
,, Hallii
,, hastilabium
,, Londesboroughianum
,, maculatum
,, madrense
,, Pescatorei
,, polyxanthum
,, Roezlii
,, ,, album
,, ,, splendens
,, Rossii majus (about 100 flowers)
,, tripudians
,, Uro-Skinneri
,, vexillarium rubellum
Oncidium carthaginense
,, cheirophorum
,, crispum
,, cucullatum
,, excavatum
,, Forbesii
,, Kramerianum
,, murinum
,, ornithorrhyncum
,, Papilio majus
,, roseum
,, tigratum
,, tigrinum
,, trullum
,, unguiculatum
,, varicosum
,, Weltoni
Phalænopsis amabilis
,, grandiflora
Pilumna nobilis
Polystachya grandiflora
Restrepia antennifera
Saccolabium Blumei majus
,, giganteum
Sophronites cernua
,, grandiflora
Trichosma suavis
Vanda cœrulea
,, tricolor insignis
,, ,, limbata
Zygopetalum Gautieri
,, Mackayi majus

ONCIDIUM CHEIROPHORUM.

In entering one of the Orchid-houses in Messrs. Low's nursery at Clapton, the other day, the visitor might observe what seemed to be a bed of the dwarf yellow Wallflower coming into bloom, but on a closer inspection it was found to be a quantity of exceedingly healthy plants of O. cheirophorum; many spikes are fully opened, and numbers more are coming on to succeed them. The flowers open pale yellow, and when fully opened they are of a golden-yellow, and most sweetly scented. Mr. Low grows this in quite a cool house, and I saw it doing well since in one with a night temperature ranging from 60° to 65°. Now that there are large importations of this it may soon become an inmate of most Orchid-houses. *J. D.*

ORCHIDS IN MIXED COLLECTIONS: FERGUSLIE.

Mr. Williams, in the *Orchid Album* for last month gives a very just and appreciative notice of the Orchids grown by Mr. Thomson, at Ferguslie, the seat of T. Coates, Esq., and remarks that they were not grown in a house or houses specially set apart for them, but in houses mixed up with stove and fine-foliaged plants. My reason for noticing this is, that I remarked the same success attended similar treatment of Orchids by the late Mr. Ingram, at Alnwick Castle. I saw them last autumn, and never saw plants in more robust health grown in a large plant-stove, with fine-foliaged and other stove plants. The Dendrobiums were quite remarkable

for health and vigour, hanging attached to bare blocks of wood over the foliage plants. The Cattleyas, Lælias, and Vandas were as remarkable. They were treated on what may be called the cool system. I called on Mr. Ingram one day last October twelve-months, about 6 P.M., and I found the ventilators open both top and bottom, and the temperature not much higher than what might be called intermediate. Can it be that Orchids benefit by the exhalations of other plants underneath and beside them? If so, it might be worth while to have them grown over an undergrowth of such as Ferns, Panicum, or Selaginellas. *Wm. Thomson, Tweed Vineyard, Dec.* 3.

Mr. B. S. Williams' Collection.

The following plants are now in flower in the Victoria and Paradise Nurseries, Upper Holloway :—

Angræcum eburneum
Barkeria Lindleyana
Calanthe Turneri
,, Veitchii ×
,, vestita luteo-oculato
,, ,, roseo-oculato
Cattleya bicolor
,, exoniensis ×
,, Trianæ
Comparettia falcata
Cœlogyne barbata
Cypripedium Boxalli
,, calophyllum ×
,, Chantinii
,, concolor
,, ensifolium
,, Harrisianum ×
,, insignis
,, Lowianum
,, Mastersii
,, Meirax
,, Sedeni ×
,, venustum spectabile
,, vexillarium
,, villosum
Dendrobium bigibbum
,, ,, album
,, Fytchianum
,, formosum giganteum
,, indentatum
,, moniliforme
,, superbiens
,, Wardianum
Dendrochilum Cobbianum
Lælia albida
,, acuminata
,, anceps
Lælia autumnalis var. atro-rubens
Lycaste lanipes
,, Skinneri (several)
Masdevallia ignea Massangeana
,, ,, superba
,, melanopus
,, tovarensis
,, xanthina
Maxillaria grandiflora
,, nigrescens
,, picta
Mormodes buccinator
Odontoglossum Alexandræ
,, gloriosum
,, maculatum superbum
,, nebulosum
,, Roezlii album
,, Rossii majus
,, Uro-Skinneri
Oncidium cheirophorum
,, cucullatum
,, Forbesii
,, fuscatum
,, prætextum
,, serratum
Phalænopsis amabilis
Pleione maculata
Saccolabium giganteum
Trichosma suavis
Vanda lamellata Boxalli (eight spikes)
,, tricolor insignis
,, ,, superba
Zygopetalum Mackayi

Garden Operations.

KITCHEN GARDEN.

Cauliflowers.—If the spring-planted plants of this valuable vegetable were somewhat late in forming heads, and the supplies (from later plantings) during the months of July and August not the best of samples, the produce since then to the present time, in quality and quantity, has been everything that could be desired. Late plantings of Veitch's Autumn Giant—a variety of which too much cannot be said in its praise when obtained true to name—which were made upon speculation, that is to say, depending upon the chances of having weather favourable to their growth during the months of October and November, are turning-in nicely now, so that we are likely to have Cauliflowers until the new year by looking over the plants regularly, and cutting all the heads that may have attained a suitable size, and placing them on their ends on shelves or shutters in a cool dry house out of the reach of frost; and before doing so we find it is a good plan to remove any portion of the leaves that come in contact with the "flower," which will enable them to be kept longer and in better condition after being cut. We are led to this conclusion from the fact that wherever the leaves press against the heads discoloration ensues if kept for any length of time after being cut. At the same time the plants are being looked over, the Cauliflowers which are not then large enough to be cut should have a few of the leaves bent over them, as a protection from a few degrees of frost. These remarks are also applicable to Broccoli. All winter crops bear ample evidence of the mildness of the season; especially is this noticeable in the autumn-sown crops of Onions, Cabbages, and Spinach, which are very luxuriant in growth. Spring-sown Onions generally are not keeping very well this season, and this is not to be wondered at, remembering the heavy rains that prevailed at the time the crop was being harvested; however, such noted wintering varieties as James' Keeping, Deptford, or Strasburg, and Reading Improved, are keeping well. The bulbs should be looked over occasionally, and all bad ones removed from amongst them to the refuse-heap. The latter, which in some places is used as a substitute for farmyard and stable manure, will by this time have accumulated in proportion to the extent of the gardens to a goodly size, and have been turned over a few times and divided into separate heaps according to decomposition, in readiness for present and future use in enriching the ground preparatory to cropping it. Box will grow at any time of the year if attended to in the way of watering it when necessary for a few weeks after being planted. Bearing this in mind, perhaps the present time will be the most convenient to make good any gaps that may be in the Box edgings which garnish the garden walks, and in some cases it may be desirable to take up the old edgings; pull the individual tufts of Box apart, cut away the old shaggy roots, level the edges, and relay the Box in the usual way, taking care that the edging is put in thicker in the row at the curves. This is an operation in which the workman will have an opportunity of displaying his agility and good taste, and *vice versâ*. Where the Box edgings have been relaid it will also be necessary to re-gravel the walks, and where the drainage of the latter is defective it should be rectified.

Forcing Department.—About the middle of next week the necessary number of hotbeds should be made, where better accommodation does not exist, for the forcing of early Potatos, Carrots, Radishes, &c. The beds should be made sufficiently high at the onset to admit of their subsiding a couple of feet within the next few months, after which, in order to retain a moderate heat in the beds, they should be about 4 feet high. When the frames are placed upon the beds it will be necessary to put a little dung and leaves inside them so that there may be a corresponding depth in the back and front of the frames, and over this a couple of inches of rotten dung should be put; then 9 or 10 inches thick of light garden soil and leaf-mould (about three parts of the former to one of the latter), making the bed of soil as near to the glass as will admit of the respective crops completing their growth without coming in contact with it; and this should be in the frames a few days so as to become slightly warmed before proceeding with the planting of the Potatos, which are now starting into growth and should be planted in rows 1 foot apart and 7 or 8 inches in the row as soon as they have made shoots 2 inches long. Before putting the soil upon the bed tread the latter firmly over, and in doing so allow the centre—longitudinal centre—to be fully high, inasmuch as it is the hottest part of the bed, and consequently the first to decompose and subside. Previously to sowing the Carrot seed a few shovelfuls of new dry soot should be scattered over the surface of the bed and scratched in with the rake when levelling the soil. Early Shorthorn and Early Nantes Horn Carrots are the two best varieties for early work, and may be sown in rows at from 9 inches to 1 foot apart, and where accommodation of this sort is not plentiful row of Wood's Frame Radish may be sown between the rows of Carrots, covered with half an inch of sifted mould, and patted with the back of the spade to compress the soil. At the onset these frames will require special attention in the way of airing them, and in order to prevent anything like steam arising and becoming pent up in the frames it will be advisable to leave a little air on them day and night for the present, and subsequently give sufficient air to prevent the occupants of each frame from making a weakly growth. See that young Tomato plants are shifted into larger pots before they become pot-bound, and that good successional supplies of Asparagus, Rhubarb, and Seakale roots are introduced into this department at short intervals as required. French Beans, Mustard and Cress, &c., will also require attention in this direction. *H. W. Ward, Longford Castle, Wilts.*

FLOWER GARDEN.

Protection of Spring-flowering Plants, Roses, &c.—The continued mildness of the weather is most remarkable, Violets, Violas, Stocks, Calceolarias, Mignonette, and even Primroses are hereabouts to be gathered in abundance, and spring-flowering bulbs, such as Snowdrops, Crocuses, and Daffodils, are well above-ground, and unless we get a change very soon we are likely to witness the unusual phenomenon of Snowdrops in full bloom at Christmas. Such precocity of growth should put us on the alert as regards being ready with protection for any special plant or plants that would otherwise be injured in the event of frost setting in. Hyacinths, Tulips, and the more tender spring-flowering plants are among those that would be most likely to be injured, and of course they are all the more liable to injury because of the flaccid growth consequent on the moist and mild autumn. The neatest and best protection is cocoa-fibre refuse, or, lacking this, finely sifted leaf soil; a couple of inches thickness of either spread over the surface of the beds will effectually screen the plants from injury. Like attention should be bestowed on solitary plants that are valued, and yet are of doubtful hardiness, such, for instance, as rare Ferns and rock plants; a handful or two of protecting material spread round the base of the plants will probably save numbers of them from destruction; and, as mentioned in a former note, Roses should certainly be so protected. Some persons consider winter-mulching of these unnecessary, but from experience of both plans I consider the odds are a long way in favour of mulching; indeed, so essential do we consider it to be at this place, that this operation is among our earliest labours, the moment the leaves are down and cleared up—we wait for this, that there may be no further untidiness by the falling leaves lodging on the mulching. All standards should be well protected from wind-waving, and the Tea and Noisette kinds be afforded the most protection, and when planting these kinds should have the most sheltered positions.

Bedding Plants.—The most incessant attention is now needed to keep the plants in cold frames free from damp and mildew, frequently looking over, and picking off every particle of decayed foliage; careful watering—if at all needed, and full exposure to the atmosphere in fine mild dry weather, are all essential conditions of good preservation. Tender plants are no trouble to winter if firing be not scarce, but when it is the difficulties of safe wintering are increased; in such case keep the plants well up to the light, and until the days lengthen give them only just sufficient water to keep them in health. Preparation may now be made to propagate many kinds of plants by putting the stock plants in heat. Kinds of Pelargoniums that are not propagated in autumn are amenable to this mode of propagation, in a warm airy house; the old plants quickly make good cuttings, which strike feely on a dry shelf in a temperature of 65°. Through our reluctancy to spoil the beds in autumn by taking cuttings, all our variegated kinds of Pelargoniums have to be propagated in this way. Sheds and cellars in which the roots of Dahlias, Cannas, and other plants of like nature are stored should be occasionally examined for the purpose of removing any that have rotted, or of watering those that need it. Scarce varieties may now be brought out and started into growth for the production of cuttings.

General Work still consists in the raking up and stacking of leaves, turning, re-gravelling, and repairing of walks and roads, turfing and rolling of lawns, cutting Privet, Laurel, and other hedges, planting and top-dressing of trees and shrubs; but amidst all this multiplicity of jobs the maintenance of neatness should, particularly at this dull season, be uppermost and foremost. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Peaches and Nectarines.—Assuming that the early house has been started according to directions already given, a little heat may now be turned on in the daytime with a nice circulation of air. During the exceptionally mild weather we have had the past fortnight very little fire-heat has been required except on dull wet days. The temperatures given in a former Calendar will be quite high enough for the present. Examine the borders, and if at all approaching dryness give a thorough soaking of tepid water, about 85°. Prepare a second house, if not already done, in the usual way, by thoroughly cleansing, &c., which should be ready for starting at the latest by the end of the present month. Give trees in succession and late houses a thorough watering at the roots; do not on any account let them get dry, as this is very often the sole cause of buds dropping when the trees are started. Keep ventilators open night and day, or the warm weather we have had will almost excite the buds in succession-houses to commence swelling. Proceed with the usual cleansing, painting, &c., in houses that require it. *J. Wallis, Keele Gardens.*

Cucumbers.

The mildness of the season is still the principal topic of comment. Finer weather has not been experienced for many years, but a change may come and suddenly too which will necessitate greater watchfulness in the treatment of tender-leaved plants. No plant is more susceptible to injury from violent changes of temperature than the Cucumber, especially if the atmosphere is close and moist. It will be well, therefore, to be prepared for emergencies, and if possible to have a strong thick covering for the glass fixed upon rollers ready to afford protection in case a period of cold weather should set in. Cold easterly winds are more difficult to fight against than the matter of 10° or 12° of frost which is usually accompanied by calm weather. The excellent health and fruitful condition of plants which has been established through the fine autumn can only be maintained by attention to temperature and atmospheric conditions—the latter a most important point inasmuch as a dry heat breeds insect pests while the opposite condition brings in its wake a process of damping which destroys the leaves, after which the fruits grow unpalatable and bitter. When the weather is mild enough to admit of freer ventilation every surface in the house should be dewed over two or three times a day, the leaves of the plants excepted, and towards evening a drier condition of atmosphere will be desirable. A mean temperature of from 65° to 70° will be sufficient unless where there is a pressing demand for a supply of fruits which it is found necessary to bring forward rapidly. *W. Hinds.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 12	Sales of Lilium auratum and Dutch Bulbs, at Stevens' Rooms; and at the Auction Mart, by Protheroe & Morris
TUESDAY,	Dec. 13	Royal Horticultural Society: Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Sale of Camellias, Azaleas, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	Dec. 14	Sale of Roses, Fruit Trees, &c., at Stevens' Rooms.
THURSDAY,	Dec. 15	Meeting of Linnean Society, at 8 P.M. Sales of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Dec. 16	Sale of Lilium auratum and other Bulbs, at the Auction Mart, by Protheroe & Morris.
SATURDAY,	Dec. 17	Sale of Hardy Plants, Bulbs, &c., at Stevens' Rooms.

IN these days of agricultural and horticultural depression, on the one hand, and of such enormous food imports as referred to in a recent leading article on the other, it seems high time to discuss the question of SIMULTANEOUS CROPPING and other methods of reaping more and better produce from the soil. Two and a-half millions' worth of Potatos, and nearly half-a-million's worth of Onions in one year, are enough to quicken the invention and arouse the energies of all classes of cultivators; for, barring the disease, there is no climate better suited for Potatos than our own; while, as to Onions, it is no uncommon occurrence to meet with samples grown in England almost equal to imported Spanish in size, and quite equal or superior to them in quality. Disease hardly attacks Onions, and even the maggot seems to have decreased of late years, and yet here we are paying £450,000 in one year for Onions, and over five times as much for Potatos — whilst Wheat growing is said not to pay, and stock-keepers are being ruined, so it is said, in attempting to supply us with beef and mutton at, in round numbers, 1*s.* a pound.

As to the foreign Potatos, none that we have seen equal English samples, nor in the case of the first earlies do they bring anything like such good prices; and surely if it pays Germany, Holland, France, and Belgium to send us between them, as they did last week, 141,893 bags, it would pay to grow more at home. No doubt Potatos are a risky crop, but so are for that matter, Wheat, Barley, Oats, Beans, Peas, grass, Clover, as so many farmers have found to their cost of late years. With the present mode of storing and treating seed Potatos they are but a very short time in the ground, and in gardens other crops—such as Beans, Cauliflowers, Broccoli, Celery — are often either grown abreast of them or immediately succeed them. But our chief object is to elicit the opinions of our readers on simultaneous cropping. Most of us are more or less familiar with market garden practice and the number of plants grown abreast or in close succession on the same land every year. As a species of land hunger exists in most gardens, well authenticated facts of this sort could not fail to be valuable to most readers. As an illustration of our meaning, and as a very excellent instance of successful double cropping, we may allude to a case recently brought under our notice in the practice of Mr. WILLIAM ALLAN, the successful gardener to Lord SUFFIELD at Gunton Park, near Norwich. This consists in running two crops, a vegetable and a fruit one, abreast, in the following manner:—The subcropping of fruit trees and bushes with dwarf vegetables or salad plants is by no means new. But this is quite different, and refers to crops which, so far as we are aware, have not been mated thus before. No crops could be more unlike nor less likely at first sight to crop nicely together than Strawberries and Onions. Both, however, possess certain peculiarities in common. Both enjoy a nice deep holding soil approaching to loam. Frequent change of soil also favours the highest development of both crops. One is also what is called a root, the other a surface crop. Neither could any two crops take less in common from the earth. Sitting as it were at the same table, the two crops could absorb little or nothing in common; hence the soil would probably be as good for Strawberries with and after Onions as before. Be that as it may, the fact is certain that the two crops thrive well abreast. The Onions are prepared for in the ordinary manner, and sown

FIG. 150.—SOUTH FRONT OF HINCHINGBROOK HOUSE, HUNTINGDON. (SEE P. 751.)

at the usual time. The seed, however, is sown in drills 30 inches apart. This affords ample space for good sub- and surface culture. The plants are also exposed fully to light and air. The crop may be left thicker in the rows than usual if ordinary sized Onions only are wanted; but as Mr. ALLAN rather prides himself in rivalling Spanish Onions with his carefully saved strain of the White Spanish he thins freely in the rows. Of course the whole surface is kept clean, and frequently scarified during the earlier part of the season. Double rows of Lettuces might also be taken between the Onions; this, however, is not recommended, as the summer culture of the Onion provides a capital tilth for the Strawberries. As early in June as these can be taken off they are planted out, one row between each two rows of Onions. These grip the mellow soil at once, and make such rapid progress that by the time the Onions are fit to harvest the Strawberries have taken full possession of the ground. The Strawberries may be planted at 9 or 18 inches or 2 feet apart. When so closely planted every other one might be lifted early in October for potting. It would be difficult to meet with such plants in pots as those from runners seen on the Onion ground this season. Mr. ALLAN plants at fruiting distances at once, and judging by results nothing could be more successful; the Onions, seen in quantities, in ropes and in store, were as fine a sample as need be wished.

Mr. ALLAN'S Strawberries at flower shows have been most successful in winning prizes. The whole of these fine fruits were the produce of three maiden plants. What indeed more likely? Who does not know something of the potency of maiden Briers to produce the sweetest and most magnificent Rose blooms? And if youth has such power and quality among Briers, why not also among Strawberries? And it has, as most cultivators of any considerable experience will readily allow. Another great advantage arising out of this running these two crops abreast, is a gain of a month or six weeks in the crop of runners. Early runners are the very basis of success in growing the Strawberry in pots and out of them; and who has not felt the vexations of having to wait, and hunt for them on old plants among masses of foliage.

But these young plants produce an abundance of fine runners ahead or abreast of the fruit. When a sufficiency is obtained for forcing, or new plantations, the runners are closely cut off. This causes the plants to grow out into dense tufts or bushes with many fat crowns, and the second crop is so fine that no third is waited for. On the contrary the plants are immediately trenched in good time for late Broccoli, Greens, late Celery, Coleworts, &c. The results of this mode of cropping may, therefore, be briefly summed up thus:—A perfect and heavy crop of Onions, fruit of the highest quality from the yearling runners, a magnificent crop the second season, and an early clearance of the ground in good time for another crop.

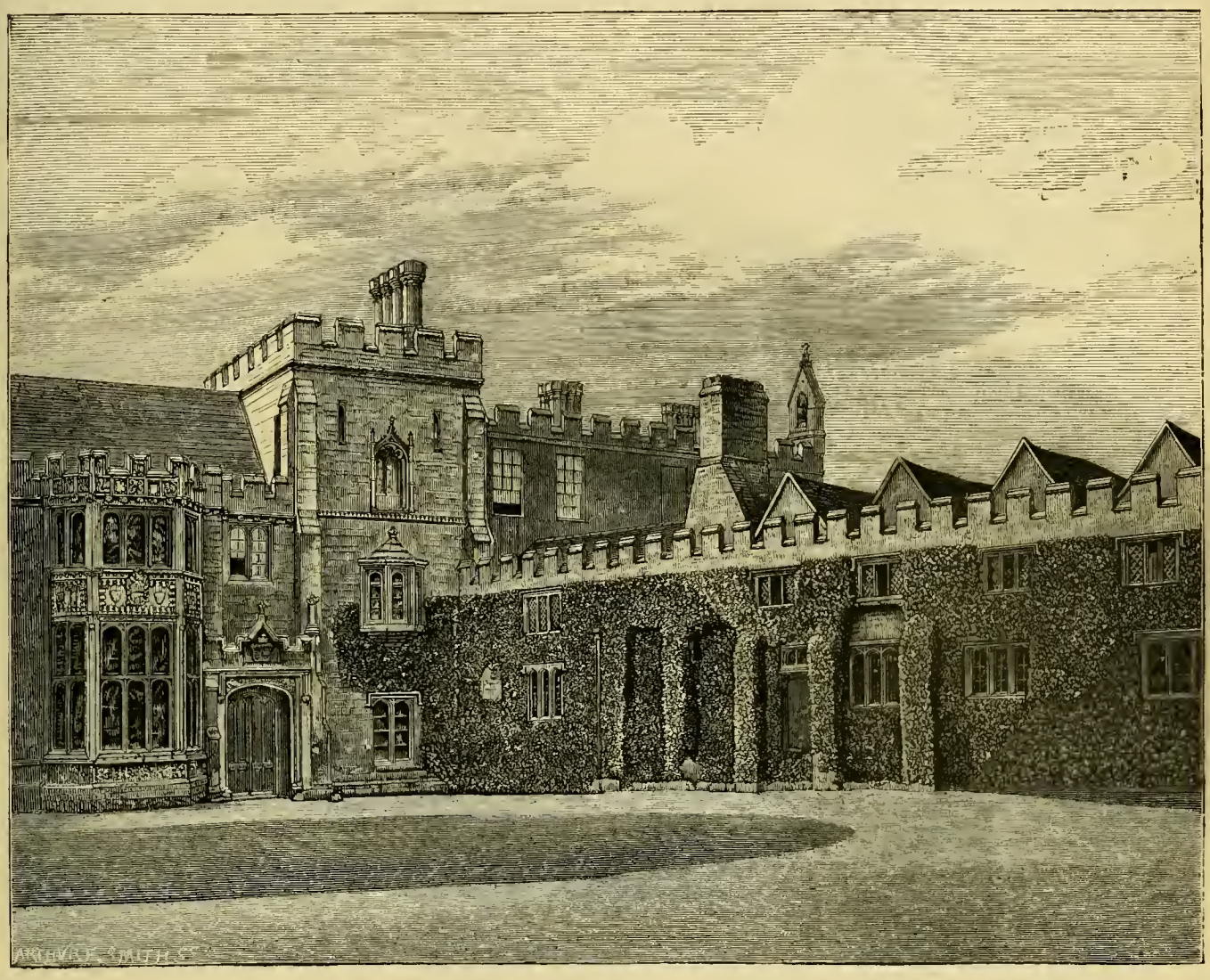

FIG. 151.—COURTYARD OF HINCHINGBROOK HOUSE. (SEE P. 751.)

—— THE LATE MR. J. C. NIVEN.—The fourth general meeting of the Hull Botanic Garden Company was held on Nov. 30, and the report of the directors, after deploring the death of the late manager (Mr. NIVEN), referred to his valuable services in connection with the undertaking; and states that it had been the express wish of many of the shareholders in the old gardens to give Mr. NIVEN some testimonial of his worth. Considering the circumstances in which the family was placed the directors proposed that a subscription list should at once be opened, to which it was hoped that most of the shareholders would subscribe. By this means they trusted to realise such a sum as would enable them to procure a suitable testimonial of their regard for Mr. NIVEN'S services, and of their sympathy with his relatives. The list was opened before the meeting closed, and a vote of condolence to the widow and family was carried.

—— CYCAS SIAMENSIS.—According to a note of M. GODEFROY'S in the *Revue Horticole* this fine Cycad, though a native of Cochin China, is yet able to resist a temperature as low as the freezing-point. It is probable that others of this fine genus may be

equally accommodating. The great lake in Cochin which, says M. GODEFROY, has been cut off from the sea by the upheaval of the intervening land, is peopled with salt-water fish, although the water is now quite fresh. In that country, too, there are fishes which climb trees, others which whisper (*murmurent*), serpents with moustaches, and a thousand similar eccentricities. The case of the salt-water fish inhabiting a fresh-water lake, if substantiated, is a valuable fact for evolutionists and students of distribution.

—— BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—The annual dinner of this Society took place at the Café, Graham Road, Hackney, on Tuesday evening, the 6th inst., E. SANDERSON, Esq., the President, in the chair, a numerous company being present. The Society was established thirty-five years ago as the Stoke Newington Chrysanthemum Society; but its title was subsequently changed to that which heads this paragraph. One of its founders was the late Mr. WILLIAM HOLMES, Frampton Park Nursery, Hackney, whose son is now the Honorary Secretary. The prizes awarded at the recent show at the Royal Aquarium were distributed, and the Secretary announced that the directors of the Aquarium had promised an additional sum of five guineas as prizes for Grapes at the exhibition already announced for Nov. 15 and 16, 1882; and it is the intention of the committee to extend the fruit department of the show to the utmost of their ability. It is a matter for regret that the fruit and vegetables which have always considerable attraction for the public, should, from the nature of the building, have to be hidden away, as it were, upstairs, quite apart from the floral attractions of the exhibition. It would be much the best arrangement to have the whole of the show on the ground floor of the Aquarium.

—— NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.—The spring exhibition of the above society for 1882 is announced for April 5 and 6, and the summer show for July 26, 27, and 28. The Auricula and Polyanthus now receive good encouragement at the spring show, not less than twelve classes being set apart for the former and three for the latter. Other spring flowers have due encouragement.

—— JAPANESE CHRYSANTHEMUM FROM SEED.—At the annual dinner of the Borough of Hackney Chrysanthemum Society on the 6th inst. one of the members produced a batch of seedling Japanese Chrysanthemums, raised from seed sown in March last. The seedlings were very pretty, and not without indications of promise, but necessarily small, and requiring another years' trial. Seedling raising has been termed the poetry of gardening, and those who find pleasure in doing this can add the Japanese Chrysanthemum to other subjects. For greenhouse and conservatory decoration the Japanese varieties are of great value, and the trade growers of Chrysanthemums say that the demand for Japanese varieties is largely in excess of the incurved flowers. As a white Chrysanthemum to grow for cutting from, the Japanese variety Elaine is unsurpassed.

—— BLUE PRIMULA SINENSIS. — From Mr. CANNELL, of Swanley, we have flowers of a large, well-shaped strain of Primula sinensis, in which the flowers are of a bluish shade of mauve colour, making the nearest approach to a blue Chinese Primrose which we have as yet seen. When we consider the wonderful advances in colour which we have witnessed during the past three or four years, and remember their origin, we may now look forward to the eventual acquisition of a true blue flower in this race of plants.

—— LINNEAN SOCIETY.—At the meeting to be held on Thursday, December 15, at 8 P.M., the papers to be read are:—1, "Some Points in the Morphology of the Test of the Ternnopleuridæ," by Prof. P. M. DUNCAN; 2, on "Abies Pattoni," by Prof. W. R. MCNAB; 3, "The Digastric Muscle, its Modifications and Functions," by Dr. GEO. E. DOBSON; 4, "New Species of Cotton (Gossypium) from East Tropical Africa," by Dr. MAXWELL T. MASTERS; 5, "Mollusca of the 'Challenger' Expedition, part xi.," by Rev. R. BOOG WATSON.

—— POLYSTICHUM ANGULARE MAYÆ. — This interesting novelty has been sent to us by Mr. MAY, of Totnes, who has had it in cultivation for the last five years, so that its constancy cannot be questioned. It is one of the smaller forms, with fronds about a foot long and from 1 inch to 1½ inch wide, the pinnæ and pinnules being small in proportion. The stipes and rachides are thickly clothed with pale brown lanceolate serrated scales. The fronds, which are linear in outline, appear always to have the lowest pair of pinnæ a trifle larger than those next above them, and always terminate in a multifid-cristate apex. The pinnæ are frequently broad at the apex, and twisted so as to acquire a subcristate appearance. The pinnules are decurrent, except in two or three of the basal pinnæ, in which from one to three pairs are stalked, the posterior one being sometimes smaller; they have spiny teeth, the spines varying in length, but being generally rather strongly developed. The plant, though in good health and growing freely, has not as yet shown any symptoms of producing fructification. It was found by Mr. T. M. MAY on Totnes Down Hill, and is now named in compliment to his wife, who has been for many years an ardent Fern hunter. *T. M.*

—— MESSRS. TODD & CO.—The affairs of Messrs. TODD & CO., seed merchants, 7A, Maitland Street, Edinburgh, having become embarrassed, a meeting of the creditors was held on Thursday at the office of the Scottish Seed and Nursery Trade Association.

—— SALVIA RUTILANS.—This species is one of the most valuable from a decorative point of view. A specimen, 3 feet high, in the Cambridge Botanic Garden, had recently seventeen spikes of its brilliantly scarlet flowers. The finest spike had twenty blooms in perfection at one time. The habit of the plant is pyramidal, and some of the flowers are borne nearly down to its base. The leaves are ovate, acuminate, and of pretty appearance.

—— LINNEAN SOCIETY.—At the last meeting Dr. MASTERS made some comments upon the structure of Buddleia auriculata. In this plant the leaves are opposite, but between the petioles, one on each side of the axis, is a small leafy auricle, the interpretation of which by descriptive botanists has been as varied as vague. The author sought to show, from a study of the mode of development and other considerations, that the auricles in question represent leaves of a whorl, so that the verticil consists of two perfect and two imperfect leaves. An additional link between Loganiaceæ and Rubiaceæ is thus afforded. Further details were given concerning the multiple axillary buds in this plant and the supra axillary shoots. Some of the peculiarities alluded to are usually explained on the hypothesis of fusion, but the author showed that in this, as in many similar cases, the appearances are due to an arrest of development, in consequence of which parts that should become free in course of growth remain inseparate, and in some cases are "uplifted" with the axis as it lengthens, and are thus removed from their normal position. —Dr. COBBOLD exhibited some roots of Stephanotis which he had received from Dr. MASTERS for examination. They were diseased, and contained numerous eggs, embryos, larvæ, and mature nematode worms, besides mites' eggs, and full-grown acari. The worms were referred to the genus Leptodera, representing either two species or dimorphic forms of one and the same worm. Dr. COBBOLD referred to the destruction of Gloxinias from a similar cause, and spoke of the labours of the late Professor HENSLOW and of Dr. DAVAINE in connection with Wheat.—Attention was drawn to a specimen of Proliferous Mignonette by the Rev. G. HENSLOW. The plant from which a strain has been already established appeared accidentally among some seedlings in the nursery of Mr. W. BALCHIN, of Hassock's Gate.—Mr. J. HARRIS STONE pointed out the presence of sticky zones immediately underneath the nodes of the flower-stalks of Lychnis Viscaria. Ants in great numbers are thus arrested in their ascent, and, dying, their bodies may possibly serve as nutriment to the plant; or, again, the glutinous rings may only serve as a protection to the flowers, or the ants themselves otherwise act injuriously on the plants.

—— RICHARDIAS AT CHRISTMAS.—Few people beyond the confines of the metropolis have any idea of the thousands of this most useful plant that are annually forced into flower for church decoration at Christmas, a single flower sometimes costing as much as half-a-crown! Upon the authority of a market grower who grows them largely to come in at that time, nothing in the plant line pays better. The plants are grown in 5 and 6 inch pots, and it occurs to us that what suits so well about London would not be amiss in the country, where almost every private gardener has something in the shape of flowers to contribute to the nearest church.

—— "HORTICULTURAL BUILDINGS." — The QUEEN has been graciously pleased to accept a copy of Mr. FAWKES' new illustrated work of reference on Horticultural Buildings, recently published by BATSFORD.

—— CHOROZEMA ROTUNDIFOLIUM.—A specimen of this fine old plant is now in flower in the nursery of Mr. BAILEY, at East Molesey, Surrey. It appears the mild weather has turned things horticultural topsy-turvey. The plant has never been known to flower at this time of year before, although it is not an unwelcome sight a fortnight before Christmas. The plant is trained upon a balloon trellis, but not tied stiffly down. The point of every shoot droops gently under the weight and profusion of its blossoms, and as it is in a house within full view of the main road between Hampton Court and Walton, it comes in for no small share of admiration. The plant has been in a very open structure all through the autumn, and is now flowering in ordinary greenhouse temperature.

—— NATIONAL ROSE SOCIETY.—The annual meeting was held on Thursday last, in the rooms of the Horticultural Club, when the financial and other prospects of the Society were stated to be very favourable. It was arranged that a show should be held at Bath, in the end of June; one in London, at the Royal Horticultural Society, on July 4; and a third at Darlington, on July 21.

—— BATEMAN'S "ORCHIDACEÆ OF MEXICO AND GUATEMALA."—Amongst the lots sold on Monday last at the Sunderland Library sale was a copy of the above magnificent work, which realised £77. There is a copy in the Lindley Library.

—— MACROZAMIA MOOREI.—Baron von MUELLER writes:—"The noble Macrozamia Moorei, which sometimes attains a height of 20 feet, is the identical one after which LEICHHARDT named 'Zamia Creek' in 1844, when the unfortunate explorer discovered that watercourse in the commencement of his great expedition to Port Essington overland. Mr. JOHN GRAHAM MACDONALD, well known for his expedition to Carpentaria in 1864, informs me that from Zamia Creek this Pine-Palm extends through the ranges north-westward for 150 miles; therefore, as I anticipated, this superb plant may be obtained for horticulture from many places, and doubtless an export trade in its stems will soon spring up."

—— HORTICULTURAL CLUB.— The rooms at present occupied will no longer be at the service of the Club after the end of this month. Satisfactory arrangements have, however, been made with the proprietor of Ashley's Hotel, Henrietta Street, Covent Garden, who offers special facilities for country members requiring bedroom accommodation. It is anticipated that these new arrangements will tend considerably to the increased comfort of the members, and the increase of their numbers.

—— THE RIVINAS.—The long racemes of brightly coloured berries freely produced by the different species of this genus render them very useful decorative plants. They flourish well in any light soil, and during winter in no slight degree tend to enliven our stoves. R. humilis has deep red berries, R. lævis bright scarlet, and R. flava bright yellow ones. They have been known in cultivation for a considerable time, and MILLER has put on record some interesting experiments he conducted with the brilliant though evanescent colouring matter contained in the berries of the first-named species. He says:—"I have made many experiments with the juice of these berries to colour flowers, which have succeeded extremely well. These were made in the following manner:—I pressed out the juice of the berries and mixed it with common water, putting it into a phial and shaking well together for some time, till the water was thoroughly tinged; then I cut off the flowers, which were just fully blown, and placed their stalks into the phial, and in one night the flowers

have been finely variegated with red. The flowers which I made the experiments on were the Tuberose and double white Narcissus." In the *Botanical Magazine*, where R. humilis was figured about half a century ago, the editor states that it had been said "that if the juice of these berries be added to the water in which white Hyacinths are blowing, the colour will rise into the flower in red streaks." Many fail to obtain good plants of R. humilis through depending upon seedlings, but the correct method of propagating it is by cuttings.

—— Royal Horticultural Society's Exhibitions, 1882.—The following are the dates of the Royal Horticultural Society's exhibitions and the meetings of the Fruit and Floral Committees in 1882:—January 10, February 14, March 14 and 28, April 11 and 25, May 9 and 23, June 13 and 27, July 11 and 25, August 8 and 22, September 12, October 10, November 14, December 12; National Auricula Society's Show, April 25; Great Summer Show, May 23, 24, and 25; Pelargonium Society's Show, June 27; National Rose Society's Exhibition, July 4; National Carnation and Picotee Society's Show, July 25; Exhibition of British Bee-keepers' Association, August 3 to 8; Artisans' and Cottagers' Show, August 7. The date of the evening *fête* is not yet fixed.

—— "The Bibliographer." — A magazine devoted entirely to books and book-lore has just been started by Mr. Elliot Stock, which of itself is sufficient evidence that paper and typography will be of unusual excellence. It is singular, and we must say satisfactory, that just as we are threatened with an incursion of sixpenny sheets which can only by courtesy be called books, a publication devoted to books proper should be commenced. Bibliographers are apt to attach undue importance to unessential trifles which they often set before such more important things as the subject matters of the book and the way in which they are treated. So far as we can see, while the harmless whims of the book collector will be treated tenderly in this new publication, more weighty matters will receive the attention that is their due. We are glad, too, to see that the question of eliminating useless books is to receive consideration. This requires the most judicious management, but it is becoming more and more of a necessity. We trust the Editor may see his way also to give notes concerning collections of books on special subjects. We knew of one gentleman whose aim was to get together all the publications of female poets—and a large amount of rubbish he collected; nevertheless, he did useful work, and if it were assured that by some one and somewhere such collections would be made elimination might rapidly proceed elsewhere. Some of our readers may remember the splendid collection of old horticultural works got together by M. Krelage, of Haarlem, and which formed, to our thinking, the most important feature of the last Botanical Congress at Amsterdam. A *catalogue raisonné* of that collection would be of extreme interest to lovers of engravings, books, and bindings, as well as to horticulturists. By calling attention to such collections the Editor of the *Bibliographer* would be doing good service.

—— The Flora of Spain.—The third part of Professor Willkomm's *Illustrationes Floræ Hispaniæ insularumque Balearium* has been issued. It contains figures of various species of Ranunculus, Polygala, Viola, Sarothamnus, Anthyllis, and Euphorbia. The drawings appear to be singularly faithful representations, free from exaggeration and artistic imaginings. The brilliant blue flowers of Brachytropis microphylla would render the plant an acceptable tenant of our gardens. The descriptive text is in Latin, with general remarks in French and Spanish.

—— "European Ferns."—The twenty-eighth part of this contains a coloured plate of Aspidium Thelypteris and A. Oreopteris, as well as the letterpress relating to Osmunda and Ophioglossum.

—— Francis Masson.—Mr. J. V. Johnson, Madeira, writes:—"In the *Gardeners' Chronicle* of September 10 there is a notice of Francis Masson, the botanical collector of the last century, by Mr. J. Smith, ex-Curator of Kew Gardens, in which he mentions that a Liliaceous genus was named Massonia by Linnæus in his honour. The name of Masson is not likely to fade out of the memory of botanists, for two of the endemic plants of Madeira bear it, viz., Convolvulus Massoni, Dietr., and Centaurea Massoniana, Lowe. The latter is an extremely rare plant, with purple flowers. Masson found specimens in 1776 on the vertical face of a sea-cliff, a few miles from Funchal, and it was never met with again until 1865, when it was re-discovered in the very spot indicated by its earliest observer.

—— "Amateur Work." — Under this title Messrs. Ward & Lock have issued the first part of a publication destined to afford "help and guidance for self-helpers," and to tell them "What is to be done, how it is to be done, when it ought to be done, where it should be done, with what it should be done, who supplies the needful materials, who furnishes the necessary tools." The subjects broached in this present number comprise the manufacture of lathes, plan-drawing, electro-plating, modelling in clay, organ building, cabinet-making, boot-making, photographing, and a variety of other matters, so that the programme is a wide one. Numerous illustrations are given.

—— Crystal Palace School of Gardening.—The Wednesday evening lecture was delivered by Mr. H. E. Milner, A.M.I.C.E., on the "Culture of the Heath." A new feature was introduced at the close of the lecture by a practical demonstration given by Mr. B. Maller, of Lee, on the best methods of propagation. Mr. H. Milner, after some introductory remarks on Heaths generally, gave a list of the hardy Heaths now in cultivation, with a short description of their habit, and insisted strongly on the more general planting of the hardy Heaths in gardens, and showed how and when they could be introduced. He then spoke of the Cape Heaths, and described the sorts now most generally cultivated, with the means of propagating them, the soil required, the pits or houses most suited for them, and the temperature at which they seem best to thrive. Mr. Maller then described the modes of propagating the Heath from the time of striking until it is fit for sale. He showed, by actual demonstration, how to cut the cuttings, how to pot them, how to water, how to shift the young plants into the permanent flowering pots, what soil to use, and, generally, all the operations connected with the growing of the plant. A collection of Cape Heaths commonly grown at his nurseries at Lee enabled him still more readily to describe the peculiarities of growth, and the best mode of treatment of the different sorts. It is hoped that the beginning now made of securing the help of the best practical men to illustrate the growth of particular plants or races of plants may be continued.

—— The Gardeners' Royal Benevolent Institution.—We have much pleasure in announcing that the Right Honourable the Lord Mayor (Mr. Alderman Ellis) has kindly consented to preside at the next annual festival of this Institution, which is to be held on June 29, 1882, at the "Albion," Aldersgate Street, on which occasion he will be supported by the Sheriffs of London and Middlesex, and the members of the Court of the Fruiterers' Company.

—— Royal Horticultural Society.—It is anticipated that the meeting on Tuesday next will be a most interesting one. A brisk competition is expected for the prizes offered on this occasion by Messrs. James Carter & Co. for vegetables. Messrs. Carter intend themselves making a large display.

—— Grape Growing at Bexley Heath.—Mr. Ladds' late vinery, 250 feet by 25 (figured at p. 789, vol. xiv.), is this year again a wonderful sight. One half is occupied with Black Alicante, the other with Lady Downe's, both as black and heavily covered with bloom as they can be. Some 5 or 6 cwt. have been cut, and the remainder are estimated at 2 tons. Lady Downe's is not liked so well as the Alicante, and is ultimately to give place to the latter, with which they have been grafted in a somewhat novel fashion. The soil to a depth of about 3 inches was removed from the collars of the Vines, an incision made, and the scion fitted into it, bound tightly in its place, clayed over, and then the soil replaced, covering up the lower part of the graft, but leaving a little of the top with an eye above-ground. The grafting was tried at two separate times—a portion before the sap began to rise, and others just as it was on the move; the last were found to answer best, and have all made beautiful canes that will carry a nice lot of bunches next year. The advantage of this grafting down below the surface of the soil is that the moisture in the earth keeps the scions plump until they have united with the stocks. On examination most of the scions had formed a lot of roots, which no doubt have assisted them to gain strength. Since last year seven more vineries have been built and planted, each of which is 280 feet by 25, all Black Alicante; two of 200 feet by 25, and two 150 feet by 25. Muscat of Alexandria occupies some of these, and in addition two others of these large houses are filled with Muscats that will come into bearing next year. It is hard to say where this gigantic glass establishment is going to stop; as many new houses for various purposes have been built during the past year as if, reckoned at an average of 100 feet each, would amount to forty. Four of 100 feet are now in course of erection for propagating alone.

—— "History of the World." — Messrs Ward & Lock send us the second part of this publication, of which we have already spoken in favourable terms. The type and illustrations are good, but it would be better to confine the latter to actual representations, for which now such abundant materials exist, and not incur expense and take up space with such pictures as the death of Saul and of Jezebel, the visit of Solon to the treasury of Crœsus, and the like. At p. 72 we notice what we believe to be an error, where it is stated that the cloths in which mummies were wrapped were made of cotton. Linen was the material employed, while cotton seems to have been almost unknown to the ancient Egyptians.

—— Flowers in Season.—From M. Vertegans, Chad Valley, Birmingham, come fine heads of Poinsettia pulcherrima, the brilliant bracts of which must occasion a pang to the sad æsthetes; a fine bloom of Lilium auratum, also sent by Mr. Vertegans, would be more to their taste. Mr. Bolton sends a leaf and truss of flowers of the bold and striking Senecio Ghiesbreghtii. Other correspondents send Primroses, Violets, Myosotis, Laurel blossoms, Gooseberry blossoms, dwarf Elder, Sambucus ebulus, and other plants mentioned elsewhere, to prove the mildness of the season.

—— Publications Received. — *Farming for Pleasure and Profit: Market Garden Husbandry.* By W. H. Ablett (Chapman & Hall).

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending December 5, issued by the Meteorological Office, London:—The weather has again been dull and unsettled, with frequent rain, and at all our Western and Northern stations heavy squalls. The temperature was still a little above the mean in all districts except "Ireland, N." The maxima, which occurred generally on the 2d, varied from 56° at Dublin and Leith, and 55° in the S.W. and S., to only 47° at Alnwick. The minimum reading for the period (25°) was registered at Brookeborough on the 4th, while at most other stations the minima varied between 30° and 35°. The rainfall has been rather less than the mean in nearly all of the "Wheat-producing districts," but more in all our S.W. and W. districts. Bright sunshine percentages were low, ranging from 13 in "Scotland, W.," and 14 in "England, N.W.," to 37 in "England, S.W." Depressions observed:—At the commencement of the period the barometer was highest over France and lowest in Scandinavia, but after the evening of the 30th pressure, though still rather high over France, became highest over Sweden. Readings were lowest to the westward and north-westward of our islands. Several depressions passed in a northerly or nor'-nor'-easterly direction across on to the westward of our coasts, and the wind, which was at first westerly, was generally between S.W. and S. In force it was chiefly moderate to fresh, but blew a strong gale in the West and North on the 30th, and a slight gale on some subsequent occasions.

—— Gardening Appointments.—Mr. David Allan, late Gardener at Cound House, Shrewsbury, has succeeded Mr. Gray as Gardener to Lord Ashburton, The Grange, Alresford, Hants.—Mr. Thomas Mullis, late Gardener to Colonel Ratcliff, of Widdrington, as Head Gardener and Manager to the Right Hon. Viscount Doneraile, Doneraile Court, Ireland.

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.—IX.

51. *C. giganteum*, Andrews, Bot. Rep., t. 169; Red. Lil., t. 181; Kunth, Enum. v. 569; C. petiolatum var. spectabile, Herb. Amaryll. 260; C. vanillodorum, Welw.; Baker, in Trimen's Journ. 1878, 196; Amaryllis gigantea, Ait. Hort. Kew., edit. 2, ii., 226; A. latifolia, Lam. Encyc. i. 41; A. Jagus, Thomp. Bot. Displ., t. 6; A. candida, Tratt. Tab., t. 488.—Bulb when mature 5—6 inches in diameter, with a distinct column. Leaves lorate, 2—3 feet long, 3—4 inches broad, bright green, thin in texture, narrowed to the point and to 1 inch above the dilated base, the main veins more distant than in any other species, and connected by close cross-bars, which are very distinct in dried specimens, as in Hæmanthus, the edge obscure and not at all scabrous. Peduncle green, compressed, 2—3 feet long, ½—1 inch thick at the base. Flowers generally 4—6, sometimes 8—10—12 to an umbel; pedicels very short: spathe-valves green, lanceolate-deltoid, 3—4 inches long. Ovary large, with several ovules in a cell. Perianth-tube curved, 4—6, rarely 7 inches long, greenish in the lower part, white in the upper; limb campanulate, 3—4 inches long, its oblong obtuse pure white segments 1—1½ inch broad, much imbricated even when expanded, tinged slightly with green, not at all with red on the back. Filaments pure white, about 1 inch shorter than the perianth-segments; anthers about ½ inch long. Style reaching nearly to the tip of the perianth-segments.

A native of West Tropical Africa, introduced alive to Europe by Afzelius about 1780. Barter says that it grows in deep swamps in the forests. It is marked at once in the group by the veining of its leaves and by the long tube and campanulate limb of its pure white flowers, which have a strong vanilla-like fragrance. Dr. Welwitsch got it in Angola in the province of Golungo Alto, at a height of between 1000 and 2000 feet above sea-level, and Dr. Schweinfurth in the heart of the continent in Monbottu-land. My description is taken mainly from a plant from Fernando Po, that flowered with Messrs. Veitch in the summer of 1877 from bulbs brought by Kalbreyer.

Subgenus III. CODONOCRINUM. — Perianth-tube permanently curved. Limb horizontal or sub-erect, the oblong-lanceolate or oblong segments permanently connivent in the lower half. Stamens declinate, nearly parallel with one another and the style.

**** Cape species.

52. *C. lineare*, Linn. fil. Suppl. 195; Thunb. Prodr., 59; C. revolutum, Herb. Amaryll. 267; Amaryllis revoluta, L'Herit. Sert. Angl. 14; Gawl. in Bot. Mag., t. 915; A. revoluta var. gracilior, Bot. Reg., t. 623.—Bulb small, ovoid. Leaves linear, 1½—2 feet long, about ½ inch broad, weak in texture, channelled down the face, the edge entire. Scape slender, about 1 foot long. Flowers 5—6 to an umbel; pedicels ½—¾ inch long; spathe-valves lanceolate, 1½—2 inches long. Ovary slender, with several ovules in a cell. Tube curved, greenish, 1½—2 inches long; segments oblong, lanceolate, acute, 2—3 inches long, tinged with red down the keel, about ½ inch broad. Filaments falling short of the perianth-segments; anthers small. Style reaching to the tip of the perianth-segments.

A native of the south of the colony, in grassy places. The only wild specimens I have seen are those gathered by Thunberg, by the loan of which from the authorities of the University Museum, Upsala, I have been enabled to establish the identity of lineare and revolutum. I do not think it is alive in the country now. There is a specimen at the British Museum, dried from Kew Gardens in 1779; Burchell brought it home and dried specimens from his garden in 1816 and 1817. Herbert had it, but speaks of it as "a very ticklish plant, requiring absolute drought, in a cool situation, during six winter months." Probably Herbert's C. algoense is a form of this species.

53. *C. variabile*, Herb. Amaryll. 268, tab. 44, fig. 23; Kunth, Enum. v. 578; C. variabile var. roseum, Herb. in Bot. Reg. 1844, t. 9; C. crassifolium, Herb. App. 23; Amaryllis variabilis, Jacq. Hort. Schoenb., t. 429; A. revoluta var. robustior, Ker, in Bot. Reg, t. 615.—Bulb ovoid, 3—4 inches in diameter, without any distinct column. Leaves 10—12 to a bulb, linear, flaccid, bright green, 2—3 feet long, the outer 2—3 inches broad, the inner narrower. Scape 1—1½ foot long, compressed, ½ inch thick at the base. Flowers 10—12 to an umbel; pedicels ½—1 inch long; spathe-valves lanceolate, reflexing, 2—3 inches long. Ovary small, with several ovules in a cell. Perianth-tube curved, greenish, 1—1½ inch long; limb 2½—3 inches long, the oblong, lanceolate acute segments about ½ inch broad, tinged with red down the keel, turning bright red as they wither. Filaments red, about 1 inch shorter than the perianth segments; anthers about ½ inch long. Style reaching to the tip of the perianth-segments.

A native of Cape Colony. Herbert says it is the hardiest of all the Cape species, but I do not think it is now in the country, whereas C. capense is plentiful. Mr. Cooper got it in Kaffraria. It differs from capense mainly by its short tube and bright green leaves, and from lineare by its more robust habit and broader leaves.

54. *C. campanulatum*, Herb. in Bot. Mag., sub t. 2121; Amaryll. 270; Kunth, Enum. v. 580; C. aquaticum, Burchell; Herb. in Bot. Mag. t. 2352; C. caffrum, Herb.—Bulb ovoid. Leaves linear, 3—4 feet long, green, ½—1 inch broad, conspicuously channelled, moderately firm in texture, closely veined, subflaccid, drooping at the apex, the edge rather scabrous. Peduncle slender, about 1 foot long. Flowers 5—6 to an umbel; pedicels sometimes above 1 inch long; spathe-valves lanceolate-deltoid, 1½—2 inches long. Ovary oblong, with about eight ovules in each cell. Perianth-tube very slender, 1½—2 rarely 3 inches long, curved, purple-tinted; limb campanulate, 1½—2 inches long, bright red-purple over the oblong obtuse segments ½—¾ inch broad. Filaments declinate, about 1 inch long; anthers very small for the genus, linear-oblong, ¼ inch long. Style purple, reaching nearly to the tip of the perianth-segments.

A native of the southern provinces of Cape Colony. The only person whom I know that has it in cultivation at the present time is Sir Charles Strickland. It is a most distinct plant, marked by its narrow leaves and campanulate bright coloured perianth-limb, with much-imbricated obtuse divisions. In Thunberg's herbarium it stands under the name of Hæmanthus hydrophilus, which, like Burchell's aquaticum, seems to indicate it needs plenty of water.

55. *C. imbricatum*, Baker.—Bulb large. Leaves lorate, thin in texture, 3—4 feet long, 4 inches broad at the middle, narrowed to 2 inches above the base, similar to those of giganteum in shape and texture, but the main veins closer and with no obvious cross-bars. Peduncle above 1 foot long, as thick as a man's finger in the upper part. Flowers 5—6 to an umbel; pedicels 1 inch or more long; spathe-valves scariose, 3—4 inches long. Ovary large, oblong, with several ovules to a cell; tube slender, about 3 inches long; limb campanulate, as long as the tube, the oblong obtuse much-imbricated segments above 1 inch broad, not banded with red on the back. Filaments about 1 inch shorter than the perianth-segments; anthers above ½ inch long. Style reaching to the tip of the perianth-segments.

A native of Cape Colony, known to me only from dried specimens sent from Butterwick Forest by Professor MacOwan, in 1872. Its alliance is with C. giganteum, from which it differs by the closer main veins of its leaves, and its flowers with long pedicels and a much shorter perianth-tube. It comes still nearer the Brazilian C. virgineum of Martius.

56. *C. capense*, Herb. Amaryll. 269; Kunth, Enum. v. 579; Amaryllis capensis, Miller, Gard. Dict., edit. viii., No. 12; A. bulbisperma, Burm. Prodr. 9; Amaryllis longifolia, L'Herit. Sert. 13; Jacq. Ic., t. 362; Gawl. in Bot. Mag., t. 661; Red. Lil., t. 347; Gawl. in Bot. Reg., t. 546. — Bulb 3 — 4 inches in diameter, with brown tunics, without any distinct neck. Leaves a dozen or more to a bulb, the outer spreading, lorate acuminate, 2—3 feet long, 2—3 inches broad, glaucous, moderately firm in texture, closely veined, scabrous on the edge, the inner ones narrower and more erect. Scape 1 foot or more long, little compressed. Flowers 6—12 to an umbel; pedicels often 1 inch, sometimes 2 inches long; spathe-valves deltoid, about 3 inches long. Ovary oblong, with several ovules in a cell. Perianth-tube 3—4 inches long, straight or little curved in the central flowers; limb funnel-shaped, about as long as the tube, the oblong-acute segments ¾—1 inch broad, flushed with red on the back. Filaments unequal in length, bright red; the three shorter ones about 1 inch shorter than the segments. Style bright red, reaching nearly to the top of the segments.

The common Cape species, extending in a wild state from the southern provinces to Natal. It is very common in gardens, and quite hardy in England, producing seed abundantly. There are many varieties, one with pure white and another (C. riparium, Herb., figured *Bot. Reg.*, t. 2688) with small deep-coloured flowers. Herbert and others have hybridised it with a great number of other species. The principal named hybrids, of which this is one of the parents, are C. Goweni with zeylanicum, C. Mitchamiæ with pedunculatum, C. Herberti with scabrum, C. Puseyæ with latifolium var. speciosum, C. Wallichii with Careyanum, C. Seymouri with lineare, C. Roxburghii with defixum, C. altaclaræ with erubescens, and C. Shepherdii with cruentum.

57. *C. Moorei*, Hook. fil., in Bot. Mag., t. 6113; Garden, 1881, 260, with coloured figure; C. Makoyanum, Carrière, in Rev. Hort. (1877), 417, fig. 75; C. Colensoi, Mackenii and natalense, Hort. — Bulb ovoid, ½ foot in diameter, with a neck often 1 foot or more long. Leaves 12—15 to a bulb, spreading, lorate, bright green, 2—3 feet long, 3—4 inches broad, narrowed gradually to the point, closely veined, with an obscure entire white edge. Peduncle 1½—2 feet long, green. Flowers 6—10 in an umbel; pedicels ½—1 inch long; spathe valves thin, green, or bright coloured if it is grown in the open air, very large; ovary large, oblong, with several ovules in a cell. Perianth-tube curved, greenish, 3—4 inches long; limb funnel-shaped, as long as the tube, the oblong-acute segments 1 inch or more broad, faintly flushed with red. Filaments not more than half as long as the limb, pale pink. Anthers about ½ inch long. Style not much overtopping the anthers.

A native of Natal. We have at Kew a couple of coloured drawings, sent by Bishop Colenso in 1858. It is now widely spread in cultivation, and is a great acquisition. It was figured in the *Botanical Magazine* from plants grown at Glasnevin by Dr. Moore.

58. *C. Macowani*, Baker, in Gard. Chron. 1878, 298; Bot. Mag., t. 6381.—Bulb reaching a diameter of 9—10 inches, with a neck 6—9 inches long. Leaves 12—15 to a rosette, spreading, lorate, 2—3 feet long, 3—4 inches broad, bright green, closely veined, similar in texture to those of C. latifolium and zeylanicum, with an obscure, slightly scabrous white edge. Peduncles often 2—3 to a bulb, green, slightly compressed, 2—3 feet long. Flowers 10—15 to an umbel; spathe-valves very large; pedicels 1—2 inches long. Ovary oblong, with several ovules in a cell. Perianth-tube curved, greenish, 3—4 inches long; segments oblong acute, as long as the tube, 1—1¾ inch broad, white with a pinkish tinge, but not distinctly banded. Filaments considerably shorter than the perianth-segments, red in the upper half; anthers about ½ inch long. Style reaching nearly to the tip of the perianth-segments.

A native of the south-western frontier of Natal, from whence we have specimens sent by Professor MacOwan in 1874. My description is taken from plants that flowered at Kew in November, 1877, and March, 1881. It is a near ally of C. latifolium.

59. *C. Forbesianum*, Herb. Amaryll. 267; Kunth, Enum. v. 577; Baker, in Bot, Mag., t. 6545; Amaryllis Forbesii, Lindl. in Trans. Hort. Soc. vi. 87.—Bulb ovoid, 6—8 inches in diameter, without any distinct neck. Leaves 10—12 to a rosette, spreading, lorate, closely veined, glaucous, 3—4 feet long, 3—4 inches broad, with a conspicuously fimbriated margin. Peduncle stout, compressed, pale green, under 1 foot long, 1 inch thick. Flowers 30—40 to an umbel, faintly scented; pedicels stout, ½—¾ inch long; spathe-valves red-tinted, deltoid, 3—4 inches long. Ovary oblong, ¾ inch long, with several ovules in a cell. Perianth-tube about 3 inches long, nearly straight in the central flowers of the umbel, curved in the outer ones; limb funnel-shaped, 4—4½ inches long, the oblanceolate-oblong acute segments ¾—1 inch broad, distinctly banded with bright red down the back. Filaments bright red, nearly as long as the perianth-segments; anthers about ½ inch long. Style reaching to the tip of the perianth-segments.

A native of Delagoa Bay, first sent by Mr. John Forbes to the Royal Horticultural Society about 1830. It seems to have been soon lost, and has only quite lately been re-introduced by Mr. Monteiro. My description is taken from a plant that flowered at Kew in October, 1878. It is distinguished at a glance from any variety of zeylanicum by its very short scape, numerous dense flowers, and fimbriated leaves. *J. G. Baker.*

(*To be continued.*)

Forestry.

IN the days of our ancestors, when the means of land transit were mainly stage coaches and minor vehicles, the objects seen from the public highway were rendered such as to command admiration. Efforts were unceasingly directed and means employed to make the scenery along the roadsides as pleasant and attractive as possible; and it was no uncommon thing for ladies and gentlemen of means and taste to contribute handsomely towards the beautifying and embellishing the sides of our highways. To some of your readers the vale of the beautiful Jed, in Roxburghshire, may be a familiar district, and to such especially the following account may not be void of interest.

Edgerton, the seat and property of the ancient family of Rutherford, is a beautiful and attractive place, situated on the north side of the Cheviot range of hills on the border-lands, and distant from the ancient county town of Jedburgh some 9 miles. The Edgerton family and friends, as was their wont,

whether for pleasure or otherwise, walked, rode, or drove to town as occasion required, and the good and pious Mrs. Rutherford paid for and distributed to all and sundry the cottagers and others along the route, either too poor or otherwise not disposed to adorn their dwellings, a liberal supply of monthly Roses, Ribes, evergreens, and other ornamental plants, and sent, I believe, in some cases, her own gardener to plant them. The Roses, &c., though planted more than half a century ago, are to this day delighting the eye, flourishing, blooming, and praising with their perfume the generous heart of her who planted them, and whose ashes now lie in peaceful repose in the family aisle in Jedburgh Abbey. But now that the route in general is changed for the rail, and the traveller goes by the latter instead of the former, it becomes the question, Can anything be done to beautify the lines of our railways by embellishing the cottages and other objects which come into view from the line, and adding to or improving the appearance of everything within sight. It may be said that the train is a vehicle for business, and not for pleasure, and that when people travel by the railway it is to do something besides looking at its margins and the surrounding country. People of all kinds, classes, tastes, and talents travel, and therefore, while one enjoys his novel and another his newspaper, others—and, perhaps, a larger and important class—take delight in seeing what they can of the outer surrounding world. There are few railway routes—except, perhaps, about the famous, rugged, dark, and historic Pass of Killiecrankie, and the wilds of Badenoch—but may be improved by a little well directed taste and skill, combined with a moderate outlay of money. Were it so that time and patience would in course of years accomplish the desired work, it might be left to their faithful performance to do it, but as things at present tend there is no perceptible progress being made, nor likely to be, and until some effective means are employed for preventing fires from taking place by the sparks and cinders falling from the locomotives, the progress must at least be slow and uncertain, if not retrogressive. How painful it is on passing along some familiar line, where every hedge, shrub, tree, and bush of every kind was known, marked, and familiar to the eye, to find the whole destroyed, the verdure gone, and nothing left but blackened skeleton stems, pointing indignation to the culpable outrage. Many proprietors whose property adjoins the railways would willingly plant waste, barren, and worthless tracts of ground along the margins, and also add groups in suitable places to please the eye, but are prevented from doing so laudable a thing by the risk of having the whole of their labours blasted and destroyed in a single day or night by sparks from the locomotive engine. I am led to believe it is not only practicable to consume or extinguish within the furnace all sparks, and even smoke, but likely that the law will shortly cause it to be done. It is not too much to expect that great achievements will shortly be made by way of enlivening and beautifying the margins of all our railways, especially in bleak, plain, rural places.

As a means of preventing damage by fire to young plantations, or at least of confining the ravages within the smallest limits, it is recommended to have openings, vistas or roadways made at every 50 yards or thereby, one of them parallel with the railway fifty yards distant, and the other at or near right angles with it, thus dividing the section of plantation next the lines into squares of 50 yards. These openings are differently formed according to soil, situation, &c. In most cases the ground is dug over, or trenched in the first instance, and the herbage ever afterwards kept down by periodically ploughing and harrowing it, or in some cases by digging over with the spade and cropping the ground. This is all the more necessary, where the area of plantation connected with the part adjoining the railway is of considerable extent, as thereby the damage would more certainly be confined to one of the squares, and would rarely gain such volume as to leap over the roadway nearest to it. When a fire is seen in time it can usually be arrested and stopped short at the nearest opening, by lighting the burning square on the side to which the flames are approaching, and of course when the two fires meet they extinguish of their own accord. Hedges may also be saved from fire by digging a border 4 to 6 feet wide along the side next the railway line, and either cropping it, or otherwise as found desirable. *C. Y. Michie, Cullen House, Cullen, Banffshire, Dec. 2.*

PLANT PORTRAITS.

Abutilon floribundum, *Revue Horticole*, September 16.—A seedling from the variety Chauvieri, raised at the "Fleuriste" of the city of Paris. Dwarf habit, covered with soft pubescence; leaves cordate, ovate, acuminate; flowers orange-red.

Aloe macracantha, Baker, *Bot. Mag.*, t. 6580.—"The finest of all the spotted Aloes," with a stem 2—3 feet high, surmounted by a crown of recurved lanceolate spotted leaves, with recurved spines on the margin. Flowers numerous, orange, in terminal stalked corymbs. Cape Colony. Hort. Kew.

Begonia semperflorens rosea, *Revue Horticole*, Sept. 1.—Differs from B. semperflorens only in the deeper colour of its flowers.

Camassia esculenta, *Garden*, Sept. 17.

Cattleya Morganæ, Moore, in *Orchid Album*, t. 6.—Sepals and petals pure white, lip white with a magenta blotch at the apex, base orange-coloured with darker radiating stripes. A summer-flowering variety. Native of Colombia. Hort. Williams.

Cypripedium Stonei, *Orchid Album*, t. 8.—Flowers 4 inches vertically by 9—10 across; sepals oblong, shortly acuminate, white, with longitudinal purplish-brown stripes; petals ¼ inch broad, yellowish, with numerous circular purplish-brown spots. Borneo.

Gooseberries, *Bulletin d'Arboriculture*, August.—1, Garibaldi, orange-yellow, hairy, weight 31 dwt. 17 gr.; 2, Shiner, green, shining, 31 dwt. 19 gr.; 3, Antagonist, yellowish, hairy, oblong, 34 dwt. 21 gr.; 4, London, sub-globose, red, hairy, 37 dwt. 7 gr. The varieties are grafted on Ribes aureum.

Iris missouriensis, Nuttall, *Bot. Mag.*, t. 6579.—One of the beardless section, with linear leaves and pale violet flowers. Rocky Mountains. New Plant and Bulb Company.

Iris orientalis, *Garden*, Sept. 10.—A form of I. sibirica, with linear leaves and purple flowers, the falls beardless, golden at the base.

Masdevallia Shuttleworthii, *Orchid Album*, t. 5. (See *Gardeners' Chronicle*, vol. iii., p. 170.)—Flowers yellowish, tinted with rose; sepals obtuse, abruptly passing into a tail two or three times longer than themselves. Colombia.

Myosotis elegantissima, *Revue de l'Horticulture Belge*, September.—A variety of M. scorpioides, with leaves variegated and splashed with white.

Pear Beurré Pauline, *Bulletin d'Arboriculture*.—Raised by Mdlle. Pauline Dumortier, daughter of the eminent Belgian botanist; fruit medium sized, top-shaped, eye large, open, skin yellow speckled; flesh fine, melting, sugary, juicy, and aromatic. October, November.

Pear Des Deux Sœurs, *Florist*, September.—Like Marie Louise, flesh white, melting, perfumed, sugary. Though not considered in France as of first quality, at Chiswick it proved to be very good.

Pelargoniums, *Florist*, September.—Decorative varieties of French origin with nearly equal petals:—1, Madame Thibaut, petals salmony-pink, white margined; 2, Lucie Lemoine, pure white. Mr. Bull.

Phyllocactus Franzi ×, *Gartenflora*, t. 1051, in text 1050.—A hybrid between P. crenatus and P. speciosissimus. Rich violet-crimson flowers.

Pinanga patula, Blume, *Bot. Mag.*, t. 6581.—A beautiful dwarf Palm. Native of Sumatra, well suited for stove culture. Stem erect, 4—6 feet high, spineless; leaves, 4—5 feet, sheathing at the base, pinnately cut. Hort. Kew.

Promenæa citrina, Don, *Orchid Album*, t. 7.—Pseudobulbs small, ovate, tetragonal; flowers yellow, 1½ inch across; column brownish-red. Native of Brazil.

Rose Beauty of Europe, *Journal des Roses*, September.—A new Rose sent out by Gonod, of Lyons. According to the illustration this is like Gloire de Dijon, of which it is probably a seedling.

Ruellia macrantha, *Revue Horticole*, November 1, 1881.—Stove perennial, with cordate lanceolate entire leaves, reddish on the under surface; flowers funnel-shaped, 2½ inches long, rosy-lilac, limb unequally 5-lobed.

Saxifraga purpurascens, *Garden*, Sept. 3.—One of the large-leaved (Megasea) section, with ovate glabrous leaves; flowers numerous, in terminal clusters, purplish. Sikkim. Hort. Parker.

Tulipa turkestanica, *Gartenflora*, t. 1050, f. 2.—Like T. silvestris, with hairy bulb scales, broad leaves, and relatively small erect yellow flowers. Western Turkestan, A. Regel.

Home Correspondence.

The Mildness of the Season.—It is very rare that we get so far advanced in the year as we are at present without experiencing more or less cold weather, but this season we have been exceptionally favoured, as November has not only been exceedingly mild, but dry, and late Cauliflowers have turned in with as much freedom, and have been of as fine quality as they generally are during the autumn. Snow's, Veitch's, and other early Broccoli will soon be plentiful; and Cabbages, Spinach, and Lettuces are growing apace; so that if sharp frosts keep off the supply of vegetables for some time will be an abundant one, and as there are plenty of Potatos in the country the prospect for the present winter is good so far as consumers are concerned, although the outlook may not be so bright for producers and traders. As to Wheats, farmers are all agreed that they never saw them look better, as everywhere there appears a full plant, the seed having apparently all germinated and got quickly out of the way of the vermin, which have done little or no damage as yet. The only danger now is that Wheats will get too forward, as fields already are as green as they generally are in March, but a check may easily be given by running sheep through, which will make the plants tiller. In gardens, Roses are on the move, but fruit trees are quiescent, and I never think these latter take any harm or are urged forward till the days begin to lengthen, when, if mild, the buds swell fast and soon become far advanced. The present affords a fine opportunity for transplanting all kinds of deciduous things, and for getting pruning out of hand, as much other work must remain in abeyance till this is done, and in weather like the present it may be carried on with speed and comfort. It has been asserted that there is danger in early pruning, through causing a concentration of force into fewer buds, which are then made to open before they otherwise would, but I have never found it to have that effect, and if it were so, vigorous trees full of sap and energy would always be first, whereas we know they are not so, and that blossoms expand on them as they do on others, and are neither sooner nor later. *J. S., Suffolk.*

—— In proof of the extraordinary clemency of the season, vegetation bears unlimited testimony. In this neighbourhood a few days ago Gooseberry bushes were in full blossom; Filbert trees were also opening their flowers, and fruit trees of all sorts were alike responding to the genial state of the elements, and unless immediately arrested by a change in the temperature the consequences must necessarily be otherwise than favourable. Pelargoniums and Verbenas are still unharmed, Violets, Pansies, Polyanthuses, Wallflowers, Daisies, &c., are blooming with impunity, and even Roses are still reluctant to become "the last Rose of summer," particularly the Gloire de Dijon. *E Morgan, The Butts, Harrow-on-the-Hill, December 6.*

—— Owing to the mildness of the weather, it is quite interesting to notice the different kinds of hardy flowers which may now be seen at Matlock. For instance, in some of the gardens which slope to the south, and are exposed to the warming rays of the sun, the Pansies are quite gay, amongst which I noticed some very good varieties both of the show and fancy kinds, especially one of the latter class, named Thomas Granville; it is a rich black velvet ground, surrounded by an irregular belt of rich crimson, the flowers large, with a yellow eye. Arabis albida, double Daisies of various colours, Wallflowers, Jasminum nudiflorum, Corydalis lutea, Polyanthus, &c., give a cheerful aspect to the gardens. The Ivy-leaved Snapdragon (Linaria Cymbalaria) is abundant both in the crevices of the rocks and walls. When smothered with its pretty lilac flowers during the summer months it will form quite an attractive and pleasing object. *R. Potter.*

—— A titlark's nest with three eggs in it was found on the top of our high downs a few days ago; the old bird was sitting on the eggs, but I regret to say that the nest was thoughtlessly robbed. Also on Thursday, Dec. 1, two swallows and a martin were seen flying about here in the warm sunshine, as active and as cheerful as in July. I believe there is but one recorded instance of a later stay of swallows in this country, and that was later by two days only. Blackbirds, thrushes, and other birds are singing morning and evening, as merrily as in spring. The heavy gales and rains have nearly destroyed the beauty of the flowers, but we still have Heliotrope, Pentstemon, Tropæolum canariense, Verbenas, Scilla sibirica, Coronilla glauca, Genista fragrans, Narcissus nearly out, white Arabis, alpine Auriculas, Anemones, Matricaria plenissima alba, Love-lies-Bleeding still standing in beds, Schizostylis coccinea, Forget-me-Not, Coltsfoot in plenty, Tritoma, Phlox, Godetia, Christmas Rose, Carnations, Paris Daisy, Berberis Darwini, B. ilicifolia, Helichrysum, Mignonette in abundance, Arabis corifolia, Alyssum saxatile, Sweet William, single and double Stocks, Escallonia, double

Fuchsias, Indian Pink, Virginia Stock, Larkspur, Roses in plenty, Antirrhinums, Violas, Polygala Dalmaisiana, Clematis Jackmanni, Ageratum, Jasminum nudiflorum, pot Marigold, Calceolarias, Dahlias, double Daisies, Pansies, Petunias, Primroses, single and double; Periwinkle, Aubrietia, Violets in abundance, Nasturtiums, Hydrangeas, Veronicas in splendid bloom, Lobelias, Geraniums, Polyanthus. On November 17 I picked a dozen real good Raspberries; they were large, in fine condition, and perfectly ripe. I picked half-a-dozen more this morning, quite ripe, but not nearly so fine. We have plenty of Strawberry plants in bloom, with the fruit in various stages of growth, some of the berries just turning red and quite large. Should the weather continue mild, as now, with a fair amount of sun, we hope to have a good number quite ripe at Christmas. I need hardly say that all are in the open garden, without the slightest protection. *F. Hudson, Osborne Villa, Ventnor, Isle of Wight, Dec.* 5.

—— A Magnolia on the south side of this house is in bloom, and yesterday I cut a very fine H.P. Rose, Villaret de Joyeuse, on a standard out-of-doors, and also some Strawberry flowers in full bloom. The Roses are all breaking, and are much the same as they are generally in the end of March. The Tea Roses in cold frames intended for forcing later on are now in flower, and I can see no chance of getting the wood ripened. I should be glad to know how to treat the Roses, as I am afraid if we have a hard frost they must all be killed. *G. Ketteringham, Stonehouse Court Gardens, Gloucestershire, Dec.* 7.

—— A correspondent of the *Scotsman* at Fortrose, Ross-shire, states, as evidence of the extreme mildness of the season, that his Gooseberry bushes are not only in bud and flower, but berries have been formed of the size of Peas. Many species of flowering plants, including Polyanthuses and Primroses, are again in bloom, and the Rose bushes have numerous flowers on them. Daisies are also out, and green Peas of excellent quality continue to ripen.

—— We are having unusually wet stormy weather, with very little frost, the consequence of which is that we have quantities of Primroses and Violets; Oxalis bifida, versicolor, and cernua are also flowering nicely on a south border. Cyclamen Coum and C. macrophyllum have been in flower for the last six weeks. C. ibericum and Atkinsii are flowering unusually early. One plant of C. vernum is in flower much before its proper time. *J. T., Tregoney, Cornwall.*

Holly Berries and Rose Shoots in December.—How strange it seems to be able to link these two together. I also send a few of each to show that Nature, not imagination, is responsible for the combination. Never were Hollyberries so plentiful. It seems impossible to pack them closer on the boughs. The berries are also fine, and of the brightest colour. Seldom have they had such a season to ripen in. With the exception of a few rude interruptions from storms, St. Martin's Summer has lasted for nearly six weeks, and still continues. December is even more summer-like than November. What, however, has fostered the Holly-berries into abnormal size and brilliancy is likely to prove disastrous to the Roses. Roots and tops are started into full growth. Not only have buds continued to open till now, but the shoots are started afresh, as if it were March or even April. The roots are also in full growth, throwing out fresh fibrils in the rich top-dressing. But I leave the Rose shoots sent to speak for themselves; they are cut from the open air, and there are many more almost as forward. [We have many as forward.] We are earthing-up our dwarfs and protecting our standards, and are even then in great fear of what the winter will do to our Roses. Unless a check comes soon wreck and ruin must, it is feared, once more run riot among our Roses, and many other plants. Among those that are feeling the stimulating effects of the summer the most, outside the Roses, are Clematis of sorts. Many of these are breaking their young buds and will soon be in flower again. Fruit bushes and trees are also on the move, and vegetables of all sorts particularly green and full of sap—exactly in that condition in which they go down before the frost as snow in summer vanishes at the touch of sunbeams. *D. T. Fish.*

Cleaning Zinc Labels.—I find it a time-absorbing process to clean zinc labels for writing upon by either of the methods usually recommended, *i.e.*, scraping with a chisel, or rubbing with sand-paper. A method I have hit upon proves much superior. It takes very little time, and leaves a much better surface for the movement of the pen, and also the flow of ink. I stand as many labels as convenient, heads downward, in a gallipot nearly filled with dilute sulphuric acid. The acid acts sufficiently in two or three minutes; the labels are then taken out and laid face downwards on silver sand. A coating of sand adheres, which is rubbed off with paper. The labels are then placed in water so as to get rid of all traces of the acid. They are afterwards dried with a cloth, and the writing surface is found perfectly smooth and bright. Slight rubbing is necessary, but no sand need be used. I find it convenient for soaking up the acid, and perhaps the cleaning is slightly facilitated. If, when writing, the labels seem slightly greasy, it is only necessary to rub two or three strokes with a piece of paper. I strongly recommend all who use zinc labels to try this process. It will not do for labels that have already been written upon with the platinum ink. A galvanic action seems to set up between the two metals by which the zinc is rapidly destroyed. I find that a great saving is effected by making the labels at home. I have shears by which they are cut without the slightest difficulty. One blade is fixed, the other is worked with one hand. *R. Irwin Lynch.*

Is the Echeveria Poisonous?—Can you inform me if Echeveria secunda glauca or its allies are poisonous? A case occurred here a few weeks back of three goats being poisoned. It appears the trimmings of the Echeverias had been thrown out on to a rubbish heap, to which the goats had access, and next day they were seized with violent vomiting; two died, but a chemist administered a quick purgative to the third, which had the effect of saving its life. On examining the rubbish heap it was found that they had been nibbling Echeveria leaves, which was the only thing to account for the mishap. The same thing occurred about six months ago to two goats, which would be about planting time, and no doubt some of the trimmings had found their way to the same place then; but at that time no one thought of attributing it to the Echeveria. *J. S.*

Bouvardia Alfred Neuner.—I can fully endorse all that was said in your last issue respecting this new Bouvardia. I have two small plants which have been in flower for some time, and find that when a nice white buttonhole has to be found these plants get a visit amongst the first. Judging from the appearance of our plants this variety is of a dwarf bushy habit and very free blooming. Our plants are quite small, and on every shoot a bloom-head is opening or forming. We intend to increase it extensively for another year. *A. Henderson, Thoresby.*

Epiphyllums at Orwell Park.—Orwell Park has long been famous for its Epiphyllums, which are always fine at this season, but this year they are, I think, grander than ever, and worth going a long way to see. In all there are about thirty plants interspersed among Palms and other fine-foliaged subjects, but chiefly standing in the front of these, and the effect, when viewed from one end, where the whole can be taken in at a glance, is most charming. Beautiful as they are by day, they must be even more so by night when seen under artificial light, as then the brilliancy of the blossoms, with such lovely and intense shades of colour, must be perfectly dazzling. The conservatory in which they are shown is unlike most structures of the kind, as it is fitted with an open fire-grate, has the walls embellished with costly tiles, and is used as a smoking-room. The roof or ceiling is flat and ornamental, the centre part being formed of panels of ground glass, down through which a flood of soft light is thrown from numerous gas jets above, and as the fumes from these and the bad air they cause have no communication with the main body of the house, the plants are not injuriously affected in any way. Mr. Wallis, Colonel Tomline's able gardener, who manages these Epiphyllums so well, has raised a great many seedlings from flowers crossed in various ways; but although several of them vary from the parents, Mr. Wallis has only one or two he considers distinct enough to be worth naming, and yet they are all too good to be discarded. The best amongst the old sorts is E. truncatum violaceum, the scarlet and white of which is suffused with violet, the blending of the colours being most exquisite. Of this kind there are plants in the form of loose pyramids, measuring quite a yard through, and standing from 5 to 8 feet high, the whole of the drooping pendulous shoots being tipped with one or more blossoms. Magnificent as these are, they are eclipsed by two standards, which are faultless in shape and as perfect as standards can be. The heads of these are about 4 feet through and are growing on stems of the same height, from which the numerous branches, with their lovely flowers, depend in the most graceful manner possible. If this pair, and a few of the largest and best of the pyramids, could only be transported to one of the shows in London just as they are, they would create a greater sensation there than has been produced for many a day, but, unfortunately, Epiphyllums are plants that will not bear much moving about, and have to be handled very carefully, or the branches fall out at the part where they unite with the stock, to which they never seem to have a very firm hold. Some growers aver that the Cactus speciosissimus is the best to work the Epiphyllums on, but Mr. Wallis has all his on the Pereskia, and his great success with them is a proof that it suits their requirements exactly, and I should doubt if the plants he has got up can be matched in the kingdom. The way they are managed is, when they go out of bloom they are shortened back by cutting away any straggling branches at the joints, from whence they quickly break again, and make a number of fresh shoots that yield all the flowers the following year. The house the plants stand in to make their growth is an intermediate one as regards temperature, is very light, and has no shade whatever beyond the little afforded by a few stems of Stephanotis, which are trained here and there on wires up under the rafters, and it is no doubt this absence of shade and thorough exposure that causes them to blossom in the free manner they do, for being subjected to so much sun the succulent shoots cannot fail to become thoroughly ripe and mature, and that they are in this desirable condition their slightly browned appearance abundantly testifies. Instead of being starved, as many treat Epiphyllums, those under notice have plenty of pot-room and are liberally fed, especially when making their growth and carrying their blossoms. Anticipating the natural failing strength of some through age I noticed that Mr. Wallis had just been busy grafting others, the process as he carries it out being a very simple and easy one, as just a slit is made in the side of the stock in a downward direction, in which the graft is inserted after having the end shaved on each side so as to make it wedge-shaped and cause it to fit, when by securing each in its place by a tie and some moss the parts quickly grow together, and the work is complete. As the Pereskia will grow to any length, I have often thought what beautiful objects Epiphyllums would make grafted on it up pillars in lofty houses or as climbers under the rafters, where, owing to their habit they would be seen to great advantage. *J. Sheppard.*

Old Calceolarias.—I was much interested in "Alpha's" note about these. C. bicolor I grew till within a few years since. In colour, habit, and general usefulness, it never had, nor has now, any rival or equal. It was also easily propagated, and but little affected with diseases. Its perpetual growing and blooming quantities prevented it from ever presenting a solid mass of gold, unrelieved by a green leaf, like aurea floribunda and other modern varieties; but as a pot plant, or for bedding, it was all that could be desired. C. Fothergillii I used to know and grow, but have it not now. The other species named by "Alpha" are unknown by me. But surely such a species as C. violacea—capable of growing 7 feet high and as much through, feathered with foliage to the ground, and corymbs—the latter over 10 feet in length, and continuing in this state of beauty for three months—is well worthy of re-distribution. I trust the Messrs. Dickson, of Chester, will take the hint, and I for one shall be pleased to receive from them plants of all the old species so well described by "Alpha." *D. T. Fish.*

Mr. Rochford's Boilers.—Mr. Warhurst's remarks (p. 731) about these boilers lead me to no other conclusion than that his acquaintance with them is confined to what he has heard. Mr. Warhurst speaks of a slight blow in stoking rendering them useless. Does he suppose they are made of the thin insufficient metal many of the tubulars hitherto have been? Every pipe in them is equal in thickness with the water companies' 4-inch mains, and, like them, equal in thickness all through. If Mr. Warhurst had the biggest poker that ever was made, and was hammering away at one of these boilers through the furnace door when in position for a couple of hours with the intention of breaking it, I will venture the price of a boiler he would not succeed. Such imaginary chances of failure might deter people who are not practically acquainted with such matters from adopting them, but they will only provoke a smile from those who are. Mr. Warhurst raises objection to the length of room they take; it is now generally admitted that the horizontal form of boiler is the best, and that their only drawback hitherto has been their insufficient length and the consequent inability to extract all the heat from the fuel. With a greater show of reason might a steamship builder object to the long boilers they use on account of the room they occupy. If we are to put up with the old dumpy short boilers, because longer ones require a few feet more space, then horticulturists must be a standstill set of people indeed. Where there is absolutely not room to put them in the full length, they can be made shorter—say 9 or 10 feet—but this necessarily reduces their power. As to the cost of excavating and brick-setting, here Mr. Warhurst is completely at sea. The largest size can be set in a stokehole 3 feet 10 inches deep if need be, and they do not require more than half the brickwork of a large saddle-boiler, for there is not a single brick used over them. The simple fact is that many boilers which will

unt do as much work, cost more in the formation of the stokehole and setting only than these do in stokehole, setting, and boiler included. If an existing stokehole is small, there is no need for more than the furnace end of the boiler being inside at all; the extremity will do just as well outside. Mr. Warhurst tries to show that these boilers will take more fuel on account of their length, and speaks of the fire being 10 feet long and 9 inches deep. Here again he evinces a similar absence of knowledge, as in the large size the furnace is only 4½ feet long. One of the principal merits of these boilers is, that they will heat a greater length of piping with less fuel than any others. Of this Mr. Rochford and the large number of individuals similarly engaged in growing for market who have adopted them, have satisfied themselves before discarding those they have hitherto used. Of all the people who use hot-water boilers, these market growers are the men who weigh well what they get for their money—not, as Mr. Warhurst would make out, by looking at first cost, but in the after results. And so it should be, for acres of glass require miles of piping to heat, and the fuel-bill is the great item that demands their study to keep at the lowest. The volumes of pseudo-scientific, hazy theory that have been, and continue to be, written about the numbers of terribly dear but not durable hot-water boilers, have answered their object in perplexing not a few of those who have to pay for them as well as those who use them. For the interest of horticulture it is not a bit too soon that a cheap, efficient, durable, and fuel-saving boiler, as these have proved to be, should make its appearance. It is well to state that not a word was said about them until they had been in use a sufficient number of years to test them in every way. *T. B.*

Leucojum vernum fl.-pl.—I am glad to see from "Alpha's" note, p. 666, "Old Plants," that this plant is not a myth. Would "Alpha" say in what parts of the country in his younger days he saw this plant commonly growing, and did he ever grow it himself? I have for many years been in search of it, but without success, even to the extent of finding a person who had seen it. Once a nurseryman told me his father had seen it, but the old gentleman being dead, further inquiry was stopped in this direction. Perhaps in "Alpha's" younger days the double white Hepatica was grown. Once I thought this plant was within my reach. Being from home for a few days, on my return I inquired of my man what plants had flowered. Amongst others he mentioned double white Hepatica. "Show it me," I said, and off he marched, I close in the rear, but, alas! I was doomed to disappointment; there was no flower, and he could not spot the plant. Do any of your readers possess it? *Omega.*

Drying Norfolk Beefing Apples.—I noticed a question asked in your columns a few weeks since which I have not seen answered, in reference to drying the Norfolk Beefing Apples. In the first place I would remark that patience is necessary to do them well. Several sorts of Apples will dry—the Yorkshire Greening, London Pippin, Blenheim Orange, &c.—but none so well as the Norfolk Beefing. The Apples should be large and firm. In the first place they should be pricked well over the skin with a large needle; then roasted in an oven, not too hot, but just sufficiently to cook them without bursting—a brick oven is always best for doing them; if nicely roasted the skin will be bright and clear. Let the Apples get quite cold, and flatten them a little with the finger and thumb; then return them to the oven, taking care that it is not hot for a couple of hours. Then repeat the flattening and drying as often as is necessary—three or four times is generally sufficient. They usually take three or four days to dry, as they must be cold each time. The great secret in doing them well is nicely roasting the Apples in the first place. In Lady Augusta Millbank's lifetime they were used here for the dessert in large quantities, and much better done than those that were bought in. *William Culverwell, Thorpe Perrow.*

Reports of Societies.

Devon and Exeter Botanical and Horticultural.—This Society held its first exhibition of Chrysanthemums and fruit on November 25, in the Victoria Hall, Exeter. The committee are generally unfortunate as regards weather at their exhibitions. The tempestuous weather of the preceding night, and the morning of the day of exhibition, prevented some from bringing their exhibits; also many of those who patronise them from attending the exhibition. Fruit, such as Apples and Pears, were exhibited largely and formed the principal feature. Five hundred and fifteen dishes were staged, Messrs. Lucombe, Pince & Co. staging 110 dishes gathered from their nursery stock, including fine examples of Lord Grosvenor, Bess Pool, Dumelow's Seedling, Mére de Ménage, Alfriston, Lady Henniker, Golden Noble, Annie Elizabeth, and several Nonpareils. Messrs. Coombes & Turner exhibited sixty-five dishes of Apples and Pears, also not for competition. Blenheim Oranges elicited strong competition; very fine and well coloured fruit were staged in every case. Messrs. Veitch & Son contributed a large collection of Potatos; forty-six dishes, distinct varieties, of clean growth, the principal ones being Schoolmaster, Beauty of Hebron, Centennial, Covent Garden Perfection, International, Magnum Bonum, Porter's Excelsior, Pride of Ontario, Rector of Woodstock, St. Patrick, Snowflake, Vicar of Laleham. In the classes for plants of Chrysanthemums there were only a few competitors, and those with trained plants; W. Brock, Esq. (gr., Mr. Rowland), and M. Farrant, Esq., were the principal prizetakers. The whole of the plants exhibited were below the average of exhibition plants. No doubt next year will produce something very superior, as your correspondent heard many of those present talk of what they were intending to do, which we hope, for the benefit of the Society, will not all end in talk. Cut blooms were not numerous but tolerably good, W. Brock, Esq., and Lady Hotham being the principal prizetakers. Messrs. Garaway & Sons, of Bristol, exhibited grand stands of large-flowering and Japanese varieties, not for competition. Mr. Brown, florist, of Exeter, exhibited some splendid bridal bouquets, wreaths, &c., composed of the choicest of white flowers. Messrs. Lucombe, Pince & Co. exhibited largely (not for competition) a fine lot of Chrysanthemums, Palms, and Orchids, nearly a hundred fine plants of Calanthes (well-flowered), also specimen in flower of Dendrobium bigibbum, Phalænopsis grandiflora; in fact their collection formed the principal feature of the show, and would have enhanced the effect of the exhibition if they had been staged in the centre of the room instead of at the end, and arranged in Mr. Wills' style. *D. C. P.*

York Ancient Florists' Chrysanthemum: *Dec. 1 and 2.*—This Society held its second exhibition on the above dates, and it proved a great success. The committee are very fortunate in being able to secure such a splendid place as the fine building erected some two or three years ago for the York Fine Art Exhibition, is for the purpose. Besides Chrysanthemums the schedule included prizes for groups of flowering and foliage plants of different sizes, hardy fruits, vegetables, and also winter blooming plants such as Primulas, Cyclamens, Roman Hyacinths, hardy and exotic Ferns—in nearly all of which classes there were numerous entries and in some cases a very close competition. In the class for a group of plants arranged for effect, to cover 81 square feet, the 1st prize was awarded to J. T. Kingston, Esq., Clifton (gr., Mr. McIntosh), who had a very effective group tastefully put up. Some very nice Poinsettias judiciously placed, assisted the arrangement much. In the class for a similarly arranged group, to cover 36 feet, there was also plenty of competitors, the 1st prize being awarded to the same exhibitor. There were four competitors in the class for a group of Chrysanthemums, 9 feet in diameter, all of which put up nice groups, but they do not call for any special remarks. In the class for nine large-flowered Chrysanthemums, Japanese excluded, there were some very fair plants shown, an amateur florist, Mr. T. Smith, Layerthorpe, York, being awarded 1st prize for well-bloomed plants with good foliage. There were four lots of six plants similarly restricted to the above class. The 1st prize was easily won by J. T. Hingston, Esq., with, taking all points into consideration, the best lot of plants in the exhibition. For three large-flowered varieties there was not such keen competition, the 1st prize being awarded to Mr. T. Smith, who was also in the same position in the class for one specimen, with a fine plant of Prince Alfred. In the classes for Pompons of nine, six, three, and one plant respectively there was nothing calling for special notice, though some fairly well-grown plants were exhibited. Some of the lots were evidently old plants grown on from last year, and consequently were not so good in foliage, nor were the individual blooms so large as on plants grown on from cuttings planted last winter. There were not many competitors in the classes for Japanese varieties, but the smallness of the numbers was fully compensated for in the good quality of the plants shown. H. Newton, Esq., was 1st in the class for six plants, his best plants being Diamond and Fair Maid of Guernsey.

For three plants of Japanese varieties there were some nice lots put up, W. Bleasdale, Esq., being 1st. J. T. Hingston, Esq., was 1st in the class for a single specimen Japanese variety. A very well-bloomed plant of James Salter was put up in this class, but as the plant was almost devoid of healthy foliage, and contained some thirty or more white deal stakes, the judges wisely placed small healthy plants 1st and 2d, even though they were not nearly so well bloomed.

There were some very good stands of blooms staged in the several classes for cut blooms, though some exhibitors at a distance from York complained of the lateness of the dates for exhibiting their best blooms. For a stand of eighteen large-flowered varieties, Japanese excluded, Mr. Bleasdall, York, was 1st. The several stands had, amongst others, very fine flowers of Empress of India, White Venus, Lady Talfourd, Countess of Dudley, Baron Beust, and Blonde Beauty. In the class for twelve varieties H. Craven, Esq., was 1st. There were some very nice stands of Pompons put up, also of Japanese varieties, the exhibitors in both classes being the same as in the classes for large-flowering varieties. The best blooms of Japanese varieties were Red Dragon, Peter the Great, Fair Maid of Guernsey, Elaine, and Fleur Parfait. H. Craven, Esq., was the most successful exhibitor in the Japanese classes. In the Primula classes, which included prizes for both double and single varieties, there were some very nice plants shown; Mr. Key, florist, York, and Messrs. Lazenby & Sons, nurserymen, York, were the most successful exhibitors. There were some capital pots (6-inch) of Roman Hyacinths, W. Bleasdall, Esq., York, being the most successful in that class. Prizes were offered for twelve coat bouquets, one hand bouquet, do. of Chrysanthemums; also for stands of cut Camellias, and twelve bunches of stove and greenhouse plants, in all of which there was a good competition.

In the fruit classes there were, in nearly all cases, numerous entries, most of them staging their produce. For two bunches of black Grapes, Mr. Alderman Terry, York, was 1st, with fine bunches of Black Barbarossa, very well finished. The white Grapes were not up to the mark. For one dish of baking Apples, Captain Darnall, Dringhouses, was 1st, with splendid specimens of Warner's King; Miss Wharton, York, holding the same position in the class for twelve dessert Apples, with a fine dish of Ribston Pippin. There were nine competitors in the class for six dishes of baking Apples, and the same number in the class for baking dessert Apples, all of which staged fine fruit. The Pears shown were not quite so good generally as the Apples. Beurré Diel was the variety that took the prizes in the single dish class. A notable feature in this part of the exhibition was a collection of sixty kinds of Apples, all named, put up by Mr. McIntosh, gr. to J. T. Hingston, Esq., Clifton, showing at a glance which varieties are the most suitable for planting in the York district. I hope to give you notes of these shortly, stating the nature of the soil, and the kinds that do best. There was a fine lot of vegetables shown, especially Brussels Sprouts. Nearly all the dishes shown were the produce of seed of the Aigburth variety, sent out by the Messrs. Backhouse, of York, last spring. *H. J. C.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
For the Week ending Wednesday, December 7, 1881

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
1	29.83	+0.16	47.0	39.5	7.5	43.2	+ 1.5	40.0	96	S.W.	0.18
2	30.04	+0.30	52.0	37.0	15.0	46.0	+ 4.2	43.5	92	S.	0.00
3	30.03	+0.29	48.5	37.0	11.5	41.8	0.0	39.3	91	S.:S.W.	0.00
4	30.07	+0.32	44.0	36.5	7.5	41.2	— 0.6	36.8	86	S.W.: S.S.W.	0.00
5	30.01	+0.25	47.5	40.0	7.5	44.3	+ 2.6	42.3	92	S.W.: W.S.W.	0.21
6	29.83	+0.13	49.0	35.5	13.5	43.6	+ 2.0	40.7	83	W: SW	0.00
7	29.70	—0.07	50.0	38.0	12.0	43.0	+ 1.5	39.9	89	W: SW	0.39
Mean	29.95	+1.20	48.3	37.7	10.6	43.3	+ 1.5	40.4	91	S.W.	0.78

Dec. 1.—Dull, rainy day. Fine night.
— 2.—Fine bright day; sun shining; blue sky. Fine night.
— 3.—Fine bright morning: sun shining. Fine clear night. The maximum temperature of this day took place very early in the morning.
— 4.—A dull, overcast day. Moon's place visible all the evening. The maximum temperature of this day took place at midnight.
— 5.—A dull, rainy, overcast day. An eclipse of the moon. Fine clear night.
— 6.—Fine, but rather cold, overcast day. Dull and overcast, but warm night, with thin rain.
— 7.—A dull, overcast, damp morning. Fine bright afternoon; sun shining. Fine, clear, cold night.

London: *Atmospheric Pressure.*—During the week ending December 3, the reading of the barometer at the level of the sea increased from 29.03 inches at the beginning of the week to 30.18 inches by midnight on the November 29, decreased to 29.93 inches by 9 A.M. on December 1, increased to 30.26 inches by midnight of the same day, decreased to 30.18 inches by midnight on the 2d, increased to 30.22 inches by 9 A.M. on the 3d, decreased to 30.20 inches by 3 P.M. on the same day, and was 30.25 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.88 inches, being 0.01 inch higher than last week, and 0.02 inch below the average of the week.

Temperature.—The highest temperature in the shade during the week was 54°, on November 27. On the 30th and December 1 the temperature did not rise above 47° The mean of the seven high day temperatures was 49°.7.

The lowest temperature in the week was 36°, on the 30th; on the 27th the lowest temperature was 42°.5. The mean of the seven lowest temperatures was 38°.6.

The greatest range of temperature in one day was 15°, on December 2; the smallest was 7°.5, on

December 1. The mean of the seven daily ranges was 11°.1.

The mean daily temperatures were, on November 27, 45°.8; on the 28th, 46°.4; on the 29th, 40°.9; on the 30th, 42°; on December 1, 43°.2; on the 2d, 46°; on the 3d, 41°.8—and these were all above their averages (except on November 29, which was 0.8 below its average, and on December 3, which was of its average value) by 4°.2, 4°.8, 0°.3, 1°.5, and 4°.2 respectively.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 91° on December 3; the highest on the 1st was 50°. The mean of the seven readings was 74°.2.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 29°.5, on November 30. The mean of the seven readings was 32°.6.

Rain.—Rain fell on three days, to the amount of 0.86 inch, of which 0.63 inch fell on November 27.

ENGLAND: *Temperature.*—During the week ending December 3 the highest temperatures were 57° at Truro and Leeds, and 56°.7 at Plymouth. The highest temperature at Sheffield and Hull was 51°, and at Liverpool was 52°.8. The general mean was 54°.7.

The lowest temperatures in the week were 32° at Truro, 32°.3 at Wolverhampton, and 32°.4 at Nottingham. The lowest temperature at Bristol was 38°.2, at Bradford and Leeds was 38°. The general mean was 35°.1.

The greatest ranges of temperature in the week were 25° at Truro, 23°.8 at Nottingham, and 22°.7 at Plymouth. The least ranges were 15°.1 at Liverpool, 16°.5 at Sheffield, and 16°.8 at Bristol. The general mean was 19°.6.

The mean of the seven high day temperatures was highest at Truro, 54°.6, at Plymouth 53°.3, and at Sunderland 52°.6; and lowest at Hull, 48°, at Wolverhampton 48°.7, and at Sheffield 48°.9. The eneral mean was 50°.5.

The mean of the seven low night temperatures was highest at Liverpool, 42°.4, at Plymouth 41°.7, and at Bristol 41°.1; and was lowest at Wolverhampton, 36°.7, at Hull 37°, and at Cambridge 38°.5. The general mean was 39°.6.

The mean daily range was greatest at Truro, 14°, at Sunderland 13°.3, and at Wolverhampton 12°; and was smallest at Liverpool, 7°.4, at Bradford 8°.8, and at Sheffield 9°.5. The general mean was 10°.9.

The mean temperature for the week was highest at Truro, 47°.4, at Plymouth 47°.3, and at Bristol and Liverpool 45°.8; and was lowest at Hull, 42°.2, at Wolverhampton 42°.5, and at Blackheath 43°.7. The general mean was 44°.8.

Rain.—The largest falls were 1.95 inch at Truro, 1.93 inch at Leeds, and 1.44 inch at Plymouth. The least falls were 0.29 inch at Cambridge, 0.33 inch at Hull, and 0.55 inch at Leicester. The general mean was 0.98 inch. Rain fell on every day in the week at Plymouth, on six days at Nottingham and Sheffield, on two days only at Cambridge and Hull; the general average was four days.

SCOTLAND: *Temperature.*—During the week ending December 3 the highest temperature was 55° at Leith; at Aberdeen the highest temperature was 49°.5. The general mean was 52°.8.

The lowest temperature in the week was 29°.2, at Edinburgh; at Greenock the lowest temperature was 37°. The general mean was 34°.3.

The mean temperature for the week was highest at Glasgow, 44°.7; and lowest at Dundee, 42°.3. The general mean was 43°.7.

Rain.—The largest falls were 1.75 inch at Greenock, and 1.46 inch at Glasgow, The smallest falls were 0.80 inch at Dundee, and 0.95 inch at Edinburgh. The general mean was 1.22 inch.

JAMES GLAISHER, F.R.S.

Law Notes.

ACTION BY A RAILWAY COMPANY AGAINST A SALESMAN: *The Great Northern Railway* v. *Swimson.*—This was an action tried in the Bloomsbury County Court before Mr. Judge Bacon, in which the plaintiffs sued the defendant, a salesman in Covent Garden Market, to recover the sum of £14 2s. 7d. for the carriage of Potatos, Cabbages, and empty sieves and hampers. The defendant pleaded a counter claim of £7 against the company for the non-delivery of a quantity of Beans consigned to him from Boston.

At the opening of the case the learned Judge said it was hardly right to sit and adjudicate upon or discuss whether the plaintiffs' fares or weights were correct or not; he could not see why railway companies should give credit to private persons who, as in the present instance, had an opportunity offered to them of filing a counter claim.

John Paget, the foreman porter at Boston, proved receiving the Potatos at Boston consigned to the defendant, and the fares and weights were perfectly correct.

Cross-examined: The barrels varied in weight; 12 stone is the ordinary average weight of a barrel of Potatos; both sacks and barrels were always weighed.

F. Hamilton, carmen in the employment of the company, swore to delivering, on August 11 last, forty barrels of Potatos to the defendant in Covent Garden Market.

The receipt of the empties by the company was proved by the evidence of Rob. Cooper at Boston.

For the defence it was urged that the company's charges were in excess of their usual rates.

The learned Judge said that from the evidence before him the defendent was in error, as the company did not appear to have overcharged him; and moreover, as the defendant had subsequent transactions with the company without complaining he had no right to do so now; therefore the company's claim must be admitted so far, subject to what might be said as to the counter-claim.

The defendant and his witnesses pleaded his set-off at considerable length, urging that in consequence of the plaintiff's delay he had lost £7 on the Beans.

His Honour, after patiently hearing the case, said in conclusion that the real complaint between the plaintiff and defendant appeared to be that the company had charged a higher rate than defendant ought to pay; but in this nothing appeared wrong, and as the defendant still employs the company there was really no defence to the action. Then as to the counter-claim, it must be disallowed.

Judgment was entered accordingly for the company for the full amount claimed, and the counter-claim disallowed, with costs.

Obituary.

WE have to record the death, on the 1st inst., at Belle Vue House, Bagshot, of Mr. MICHAEL WATERER, son of the late Mr. John Waterer, and brother of the present head of the firm of John Waterer & Sons, aged 57 years.

Enquiries.

He that questioneth much shall learn much.—BACON.

BEET SPINACH.—What is Beet Spinach, and how dressed? *H. S.*

"COVIL GRASS."—*D. H.* asks for information about "Covil Grass," a native of Russian Tartary; if it is grown in this country; its botanical name, &c. We have no knowledge of it.

CYCLAMEN CILICIUM.—A correspondent asks where this can be obtained.

EUCALYPTUS CHARCOAL.—Can any reader supply information as to the suitability of any species of Eucalyptus wood for making charcoal?

PRESERVING BARK ON TREE STUMPS.—Can any reader suggest any means of keeping the bark on trees used for ornamental summer-houses, &c., otherwise than with nails?

ROMAN HYACINTHS: *J. S.* asks what causes the irritation of the skin in handling Roman Hyacinths? Can any one answer the question?

Answers to Correspondents.

ARALIA: *J. S. S.* We believe the Aralia Veitchii is very difficult to strike, and is usually increased by grafting.

CONSERVATORY CREEPER: *A. B.* Probably Hibbertia volubilis.

DISINFECTANT: *X.* The cheapest and most effective is said by Dr. Domett Stone to be chloride of lead, made thus:—Dissolve half a drachm of nitrate of lead in a pint of boiling water; then mix this solution in a pail of water to which two teaspoonfuls of common salt have been added.

DRIED GRASSES: *M. Allan.* The specimens are Arrhenatherum avenaceum, and Juncus glaucus; both common in this country.

GAS-LIME: *C. Parmenter.* As winter dressing, used in moderate quantities, and the ground well trenched, this is beneficial, especially on ground infested by wireworm; but it must not be used in immediate contact with growing crops. For old garden soils it is a very good application.

GRAPE TO GRAFT ON MADRESFIELD COURT: *D. E.* We should hesitate before doing so—you cannot get a better. Crop it rather heavily, and use it when fit, if it will not keep. Dr. Hogg is a very fine round white Muscat Grape that might suit you, if not too small. For a black try Gros Maroc.

IVY: *A. B.* The common Irish Ivy, as it is termed, Hedera Helix canariensis, being a free-growing variety, thrives very well under the shade of trees if planted with care, and a little helped by timely dressings.

NAMES OF FRUIT: *J. Ellison.* 1, Beauty of Wilts; 3, Golden Pearmain; 4, Thoresby Seedling; 8, Sturmer. The others are unknown to us.—*J. Day.* 3, Beurré de Capiaumont; 5, Beurré Diel; 1, 2, 4, quite rotten; 8, Mank's Codlin; others unknown.—*J. T. M.* 1, Vernlam; 2, Chaumontelle; 3, Beurré Diel; 4, decayed.—*T. W. D. Apple:* Dumelow's Seedling. *Pears:* 2, Knight's Monarch; 1 and 3, decayed past recognition.—*Thorne.* The fruits you send are unknown to us.—*J. M. W.* Not recognised.

NAMES OF PLANTS: *J. M.* 2, Juniperus virginiana var. glauca.—*H. S.* Libonia floribunda.—*J. H., South Wales.* The one "supposed" to be Encephalartos villosus is correctly named; the other is E. horridus, but unusually deficient in the characteristic glaucous bloom.—*S., Bournemouth.* Abelia triflora.—*J. F. R.* 1, Crinum asiaticum; 2, Eupatorium Weinmannianum.—*Ph. L.D.* Peristrophe speciosa, the old Justicia speciosa. *R. Middleton.* Lælia autumnalis.—*J. Hill.* 1, Anemia adiantifolia; 2, Adiantum obliquum; 3, Aspidium trifoliatum; 4, Polypodium pectinatum; 5, Adiantum tenerum; 6, Adiantum cristatum.

NOTICE TO LEAVE: *W. S.* One month.

PAINTING HOT-WATER PIPES: *J. H. H.* We would not advise you to use varnish. The best thing for the purpose is a paint made of lampblack in ordinary linseed oil. What little smell there is soon goes off after the pipes are heated.

PLANES: *R. C. A. P.* The variety commonly grown is acerifolia, a variety of P. orientalis which has been found hardier than the type. The Occidental Plane is more spring-tender than either, and hence is nearly lost to cultivation.

PLUMBAGO: *A. B.* The plant is, in all probability starved, and in a house that is not warm enough.

RED BERGAMOT.—"X." inquires, at p. 733, as to what is the Red Bergamot, so-called. Doubtless it is the Oswego Tea (Monarda didyma), whose reddish scarlet spikes of bloom are so attractive during late summer and autumn. Its leaves emit an agreeable and lasting odour when rubbed between the fingers of one's hand. *E. Jenkins.*

SENECIO GHIESBREGHTII: *B. Hope.* The specimen sent is the above Senecio, a very fine shrubby species, well adapted for large conservatories, and also adapted, when young, for pot culture for decorative purposes. It is a free-growing plant for the sub-tropical garden. It is not the same as the Ligularia.

SIZE OF GARDEN POTS: *R. Fraser.* The pots of the size called 48's—that is, forty-eight to the cast—should be 5 inches in internal diameter, measured, say, half an inch below the top of the rim; 32's are 6 inches, and 24's are 7 inches in diameter.

"THE QUEENSLANDER:" *F. M.* Yes, we acknowledge that it is ahead of us—and, indeed, as you say, of the most widely circulated European weeklies—in the matter of being cut and stitched. But you must remember that it is post-office regulations alone which forbid the reforms being carried out here.

CATALOGUES RECEIVED.

MARTIN GRASHOFF, Quedlinburg, Germany—Agricultural, Vegetable, and Flower Seeds, Wholesale.

OTTO PUTZ, 50, Great Russell Street, W.C.—Annual Trade Seed List.

COMMUNICATIONS RECEIVED.—H. C.—G. N.—H. H. D.—J. C. & Co.—M. N.—R. E.—H. E.—R. I. L.—J. H. M.—J. R.—J. W.—A. G.—W. H. S.—E. C.—L. H.—C. G.—H. E. M.—E. M. (Brussels).—E. A. S.—E. J.—Professor Pfitzer, Heidelberg.—J. B., Queensland.—R. Washington.—J. C.—C. W. D.—Philomel.—T. B. B.—R. C. N.—M. T.—E. C. H.—Heuwife.—F. N.—G. W.—W. G.—W. K.—T. H.—J. G.—G. D.—J. R. J.—W. P. R.—W. H.

Markets.

COVENT GARDEN, December 8.

Trade continues quiet, with no alteration in the Apple market. Pears in demand, short supplies reaching us from Paris, the late mild weather considerably affecting their keeping. Good Kent Cobs in better request, while indifferent samples are lower. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Evergreens, in var., per dozen	6 0–24 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ferns, in variety, per dozen	4 0–18 0
— (common), dozen	6 0–12 0	Ficus elastica, each	1 6– 7 0
Begonias, per doz. ..	6 0–12 0	Foliage Plants, various, each	2 0–10 6
Bouvardia, per doz..	9 0–18 0	Myrtles, per doz. ..	6 0–12 0
Chrysanthemums, per dozen	6 0–18 0	Palms in variety, each	2 6–21 0
Cissus discolor, doz.	18 0–24 0	Pelargoniums, scarlet, per dozen ..	3 0– 6 0
Cyclamen, per doz..	12 0–24 0	Poinsettia, per doz..	12 0–18 0
Cyperus, per dozen	6 0–12 0	Primula (single), per dozen	4 0– 6 0
Dracæna terminalis	30 0–60 0	Solanums, per dozen	9 0–12 0
— viridis, per doz...	12 0–24 0		
Epiphyllum, per doz.	18 0–30 0		
Euonymus, various, per dozen	6 0–18 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 blooms	0 3-	0 6	Lilac (Fr.), p. bunch	8 0-	10 0
Anemone, 12 bun. ..	4 0-	6 0	Marguerites, 12 bun.	4 0-	6 0
Azalea, 12 sprays ..	1 0-	2 0	Mignonette, 12 bun.	6 0-	8 0
Bouvardias, per bun.	0 9-	1 0	Pelargoniums, 12 sprays	0 6-	0 9
Camellias, 12 blooms	3 0-	6 0	— zonal, 12 sprays	3 0-	6 0
Carnations, 12 blms.	1 0-	2 0	Primula, double, per bunch	1 0-	1 6
Chrysanth., 12 bun.	12 0-	18 0	— (single), 12 bun.	6 0-	12 0
— 12 blooms ..	2 0-	4 0	Roses (indoor), doz.	1 0-	3 0
Cyclamen, 12 blooms	0 3-	0 6	— Tea (French), per dozen	1 0-	2 0
Epiphyllum, 12 blms.	0 9-	1 0	Stephanotis, 12 spr...	9 0-	12 0
Eucharis, per doz. ..	4 0-	8 0	Tropæolum, 12 bun.	1 0-	3 0
Gardenias, 12 blms..	9 0-	15 0	Tuberoses, per dozen	3 0-	6 0
Heliotropes, 12 sp. ..	0 6-	1 0	Violets, 12 bunches..	1 6-	2 0
Hyacinths (Roman), 12 sprays	2 0-	3 0	— (Fr. Parme), bun.	4 6-	5 0
Lapageria, white, 12 blooms	4 0-	6 0			
— red, 12 blooms..	1 0-	3 0			

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve..	1 0-	3 6	Pears, Eng., ½-sieve	2 6-	7 0
Grapes, per lb. ..	1 0-	4 0	— French, per doz.	1 0-	4 0
Kent Cobs, p. 100 lb.	70 0-	77 6	Pine-apples, Eng., lb.	1 6-	2 6
Lemons, per 100 ..	4 0-	5 0			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe, per doz.	3 0-	6 0	Horse Radish, bund.	4 0-	..
Asparagus, French Sprue, per bundle	1 6-	..	Lettuces, Cabbage, per doz.	0 6-	1 6
— New Fr., bundle	5 0-	..	— Engl. Cos, score	1 6-	..
Birbe de Capucin, per bundle.. ..	0 8-	..	Mint, green, bunch..	0 4-	0 6
Beans, French, p. lb.	1 0-	..	Mushrooms, p. baskt.	1 0-	2 0
Beet, per doz. ..	1 0-	..	Onions, per bushel..	4 0-	..
Cabbages, per doz. ..	1 0-	2 0	— Spring, per bun.	0 6-	..
Carrots, per bunch..	0 4-	0 6	Parsley, per bunch..	0 4-	..
Cauliflowers, English, dozen ..	2 0-	4 0	Potatos (new), punnet	1 6-	..
Celery, per bundle ..	1 6-	2 0	Radishes, per bun...	0 2-	0 6
Celeriac, per head ..	0 4-	..	— French, p. bund.	0 6-	..
Cucumbers, each ..	0 0-	1 0	Rhubarb, per bundle	1 0-	..
Endive, per doz. ..	1 0-	1 6	Salsify, per bundle..	1 6-	..
Garlic, per lb. ..	1 0-	..	Seakale, per punnet	2 0-	2 6
Herbs, per bunch ..	0 2-	0 4	Small salading, pun.	0 4-	..
			Spinach, per bushel	2 6-	..
			Tomatos, per lb. ..	0 9-	1 0

Kent Regents, 100*s.* to 110*s.*; Roses, 80*s.* to 90*s.*; Myatt's, 100*s.* to 120*s.*; Magnum Bonums, 90*s.* to 110*s.*

SEEDS.

LONDON: *Dec.* 7.—The seed market to-day was well attended, owing to the presence in London of a large number of agriculturists who have come up for the cattle show. Clover seed of all kinds meets, however, at present with but little attention. For winter Tares former prices are realised; stocks are nearly exhausted. Feeding Linseed is easier. The trade for bird seeds is very slow. Some handsome new Haricot Beans are now obtainable on moderate terms. There is no change in blue Peas. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CATTLE.

At the Metropolitan Market on Monday no appreciable change occurred in the value of cattle, and first quality beasts cleared off steadily. All other descriptions found a more difficult sale. The moderate number of sheep to hand realised about late rates, but the trade was slow. Prime English calves were scarce and fully supported. Quotations:—Beasts, 4*s.* to 5*s.*, and 5*s.* 2*d.* to 6*s.*; calves, 4*s.* 8*d.* to 6*s.*; sheep, 5*s.* 4*d.* to 6*s.*, and 6*s.* 6*d.* to 7*s.* 2*d.*—There was no particular feature in the cattle trade on Thursday. The best beasts were firm at full prices, but other sorts sold slowly. Sheep were dull, but without alteration. Calves and pigs were quiet, and unchanged.

HAY.

Tuesday's Whitechapel market report states that short supplies sold briskly at the following quotations:—Prime Clover, 120*s.* to 155*s.*; inferior, 75*s.* to 90*s.*; prime meadow hay, 115*s.* to 124*s.*; inferior, 55*s.* to 85*s.*; and straw, 30*s.* to 50*s.* per load.—On Thursday there was a short supply of fodder on sale. The trade was steady, and prices were as follows:—Prime Clover, 100*s.* to 135*s.*; inferior, 60*s.* to 95*s.*; prime meadow hay, 100*s.* to 124*s.*; inferior, 50*s.* to 90*s.*; and straw, 30*s.* to 50*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 120*s.* to 132*s.*; inferior, 84*s.* to 108*s.*; superior Clover, 128*s.* to 140*s.*; inferior, 90*s.* to 112*s.*; and straw, 47*s.* to 52*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies of English sorts are moderate, and of foreign liberal; trade, however, was slow, at the following quotations:—Essex Champions, 60*s.* to 70*s.*; ditto Regents, 80*s.* to 90*s.*; Kent Regents, 100*s.* to 110*s.*; ditto Victorias, 100*s.* to 120*s.*; ditto Champions, 70*s.* to 80*s.* per ton; German blues, 3*s.* 6*d.* to 4*s.* 6*d.* per bag.—The imports into London last week were as follows:—1790 bags Bremen, 66,023 Hamburg, 1857 Stettin, 2160 Dantzic, 390 Harlingen, 20 Boulogne, and 195 tons Roscoff.

COALS.

The following are the prices current at market during the week:—Bower's West Hartley, 15*s.* 3*d.*; East Wylam, 17*s.*; Ravensworth West Hartley, 15*s.* 3*d.*; Walls End—Hetton, 17*s.* 6*d.*; Hetton Lyons, 16*s.*; Hawthorns, 16*s.* 3*d.*; Lambton, 17*s.*; Original Hartlepool, 17*s.* 6*d.*; Wear, 16*s.*; South Hetton, 17*s.* 6*d.*; Thornley, 16*s.* 9*d.*; Tunstall, 16*s.*; Chilton Tees, 16*s.* 6*d.*; Nixon's Navigation, 19*s.*; Radford Navigation, 18*s.* 6*d.*

THE
LAWSON SEED & NURSERY
COMPANY (Limited)

Abound in the following—all of the best quality, at very low prices, as the ground must be cleared for other purposes.

Special Offers on application:—

PINE, Black Austrian, transplanted, 1½ to 3 ft. in height.
PINUS CEMBRA, 2 to 3, and 3 to 5 feet.
„ LARICIO (Corsican Pine), 9 to 15, and 18 to 24 inches, fine.
LARCH, 12 to 18 inches, 1½ to 2, 2 to 3, and 2½ to 4 feet, all extra fine.
PINE, Maritime, 12 to 18 inches, fine.
„ Mountain, 9 to 15 inches, extra stout.
FIR, Scots, true native, 6 to 12, 12 to 18, and 18 to 24 inches, extra fine.
SPRUCE, Norway, 6 to 12, and 12 to 18 inches.
„ Black American, 1½ to 2, and 2 to 3 feet.
YEW, Common or English, 18 to 24, and 24 to 30 inches.
ALDER, Common, 12 to 18 inches, and 5 to 7 feet, fine plants.
BARBERRY, Common, 9 to 18 inches.
BEECH, Common, 12 to 18 inches.
CHESTNUT, Horse, 2 to 3 and 3 to 5 feet, strong.
„ Spanish, 12 to 18 and 18 to 30 inches.
ELM, Scotch or Wych, 1½ to 2 and 2 to 3 feet.
„ English, 1½ to 2 and 2 to 3 feet.
HAZEL, 2 to 3 feet.
HOLLY, Common, 4 to 6, 6 to 9, and 12 to 15 inches.
HORNBEAM, 12 to 18 inches, and 5 to 6 feet.
LABURNUM, 2 to 3 feet.
LIME, 2 to 3, 3 to 4, 4 to 6, and 6 to 8 feet.
MAPLE, Norway, 4 to 6 and 6 to 8 feet.
OAK, English, 12 to 18 inches.
POPLARS, of sorts, 2 to 3, 3 to 4, and 4 to 6 ft.
PRIVET, Evergreen, 2 to 3 feet, extra fine.
THORNS, 12 to 18, and 18 to 24 inches.
WILLOWS, of sorts, 2 to 3 and 3 to 5 feet.

THE
LAWSON SEED & NURSERY
COMPANY (Limited)
Abound in the following
SEEDLING and BEDDED PLANTS
AT MODERATE PRICES.
SPECIAL OFFERS ON APPLICATION.

PINE, Black Austrian, 1 and 2-yr. seedlings.
„ Corsican (Pinus Laricio), 1 and 2 years.
LARCH, 1 and 2-yr. seedlings and 1-yr. seedlings 1-yr. bedded, all extra fine.
PINE, Mountain, 1 and 2 years.
FIR, Scotch, 1 and 2-yr. seedlings, and 1-yr. seedling 1-yr. bedded.
SPRUCE, Norway, 2 and 3-yr. seedlings.
ALDER, Common, 1 and 2-yr. seedlings.
ASH, Common, 1 and 2-yr. seedlings.
BEECH, Common, 1 year, very fine.
BIRCH, Common and Weeping, 1 year.
CHESTNUT, Spanish, 1 and 2 years.
HAZEL, 2-yr. seedlings.
HOLLY, Common, 3 years, fine.
MAHONIA AQUIFOLIA, 2 years, fine.
MAPLE, Norway, 1 year, fine.
OAK, English, 1 and 2 years.
„ Turkey, 1 year, fine.
SYCAMORE, 1 year, very strong.
THORN, or QUICK, 1 year, fine.
WHIN, or GORSE, 1 and 2 years.

CATALOGUES of the General Nursery Stock will be sent Free upon application.

EDINBURGH, December, 1881.

RICHARD SMITH & Co. WORCESTER.

SEVENTY-FOUR ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for 1*d.* stamp.

TWELVE ACRES of ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea-scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing.
See Descriptive Price LIST, free for 1*d.* stamp.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1*d.* stamp.
R. S. & Co.'s selection of 100 good showy varieties for 25*s.*

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3*s.* 6*d.* to 5*s.* each; extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price LIST for 1*d.* stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for 1*d.* stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

SEAKALE.—Extra Strong, for Forcing, 2*s.* 6*d.* per dozen, 16*s.* per 100

RICHARD SMITH & Co. WORCESTER

ROSES.

The Largest Rose Gardens in England

CRANSTON'S NURSERIES
(ESTABLISHED 1785).

120 FIRST PRIZES, 1880-1881.

STANDARD and HALF STANDARD.
DWARF STANDARDS.
DWARFS ON MANETTI, Magnificent Plants.
DWARFS on SEEDLING BRIER.
DWARFS on OWN ROOTS.
DWARF TEA-SCENTED and NOISETTE on SEEDLING BRIER.
CLIMBING and PILLAR ROSES.
EXTRA-SIZED ROSES, in 8, 9, and 10-inch Pots, Grown especially for Forcing.
NEW ROSES, French and English.
CRANSTON'S NEW ROSES, "MRS. JOWITT," and "MARY POCHIN."

Descriptive Priced Catalogue on application.

Special quotations for 100 and 1000 plants.

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CRANSTON'S NURSERY and SEED CO. (LIMITED),
KING'S ACRE, NEAR HEREFORD.

FOR POT CULTURE.

Barr & Sugden's Collection of Bulbs for Indoor Decoration, 10s. 6d., 21s., and 42s.

HYACINTH, finest bulbs and best varieties, 5s. 6d., 7s. 6d., and 10s. 6d. per dozen; 40s. and 63s. per 100.
NARCISSUS, Polyanthus varieties, best kinds, 2s. 6d., 3s. 6d., and 4s. 6d. per dozen; 21s. and 30s. per 100.
TULIPS, Double and Single, finest colours and largest flowers, 1s., 1s. 6d., and 2s. 6d. per dozen; 7s. 6d., 10s. 6d., and 15s. per 100.
CROCUS, in many fine sorts, all large bulbs, 6d. per dozen, 3s. 6d. per 100, 30s. per 1000.
SNOWDROPS, large selected bulbs, 6d. p. doz., 3s. 6d. p. 100.
SCILLA SIBIRICA, rich Blue, 1s. per dozen, 5s. 6d. per 100.
CHIONODOXA LUCILIÆ, the most beautiful Blue flower of Spring, 2s. 6d., 3s. 6d., and 4s. 6d. per dozen.

FOR FLOWER GARDEN DECORATION.

Barr & Sugden's Collection of Bulbs for Outdoor Culture, 10s. 6d., 21s., and 42s.

The weather being favourable, planting of beds and filling of borders with Spring Flowering Bulbs should be proceeded with.

HYACINTHS, a mixture of beautiful colours, fine bulbs, in splendid condition, 3s. 6d. per dozen, 21s. per 100.
NARCISSUS, Polyanthus varieties, in fine mixture, 1s. 6d. per dozen, 10s. 6d. per 100.
DAFFODILS, a fine mixture of Trumpet, Nonsuch, Peerless, and Poeticus, 1s. per dozen, 5s. 6d. per 100.
TULIPS, Double or Single, beautiful colours, in mixture, 1s. per dozen, 5s. 6d. per 100.
CROCUS, all colours in mixture, 1s. 6d. and 2s. 6d. per 100, 14s. and 21s. per 1000.
SNOWDROPS, Double or Single, 2s. 6d. per 100, 21s. per 1000.

FOR PLANTING IN GRASS, ORCHARDS, AND WOODS TO NATURALISE.

WOOD HYACINTHS, in mixture and varieties, 3s. 6d., 5s. 6d., and 7s. 6d. per 100; 21s., 30s., and 42s. per 1000.
DAFFODILS, in mixture and varieties, 3s. 6d., 5s. 6d., and 7s. 6d. per 100; 30s., 42s., and 63s. per 1000. In named varieties, 10s. 6d., 12s. 6d., and 15s. per 100; 84s. and 105s. per 1000.
STAR OF BETHLEHEM, mixed varieties, 2s. 6d. per 100, 21s. per 1000.
ALLIUM, mixed varieties, Yellow, White, and Lilac, 2s. 6d. per 100 21s. per 1000.
PLANTAIN LILIES (Funkias), in twelve sorts, 5s. 6d. and 7s. 6d. per dozen.
HEPATICAS, Red, Blue, Pink, Mauve, Purple, Lilac, and White, in mixture, 3s. 6d. per dozen, 21s. per 100; in clumps, Blue or Red, 1s. 6d., 2s. 6d., and 3s. 6d. each.
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FUMATORY MUSCARI, WINTER ACONITES, &c., 3s. 6d. per 100.
LILIES, hardy free-growing varieties, 21s. per 100.
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BARR & SUGDEN,
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TEA ROSES.

TO THE TRADE ONLY.

CHARLES WILSON,

SUMMERHOW NURSERIES, KENDAL,
IS STILL OFFERING

MARECHAL NIEL, NIPHETOS, and GLOIRE DE DIJON,
at £28 per 1000.

All other leading varieties, including the above,
at £3 3s. per 100.

LESS TEN PER CENT. FOR CASH.
Plants given over to compensate for carriage.

1881-82.

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HARDY CLIMBERS, ROSES, &c.,

Is Now Ready, and will be sent Free on application.

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Raspberry Canes.

FOR SALE, 40,000 SEMPER FIDELIS, the best Raspberry in cultivation; also a large quantity of the undermentioned varieties:—
NORTHUMBERLAND FILLBASKET.
CARTER'S PROLIFIC.
RED ANTWERP.
FASTOLF.
And the leading varieties of STRAWBERRY PLANTS.
JOSIAH H. BATH, Manor Farm, North Cray, Kent.

SEEDLING BRIERS, strong, 1-yr., 25s. per 1000; £12 per 10,000. Standard ROSES, Gloire de Dijon, very strong, and large heads, £2 per dozen; £15 per 100; SPIRÆA JAPONICA, large clumps, for forcing, 10s. per 100; £4 10s. per 1000; GENERAL JACQUEMINOT, Dwarf, strong, £2 per 100; other Dwarf ROSES, my selection, 35s. per 100. Gloire de Dijon, strong Dwarfs on Seedling Briers, 75s. per 100. Cash with order from unknown correspondents. Inspection solicited.
G. WERMIG, Kingfield Nursery, Woking.

CHRISTMAS and SPRING DECORATIONS.

	Per doz.—s.	d.
ERICA HYMALIS, beautifully flowered, in 5-in. pots	9	0
" " beautifully flowered, in 7-in pots 15s. and	18	0
" GRACILIS, beautifully flowered, in 5-in. pots, 6s. and	7	0
" REGERMINANS, beautiful, in bud, in 5-in pots	6	0
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AZALIA, English, from fine sorts .. .. 12s. to	18	0
GARDENIA INTERMEDIA, well budded, clean and handsome .. .. 15s. to	18	0
CINERARIAS, prize strain, extra strong	6	0
CYTISUS	6	0
EPACRIS, to name, in variety .. .. 8s. and	9	0
PELARGONIUMS, large flowered, new sorts, extra strong, in 5-in. pots .. .. .. 6s. and	8	0
FICUS ELASTICA, stock limited .. 18s. and	21	0
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LYCOPODIUM DENTICULATUM .. 2s. 6d. and	3	0

The above delivered free to any Railway in London on receipt of remittance with Order, and an additional charge of 1s. per Box, containing 18 Plants.
FRED. SMITH, Jun., The Nurseries, West Dulwich, S.E.

CHARLES NOBLE has fine plants of
CUPRESSUS LAWSONIANA
THUYA GIGANTEA (Lobbii)
" AMERICANA
RETINOSPORA PISIFERA
} 6 to 12 feet high, transplanted last August.
Exceptionally handsome AVENUE TREES.
LIME TREES, 14 to 16 feet.
DWARF PYRAMID PEARS, in fine variety, on Dwarfing Stock (so that they bear quantities of Fruit when only the size of Currant Bushes), just coming into bearing: some produced fruit last season.
The finest Bedding Rose ever raised,
ROSE "QUEEN of BEDDERS" (Noble).
Requires no pegging, has never (with me) produced a shoot without a flower, and I have cut Bouquets from the open ground during five months consecutively.
Bagshot.—December, 1881.

STUART, MEIN AND ALLAN have to offer the undernoted LARGE TREES for immediate effect:—

ELMS, 3 to 15 feet.	FIR, Spruce, 2 to 2½ feet.
MAPLE, Norway, 10 to 16 ft.	HAZELS, 3 to 5 feet.
CHESTNUT, Horse, 6 to 14 ft.	CHERRIES, Standard, strong
CHERRY, Wild, 10 to 18 feet.	APPLES, Pyramid, strong.
POPLARS, Black Italian, 10 to 18 feet.	SNOWBERRY, 4 to 6 feet, strong.
ASH, Mountain, 5 to 6 feet.	SPIRÆA, in variety.
ALDERS, 4 to 8 feet.	THORNS or QUICKS, 1½ to 2 feet.
LARCH, 2 to 4½ feet.	

CUPRESSUS LAWSONIANA, large specimen plants, 6 to 8 feet. The Nurseries, Kelso, N.B.

TO THE TRADE ONLY.

Tea Roses—Tea Roses.

10,000 splendidly grown, extra strong and healthy TEA ROSES still on hand,
at £3 3s. per 100, less 10 per cent. for cash.
CATALOGUES FREE.

CHARLES WILSON,
SUMMERHOW NURSERIES, KENDAL.

Come and See.

The System and Regularity in which we Keep our
CHRYSANTHEMUMS.
PLANTS ALL OVER THE WORLD.
Cuttings to all parts of Europe.

H. CANNELL AND SONS beg to say that all their varieties have been tested and true to name, and the whole Stock of CUTTINGS, now very large, and in fine condition, 2s. per dozen; our selection, 1s. 4d. per dozen, 10s. per 100. The same with STOCK PLANTS in 4-pots, 5s. per dozen; our selection, 4s. per dozen, 25s. per 100. To show the completeness of our Stock, and our successful mode of transit, we beg to append the following:—

G. VAN DEN BRINK, Esq., Curator, Botanic Gardens, Utrecht, Holland, Nov. 23, 1881.
"I am glad to inform you that with the Chrysanthemum Cuttings you sent me by post I secured the First Prize (£6 5s.) at our Show here. I have also translated your Treatise 'How to Grow' for our *Journal of Botany*."

K. ALLEN, Esq., Woodford, Thrapstone, Nov. 28, 1881.
"Please send me one each of all the Chrysanthemums in your List, both New and Old Varieties in Stock Plants."

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BY SWANLEY KENT.

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M. ROCHFORD has a lot of strong, well-ripened Canes of GROS COLMAR to offer, both Fruiting and Planting. Price on application.
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To the Trade.

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Price on application.
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CHRYSANTHEMUMS, best and newest, now ready. Large stock of 300 distinct sorts. Purchaser's selection, 2s. 6d. per dozen, 14s. per 100; W. E.'s selection, 2s. per dozen, 10s. per 100, post-free. Cuttings much cheaper.
CATALOGUE one stamp.
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S. MAHOOD AND SONS, Windsor Nurseries, Putney, have now to offer Cuttings of their splendid collection, which has taken three First-class Prize Cups (*vide Gardeners' Chronicle*, Nov. 19 and 26). 2s. per dozen. Rooted Plants later on.
CATALOGUES on application.

PRIZE CHRYSANTHEMUM PLANTS for SALE.—Stock Plants in fifty varieties. Selected for exhibition. See report of York Chrysanthemum Show. Apply, GARDENER, Grove Lodge, York.

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COCOA-NUT FIBRE REFUSE,
3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s. or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

PEAT.—Brown, fibrous Peat for Orchids, Ferns, &c., £2 10s. large size Great Eastern Trucks put on rail at Lynn Station. Sample bags, 2s. each, for Cash.
A. DRAKE, Pilot Street, King's Lynn, Norfolk.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per truck. Sample bag, 5s.; 5 bags, 22s. 6d.; 10 bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per bag.
SILVER SAND, Coarse or Fine, 52s. per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 tons. GRAVEL, good colour, 25s. per truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

SILVER SAND, Surrey, 8s. and 10s. per ton; Beds, 8s. and 11s per ton (by truckloads). PEATS and LOAMS at moderate prices.
W. SHORT, Horticultural Depot, Red Hill, Surrey.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3s. (truck-load free on to rail).—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

To Nurserymen and Gardeners.

COCOA-NUT FIBRE REFUSE.—Seven Bags for 6s., fifteen Bags for 12s., thirty Bags for 20s. (Bags included): Truck-load, loose, 25s.; Van-load, at Works, 45s. Terms Cash with Order.
WILLIAM TOMLIN, Cocoa-nut Fibre Works, 100, Barrowfield Street, Glasgow.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 45.; ditto delivered within 5 miles, 10s.; Truck-load (equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,
CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

To Grape Growers.—Nothing can Surpass

CORRY AND SOPER'S NICOTINE SOAP for Dressing the Bark of Vines, which one trial will thoroughly prove.
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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

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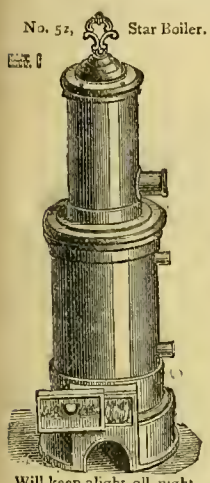

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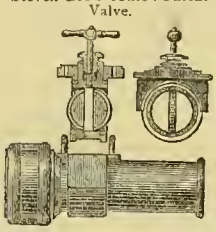

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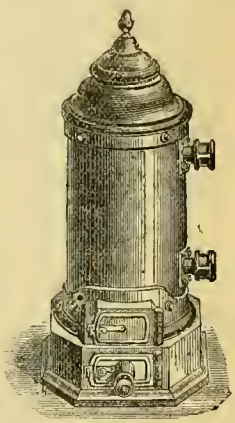

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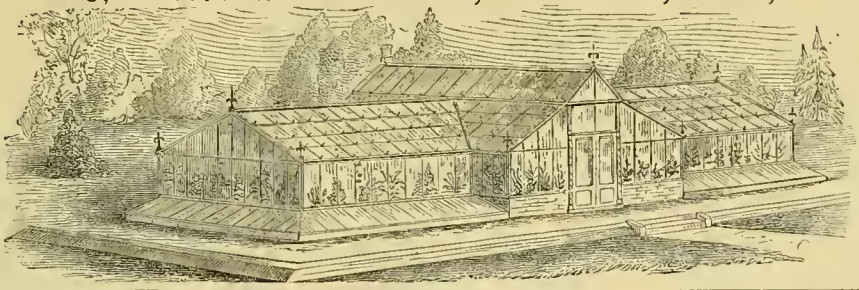

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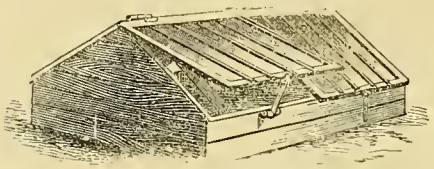

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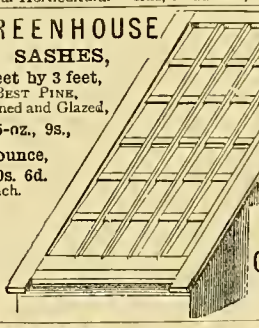

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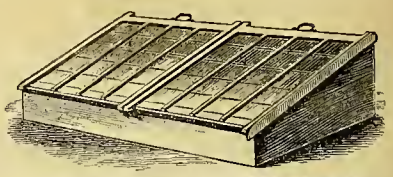

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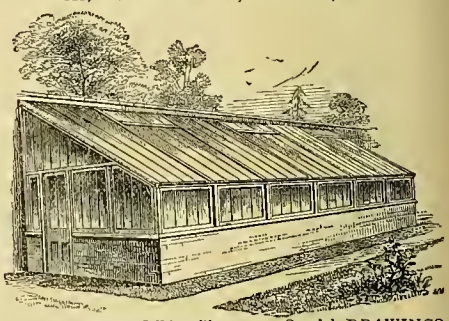

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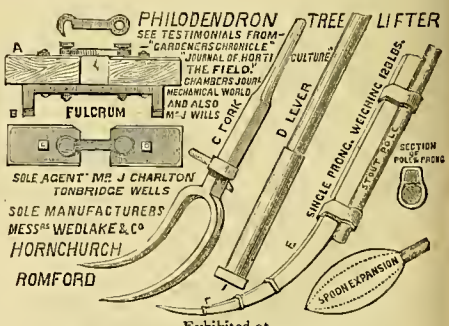

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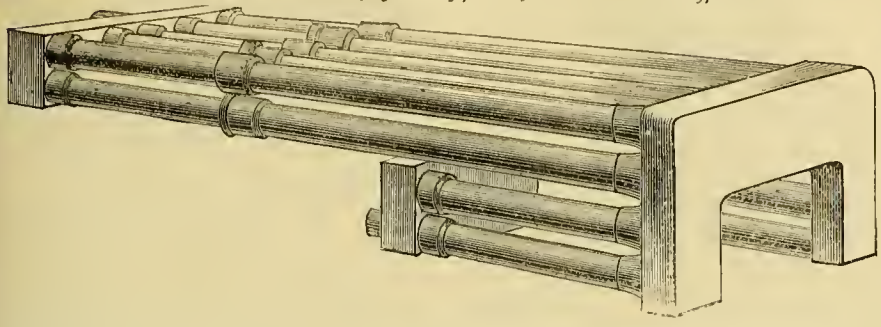

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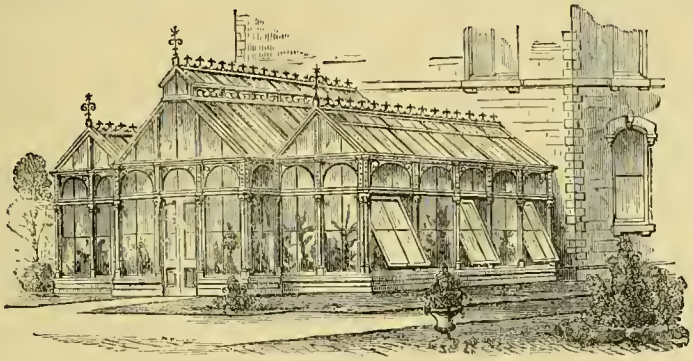

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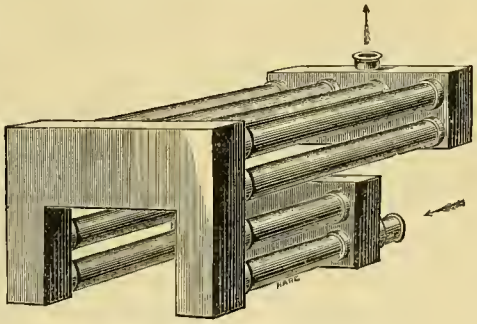

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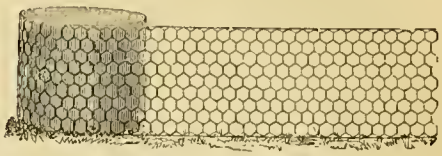

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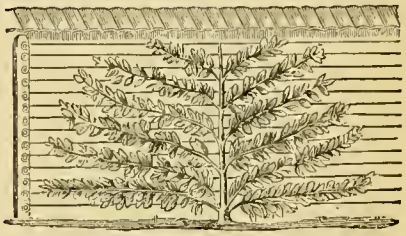

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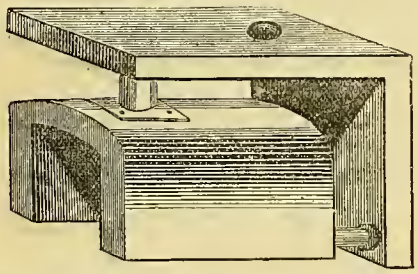

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24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
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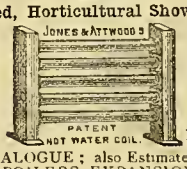

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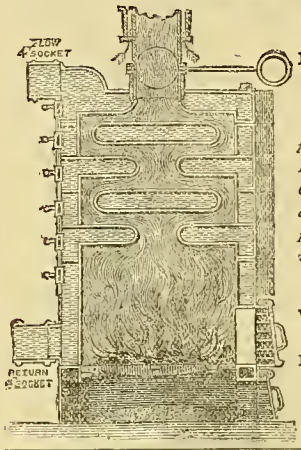

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GRATEFUL AND COMFORTING.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—*Civil Service Gazette.*

Made simply with boiling water or milk.
Sold only in packets, labelled,
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, London.
Makers of Epps's Chocolate Essence for Afternoon use.

DINNEFORD'S MAGNESIA.

The Medical Professioo for over Forty Years have approved of this pure solution as the Best Remedy for
ACIDITY OF THE STOMACH, HEARTBURN, HEADACHE, GOUT, AND INDIGESTION,
and as the safest Aperient for Delicate Constitutions, Ladies, Childreo, and Infants.

DINNEFORD'S MAGNESIA.

"Marvellous Effects. November 21, 1881. I have sold DR. LOCOCK'S PULMONIC WAFERS for over fourteen years, and have noticed the marvellous effects they have had upon racking coughs; they seem to act like magic, giving such speedy relief. They are also invaluable to public speakers and singers. Signed, W. T. JACKSON, M.P.S., Stanley Square, Staleybridge." Asthma, Consumption, Bronchitis, Coughs, Colds, Shortness of Breath, Phlegm, Pains in the Chest, and Rheumatism are instantly relieved and rapidly cured by the Wafers, which taste pleasantly. Sold at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s. per box, by all Druggis s.

HOLLOWAY'S PILLS.—Invalids distracted by digestion and discouraged in their search for its remedy should make trial of this never-failing medicine. A lady, long a martyr to dyspeptic tortures, writes that Holloway's Pills made her feel as if a burden had been taken off her. Her spirits, formerly low, have greatly improved; her capricious appetite has given place to healthy hunger; her dull, sick headache has departed, and gradually so marvellous a change has been effected that she is altogether a new creature, and again fit for her duties. These Pills may be administered with safety to the most delicate. They never act harshly, nor do they ever induce weakness; they rightly direct deranged, and control excessive action.

THOMSON'S VINE AND PLANT MANURE,

MANUFACTURED AND SOLD BY

THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN) LIMITED,

THE VINEYARD AND NURSERIES, GARSTON.

THE REPUTATION OF THE TWEED VINEYARD IS WORLD-WIDE, but few are aware how far its reputation has been secured and maintained by the use of this FAMOUS MANURE. Our Manager (Mr. Cowan) paid a visit to Clovenfords this autumn, and being more than ever struck with the magnificence of the quality and quantity of the Grapes in every house, enquired if there was any peculiarity in the soil favourable to the Vine, but was astonished to find that, on the contrary, the soil was of the poorest description—much of it, indeed, being taken from the roadsides. On further enquiry it proved that the secret of success was the using of a Manure of Mr. Thomson's own composition, and made on the premises—the nature of this composition being kept a secret. After consideration negotiations were entered into, and the Company have now made arrangements with Mr. Thomson to manufacture and sell this valuable Manure, which will undoubtedly be a great boon to Grape-growers generally. The price has been put as low as is consistent with the cost and high character of the Manure, every ingredient of which is of the best quality.

Not only is this Manure valuable for Grape-growing, but it is eminently so for nearly all Plants in pots, the vigour and general healthy appearance of the plants at Clovenfords being quite as striking as that of the Vines, thus testifying to the remarkably invigorating properties of this MARVELLOUS FERTILISER.

Mr. Wm. Thomson writes as follows:—

"Mr. COWAN,—*Dear Sir,—I now send you the recipe for the Manure we use for nearly all purposes here, and specially for our Vines. When you called here recently you saw how heavy our crops were, and you know by the prices they realise in Covent Garden Market what their quality must be; you also saw the very poor cold soil they are growing in—they have improved every year since we began using the Manure, and I expect them to be finer next year than ever.—I am, yours truly,* (*Signed*) "*WM. THOMSON.*"

The Company are prepared to execute Orders for this Manure, as follows:—

Bags, containing 1 cwt., 20s.; ½ cwt., 10s. 6d.; ¼ cwt., 6s.; ⅛ cwt., 3s. 6d. Tins, containing 7 lb., 2s. 6d.; 2½lb., 1s.

PRICES TO THE TRADE ON APPLICATION.

DIRECTIONS FOR THE USE OF THOMSON'S VINE AND PLANT MANURE—When used for Vines, mix it with the soil of which the Vine-border is to be composed in the proportion of 1 ton for a border 30 feet long, 2½ feet deep, and 15 feet wide; if for Vines already planted, mix it with double its bulk of fresh loam, then fork or dig down until the roots are met with, apply the mixture immediately over the roots, and cover up with the soil of the border. When used inside a vinery or Peach-house, give the soil a watering after the manure is applied. For all such plants as Geraniums, Hydrangeas, &c., mix it with the soil when potting; and for Orchids, shake a little of it amongst the sphagnum before it is used. For all garden crops, sow in the drill with the seed. For flower borders, fork it into the soil. As a top-dressing for poor lawns, sow it on the grass mixed with twice its bulk of earth, well rake with an iron rake, then roll.

The Company have a splendid stock of GRAPE VINES for *Fruiting in Pots* and Planting Vineries; they are strong, short-jointed, and thoroughly well-ripened. They also offer fine Plants of the following:—

NEW CROTONS, DRACÆNAS, and other ORNAMENTAL-FOLIAGED PLANTS,

And a General Collection of STOVE and GREENHOUSE PLANTS in great variety, including handsome Flowering Plants suitable for Table and other Decorative Purposes. Also

ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c.

CATALOGUES FREE ON APPLICATION.

The Company undertake the Erection and Heating of Conservatories, Greenhouses, Vineries, &c., and all orders entrusted to them will be carried out in the best manner.

Gardens Laid Out and Planted by Contract or Otherwise. Plans and Estimates on application.

THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN) LIMITED,

THE VINEYARD and NURSERIES, GARSTON, and GATEACRE NURSERIES, GATEACRE.

ALL LETTERS TO BE ADDRESSED TO

THE MANAGER, Vineyard and Nurseries, Garston, near Liverpool.

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THE

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to INITIALS, or to FICTITIOUS NAMES, at Post-offices, as Letters so addressed are not forwarded, but are sent at once to the Returned Letter Office.

ORCHIDS.—A Complete LIST of CULTIVATED ORCHIDS, Illustrated, and with References to Descriptions and Figures, is now in course of publication in the *Gardeners' Chronicle.*
Office: 41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $6.35 for Twelve Months.
Agent for America:—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

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SPRUCE FIRS for CHRISTMAS TREES.
See advertisement, December 3, p. 710.
WM. JACKSON AND CO., Nurseries, Bedale, Yorks.

Cypripedium japonicum, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 54) is just published, and will be sent free on application.
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RASPBERRY CANES. — Fastolf, 20s.; Carter's, 30s. per 1000.
R. BATH, Crayford, Kent.

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LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
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First quality. Immense stock of same.
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Seakale—Seakale.
SEAKALE, strong Crowns, 10s., 8s., and 6s. per 100. Trade prices on application.
JOHN HOUSE, Eastgate Nurseries, Peterborough.

To the Trade.
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Price on application.
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MATTHEWS, Royal Pottery, Weston-super-Mare.

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WANTED, MANETTI STOCKS; also DE LA GRIFFERAIE STOCKS. Address, with Price per 1000, to
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WANTED, LYCASTE SKINNERI ALBA. Quote size and lowest price for cash to
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LILIES OF VARIOUS SORTS, either for Greenhouse, Conservatory, or Open Border, by the dozen, 100, or 1000.
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Fine SPRUCE FIRS, 5 to 15 feet, well feathered.
Prices on application.
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English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
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JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4½-inch pots, £2 per 100, for cash. Now ready, Isabella Sprunt, Gloire de Dijon, &c.
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ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

IMPORTANT NOTICE.—First-class NURSERY STOCK, specially cheap for Cash only, to clear the ground by March next.
CATALOGUES on application to
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RHODODENDRON CATAWBIENSE.
Exceptionally fine, with flower-buds, 2 to 3 ft. high.
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VIOLET, "VICTORIA REGINA."—The largest, sweetest, and most profuse bloomer; flowering from Sept. 1 to May 1. Large roots, suitable for dividing to plant out, at 21s. per 100, £10 per 1000. Also several other of the best varieties, equally cheap. Flowers sent as sample on application.
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ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.
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AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands
Knap Hill Nursery, Woking, Surrey.

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14,000 Lilium auratum, just received from Japan, in fine condition.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 19, at half-past 12 o'Clock precisely, an importation of 14,000 LILIUM AURATUM, just received from Japan in fine condition; also rare English-grown LILIES, many very scarce; several hundred Bulbs of the lovely Californian TULIPS, including the rare Calochortus Benthami, and C. macrocarpus; some fine roots of Erythrina herbacea; fine clumps of Japanese IRIS; a great variety of rare hardy BULBS and PLANTS, including many scarce species; BELLADONNA LILIES, DUTCH BULBS, &c.

On view the morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6021.)
HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, December 21, at half past 12 o'Clock precisely, choice Named Standard and Dwarf ROSES, including most of the leading kinds; Standard and Dwarf-trained FRUIT TREES, GREEN-HOUSE PLANTS, a great variety of Hardy Herbaceous BORDER PLANTS, English-grown LILIES, and an importation of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other BULBS from Holland, &c.

May be viewed the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 22, at half-past 12 o'Clock precisely, a fine lot of ONCIDIUM MARSHALLIANUM, also TRICHOCENTRUM PFANI, a lovely novelty offered for the first time; a fine lot of ODONTOGLOSSUM VEXILLARIUM, very best varieties: and many other Imported ORCHIDS, by order of Mr. F. Sander; also 10,000 LILIUM AURATUM, from Japan; several cases of ARAUCARIAS, BELLADONNA LILIES, DUTCH BULBS, &c.

On view the morning of Sale, and Catalogues had.

Monday Next.
FINAL SALE of BULBS this Season.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY NEXT, at half-past 11 o'Clock precisely, the Final Consignment of DUTCH BULBS this Season, comprising about 700 lots of First-class Double and Single HYACINTHS, TULIPS, NARCISSUS, ENGLISH-GROWN LILIES, and a variety of other HARDY BULBS.

Catalogues at the Mart, and 8, New Broad Street, E.C.

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FOR SALE, a SEED BUSINESS, in Edinburgh, with Stock and Goodwill. The Business is an Old-established one, possessing a connection throughout the United Kingdom of nearly a century's standing, and might be largely extended in the hands of a man of energy and skill. The LEASE of a neighbouring NURSERY, having fifteen years to run, might also be arranged to be transferred, if wished, with the Nursery Stock.

For particulars, apply to GRAHAM, JOHNSTON, AND FLEMING, W.S., 66, Frederick Street, or to FRASER, STODART, AND BALLINGALL, W.S., 16, Castle Street, Edinburgh; by the latter of whom offers will be received up to and including Monday, January 2, 1882.

TO BE SOLD, with Immediate Possession, a First-class Old-established NURSERY and SEED BUSINESS, in thorough working order, in the leading thoroughfare, five miles south of London; owing to failing health of proprietor. Any one with a fair amount of capital will find this a profitable investment. Apply, in first instance by letter only, to

B. F. S., Messrs. Nutting & Sons, Seed Merchants, 60, Barbican, London, E.C.

Special Notice.

MESSRS. WM. CUTBUSH AND SON would be greatly obliged to their Friends and Patrons if they will kindly address all Business Communications to HIGHGATE, and *not* to their *Branch Nurseries at Barnet*, as much time is saved thereby.

HIGHGATE NURSERIES, LONDON, N.

TO THE TRADE.

PRIMULA SINENSIS FIMBRIATA, "New Scarlet," a most distinct variety, with rich crimson-scarlet flowers of great substance, and beautifully fringed.

PRIMULA SINENSIS FIMBRIATA RUBRA and ALBA.

JOHN CATTELL has a fine stock of the above Primulas (harvested this year) to offer to the Trade. Special low prices will be given on application.

Nursery and Seed Establishment, Westerham, Kent.

6000 Grape Vines.

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To the Trade.
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DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, mixed varieties, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, per 100; 30*s.*, 42*s.*, and 63*s.* per 1000; named varieties, 10*s.* 6*d.*, 12*s.* 6*d.*, and 15*s.* per 100; 84*s.* and 105*s.* per 1000.

Descriptive LIST on application.

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SPRUCE FIRS.—Fine Feathered Plants for Christmas Trees, 2 to 3 feet, 7*s.* 6*d.* per 100; 3 to 5 feet, 18*s.* per 100. Cash with order only.

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" LARICIO, 1 to 1½ foot.
LARCH FIRS, 1½ to 2, 2 to 2½, 2½ to 3, and 3 to 4 feet.
" " extra fine, with perfect leaders.
SCOTCH FIRS, true Native, 2-yr. 2-yr., and 2-yr. 3-yr., extra fine.
SILVER FIRS, 6 to 9, and 9 to 12 inches.
SPRUCE FIRS, Norway, 6 to 9, 9 to 12, and 12 to 18 inches, very bushy.
ALDER, Common, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet, twice transplanted.
ASH, Mountain, 5 to 6 and 6 to 8 feet, grown singly, and good stems.
BEECH, Common, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 8 to 12, and 12 to 24 inches.
HAZEL, 12 to 18 inches, and 2 to 3 feet, twice transplanted.
LIMES, 3 to 4, 4 to 5, 5 to 6, 6 to 8, and 8 to 10 feet; all grown singly, and several times transplanted.
POPLARS, sorts, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet, all twice transplanted.
PRIVET, Evergreen, 1-yr. cuttings, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
SERVICE TREE 4 to 5, and 5 to 6 feet, good stems, and grown singly.
THORNS, or QUICKS, 1-yr. 1-yr., 9 to 12 inches, 12 to 20 inches, and 1½ to 2 feet.
Also ORNAMENTAL TREES—consisting of Plane or Sycamore, Flowering Chestnuts, Purple Beech, Ash, and Elms, sorts, &c.

The Nurseries, Ayr, N.B.

APPLE TREES with MISTLETO growing on them. Price from 7*s.* 6*d.* to 21*s.* each.

RICHARD SMITH AND CO., Nurserymen, Worcester.

LILIUM AURATUM.—Splendid direct Imported and Home-grown Bulbs, 30*s.*, 40*s.*, 50*s.*, 60*s.*, 75*s.*, and 100*s.* per 100.—SANDER AND CO., St. Alban's.

ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants.

Tens of Thousands of Plants to select from.

MR. WILLIAM BULL

Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL

Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

Establishment for New and Rare Plants,
536, KING'S ROAD, CHELSEA, LONDON, S.W.

SPECIAL OFFER.

	s.	d.	
ALMONDS, standard flowering	12	0	per doz.
ASH, Weeping, 8 to 10 feet	24	0	"
" " 10 to 12 feet	30	0	"
AZALEA AMŒNA, in pots	12	0	"
CEANOTHUS DENTATUS, in pots ..	6	0	"
CHESTNUT, Scarlet Horse, 6 to 8 feet ..	9	0	"
" " " 8 to 10 feet	12	0	"
ELM, Chichester, 8 to 10 feet	12	0	"
" " 10 to 12 feet	15	0	"
" English, 8 to 10 feet	12	0	"
GUELDER ROSE .. .. 3*s.* and	4	0	"
LILACS .. .. 3*s.* and	4	0	"
WEIGELAS, in sorts .. .. 3*s.* and	4	0	"
APPLES, pyramids, 3 to 4 feet (J. G. & Co.'s own selection of varieties.)	15	0	"
" " 4 to 5 feet .. .. (J. G. & Co.'s own selection of varieties.)	16	0	"
CURRANTS, Red and Black (J. G. & Co.'s own selection of varieties.)	10	0	per 100.
FILBERTS, transplanted layers (J. G. & Co.'s own selection of varieties.)	20	0	"
PEARS, pyramids, 4 to 5 feet (J. G. & Co.'s own selection of varieties.)	15	0	per doz.
" " 5 to 6 feet .. .. (J. G. & Co.'s own selection of varieties.)	18	0	"
" " Beurré Diel and Marie Louise, 6 to 8 feet	30	0	"
PLUMS, pyramids, 4 to 6 feet	18	0	"
" " extra strong	21	0	"
WALNUTS, 6 to 8 feet	12	0	"

JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

Chrysanthemums—Chrysanthemums.
The Finest Named Varieties.

STRONG STOCK PLANTS, in 5-inch pots, our selection, 4*s.* per dozen; 12 varieties, to name, 25*s.* per 100, in 50 varieties.

STRONG CUTTINGS, post-free, our selection, 12, in 12 named varieties, 1*s.* 6*d.*; 50, in 25 varieties, 5*s.*; 100, in 50 varieties, 8*s.*; 100, in 100 varieties, 10*s.* 6*d.*

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

LARCH and QUICKWOOD PLANTS for SALE.—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet; 2,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, 3 to 4 feet; 100 Weeping Ash, Elms, Poplars, Pears, &c.; also Scotch Fir, Weeping Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply,

FRANCIS BELL, Nurseryman, Easingwold.

STRONG QUICK, for Hedging; extra strong ditto, for Gapping. Prices on application to

RICHARD SMITH AND CO., Nurserymen and Seed Merchants Worcester.

1881-82.

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WOOD & INGRAM'S

GENERAL DESCRIPTIVE

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INCLUDING

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FOREST TREES,

HARDY CONIFEROUS and TAXACEOUS PLANTS,

EVERGREENS,

DECIDUOUS ORNAMENTAL TREES and SHRUBS,

HARDY CLIMBERS, ROSES, &c.,

Is Now Ready, and will be sent Free on application.

THE NURSERIES, HUNTINGDON.

TEA ROSES.

TO THE TRADE ONLY.

CHARLES WILSON,

SUMMERHOW NURSERIES, KENDAL,

IS STILL OFFERING

MARECHAL NIEL, NIPHETOS, and GLOIRE DE DIJON,

at £28 per 1000.

All other leading varieties, including the above

at £3 3s. per 100.

LESS TEN PER CENT. FOR CASH.

Plants given over to compensate for carriage.

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Barr & Sugden's Collection of Bulbs for Indoor Decoration, 10s. 6d., 21s., and 42s.

HYACINTH, finest bulbs and best varieties, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* per dozen; 40*s.* and 63*s.* per 100.

NARCISSUS, Polyanthus varieties, best kinds, 2*s.* 6*d.*, 3*s.* 6*d.* and 4*s.* 6*d.* per dozen; 21*s.* and 30*s.* per 100.

TULIPS, Double and Single, finest colours and largest flowers, 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per dozen; 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.* per 100.

CROCUS, in many fine sorts, all large bulbs, 6*d.* per dozen, 3*s.* 6*d.* per 100, 30*s.* per 1000.

SNOWDROPS, large selected bulbs, 6*d.* p. doz., 3*s.* 6*d.* p. 100.

SCILLA SIBIRICA, rich Blue, 1*s.* per dozen, 5*s.* 6*d.* per 100.

CHIONODOXA LUCILIÆ, the most beautiful Blue flower of Spring, 2*s.* 6*d.*, 3*s.* 6*d.*, and 4*s.* 6*d.* per dozen.

FOR FLOWER GARDEN DECORATION.

Barr & Sugden's Collection of Bulbs for Outdoor Culture, 10s. 6d., 21s., and 42s.

The weather being favourable, planting of beds and filling of borders with Spring Flowering Bulbs should be proceeded with.

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NARCISSUS, Polyanthus varieties, in fine mixture, 1*s.* 6*d.* per dozen, 10*s.* 6*d.* per 100.

DAFFODILS, a fine mixture of Trumpet, Nonsuch, Peerless, and Poeticus, 1*s.* per dozen, 5*s.* 6*d.* per 100.

TULIPS, Double or Single, beautiful colours, in mixture, 1*s.* per dozen, 5*s.* 6*d.* per 100.

CROCUS, all colours in mixture, 1*s.* 6*d.* and 2*s.* 6*d.* per 100, 14*s.* and 21*s.* per 1000.

SNOWDROPS, Double or Single, 2*s.* 6*d.* per 100, 21*s.* per 1000.

FOR PLANTING IN GRASS, ORCHARDS, AND WOODS TO NATURALISE.

WOOD HYACINTHS, in mixture and varieties, 3*s.* 6*d.*, 5*s.* 6*d.*, and 7*s.* 6*d.* per 100; 21*s.*, 30*s.*, and 42*s.* per 1000.

DAFFODILS, in mixture and varieties, 3*s.* 6*d.*, 5*s.* 6*d.*, and 7*s.* 6*d.* per 100; 30*s.*, 42*s.*, and 63*s.* per 1000. In named varieties 10*s.* 6*d.*, 12*s.* 6*d.*, and 15*s.* per 100; 84*s.* and 105*s.* per 1000.

STAR OF BETHLEHEM, mixed varieties, 2*s.* 6*d.* per 100, 21*s.* per 1000.

ALLIUM, mixed varieties, Yellow, White, and Lilac, 2*s.* 6*d.* per 100 21*s.* per 1000.

PLANTAIN LILIES (Funkias), in twelve sorts, 5*s.* 6*d.* and 7*s.* 6*d.* per dozen.

HEPATICAS, Red, Blue, Pink, Mauve, Purple, Lilac, and White, in mixture, 3*s.* 6*d.* per dozen, 21*s.* per 100; in clumps, Blue or Red, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.* each.

DAY LILIES (Hemerocallis), 5*s.* 6*d.* per dozen.

SNOWFLAKES, the largest-flowered varieties, 7*s.* 6*d.* and 10*s.* 6*d.* per 100.

ANEMONES, Double and Single, in mixture, 2*s.* 6*d.* p pound.

ANEMONE FULGENS, the brilliant Scarlet Windflower, 10*s.* 6*d.*, 15*s.*, and 21*s.* per 100.

FUMATORY MUSCARI, WINTER ACONITES, &c., 3*s.* 6*d.* per 100.

LILIES, hardy free-growing varieties, 21*s.* per 100.

MILLA UNIFLORA CONSPICUA, LILACINA, and CANDIDA, in mixture, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.

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WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

Trade—Trade—Trade.

SPECIAL TRADE OFFER of well-grown NURSERY STOCK—prices on application—including the following specialities:—
ASH, Common, 2 to 2½ feet.
,, Weeping, 6 to 8 feet stems.
BIRCH, 12 to 14 feet.
CURRANTS, Red, sorts to name.
CHESTNUTS, Horse, 12 to 16 feet.
,, Spanish, 1½ to 2 feet.
ELMS, Huntingdon, 14 to 18 feet.
,, English, narrow-leaved, 1-yr. seedling.
,, Weeping, 6 to 8 feet stems.
GORSE (Furze) 1-yr. seedling.
HAZEL, 4 to 5, 2 to 3 feet.
LAURELS, Common, 1 to 2 feet.
LIMES, Red twigged, 10 to 12 feet.
PEARS, Standards, in great variety, leading kinds.
POPLARS, Black Italian, 14 to 16, 6 to 8, 4 to 5 feet.
PRIVET, Evergreen, 2 to 3, 1½ to 2 feet.
FIRS, Spruce, 2 to 3, 1½ to 2½ feet.
WILLOWS, of sorts, 4 to 5 feet.
WHITETHORN QUICK, 1-yr., extra fine.
YEWS, Irish, 4 to 5 feet.
WOOD AND INGRAM, The Nurseries, Huntingdon, and St. Neot's.

Seakale—Seakale—Seakale.

To NURSERYMEN and OTHERS.

FOR SALE, a very large quantity of very fine SEAKALE CROWNS and ASPARAGUS ROOTS, for Forcing. Apply to the Grower,
Mr. WILLIAM BAGLEY, Millshot Farm, Fulham, S.W.

FOREST and ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, FRUIT TREES, ROSES, &c. Thoroughly transplanted, very hardy and well rooted. Immense Stock to select from.
New Priced CATALOGUE on application to
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.
Plans and Estimates furnished.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection, which was again awarded first prizes at all the London great Flower Shows. Sealed packets, free by post, 1s. and 2s. 6d. each. All first quality. The Trade supplied.
JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

THORN QUICK, strong, 4-yr. transplanted, 20s. per 1000. LARCH, fine, 1½ to 2½ feet, twice transplanted, 17s. 6d. per 1000. MAHONIA AQUIFOLIA, 2 to 3 feet, 50s. per 1000. AUSTRIAN PINE, 2 to 3 feet, twice transplanted, 50s. per 1000.
W. JACKSON, Blakedown, near Kidderminster.

"The Celebrated North of Ireland Roses."

THE ONLY ROSES in IRELAND having any claim to such a title are those grown by us, and we repudiate the right of any other Nurserymen to claim such "celebrity."
Having gained many hundreds of First Prizes at the leading shows all over the country, WE ALONE have thus made North of Ireland Roses celebrated. Our stock of Standards and Dwarfs numbers over 100,000 plants, in the finest possible health, and embraces every good variety in cultivation.
Descriptive CATALOGUES may be had on application to
ALEX. DICKSON AND SONS, Nurseries, Newtownards; or, HUGH DICKSON, Belmont Nursery, Belfast.

LILIUM AURATUM, and other LILIES, the best picked Bulbs only. Size No. 1, 9d.; No. 2, 1s.; No. 3, 1s. 6d.; and the largest Bulbs imported, 2s. each. Equally low prices for other Lilies, and Special LIST of Orchids forwarded on application to
WM. GORDON, City Office, 10, Cullum Street, London, E.C. Special Price to the Trade.

SINGLE DAHLIAS.
YELLOW DWARF, 1s. 6d. each, 15s. per dozen.
SCARLET GEM, 1s. 6d. each, 10s. per dozen.
COCCINEA, 1s. 6d. each, 15s. per dozen.
A pot-root of each of these splendid kinds, post-free, 4s. 6d.
We have the most complete collection of doubles, and always grow not less than 10,000 pot-roots, and can therefore offer best in cultivation.
H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent.

TO THE TRADE.—
A considerable quantity of the following for disposal:—
ALDER, Common, 2 to 3 feet, and 3 to 4 feet.
ASH, Common, 2 to 3 feet
HAZEL, 2 to 3 feet.
LARCH, 2 to 3½ feet.
SYCAMORE, 2 to 3 feet.
PRIVET, Evergreen, 3-yr. transplanted.
SCOTCH FIR (Native), strong, about 1½ to 2 feet.
THORNS, 3-yr. transplanted, about 2 to 3 feet.
The above are thoroughly healthy, robust, and well rooted.
Cheap Railway Rates to all parts of England and Wales.
Samples and special quotations on application to
ALEXANDER ANDREW, Nurseryman, Kilmarnock, N.B.

Gooseberries and Black Currants.

GEORGE BUNYARD AND CO. can offer the above in large or small quantities, in the best Garden or Market kinds, as recommended in *Fruit Farming for Profit.*
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HALF-STANDARD H.P. ROSES, in large or small lots.
GEORGE BUNYARD AND CO., Maidstone.

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W. WISEMAN AND SON, NURSERYMEN, Elgin, N.B., can still offer many millions of Seedling and Transplanted Scotch FIR and LARCH. The Scotch Fir are all grown from seed collected for us in the celebrated forests of Strathspey.
Samples, with special low Prices, on application.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities of STRAWBERRIES also, in pots, to offer. Prices, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

THE
LAWSON SEED & NURSERY COMPANY (Limited)

Abound in the following—all of the best quality, at very low prices, as the ground must be cleared for other purposes.

Special Offers on application:—

PINE, Black Austrian, transplanted, 1½ to 3 ft. in height.
PINUS CEMBRA, 2 to 3, and 3 to 5 feet.
,, LARICIO (Corsican Pine), 9 to 15, and 18 to 24 inches, fine.
LARCH, 12 to 18 inches, 1½ to 2, 2 to 3, and 2½ to 4 feet, all extra fine.
PINE, Maritime, 12 to 18 inches, fine.
,, Mountain, 9 to 15 inches, extra stout.
FIR, Scots, true native, 6 to 12, 12 to 18, and 18 to 24 inches, extra fine.
SPRUCE, Norway, 6 to 12, and 12 to 18 inches.
,, Black American, 1½ to 2, and 2 to 3 feet.
YEW, Common or English, 18 to 24, and 24 to 30 inches.
ALDER, Common, 12 to 18 inches, and 5 to 7 feet, fine plants.
BARBERRY, Common, 9 to 18 inches.
BEECH, Common, 12 to 18 inches.
CHESTNUT, Horse, 2 to 3 and 3 to 5 feet, strong.
,, Spanish, 12 to 18 and 18 to 30 inches.
ELM, Scotch or Wych, 1½ to 2 and 2 to 3 feet.
,, English, 1½ to 2 and 2 to 3 feet.
HAZEL, 2 to 3 feet.
HOLLY, Common, 4 to 6, 6 to 9, and 12 to 15 inches.
HORNBEAM, 12 to 18 inches, and 5 to 6 feet.
LABURNUM, 2 to 3 feet.
LIME, 2 to 3, 3 to 4, 4 to 6, and 6 to 8 feet.
MAPLE, Norway, 4 to 6 and 6 to 8 feet.
OAK, English, 12 to 18 inches.
POPLARS, of sorts, 2 to 3, 3 to 4, and 4 to 6 ft.
PRIVET, Evergreen, 2 to 3 feet, extra fine.
THORNS, 12 to 18, and 18 to 24 inches.
WILLOWS, of sorts, 2 to 3 and 3 to 5 feet.

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LAWSON SEED & NURSERY COMPANY (Limited)

Abound in the following

SEEDLING and BEDDED PLANTS

AT MODERATE PRICES.

SPECIAL OFFERS ON APPLICATION.

PINE, Black Austrian, 1 and 2-yr. seedlings.
,, Corsican (Pinus Laricio), 1 and 2 years.
LARCH, 1 and 2-yr. seedlings and 1-yr. seedlings 1-yr. bedded, all extra fine.
PINE, Mountain, 1 and 2 years.
FIR, Scotch, 1 and 2-yr. seedlings, and 1-yr. seedling 1-yr. bedded.
SPRUCE, Norway, 2 and 3-yr. seedlings.
ALDER, Common, 1 and 2-yr. seedlings.
ASH, Common, 1 and 2-yr. seedlings.
BEECH, Common, 1 year, very fine.
BIRCH, Common and Weeping, 1 year.
CHESTNUT, Spanish, 1 and 2 years.
HAZEL, 2-yr. seedlings.
HOLLY, Common, 3 years, fine.
MAHONIA AQUIFOLIA, 2 years, fine.
MAPLE, Norway, 1 year, fine.
OAK, English, 1 and 2 years.
,, Turkey, 1 year, fine.
SYCAMORE, 1 year, very strong.
THORN, or QUICK, 1 year, fine.
WHIN, or GORSE, 1 and 2 years.

CATALOGUES of the General Nursery Stock will be sent Free upon application.

EDINBURGH, December, 1881.

To the Trade.

R. AND A. MORRISON, The Nurseries, Elgin, beg to offer the following Seedling and Transplanted Forest Trees:—
LARCH, true native. Price on application.
,, Tyrolese, £4 10s. per 100,000.
,, Transplanted, 12 to 18 inches, 12s. 6d. per 1000; 18 to 24 inches, 15s. per 1000; 2 to 3 feet, 17s. 6d. per 1000.
SCOTCH FIR, true native Highland Pine, 1-yr. Seedlings, £7 10s. per 100,000; 1-yr. 2-yr. Transplanted, 7s. 6d. per 1000; 12 to 18 inches, 10s. 6d. per 1000.
PINUS AUSTRIACA, P. LARICIO, P. MARITIMA, and MONTANA, 1-yr. Seedlings, 2s. 6d. per 1000; 2-yr. 2-yr. Transplanted, 10s. 6d. per 1000.
ELMS, WYCH, 1-yr., 1s. 6d.; 2-yr., 2s. 6d.; and 1-yr. 1-yr., 5s. per 1000.
OAKS, ENGLISH, 1-yr., 2s. 6d. per 1000.
Trade CATALOGUE may be had on application.

Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.
The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W

SPIRÆA PALMATA, the largest stock of forcing plants in Europe.
DWARF ROSES, good, 9s. per dozen.
RHODODENDRONS, covered with buds, for forcing.
STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.
CHARLES NOBLE, Bagshot.

STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

Special Notice.

ASH, BIRCH, POPLARS, MAPLE, LIMES, and SYCAMORE, stout handsome trees, 15 to 20 feet high, in good condition for removal; GREEN HOLLIES, 6 to 10 feet; AUCUBAS, 3 to 4 feet, fine specimens; ROSES, Dwarf Hybrid Perpetual, extra fine. Prices on application to
W. RUMSEY, Joyning's Nurseries, Waltham Cross, N.

Christmas Roses.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland, have an immense stock of the above, fine flowering plants, in vigorous growth; have not been so fine for years—can be highly recommended. Price and all particulars on application. Any quantity can be supplied.
Also SPIRÆA PALMATA (Red).
CATALOGUES of Hyacinths, Tulips, &c., sent post-free on application.

RASPBERRY CANES.—100,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 100 for 5s. Also 50,000 Fastolf, at £1 per 1000, 250 for 6s., on rail. The Canes are small, but being well rooted are equally as good as large grown ones. Payments to accompany orders. Postal Orders on Knockholt. Apply to
A. AND E. BATH, Colgates Farm, Sevenoaks, Kent.

Large Ornamental Evergreen Shrubs,
FOR IMMEDIATE EFFECT.

W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester, have a very extensive collection of the above, all recently transplanted and in fine condition for removal, and now offered at greatly reduced prices to effect a clearance.
FRUIT TREES, the largest and best stocks in the Kingdom. Prices on application.

NEW CHRYSANTHEMUM—LADY SELBORNE.
One of the Best Whites yet raised.

MR. H. JAMES, of Castle Nursery, Lower Norwood, Surrey, has now the pleasure of announcing to his numerous Customers and Friends that he intends sending out the NEW CHRYSANTHEMUM, LADY SELBORNE—raised by Mr. C. Salter, and which has already gained Three First-class Certificates—on January 1, 1882. Price 5s. each.
P.O.O. payable at Thomas Terrace, Lower Norwood, S.

FRISBY'S EXCELSIOR BEET.—The best and most distinct Beet in cultivation. It is excellent both for the Flower Garden and for Table use. The top is small, with dark shining leaves; Root growing about double the length of most kinds, is of fine tapering form, with very dark skin; flesh deep crimson, of fine quality and exquisite flavour. Price per ounce packets, 1s. 6d.
EDMUND PHILIP DIXON, Hull.

CHRYSANTHEMUMS.—Shaw's Golden Madame Marthe is the finest yellow Pompon in the world. Will be grown by everybody, shown by everybody, and admired by everybody. Plants, 3s. per dozen; twelve very best varieties for Exhibition, including Golden Madame Marthe and Souvenir d'un Ami, for 2s. 3d., all post-free.
SHAWS, The Leeds Florists, Knostrop, Leeds.

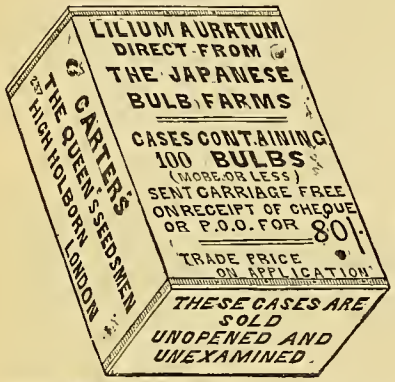
MISTLETO.—A handsome, well-berried bush, 2 feet 6 inches through, nicely packed, and delivered to any railway station in England, for 5s. RICHARD SMITH & Co., having now bought a large quantity of Worcestershire Mistleto, are enabled to sell at this low rate for cash.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

SELECTED POTATOS for PLANTING.—Our LIST, which includes all the best kinds, with specially low prices for present delivery, is now ready, and will be sent post-free on application.
JOHN AND GEORGE MCHATTIE, Seed Merchants, Chester.

CUT FLOWERS of LILY of the VALLEY and TULIPS.—The Advertisers can now offer a regular supply of fine Blooms. Price on application to
TURNER BROS., Allerton, Liverpool.

SPECIAL OFFER.—100,000 English OAK, 1 to 2½ feet; WALNUTS, 5 to 6 feet stems; LARCH 2½ to 4 feet; AUCUBAS, 1 to 2½ feet; CHESTNUTS, Horse, 12 to 14 feet; English YEWS, 2 to 3 feet; Common BOX TREES, 2 to 3 feet. Samples and low prices to clear on application.—ALFRED FLOWERS, Nurseries, Newark.

VERY LARGE IMPORTATIONS OF



PICKED BULBS, Each, 6d., 9d., 1s., and 2s. 6d.
Per Dozen, 5s., 7s. 6d., 10s., and 24s.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

CRANSTON'S NURSERIES.
(ESTABLISHED 1785.)

NEW CATALOGUES
OF ROSES AND FRUIT TREES
Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED), King's Acre, Hereford.

NEW RASPBERRY,
BAUMFORTH'S SEEDLING.

The greatest acquisition in Raspberries. See Testimonials, &c.: copies sent post-free on application.

Price, per dozen canes, 7s. 6d.; per 100, 50s.

EDMUND PHILIP DIXON,
SEED GROWER, MERCHANT, and NURSERYMAN,
HULL.

Ferns a Speciality.
EXOTIC AND BRITISH FERNS,

IN great number and variety, suitable for Stove and Greenhouse cultivation, for Outdoor Ferneries and other purposes.
Intending Purchasers before buying elsewhere should send for our SPECIAL LIST of CHEAP FERNS, which will be forwarded free on application.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

STRAWBERRY PLANTS.

Strong Plants from open ground and in pots (guaranteed true to name) of all the leading varieties. LIST on application to
CRANSTON'S NURSERY and SEED CO. (Limited),
KING'S ACRE, near HEREFORD.

GEO. JACKMAN & SON,
(ESTABLISHED 1810,)
Cultivators of

FRUIT and FOREST TREES,
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.
THE CLEMATIS
A SPECIALITY.

Descriptive Priced Catalogues free.
WOKING NURSERY SURREY.

TO THE TRADE ONLY.

Tea Roses—Tea Roses.

10,000 splendidly grown, extra strong and healthy TEA ROSES still on hand,
at £3 3s. per 100, less 10 per cent. for cash.
CATALOGUES FREE.

CHARLES WILSON,
SUMMERHOW NURSERIES, KENDAL.

CHARLES NOBLE
has fine plants of
CUPRESSUS LAWSONIANA
THUYA GIGANTEA (Lobbii)
" AMERICANA
RETINOSPORA PISIFERA
} 6 to 12 feet high, transplanted last August.
Exceptionally handsome AVENUE TREES.
LIME TREES, 14 to 16 feet.
DWARF PYRAMID PEARS, in fine variety, on Dwarfing Stock (so that they bear quantities of Fruit when only the size of Currant Bushes), just coming into bearing: some produced fruit last season.
The finest Bedding Rose ever raised,
ROSE "QUEEN of BEDDERS" (Noble).
Requires no pegging, has never (with me) produced a shoot without a flower, and I have cut Bouquets from the open ground during five months consecutively.
Bagshot.—December, 1881.

Chrysanthemums.

S. MAHOOD AND SONS, Windsor Nurseries, Putney, have now to offer Cuttings of their splendid collection, which has taken three First-class Prize Cups (*vide Gardeners' Chronicle*, Nov. 19 and 26). 2s. per dozen. Rooted Plants later on.
CATALOGUES on application.

CHRYSANTHEMUMS, best and newest, now ready. Large stock of 300 distinct sorts. Purchaser's selection, plants 2s. 6d. per doz., 14s. per 100; W. E.'s selection, 2s. per dozen, 10s. per 100, post-free. Cuttings much cheaper.
CATALOGUE one stamp.
W. ETHERINGTON, Manor House, Swanscombe, Kent.

STUART, MEIN AND ALLAN have to offer the undernoted LARGE TREES for immediate effect:—

ELMS, 3 to 15 feet.	FIR, Spruce, 2 to 2½ feet.
MAPLE, Norway, 10 to 16 ft	HAZELS, 3 to 5 feet.
CHESTNUT, Horse, 6 to 14 ft.	CHERRIES, Standard, strong
CHERRY, Wild, 10 to 18 feet.	APPLES, Pyramid, strong.
POPLARS, Black Italian, 10 to 18 feet.	SNOWBERRY, 4 to 6 feet, strong.
ASH, Mountain, 5 to 6 feet.	SPIRÆA, in variety.
ALDERS, 4 to 8 feet.	THORNS or QUICKS, 1½ to 2 feet.
LARCH, 2 to 4½ feet.	

CUPRESSUS LAWSONIANA, large specimen plants, 6 to 8 feet. The Nurseries, Kelso, N.B.

Raspberry Canes.

FOR SALE, 40,000 SEMPER FIDELIS, the best Raspberry in cultivation; also a large quantity of the undermentioned varieties:—
NORTHUMBERLAND FILLBASKET.
CARTER'S PROLIFIC.
RED ANTWERP.
FASTOLF.
And the leading varieties of STRAWBERRY PLANTS.
JOSIAH H. BATH, Manor Farm, North Cray, Kent.

Deutzia gracilis.

WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty branches in each plant. Very cheap. Price on application.
Ottershaw Nursery, Chertsey.

To the Trade.

THORNS, 1-yr. Seedling, 2s. 6d. per 1000, in quantities of 100,000 and upwards.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

ROSES.

The Largest Rose Gardens in England

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

120 FIRST PRIZES, 1880-1881.

STANDARD and HALF STANDARD.
DWARF STANDARDS.
DWARFS ON MANETTI, Magnificent Plants.
DWARFS on SEEDLING BRIER.
DWARFS on OWN ROOTS.
DWARF TEA-SCENTED and NOISETTE on SEEDLING BRIER.
CLIMBING and PILLAR ROSES.
EXTRA-SIZED ROSES, in 8, 9, and 10-inch Pots, Grown especially for Forcing.
NEW ROSES, French and English.
CRANSTON'S NEW ROSES, "MRS. JOWITT," and "MARY POCHIN."

Descriptive Priced Catalogue on application.

Special quotations for 100 and 1000 plants.

ADDRESS—
CRANSTON'S NURSERY and SEED CO.
(LIMITED),
KING'S ACRE, NEAR HEREFORD.

RICHARD SMITH & Co.
WORCESTER

SEVENTY-FOUR ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for 1d. stamp.

TWELVE ACRES of ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea-scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing.
See Descriptive Price LIST, free for 1d. stamp.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1d. stamp.
R. S. & Co.'s selection of 100 good showy varieties for 25s.

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs.
Descriptive Price LIST for 1d. stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for 1d. stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

SEAKALE.—Extra Strong, for Forcing, 2s. 6d. per dozen, 16s. per 100.

RICHARD SMITH & Co.
WORCESTER

GARDEN SEEDS.—FARM SEEDS.

CHARLES SHARPE & CO.,
SEED GROWERS,
SLEAFORD,

Having now completed harvesting their SEEDS, will have much pleasure in sending SPECIAL OFFERS on application, with Samples if desired.

BOUVARDIA, ALFRED NEUNER.

NEW DOUBLE WHITE-FLOWERED VARIETY.

This charming novelty will prove of inestimable value for all kinds of decorative purposes; it is of excellent habit, and a profuse bloomer, throwing fine large trusses of lovely pure white rosette-like double flowers, each flower composed of three perfect rows of petals. For all purposes for which cut-flowers are required, the chaste blossoms of this beautiful plant will be found unequalled.

MR. WILLIAM BULL

Can now supply the above by the dozen, hundred, or thousand.

ESTABLISHMENT FOR NEW AND RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

FOSTER & PEARSON,
HORTICULTURAL BUILDERS.

First Prize for Best Greenhouse, June 8, 1881,
Royal Horticultural Society—Sixteen Competitors.

First Prize for Best Greenhouse, July 30, 1881,
Liverpool Horticultural Society—Four Competitors.

First Prize for Best and Most Durable Greenhouse, August 23, 1881,
International Fruit Show, Manchester—Ten Competitors.

BEESTON, NOTTS.

Notice to the Trade.

NUTTING AND SONS have now posted their ANNUAL TRADE CATALOGUE of Garden Flower and Agricultural Seeds to all their friends. If not duly received, they will be obliged by an early intimation, when another copy will be posted.
NUTTING AND SONS, Seed Merchants, 60, Barbican, E.C.

SPECIAL OFFER.

	Per doz.	Per 100.
OAK, English, 8 to 10 feet	9s. 0d.	60s. 0d.
CHESTNUT, Horse, 8 to 10 feet	6s. 0d.	40s. 0d.
COTONEASTER MICROPHYLLA ..	6s. 0d.	..
CRYPTOMERIA JAPONICA, 8 to 10 feet	24s. 0d.	..
COB-NUTS, Kentish	6s. 0d.	40s. 0d.
HONEYSUCKLE, Late Dutch	4s. 0d.	30s. 0d.
YEWS, Common, 2½ to 3 feet	9s. 0d.	60s. 0d.

FIR, Larch, fine stuff, 2 to 3 feet, 35s. per 1000; 3 to 4 feet, 45s. per 1000.
PEAT.—Good fibrous Peat, put on the South-Eastern or London, Chatham and Dover Railways here, 14s. per yard.
C. F. CATTELL, Sevenoaks, Kent.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

3d. per bushel; 100 for 20s.; truck (loose, 250 bushels), 30s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c. Write for Free PRICE LIST.
H. G. SMYTH,
17A, Coal Yard, Drury Lane (late of Castle St., Long Acre), W.C.

COCOA-NUT FIBRE REFUSE, newly made, as supplied to nearly all the Principal Nurserymen and Head Gardeners in England. In 4-bushel bags at 1s.; 15 bags, 12s.; 30 bags, £1, bags included; 15 bags or more free on to rail; truckload of about 250 bushels, £1 3s. (truck-load free on to rail)—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, by Chubb's Patent Process, as supplied to all the Royal Gardens and principal Nurseries of Europe, useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bedding-out Plants, &c.; Destroys all Slugs and Insects. Sacks, 1s. each; 15 Sacks, 12s.; 30 Sacks, 20s. (all Sacks included); Van-load at Works, 4s.; ditto delivered within 5 miles, 10s.; Truck-load, equal to about 300 bushels when dry), free on rail, 25s. Terms cash with order. To obtain the genuine article, buy direct from the Manufacturers,
CHUBB, ROUND AND CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

To Nurserymen and Gardeners.

COCOA-NUT FIBRE REFUSE.—Seven Bags for 6s., fifteen Bags for 12s., thirty Bags for 20s. (Bags included); Truck-load, loose, 25s.; Van-load, at Works, 4s. Terms Cash with Order.
WILLIAM TOMLIN, Cocoa-nut Fibre Works, 100, Barrowfield Street Glasgow.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per truck. Sample bag, 5s.; 5 bags, 22s. 6d.; 10 bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per bag.
SILVER SAND, Coarse or Fine, 52s per truck of 4 tons. Red Sandstone ROCKWORK, £5 per truck of 4 tons. GRAVEL, good colour, 25s. per truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

PEAT.—Brown, fibrous Peat for Orchids, Ferns, &c., £2 10s. large size Great Eastern Trucks put on rail at Lynn Station. Sample bags, 2s. each, for Cash.
A. DRAKE, Pilot Street, King's Lynn, Norfolk.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Trips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., and 10s. 6d.

AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.

GISHURSTINE keeps feet dry, softens hard boots, preserves leather, takes a polish. In boxes, 6d. and 1s. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited). Retail by Seedsmen and Oilmen.

ARCHANGEL AND PETERSBURG
MAT MERCHANTS and IMPORTERS.

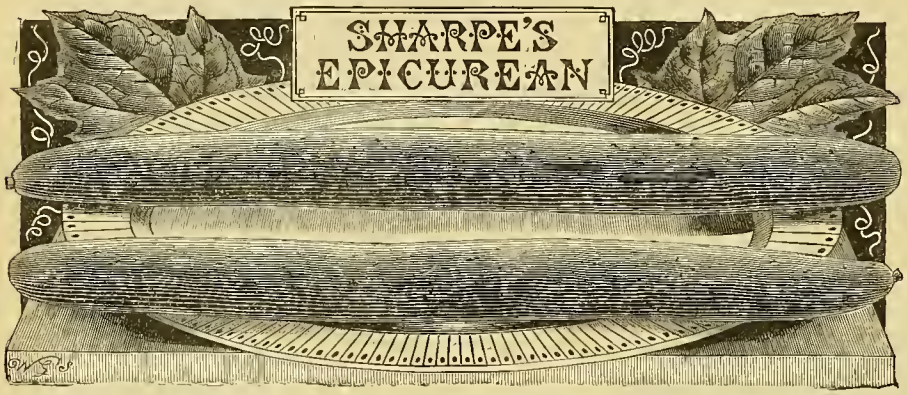
All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description. RAFFIA FIBRE, NETTING, and TIFFANY, TARPAULINS, RICK-COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to
J. BLACKBURN and SONS, 4 and 5, Wormwood Street, London, E.C.

FRESH ARRIVALS OF ARCHANGEL MATS, best colour and quality; also ST. PETERSBURG MATS and RAFFIA. SEED BAGS and SACKS, NETTING and SHADING, &c. Prices on application.—**WM. PETERS,** 44, Tenter Street South, Goodman's Fields, London, E.

RUSSIA MATS
For COVERING GARDEN FRAMES.
SEED BAGS and SACKS.
BEST ROLL TOBACCO PAPER. RAFFIA FIBRE.
TARPAULINS and HORSE-CLOTHS.
ROPES, LINES, and TWINES.
Catalogue post-free on application.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

CHARLES SHARPE & CO., SLEAFORD.

CUCUMBER—SHARPE'S EPICUREAN.

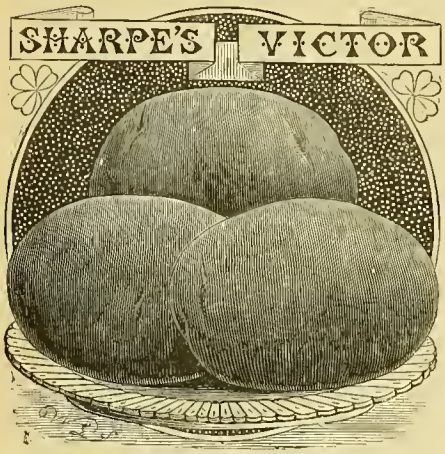


This, the perfection of frame Cucumbers, is a cross between Telegraph and Tender and True; in form it has a resemblance to Telegraph, but is of a darker green and much longer—fruit 31 inches in length having been cut from it. In flavour it is superior to Tender and True, but its chief recommendation is its marvellous productiveness, in which it excels everything that has come under our notice, as many as 300 and 400 fruit having been cut at one time from twelve plants, in a three-light pit, three-quarter span.

For succession it is unequalled, bearing as abundantly at Christmas as Midsummer—and in addition to its handsome form and lovely colour, it is a variety that seldom produces seeds, not one in a hundred containing a trace. This peculiarity has delayed sending out the stock for a year or two, and at one time it was so nearly lost that only by striking cuttings could it be preserved.

Price—per Packet, 3s. 6d.

THE EARLIEST OF ALL POTATOS.
SHARPE'S VICTOR.



Sharpe's Victor is a seedling raised from the Alma Kidney and the old early short-top round Potato. It is earlier than any present variety, and having a very short top, is especially suitable for frame cultivation; its precocity is such that it has been fit for the table in nine weeks from the time of planting, and the raiser assures us that at this date, October 17, he is now growing his fifth successive crop this year (since lifted on November 25), the first being lifted in January. Thus there is no difficulty in securing new Potatos for the table every day in the year. Victor is a flattened roundish oval in shape, with a beautiful clear skin and extremely shallow eyes, being one of the handsomest as well as the heaviest cropper of any variety adapted for frame-work, or for a first early crop outdoors. It is dry and mealy when cooked, and the flavour and quality of the flesh are superior to nearly every other variety at present in use.

As an instance of the precocity of this new Potato, we give an extract from the note-book of the raiser, detailing his successive crops during the last twelve months:—

Planted in pots under glass,	Nov. 11, 1880,	lifted,	Jan. 13 1881.			
,,	frame	,,	Jan. 27, 1881,	,,	Mar. 19	,,
,,	open air	,,	April 5	,,	,, June 7	,,
,,	,,	,,	June 22	,,	,, Aug. 18	,,
,,	,,	,,	Sept. 2	,,	,, Nov. 7	,,

Thus five generations were brought to maturity in 300 days, so that six might have been grown in less than twelve months, which has never yet been accomplished with any other Potato yet introduced.

Sprouted sets now ready for planting in frames or pots.

Price, 1s. per pound.

THE DESIDERATUM IN POTATOS.
SHARPE'S DUKE OF ALBANY.

The Editor of the *Gardeners' Chronicle*, in the number for September 24, 1881, makes the ollowing remarks in his report of the International Potato Exhibition, held at Manchester:—

> "But we want other improvements; we want more large cropping, earlier kinds, and of the late sorts considerable disease-resisting powers. First early sorts are rarely affected by the destructive fungus. Their season is short, their haulm growth usually of a medium character, and as rule they ripen ere the disease becomes dangerous. Large cropping kinds, that will give a big bulk of good tubers capable of carrying on the needful supply for the family or for the nation till Christmas, yet lifted ripe in August, would be an immense boon; and these, it is hoped, may come soon, because well-directed efforts in the shape of cross-fertilisation to secure the desired end are being made . . . . Although no special prizes were offered for these there can be no doubt but that the special encouragement given to new sorts will tend to promote that desirable object."

Duke of Albany so exactly erresponds to the requirements above indicated, that, had it been written for us as a description, it could not have been more exact.

Duke of Albany is a white Kidney—a cross between Beauty of Hebron and Early Goodrich; it has a short haulm with a pale flat leaf, is quite as early as Myatt's Prolific, as large in size and as heavy a cropper as Magnum Bonum, than which it is ten weeks earlier; it is ripe early in August, and will keep unti spring, being a first-class Potato from the middle of July until the month of March. For flavour, quality of flesh, and good cooking properties, it leaves nothing to be desired.

Price—per Pound, 6d.

SPECIALITIES.

CULVERWELL'S GIANT MARROW PEA.

This, the most recent of Mr. Culverwell's introductions, is decidedly the best Pea he has raised. It is a Blue Wrinkled Marrow, growing from 5 to 6 feet in height, with a strong branching habit, the haulm being covered from top to bottom with Giant Pods, containing from ten to thirteen very large Peas of the most exquisite flavour. As a main crop Pea for the Gentleman's Gardener who requires a long succession of Peas, o for the Amateur growing for Exhibition, it is unequalled.

The Giant Marrow should not be sown early, its special qualification is its adaptability for a late crop, or for a late Exhibition Pea. **2s. 6d. per packet.**

Culverwell's Giant Marrow Pea.

	s.	d.
SHARPE'S INVINCIBLE PEA, per qt.	2	6
SHARPE'S TELEGRAPH CUCUMBER .. .. per packet	1	0
ASWARBY PARK MELON, per pkt.	1	6
RAUCEBY HALL MELON, per pkt.	1	6
NISBET'S VICTORIA TOMATO per packet	1	0
SHARPE'S CONQUEROR BEAN per pint	1	0
ECLIPSE CAULIFLOWER, per pkt.	1	6
SHARPE'S "LINCOLN GREEN" PARSLEY .. .. per packet	0	6
EDELWEISS ... ... per packet	1	0
SHARPE'S CHOICE CALCEOLARIA per packet	2	6
SHARPE'S CHOICE CINERARIA per packet	2	6
SHARPE'S CHOICE PRIMULA SINENSIS .. .. per packet	2	6

SOLD BY ALL NURSERYMEN AND SEEDSMEN.

PRICE TO THE TRADE AND SPECIAL TRADE LIST ON APPLICATION.

NOTICE.—SELLING OFF OF NURSERY STOCK.

Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz. :

15 per Cent. for Cash with order,
10 per Cent. for Cash within One Month of date of invoice.
5 per Cent. for Cash within Three Months of date of invoice.
After Three Months no discount can be allowed.

The following are some of the Goods they hold large and very fine Stocks of:—

ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 9s. to 15s. per dozen, 63s. to 100s. per 100, £28 to £40 per 1000.
,, Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 100.
NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen.
,, French Varieties of 1880, 18s. per dozen, 130s. per 100.
CURRANTS—Black, good bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 100 ; cheaper by the 1000.
NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6s. to 9s. per dozen, 40s. to 60s. per 100, £18 to £27 10s. per 1000.
ASPARAGUS—extra fine, strong planting roots, 2s. 6d. to 3s. 6d. per 100, 20s. to 30s. per 1000.
HERBS of many kinds, 3s. to 6s. per dozen.
DOGWOOD, Red-twigged (Cornus alba)—Stout bushes. This shrub gives a fine effect in winter. 2 to 3 feet, 16s. per 100 ; 3 to 4 feet, 25s. per 100.
ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000 ; 6 to 8 feet, 25s. per 100, 200s. per 1000.
POPLAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 160s. per 1000 ; 8 to 10 feet, 5s. per dozen, 30s. per 100, 240s. per 1000.
WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100 ; 8 to 10 feet, 4s. per dozen, 25s. per 100 ; 10 to 12 feet, 6s. per dozen.
,, Cœrulean, 6 to 8 feet, 3s. per dozen, 15s. per 100 ; 8 to 10 feet 4s. per doz., 25s. per 100 ; 10 to 12 feet, 6s. per doz.
ASH—(Fraxinus excelsior) atrovireos, 3 to 4 feet, 12s. per dozen ; aucubæfolia, 4 to 6 feet, 12s. per dozen ; 6 to 8 feet, 18s. per dozen ; 8 to 10 feet, 24s. per dozen.
,, spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen ; 4 to 6 feet, 9s. per dozen ; 6 to 8 feet, 12s. per dozen ; 8 to 10 feet, 24s. per dozen.
BEECH—Crested-leaved, a very ornamental tree, 4 to 5 feet, 9s. per dozen ; 5 to 6 feet, 12s. per dozen ; 6 to 8 feet 24s. per dozen.
,, Cut-leaved, very beautiful, 4 to 5 feet, 12s. per dozen ; 5 to 6 feet, 18s. per dozen ; 6 to 8 feet, 24s. per dozen ; 8 to 10 feet, 36s. per dozen.
,, Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12s. per dozen ; 4 to 5 feet, 18s. per dozen ; 5 to 6 feet, 24s. per dozen.
,, Purple-leaved, the best dark broad-leaved variety, 3 to 4 feet, 9s. per dozen, 60s. per 100 ; 4 to 5 feet, 12s. per dozen, 75s. per 100 ; 5 to 6 feet, 18s. per dozen, 120s. per 100 ; 6 to 8 feet, 24s. per dozen.
,, Weeping, 4 to 5 feet, 12s. per dozen ; 5 to 6 feet, 18s. per dozen ; 6 to 8 feet, 24s. per dozen.
HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9s. per dozen, 60s. per 100 ; 10 to 12 feet, 12s. per dozen, 75s. per 100.
,, Scarlet-flowered, 6 to 8 feet, 18s. per dozen ; 8 to 10 feet, 24s. per dozen.
ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24s. per dozen.
,, Giant or Huntingdon (macrophyllus), 10 to 12 feet, 12s. per dozen, 75s. per 100 ; 12 to 15 feet, 18s. per dozen.
,, Silver Variegated, 4 to 5 feet, 12s. per dozen ; 5 to 6 feet, 18s. per dozen ; 6 to 8 feet, 24s. per dozen.
,, Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24s. per doz. ; 12 to 15 feet, 36s. per doz.
POPLAR—Golden-leaved Canadian, 4 to 5 feet, 6s. per dozen ; 5 to 6 feet, 9s. per dozen ; 6 to 8 feet, 12s. per dozen ; 8 to 10 feet, 24s. per dozen.
MAPLE, Norway (Acer platanoides), 8 to 10 feet, 9s. per dozen, 60s. per 100 ; 10 to 12 feet, 12s. per dozen.
WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3s. per dozen, 16s. per 100 ; 6 to 8 feet, 4s. per dozen, 20s. per 100 ; 8 to 10 feet, 6s. per dozen, 40s. per 100 ; 10 to 12 feet, 12s. per dozen.
EUONYMUS—radicans argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2s. per doz., 12s. per 100 ; 4 to 6 in., 3s. per doz., 16s. per 100.
ELDER—(Sambucus nigra) variegated : a beautifully variegated plant, which thrives close up to the sea ; 6s. per dozen, 40s. per 100.
,, cut-leaved—a handsome laciniated form, and, like other Elders, extremely useful for ornamental planting close to the sea. 6s. per dozen, 40s. per 100.

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Gardeners' Chronicle.

SATURDAY, DECEMBER 17, 1881.

MARKET GARDEN HUSBANDRY.*

UNDER this title Mr. William Ablett presents us with the eighth book of a series intended to instruct and edify farmers, whom the author seems to imagine are not too fully acquainted with the various subjects that more or less appertain to agriculture. Certainly the farmers just now do not want advisers. In every direction, both by speech and book, they are being shown how they may convert failure and disaster into "pleasure and profit," and if the old proverb still holds good, in such a multitude of counsellors they should find wisdom. Our author, however, even at the outset, drops upon the sanguine farmer who may look into his book for encouragement a sort of wet blanket that would at once quash the hopes of most men, for in his preamble he tells us of the suggestions made as to the advisability of a change in ordinary farm cropping, "One of the most feasible is the raising of vegetables for the supply of our increasing town populations, and in some instances the recommendations have been acted upon to a limited extent, with disappointing results, it must be confessed, in many cases." That most probable result—following, doubtless, upon lack of knowledge, insufficient labour and manure, and, still more, the want of a proper market !—does not, however, deter Mr. Ablett from furnishing readers with long cultural notes upon various garden vegetables, Carrots, Asparagus, Onions, Potatos, Peas, Tomatos, Cabbages, Broccoli, Rhubarb, and many other things.

In dealing with these, somewhat elaborate descriptions are given of modes of culture, of suitable soils, marketing, &c., that is largely a rehash of what has been oft told in the gardening papers or in similar works—all eminently practical, but far from being new ; indeed, the long chapter upon Potatos, the *pièce de résistance* of the book, is almost entirely made up of letters from the *Times* and evidence given before the Potato Disease Committee—a rather cheap method of book-making. Either with the object of filling pages, or of giving certain seed-houses a lift, or anxious to leave no kind of vegetable unmentioned, there are given under the various heads long lists of sorts, many of which are almost defunct. Thus of Broccoli the poor farmer, looking for advice as to the best market kinds, finds a list of some forty-two sorts ; and so on through the book *ad infinitum*. The book is also disfigured by the special prominence given to the kinds offered by one or two particular seedsmen, as their names crop up largely under every heading. This blot adds a puffing aspect to the work.

Whether the author has practical experience of the culture of which he writes or not, at least he seems to prefer other evidence, as special prominence is given to modes of culture in various parts of the kingdom, but unfortunately chiefly in the most favoured districts. Naturally the practical experience of one who had tested

* *Farming for Pleasure and Profit.* Eighth Section Market Garden Husbandry. By William H. Ablett. (London : Chapman & Hall, Limited.)

all that is advised and had succeeded also would have been of far more weight. Books that simply indicate to others to do "as I say and not as I do" cannot exert any very useful influence. Although the term market garden husbandry is a fairly comprehensive one, yet it is amusing to note that a chapter is devoted to the culture of Mushrooms, by no means a tempting business for farmers; but even the absurdity of this is exceeded by the chapters upon flower culture, to which force is lent by a long and very florid article quoted from the *Pall Mall Gazette*, but which we trust will not entice the too-much-troubled farmer to give up his corn and his roots, his beeves and flocks, to look for an El Dorado in growing flowers for market. The *Pall Mall* writer and the author seem somewhat divided in opinion in one respect, for whilst the former tells us, as an example of the general economy found in London market gardens, that "thousands of Rose bushes are planted in fruit orchards, and grow vigorously beneath the shady trees," the author states in his concluding lines that "there are miles of Quick hedges which surround the market gardens in the suburbs of London—such a district as Hounslow, for example—where Violets can be grown, and in some circumstances they are thus grown, but the fruit growers do not seem to go in for flowers to any great extent." We fear Mr. Ablett has not made any more intimate acquaintance with suburban market gardens than what a glimpse from a passing train affords, for the very reverse of his statement is the case.

Throughout the market orchards where bush fruits are not grown, immense breadths of flowers, such as Wallflowers, Violets, double Primroses, Narcissus, Lily of the Valley, Stocks, Moss and China Roses, and many other things, are cultivated, and prove to the growers, because of their nearness to London, a valuable source of profit. To advise farmers to cultivate these things at places remote from a good market is misleading—in fact, is absurd. Almost as incongruous now as a revival of stage-coaches would be, is the long list of Peas given, many of the sorts defunct, and others nearly forgotten; yet, curiously enough, no mention is made of the few kinds that are most largely grown for supplying the London market, such as William I., Harrison's Glory, Laxton's Supreme, Veitch's Perfection, and Hundredfold. To devote space to a description of sticking Peas seems very stupid, just as though the grower of this vegetable would find profit in the furnishing of sticks to several acres. A farmer and his labourers engaged in this sort of work would be a sight for the gods. He might possibly find "pleasure," but the "profit" would be sadly wanting.

The Potato disease naturally crops up in the book, and indeed furnishes a cheap text upon which to discourse. The author in expressing his belief that the disease is due to deterioration, brought about by spring planting instead of autumn planting, finds this a capital excuse for lugging in a couple of letters which appeared in the *Times* in 1879, one of which, from Mr. James Howard, M.P., rather amuses than adds to our knowledge of the Potato and its culture. Mr. Ablett thinks it is remarkable that autumn planting is not more general; with perhaps a wider knowledge than he has, we should be surprised to find that it was so. These letters, with descriptive notes of Potato culture in Bedfordshire, taken from the *Agricultural Gazette*, and Messrs. Rintouls and W. G. Smith's evidence before the Potato Diseases Committee, make up some thirty pages, and show how much more profitable book-making may be than mere vegetable farming. Mr. Ablett is responsible for a curious Hibernianism, when he says that sorts of Potatos which produce no seed are longer lived than those which can be reproduced from seed, and yet advises raisers to be influenced by this fact when producing new varieties. If kinds only that produce no seed are to be kept how new varieties are to be raised Mr. Ablett omits to tell us; but the opinion is a fair example of the way in which practical men will trip when they dabble in theories.

Even Mr. Smith, who is not often caught tripping, seems to get a little out of his depth when he tells the committee that, as a rule, it is Potatos that are badly stored, badly planted, and badly cared for, which become most subject to the murrain; and yet a little farther on states that the disease attacks the Tomato with equal virulence; and yet the strong expressions of "badly stored," "badly planted," and "badly cared for," cannot apply to these, for we find the plants killed wholesale even under the best culture, and sometimes when under glass. The author does not seem to have read Mr. Smith's evidence carefully, however. If he had he would probably have in his remarks upon Tomato culture alluded to its liability to wholesale destruction by the Peronospora. Having done so much for the farmer, Mr. Ablett strives to do the market gardeners a good turn by pointing out to them how they may turn their surplus vegetables to profitable account, in seasons of "glut" especially, by keeping live stock to eat them up—perhaps the best advice to be found in the book; market growers too often get practical knowledge of vegetable "gluts." Farmers have already so many troubles that we may well pray that they may be spared from similar experience, but if they determine to become market gardeners they will assuredly find "gluts" are of frequent occurrence.

New Garden Plants.

NEPENTHES VEITCHII, *Hook. f.**

The illustration at fig. 152 shows a small-sized pitcher of the true N. Veitchii as originally described by Sir Joseph Hooker. It has been mistaken for N. villosa, and was figured under that name in the *Botanical Magazine*. The whole plant is more or less villous; the leathery leaves obovate lanceolate, tapering at the base; the pitchers 12 inches long, somewhat cylindrical, narrowed at the base with two deep sharply laciniate wings, the laciniæ themselves sometimes acutely lobed; the mouth is surrounded by a very broad everted border strongly ribbed, the ribs ending in sharp teeth, which point downward into the throat of the pitcher. Lid very small relatively to the mouth, oblong, glabrous, keeled at the base, and with radiating venation. The plant is a native of Borneo. Though destitute of the rich colouring of some of the other species, yet this is one of the handsomest of the cultivated species, the broad, reflexed, finely ribbed border, which is of a creamy-olive colour, or sometimes reddish, being very striking. Our figure was drawn by Mr. Worthington Smith, recently, in Messrs. Veitch's establishment.

ODONTOGLOSSUM ASPERSUM, *H. G. Rchb. f.*

This very rare plant has hitherto been a monopoly of Messrs. J. Veitch & Sons. *Fuit Ilium!* Now I have at hand a fine flower, kindly sent by Mr. C. Dorman, The Firs, Lawrie Park, Sydenham. It was imported by Mr. F. Sander, of St. Alban's, collected by Mr. Petracek. The new individual is somewhat intermediate between the original type of January, 1879, and the variety violaceum of March, 1881. It is quite like the type, but the column being thickly spotted with fine small mauve dots appears at a distance quite mauve, like that of the last-mentioned variety. It is an unusually fine thing, whose value is increased much by its being not to be obtained unless by an unexpected accident. *H. G. Rchb. f.*

DENDROCHILUM UNCATUM, *Rchb. f.*†

This is an elegant Dendrochile with a fusiform furrowed pseudobulb, petiolate oblong-lanceolate acute leaves, and a nodding raceme of hyaline green flowers, which have two brown stripes on the obscure keels at the base of the lip, and a brown mark at the base of the column. The column is whitish. It was originally discovered by Mr. Hugh Cuming in the Philippine Islands. It is his No. 2073. All the specimens of his No. 2103 I have recently seen belong to a narrow-leaved variety of this, var. lancifolia. There occur, however, as it appears, specimens of Dendrochilum filiforme, Lindl., under this number. The fine specimen at hand was kindly sent by the firm of Hugh Low & Co. *H. G. Rchb. f.*

DENDROBIUM COBBIANUM, *Rchb. f.*

A living plant, kindly sent by the firm of Hugh Low & Co., shows a great difference from the first-developed one I obtained. The inflorescence is far less zigzag. The sepals and petals are milk-white, with an ætherean hue of yellow. Lip finest dark yellow, with a cinnabar-orange blotch on its base. Column white. If we compare the fresh bulbs grown in England with those of wild specimens, then we may expect that the plant will still improve very much. *H. G. Rchb. f.*

VANDA BOXALLII COBBIANA, *nov. var.*

A very fine new variety introduced by the firm of Hugh Low & Co. flowers just with Mr. Cobb, of Sydenham. The very large flower is milk-white, with small short purple stripes on base. The inner half of lateral sepals is of the darkest purple-brown, such one as in the blotches of Odontoglossum nevadense. There are no blotches on the tops of sepals and petals, and this is the chief distinction of the plant drawn for Mr. Boxall, and the fine beauty sent by Sir Trevor Lawrence a year ago. *H. G. Rchb. f.*

* *Nepenthes Veitchii*, Hook. f., Trans. Linn. Soc., vol. xxii., p. 421; et in DC. Prod., xvii. (1873), p. 96; Burbidge in Floral Mag., t. 265; Mast. in Gard. Chron. 1872, p. 541.

† *Dendrochilum uncatum*, Rchb. f.—Pseudobulbis fusiformi-pyriformibus monophyllis; foliis a basi cuneato petiolari lanceis acutis; rhachi inflorescentiæ capillari tenui apice racemoso subfractiflexo; bracteis ligulatis obtuse acutis convolutis ovaria pedicellata æquantibus; sepalis ligulato-triangulis; tepalis obtusangulo-rhombeis erosulis; labelli trilobi laciniis lateralibus subquadratis serratis, lobo mediano cuneato rhombeo acuto obtuso, carinulis 2 brevibus obscuris inter lobos laterales; columna apice cucullo acuto, supra basin brachiis uncatis.—Bonplandia, iii., 222; Walp. Ann., vi., 927; Ins. Philipp., Cuming, 2073, 2103 (var. lancifolia). Viv. mis. cl. Hugh Low. *H. G. Rchb. f.*

A BIRD-CATCHING SEDGE.

As another example of the wonderful adaptation of seeds for the purpose of distribution, I may mention those of Uncinia jamaicensis, Pers. (Carex hamata, Sw.), Grisebach, *Flora British West Indian Islands*, 1864, p. 581. This is a plentifully distributed Sedge, growing in damp hollows and shaded woods on the Blue Mountains, Jamaica. The plant is about a foot or 18 inches high, with narrow pointed grass-like leaves. The flower-head is a slender spike about 3 inches long, of a dark brown shining colour. Its most remarkable feature, however, consists in the spikelets. These are furnished with a smooth long-exserted awn of a peculiar hamate character, resembling a shepherd's crook, but with the hook pressing so closely against its base that it will hold the finest hair. By means of this delicate but wonderfully constructed awn the seeds of the Uncinia attach themselves with great tenacity to the coats of dogs, the legs of pedestrians, or, indeed, to anything that comes within their reach, and when once attached they are removed with the utmost difficulty. In fact, as showing their finely-adjusted powers, and their tenacity, it may be mentioned that if a spike is drawn along the back of the hand the hooks will clasp, and easily pull out single hairs by the roots.

On two occasions lately I have found small birds (grass quits), about the size of an English tom-tit, securely caught by a couple of spikes of this Sedge. The spikes were attached along the underside of the body of the bird, with the hooked awns buried among the feathers. Of course, in these instances, the birds were released, but from the secure manner in which they were caught I have no doubt that many birds not large enough to drag out the spikes, or draw the spikelets from their receptacles, must die in this manner from exhaustion, or fall a prey to rats and other vermin. *D. Morris, Jamaica, Nov.* 14.

A SYNOPSIS OF THE GENUS CROCUS.

(*Concluded from p.* 749.)

62. ‡*C. chrysanthus*, Herbert; C. annulatus var. chrysanthus, Herbert; C. sulphureus, Griseb., not of Ker; C. crocus, K. Koch.

Var. 1. *fusco-tinctus*, Baker.—Mountains of Smyrna.
Var. 2. *fusco-lineatus*, Baker.—Mountains of Smyrna.
Var. 3. *albidus*, Maw.—Bithynian Olympus and Yamanlah Dagh.
Var. 4. *cærulescens*, Maw.—Bithynian Olympus.

Corm from $\frac{1}{2}$—$\frac{3}{4}$ inch broad, and fully $\frac{1}{2}$ inch high; tunic strongly coriaceous, like that of biflorus; the basal tunic consisting of coriaceous annulæ, surrounded by about twenty sharp projecting points on their outer circumference. Sheathing leaves falling short of the proper spathe, and enclosing several scapes. Proper leaves from five to eight to a corm, appearing with and reaching to the flowers, and produced to 10 inches in length at maturity, $\frac{1}{16}$—$\frac{1}{12}$ inch broad, with a prominent ciliated keel. Proper spathe diphyllous, reaching nearly to the throat. Perianth: throat glabrous; segments from 1—$1\frac{1}{4}$ inch long and $\frac{1}{3}$ inch broad, in the type, of a uniform rich orange colour, but varying with the outer surface of the outer segments, suffused and feathered with bronze markings; in var. albidus pure white, with a yellow base; and in var. cœrulescens, white, with external markings and featherings of bluish-lilac and purple; a pale sulphur-coloured variety is also found on the Bithynian Olympus. Anthers orange, generally with a black spot at the base, and about twice as long as the papillose yellow filament; the style dividing near to or above the summit of the anthers, and produced into spreading, entire, scarlet stigmata, which

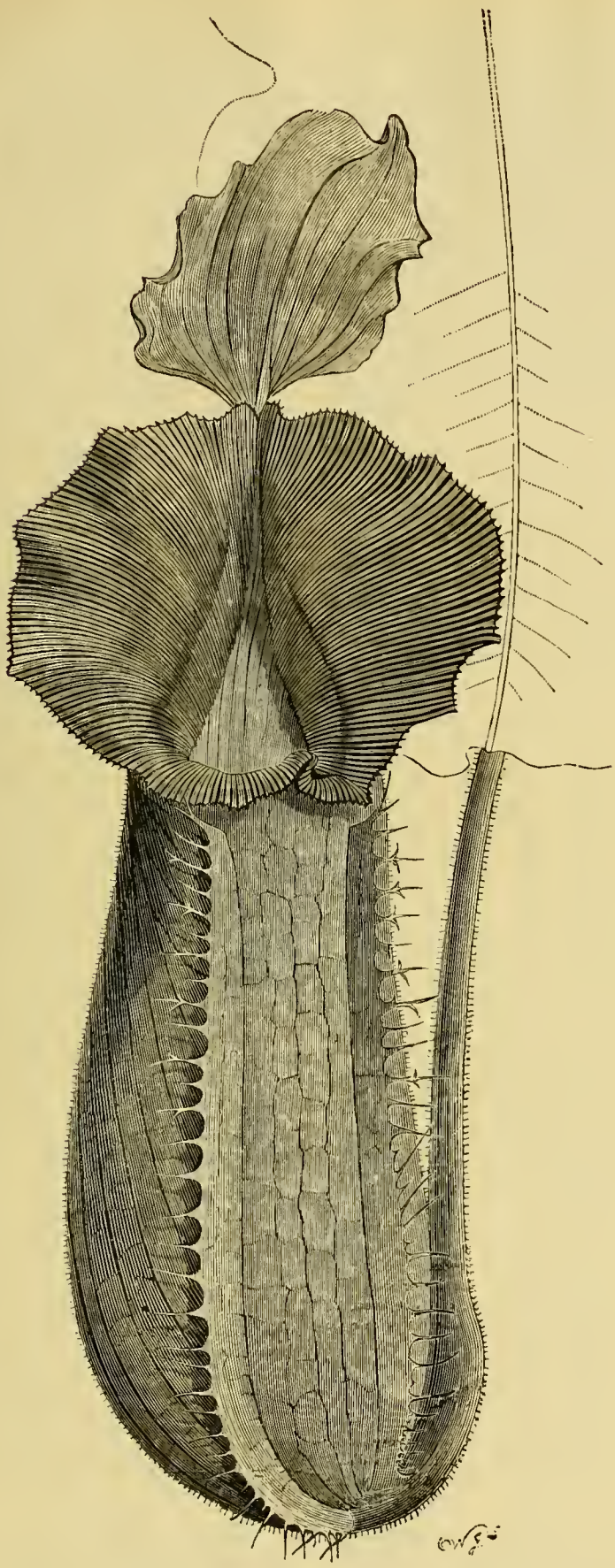


FIG. 152.—NEPENTHES VEITCHII. (SEE P. 780.)

generally exceed the anthers. Seed bright red, ripening to brown, or cream-coloured, ripening to buff.

C. chrysanthus is an abundant species in Western Bithynia, Greece, Macedonia, Thrace, and Roumelia; flowering from January to March, according to its range of elevation, which is considerable, as it is found from a little above the sea-level to an altitude of between 3000 and 4000 feet. It is very variable in the colouring and markings of the flowers, and also in the colour, size, and height of the stigmata, which vary from yellow to orange-scarlet, and are sometimes below, and occasionally high above the summit of the anthers.

63. ‡ *C. Danfordiæ*, new species, Maw. — Corm about ½ inch broad and high. Corm tunic coriaceous, resembling that of C. chrysanthus; the basal tunic consisting of a coriaceous plate, surrounded by short pointed rays, succeeded upwards by annuli, the outer circumference of which is produced into a few short points. Sheathing leaves falling short of the proper spathe, and including one or more scapes. Proper leaves exceeding the flowers, and produced at maturity to a length of about 12 inches, $\frac{1}{20}$ inch broad, ciliated on the margins of the blade and keel, the lateral channels containing two prominent ribs. Proper spathe diphyllous, reaching to within an inch of the throat. Perianth: throat glabrous, segments pale sulphur-yellow, unstriped or faintly suffused with grey towards their base, about ¾ inch long and ⅜ inch broad. Anthers yellow, ⅛ inch long, twice the length of the yellow filament, and much exceeding the stigmata; the style dividing at the base of the anthers into entire, very short, orange stigmata, which are much exceeded by the anthers. Capsule and seed unknown.

C. Danfordiæ was discovered in flower by Mrs. Danford on March 9, 1879, at Ya-puz, Anti Taurus, and also gathered by her at Tapizite, in the same district, whence she forwarded me some corms, which flowered early in March of the present year. I am also indebted to the Rev. A. W. Hubbard, of the American Mission at Sivas, in Asia Minor, for a liberal supply of the corms of this species, which he collected for me near Sivas, in the spring of 1879, and which flowered at Benthall in February and March last.

C. Danfordiæ is more nearly allied to C. chrysanthus than to any other species, but is readily distinguished by its very small primrose-yellow flowers and its exceptionally short spreading stigmata.

‡ Autumnal species.

The flowers appearing without leaves, the stigma multifid, and the sheathing leaves exceeding and hiding the proper spathes.

64. ‡*C. speciosus*, M. Bieb.; C. multifidus, Reich., not of Ramond.—Corm large, from ¾—1¼ inch broad and ¾ inch high, bulbiferous at the base; the tunic membranous, thinner than that of the other annulate species; the basal tunic consists of a membranous disc, succeeded upwards by one or two broad membranous annuli. Sheathing leaves exceeding the proper spathe. Proper leaves undeveloped at the flowering time, and produced in the spring to a foot or more in length, from two to four to a corm, from ¼—⅓ inch broad, the margins of blade have suddenly reflected sharp edges, keel prominent, with sharp overhanging margins; margins of keel and blade ciliated. Proper spathe diphyllous, falling short of the sheathing leaves by which it is covered. Perianth: throat glabrous, white; segments very large, from 2—2¼ inches long, and from ¾—1 inch wide, broadly lanceolate, bright lilac, feathered with three purple veins from the base to the summit, which branch into a network of purple veins covering the outer surface; the outer surface of the outer segments rich purple towards the base. Anthers bright orange, tapering upwards, nearly 1 inch in length, two or three times as long as the white filament; the style dividing near the level of the summit of the anthers, and produced into a mass of bright orange stigmata much exceeding the anthers; they are generally erect, but in the form from Tiflis bend over. Seed large, nearly spherical, dark red, papillous.

C. speciosus is an early autumnal species, flowering through the latter half of September into October. It has a wide geographical range, extending from North Persia, through Georgia, the Caucasus, and the Crimea, into Hungary and Transylvania. There is no record of its occurrence in Central Asia Minor, but I believe the plant gathered by Kotschy on November 6, 1859, on the summit of the Kalat Dagh range, near Stauros, south of Trebizond, at an altitude of 8500 feet, and distributed by him as C. pulchellus (No. 484), to be this, or a closely allied undescribed species. C. speciosus is a well known garden plant, and multiplies rapidly by means of small bulbils, produced at the base of the corm.

65. ‡*C. pulchellus*, Herbert; C. constantinopolis, Hertodt, of Jena, 1670.—Corm ¾ inch broad, and ½ inch high. Corm tunic coriaceous, splitting up at the base, and produced at the summit into fine pointed divisions; the basal tunic consisting of three or four coriaceous annuli, with fifteen or sixteen fine points on their outer circumference. Sheathing leaves exceeding the proper spathe. Proper leaves undeveloped at the flowering time,

and hidden by the sheathing leaves, produced in the spring to a length of about 9 inches, $\frac{3}{16}$ inch broad, glabrous, the keel prominent, narrow, and concave. Proper spathe diphyllous, about $1\frac{1}{2}$ inch long, hidden by the sheathing leaves. Perianth: throat glabrous, bright orange; tube 4 inches in length, exposed for a height of 3 inches above the proper spathe and sheathing leaves; segments broad, ovato-lanceolate, $1\frac{1}{2}$ inch long and $\frac{3}{4}$ inch broad, bright bluish lilac; the outer segments self-coloured externally, the inner surface of segments marked with five dark purple, narrow, branching lines; flowers occasionally white. Anthers white, twice the height of the yellow hairy filament; the style dividing near the throat, and produced into ten or twelve fine capillary divisions of the orange stigmata, which reach to the level of the summit of the anthers. Seed globose, red, with a papillous surface.

Although C. pulchellus appears to have been known to Hertodt, of Jena, as early as 1670, it was first described by Herbert, and separated by him from C. speciosus.

It is an abundant plant in the heathy thickets bordering the Bosphorus; it is said by Herbert to occur also in Mount Athos, in Greece, and I have seen it in profusion on the Bithynian Olympus up to a height of nearly 4000 feet. I cannot ascertain that it extends much to the east of Olympus in Asia Minor. The plant distributed by Kotschy as pulchellus, from the mountains south of Trebizond, is certainly not this species. It commences to flower in cultivation about the middle of September, and in a genial autumn continues to produce flowers late into December.

Section IV.—*Intertexti.*

Corm tunic of platted or stranded fibres. Vernal; the leaves appearing with the flower. Proper spathe diphyllous.

66. *C. Fleischeri*, Gay; C. Fleischerianus, Herbert; C. smyrnensis, Poech; C. penicillatus, Steudel (not C. candidus of Clarke).—Corm about $\frac{3}{4}$ inch broad and high, of a golden-yellow colour, and bulbiferous at the base; the main tunic of fine yellowish-brown fibres, arranged in vertical strands as though platted, the cap of reticulated fibre; the basal tunic of fine radiating unbranched fibres. Sheathing leaves falling a little short of proper spathe. Proper leaves appearing before and reaching above the flowers, produced at maturity to a length of about 1 foot, glabrous, very narrow, from $\frac{1}{30}$—$\frac{1}{24}$ inch wide. Proper spathe diphyllous, of two equal ligulate valves. Perianth: throat unbearded, yellow; segments acute, linear-lanceolate, from 1—$1\frac{1}{4}$ inch long, and barely $\frac{1}{4}$ inch broad, white, the outer surface of the outer segments marked with three purple lines at the base, which are produced down the tube, the centre line reaching to the end of the segment. Anthers small, orange, about as long as the slender filament: the style dividing near the throat, and produced into finely divided capillary branches of the brick-red stigmata, which much exceed the anthers. Seed bright rosy-red, ripening to dark chocolate colour.

C. Fleischeri is not uncommon on the Hippurite Limestone plain above Smyrna, flowering in January and February; it has also been recorded from Lycia and Cilicia.

67. *C. parviflorus*, Baker, in Trimen's *Journal of Botany*, n.s., vol. v., No. 165, pp. 265—266).—Corm from $\frac{1}{4}$—$\frac{1}{2}$ inch broad; tunic of stranded interlacing fibres, produced upwards into a bunch of fibrous points $\frac{1}{4}$ inch above the top of corm. Sheathing leaves falling short of the proper spathe, including one or two scapes. Proper leaves glabrous, three or four to a corm, about 3 inches long at the flowering time and reaching to the level of the flowers, very narrow, $\frac{1}{20}$ inch broad. Proper spathe diphyllous, reaching to within $\frac{1}{2}$ inch of the throat. Perianth: throat unbearded (?); segments uniform lilac without markings, ovato-lanceolate, very small, from $\frac{1}{2}$—$\frac{3}{8}$ inch long, and about $\frac{1}{5}$ inch broad. Anthers pale orange, $\frac{3}{8}$ inch long, twice the length of the filament; the style dividing at the base of the anthers, and shortly produced into entire, subulate, spreading stigmata, which reach to the level of the middle of the anthers. Capsule and seed unknown.

C. parviflorus, the smallest known species of the genus, was discovered by Mrs. Danford in the spring of 1877, in Fir woods, at an altitude of about 4000 feet, near the village of Anascha, in the Taurus, flowering from the beginning of March to the middle of April.

In addition to the sixty-eight species of Crocus above enumerated, the rich collection made by Mrs. Danford in the Taurus includes two or three other new species, which have yet to be described. I am indebted to Mrs Danford for living corms of most of these, and as her dried specimens are not accompanied by the corms and tunics, I defer describing them until I can figure the species from living specimens for my forthcoming monograph. *Geo. Maw.*

THE BLACKBIRD IN THE GARDEN.

All practical gardeners are aware that if the blackbird makes free with ripe fruit at one season of the year, at another it devours large numbers of slugs and snails and other vermin, besides being a cheerful songster. In Germany it appears the blackbird is a great favourite, and one of the birds that are strictly protected; but all persons are not agreed as to the wisdom and justice of their protection; and a Professor of Zoology and his gardener have recently been fined, as we learn from Regel's *Gartenflora*, for netting blackbirds. Dr. Semper, Professor of Zoology, Warzburg, who is very fond of gardening, finding the blackbirds troublesome, ordered his gardener to catch them. The gardener accordingly proceeded to do so with nets, and was, in consequence, informed against, when he threw the blame on his employer. Both were summoned to appear in a court of law, to answer the charge of unlawfully destroying song-birds. The case would probably have attracted very little attention, had the accused not raised a very extraordinary defence.

Ornithologists of repute were called upon to give evidence, both by the prosecution and the defendants. For the defence, Mr. Baldamus, the clever author of the *Vogelstimmen*, stated that the undue increase of blackbirds had become detrimental to gardens and the smaller song-birds. He had observed himself, in Coburg, five instances of blackbirds preying upon the unfledged young of finches, and feeding their own offspring therewith. Another learned Professor declared that the blackbird had degenerated into a carnivorous bird, in consequence of pairing with other birds, and had become one of the most destructive of birds, devouring young song-birds, plundering nests, and being especially a great enemy to the nightingale. These statements went the round of the newspapers in Germany, and raised quite a storm of indignation against the assumed libellers of the favourite blackbirds. A few persons, however, and probably those who knew best, agreed that the blackbird was not altogether such an unalloyed delight as many people supposed. A man may be exceedingly fond of birds, yet it would be none the less vexatious to him to have his cherished alpine plants scratched out of their nooks in the rockwork, his germinating Peas or early fruits devoured. As Dr. Regel states, in some comments on this case, if we harbour blackbirds and other song-birds we must protect our plants and fruits, &c.; and there can be no doubt that if one kind of bird, the blackbird, for example, be permitted greatly to preponderate, it will be to the injury of some other species.

In this country it has been stated, though we are not able to speak from experience, that many birds are less numerous now than they were a few years ago, before their species were protected; not because they have been protected, but in consequence of a succession of severe winters. Previous to this, beautiful blackbirds and charming thrushes were so numerous in some localities as to cause fruit growers great loss, in spite of every precaution. Snails and slugs often spoil a great many Strawberries, &c.; on the other hand the larger song-birds will soon devour the entire crop: the former are not difficult to reduce to comparatively harmless limits, whilst the latter will congregate from a whole country side, and one must be on the alert nearly all the twenty-four hours to cope with them. When they flock together in numbers they seem to organise, and are certainly much bolder than under other circumstances, and, in fact, after they have once got a taste of the ripe fruit, they will venture again and again, apparently regardless of the risk. Protection is all very well, but where blindly pursued it often leads to disastrous results—witness the sparrows in Algeria, where they have become so numerous as to actually strip the cornfields.

What would be much more effectual — in this country, at least—is indirect protection in the direction of rigorously prosecuting professional bird-snarers. The licence on fire-arms has in a great measure put a stop to the indiscriminate slaughter of birds, &c., in the vicinity of large towns; and now the bird-catchers should be put down. Protect birds during the breeding season, but let owners and holders shoot blackbirds and thrushes if they choose, for they are good eating, and multiply freely. As for the smaller song birds the greatest enemy is the professional bird-catcher.

COLONIAL NOTES.

Trinidad.—We have received a copy of the report on the condition of the Botanic Garden for 1880. It is a lengthy document of nearly sixty folio pages, with twenty-four additional pages forming an appendix. Naturally the bulk of the report is occupied with matters of local interest, but there are several points of interest to home cultivators. It is noted, for instance, that Vanda teres does not flower if subjected to the least shade, but "when placed on an exposed tree or stump every branch produces its two or more spikes of lovely mauve, orange, and white flowers." "Hybrid Moka" Coffee promises to be the most suitable variety for low elevations, vieing with Liberian Coffee in vigour and fruitfulness, with seeds smaller than those of C. arabica, but much more profusely produced. It is suggested that a good cross might be made between it and the Liberian variety, which is deficient in some of the characteristics of high-class Coffee. Incidentally the probability of the existence in Eastern Tropical Africa of a species of Coffee identical with or closely allied to Liberian Coffee is mentioned. The Saman or Rain tree does not in Trinidad exhibit that phenomenon of exuding moisture from its leaves which has given it the name. It is excellent as a shade tree, however, and its fruits furnish good fodder for cattle. The wood of old trees, moreover, is useful wherever toughness, durability, and freedom from liability to warp are desirable.

The Mahogany flourishes well at Trinidad, and its timber is of excellent quality. The Candle-tree (Parmentiera cerifera) also thrives, and its highly nutritious fruits are recommended as food for stock in the dry seasons when there is a scarcity of fodder. The fruit of Musa vittata, originally introduced from Fernando Po, and cultivated for ornamental purposes only, turns out to have very delicately flavoured fruit, which is striped like the leaves. The Bamboo timber (B. arundinacea) is extolled for its durability; but, in order to secure this result, it must be soaked when green, and, when dry, painted with thin paint. Of the Peach-Palm (Guilielmia speciosa), which produces edible fruit, it is noted that it bears two crops a-year, the remarkable circumstance being that at one season the fruits produced are destitute of seed, but very pulpy, while at another season seeds are produced, and the pulp is proportionately less. These few illustrations will serve to show the valuable nature of this report.

The facts contained in this and similar publications not generally accessible, render it very desirable that some means should be taken to secure a periodical abstract of the facts registered in the several colonial botanic gardens. Such a publication would be of great service to practical cultivators as well as to botanists and naturalists generally. We do not overlook the circumstance that much information of this character is now given in the annual reports of the Royal Gardens, Kew; but these, again, are not very readily accessible to the general public.

Reverting to the report before us we must not conclude our notice without mention of the valuable meteorological records from 1862 to June, 1880, given in the appendix. From these we learn that the highest temperature recorded in eighteen years was 95°.5, the lowest, 60°.1; the mean monthly temperatures ranging from 76° in January to 79°.4 in May. As to cloudiness, for which elaborate tables are also given for the same period, the minima occurred in December, January, February, and March, corresponding with a low average rainfall (1.88 inch in March), while the greatest amount of cloudiness appeared in August, June, and July, the periods of greatest rainfall (11.28 inches on the average in August). The average annual rainfall is not more than 66.39 inches.

Lahore.—We learn from the report on the working of the Punjab Agri-Horticultural Society, Lahore, for the year 1880-81, that the experiments in arboriculture carried out there have to some extent shown what trees are suited for the Punjab, and the best methods of growing them. So far it seems probable that the Rain-tree cannot stand the cold of this province, but steady progress is being made in the distribution of Eucalyptus plants and seed, and the success of the experiments made in grafting the European Olive is satisfactory. The experiments with Oats and Wheat from America are interesting, but a better judgment could have been formed as to the results if

the area sown, mode of cultivation, and yield, however poor, had been stated with greater exactness; and the Lieutenant-Governor would like to receive fuller details in future regarding experiments in raising new staples and trials of new implements. The increasing number of plants sent out by the garden is an evidence of its usefulness. His Honour the Lieutenant-Governor observes that the financial working of the year is satisfactory, and that Mr. Spooner deserves credit for his management of the gardens.

Botanic Garden, Durban, Natal. — This establishment seems in a languishing state. It is alleged that this is due to the injudicious interference of an incompetent committee, and to the partiality of some of the Curators. One writer in a Natal paper says, that he never knew a good gardener yet who had been trained in a botanic garden. Perhaps not; but then his experience may not be very great, nor his ideas of the functions of a botanic garden, as distinct from a pleasure ground, very clear.

The Poultry Yard.

Egg Raising.—Around the metropolis new, or rather home-laid, eggs, fetch 2*d.*, 2½*d.*, and 3*d.* each; truly an outrageous price for articles that should be with us cheap and abundant. Eggs are just now nowhere in bulk, and have to be collected from those who keep poultry, but not in large quantities. The collector gives the raiser 2*d.* each, and sells for 2½*d.* each to the shopkeeper, who must have not less than 3*d.*, so that the metropolitan consumer of new-laid eggs literally eats money. If cold weather intervenes, and hens fail to lay, the price must be largely enhanced, whilst, let the weather be what it may, the Christmas festival is certain to create an abnormal demand for eggs that will not easily be met. A very old proverb has it that one egg in a pudding is good, two is better, three is extravagant, but four is abomination to the Lord. If those luxurious persons who favour eggs in their Christmas pudding unduly will not seek to incur abomination, and at the same time create a scarcity in unique shell food, they will be content with a moderate number in the pudding mixture; and if not content with "good" will at least be satisfied to have it "better." But the real point for consideration in connection with the present scarcity and consequent high price of eggs is its why and wherefore. There is absolutely no reason why we should not breed millions more of poultry than we do, and raise many millions more of eggs. It does seem monstrous that with ample means, idle hands, unemployed capital, uncultivated farms, in fact universal evidences of agricultural decline, that we should prefer to buy enormous supplies of eggs from the Continent rather than raise our own. The thing is foolish, it is suicidal. In a thousand ways we are wasting our substance. How few are the poor men who now keep pig or cow, still less poultry. How few farmers raise eggs. What have the prize poultry shows been doing all this time? Have they helped to increase the bulk of profitable market breeds or of egg producers? Have they made poultry culture universal or converted it into an ill-understood science? The best reply must come from our markets, and the present price for home-raised eggs is not an encouraging one. *Oon.*

Weight of Fowls.—In water-fowls and turkeys many of the specimens at Birmingham were of surprising weight, and many were heavier than any which had been shown for some years. In Aylesbury ducks the 1st prize pair were 20 lb. 9 oz.; Rouens, 22 lb. 8 oz.; and Pekins, 13 lb. 10 oz. the pair. The latter appear almost as large as the former, but they are all feathers and little body, as is proved by the above weights. Fortunate are they who have not given up their old kinds for the new. Geese were behind those of former years in weight. In 1876 the heaviest pair of white Embden geese were 57 lb.; this year they only reached 44 lb. 4 oz., which is certainly a discreditable deficiency considering all our recently introduced and improved fattening and other appliances. The same may be said of Toulouse geese, as in 1877 the 1st prize pair weighed 49 lb., and last week they only reached 37 lb. 8 oz. Turkeys also show a degeneracy, the old cocks only being heavier than previously, the biggest this time being 38 lb. 2 oz.; young cocks, 23 lb. 14 oz.; and hens, 22 lb. These weights will no doubt interest many of your readers who are trying to get some of their stock as fat and heavy as possible for Christmas. *Henwife, South Wales.*

NEW PLANTS CERTIFICATED

BY THE FLORAL COMMITTEE AT THE ROYAL HORTICULTURAL SOCIETY'S MEETINGS, 1881.

*** *F.C., First-class Certificate; S.C., Second-class Certificate; B.C., Botanical Certificate.*

Abies canadensis variegata ..	A. Waterer, Aug. 9—F.C.
Actiniopteris radiata var. australis	Bull, Aug. 9—F.C.
Adiantum aneitense	Bull, Aug. 9—F.C.
,, cuneatum grandiceps ..	Veitch, Oct. 11—F.C.
,, Lathami	Gen. Hort. Co., Oct. 11—F.C.
,, monochlamys	Veitch, April 12—F.C.
,, Oweni	Owen, Sept. 13—F.C.
Agave Parryi	Croucher, June 28—F.C.
Amaryllis Henry Little ..	Veitch, March 22—F.C.
,, John Heal	Veitch, March 8—F.C.
,, Miss Alice Gair	Veitch, March 8—F.C.
,, Mrs. Garfield	B. S. Williams, Oct. 11—F.C.
,, Royal Standard	Veitch, March 8—F.C.
Anthurium Kalbreyeri ..	Veitch, July 12—B.C.
Aralia Chabrieri	Veitch, May 10—F.C.
,, Kerchoveana	Veitch, April 26—F.C.
Asparagus tenuissimus ..	Veitch, April 26—F.C.
Asplenium Baptistii	B. S Williams, March 8—F.C.
,, pteridoides	Green, Aug. 9—F C.
Astilbe Thunbergi	Veitch, May 24—F.C.
Athyrium Filix-fœmina acroladon	Clapham, July 12—F.C.
Auricula purpurea	Dean, April 26—F.C.
,, Splendour..	Dean, April 26—F.C.
,, (alpine) Mrs. Moore ..	Dean, April 26—F.C.
Begonia Davisii flore-pleno superba	Laing, May 10—F.C.
,, Queenie	R H.S., July 22—F.C.
,, socotrana	Veitch, Nov. 8—F.C.
Bouvardia Alfred Neuner ..	Bull, Aug. 9—F.C.
Calceolaria Cloth of Gold ..	Rapley, May 24—F.C.
Caladium candidum	Laing, June 14—F.C.
,, J. R. Box..	Laing, June 14—F.C.
,, Mithridate	Laing, June 14—F.C.
Calanthe bella ×	Veitch, Dec. 13—F.C.
Canna iridiflora hybrida ..	R H.S., Aug. 9—F.C.
Capsicum Little Gem	R.H.S., Sept. 13—F.C.
Carnation Andalusian.. ..	Hill, Jan. 11—F.C.
,, Gloire de Nancy ..	Veitch, July 12—F.C.
,, (tree) Duke of Albany ..	Turner, Dec. 13—F.C.
,, ,, Lady Musgrave ..	Veitch, June 14—F.C.
,, ,, Negro	Turner, Dec. 13—F.C.
Cattleya Chamberlainiana × ..	Veitch, Aug. 9—F.C.
Centaurea ragusina Russellii .	Russell, Aug 23—F.C.
Cereus giganteus	Croucher, Aug. 9—F.C.
,, pectinatus	Croucher, Aug. 9—F.C.
Chrysanthemum Lady Selborne	Salter, Nov. 8—F.C.
,, Rex rubrum	Veitch, Nov. 8—F.C.
Cienkowskya Kirkii	Bull, July 12—F C.
Cineraria March Past	Cannell, April 26—F C.
,, Master Colvin	James, Feb 8—F C
,, Mr. H. Little	James, March 8—F.C.
,, William Jennings ..	James, Feb. 8—F.C.
Clematis George Eliot ..	Noble, May 24—F C.
,, W. E. Gladstone ..	Noble, May 24—F.C.
,, Lady Constance Kennedy	Noble, May 24—F C.
Cœlogyne barbata	Bull, Dec. 13—F.C.
,, cristata alba	Bull, April 12—F.C.
,, Massangeana	B. S. Williams, Oct. 11—F.C.
Coleus Ada Sentance	King, Oct. 11—F.C.
,, Edith Sentance	King, Aug. 23—F.C.
,, Columbine	King, Nov. 8—F.C.
,, Dolly Varden	Lloyd, Oct. 11—F.C.
,, Miss Simpson	King, June 14—F.C.
,, Mrs. Stedall	King, June 14—F.C.
Croton Laingii	Laing, Nov. 8—F.C.
,, rubro-lineatus	Veitch, July 12—F.C.
Cyclamen persicum Charming Bride	Edmonds, March 8—F.C.
,, ,, Miss Lilian Cox ..	Edmonds, March 8—F.C.
,, ,, Ruby Gem	Little, March 22—F.C.
Cypripedium selligerum majus	Veitch, June 14—F.C.
Dahlia Beauty	Turner, Oct. 11—F.C.
,, Geo. Rawlings	Rawlings, Sept. 13—F.C.
,, Miss M. Batchelor ..	Keyoes, Sept. 13—F.C.
,, Pioneer	Turner, Sept. 13—F.C.
Davallia elegans polydactylon	Veitch, April 26—F.C.
,, fijiensis plumosa ..	Bull, Nov. 8—F.C.
,, gibberosa	B. S. Williams, Oct. 11—F.C.
Delphinium Leon Dubois ..	Cannell, July 12—F.C.
Dendrobium cerinum	Veitch, July 12—F.C.
,, lituiflorum candidum ..	Lawrence, March 22—F.C.
Dion edule lanatum	Bull, Oct. 11—F.C.
Dioscorea retusa..	Veitch, April 12.—F.C.
Dracæna Lindeni	Bull, Nov. 8—F.C.
Echinocactus Fendleri (?) ..	Loder, June 14—F.C.
,, gonocanthus	Loder, June 14—F.C.
,, Witlizenii..	Croucher, Aug. 9—F.C.
Erythronium giganteum ..	Wilson, April 26—F.C.
Euonymus latifolius	W. Paul & Veitch, Sept. 13—F.C.
Fuchsia rubra ×	Wells, March 22—F.C.
Gladiolus Pelargo	Kelway, Aug. 9—F.C.
Globba coccinea	Veitch, Oct. 11—F.C.
Gloxinia Brantome	Veitch, May 24—F.C.
,, Fabiola	Veitch, May 24—F.C.
,, Frederici	Rapley, Aug. 23—S.C.
,, Lady Marriott	Veitch, May 24—F.C.
,, Radiance	Veitch, May 10—F.C.
Goniophlebium lachnopus ..	Veitch, April 26—F.C.
Gymnogramma schizophylla ..	Veitch, April 12—F.C.
Hamamelis virginica, var. arborea	Veitch, Feb. 8—F.C.
Helicooia aureo-striata ..	Bull, Nov. 8—F.C.
Heliotrope, White Lady ..	Cannell, Dec. 13—F.C.
Hydrangea Mariesii	Veitch, June 14—F.C.
Imantophyllum miniatum Martha Reimer	B. S. Williams, March 8—F.C.
Iris Kæmpferi Seraph.. ..	Bull, July 12—F.C.
Ixora Burbidgei	Veitch, July 26—F.C.
,, regina	Fraser, Sept. 13—F.C.
Juncus zebrinus	Veitch, June 28—S.C.
Lachenalia Nelsoni ×	Nelson, Feb. 8—F.C.
Lælia autumnalis atrorubens..	Bull, Oct. 11—F.C.
,, Phillrickiana ×	Veitch, July 12—F.C.
Lantana Giselle..	Lemoine, July 22—F.C.
,, Reveil	Lemoine, July 22—F.C.
Lilium auratum var. cruentum	Bull, Aug. 23—F.C.
,, Washingtoniaum, var. Scott Wilson × ..	Wilson, June 14—F.C.
Lindenia rivalis	Veitch, July 26—F.C.
Malva moschata alba	Cannell, Aug. 9—F.C.
Maranta crocata	Bull, Feb. 8—F.C.
Masçarenhaisia Curnowiana ..	Low, Aug. 23—F.C.
Masdevallia chimæra	Bull, Nov. 8—F.C.
,, ignea Massangeana ..	Veitch, Dec. 13—F.C.
,, Roezlii	Winn, March, 22—B.C.
,, velifera	Veitch Oct. 11—F.C.
Mignonette Miles' hybrid spiral	Lyon, April 26—F.C.
Monthretia crocosmæflora ..	Lemoine, July 26—F.C.
Mormodes armeniacum ..	Bull, Aug. 23—F.C.
Nepenthes madagascariensis ..	Veitch, Oct. 11—F C.
,, Rajah	Veitch, Oct. 11—F.C.
Odontoglossum Alexandræ var. reginæ	Heims, April 26—F.C.
,, Ruckerianum	Heims, April 26—F.C.
,, vexillarium rubellum ..	Bull, Oct. 11—F.C.
Omphalodes Krameri	Veitch, April 12—F.C.
Oncidium Forbesii var. Carderi	Read, Dec. 13—F.C.
,, Gardnerianum	Bull, July 12—F.C.
Pelargonium (double flowered) Sylvia	Pearson, July 22—F.C.
,, ,, Hero	Pearson, July 22.—F.C.
,, ,, J. P. Stahl	Lemoine, July 22—F.C.
,, (ivy-leaved) Anna Pfitzer	Cannell, April 12; Lemoine, July 22—F.C.
,, (silver tricolor) Mrs. Miller	Laing, Sept. 13—F.C.
,, (zonal) Charles Darwin..	Lemoine, June 14—F.C.
,, ,, Député Duraux ..	Lemoine, July 22—F.C.
,, ,, Deuil National ..	Pearson, July 22—F.C.
,, ,, Dr. Orton	Lemoine, July 22—F.C.
,, ,, Erckmann-Chatrian .	Cannell, Jan. 11—F.C.
,, ,, Eureka	Denny, July 22—S.C.
,, ,, Excelsior	Pearson, July 22—F C.
,, ,, Hettie	Lemoine, July 12—F C.
,, ,, Henri Cannell ..	Pearson, July 22—S.C.
,, ,, Louis	
,, ,, Madame Jeannie Wooters	Lemoine, June 14—F C
,, ,, Mignonette	Lemoine, July 22—F.C.
Pellionia Daveaneana ..	Lemoine, July 12—F.C.
Pentstemon Jeanne d'Arc ..	Lemoine, July 22—F.C.
,, Edison	Lemoine, July 22—F.C.
,, Marjolaine	Lemoine, July 22—F.C.
Phaius tuberculosus	Lawrence, March 8—F.C.
Phalænopsis violacea	Veitch, June 28—F.C.
Phalangium elegantissimum ..	B. S. Williams, Dec. 13—F.C.
Pinguicula Bakeriana	Saoder, April 12—F C.
Pitcairnia corallina	Green, March 22—B.C.
,, Jacksoni	R.H.S., Sept. 13—F.C.
Polyanthus (gold-laced) Queen of Hose-in-Hose	Cannell, April 26—S.C.
Primrose Amaranth	R. Dean, April 12—F.C.
,, Cloth of Gold	Carter, May 10—F.C.
Primula sinensis, Dr. Denny..	Cannell, Feb. 8—F.C.
,, ,, delicata	Cannell, Jan. 11—F.C.
,, ,, The Queen	Tomkins, March 8—F.C.
,, ,, variegata	Herrin, Nov. 8—F.C.
Reseda odorata flore-plena prolifera alba	Balchin, May 24—F.C.
Rhododendron Duchess of Connaught	Veitch, July 26—F C.
,, exoniensis ×	R. T. Veitch, April 26—F.C.
,, Lady Alice Fitzwilliam ×	Fisher & Co, April 26—F.C.
Ribes alpinum pumilum aureum	Osborn, May 10—F C.
Rubus delicious	Lee, May 24—F.C.
Sarracenia Courtii ×	Veitch Sept 13—F C.
,, melanorhod ×	Veitch, June 14—F.C.
Saxifraga cordifolia purpurea..	Parker, April 26—F.C.
Sobralia xantholeuca	Veitch, June 28—F C.
Tachiadenus carinatus.. ..	Veitch, July 26—F.C.
Trichopilia suavis alba ..	Bocket, May 24—F.C.
Vanda lamellata Boxallii ..	Salter, Jan. 11—F.C.
Vriesia Falkenbergii	Bull, Feb. 8—F.C.
Yucca Peacockii	Croucher, June 28—F.C.

NEW FRUITS.

CERTIFICATED BY THE FRUIT COMMITTEE.

Apple Lane's Prince Albert ..	Lane, Nov. 8—F.C.
Cherry Guigne d'Auvornay ..	Rivers, June 14—F.C.
Currant Black Champion ..	Dunnett, Aug. 9—F.C.
Melon High Cross Hybrid ..	Hopkins, June 28—F.C.
Pear Welton Beurré	Clarke, Oct. 11—F.C.

NEW VEGETABLES.

Cauliflower, Veitch's Extra Early Forcing	Veitch, June 28—F.C.
Celery, Winchester Red ..	Rutley & Silverlock, Dec. 13—F.C.
Pea Pride of the Market ..	Carter, July 22—F C.
,, Robert Fenn	Hurst, July 22—F.C.
,, Walker's Perpetual ..	Walker, Aug. 9—F.C.
Potato Adirondack	Bliss-Hooper, Nov. 3—F. C.
,, Brownell's No. 11. ..	Bliss, Nov. 3—F.C.
,, Cosmopolitan	Dean, July 22—F C.
,, Criterion	Ross, Nov. 3—S C.
,, Early Cluster	Dean, July 22—F.C.
,, Fortyfold White ..	Farquhar, Nov 3—F.C.
,, Foster's Seedling ..	Foster, August 19—F.C.
,, Garnett's Seedling ..	Garnett, August 19—F.C.
,, Lord Mayor	Dean, July 22—F.C.
,, Matchless..	Bliss, August 19—F.C.
,, Queen of the Valley ..	Bliss-Hooper, Nov. 3—F.C.
,, Rand's No. 12	Bliss, Nov. 3—F.C.
,, Rand's No 30	Bliss, Nov. 3—F.C.
,, St. Patrick	Daniels, Nov. 3—S.C.
,, Sir Walter Raleigh ..	Ross, Nov. 3—S.C.
,, Standard	Fenn, August 19—F.C.
,, Trophy	Bliss, Nov. 3—S.C.
,, Vermont Champion ..	Bliss, Nov. 3—F.C.
,, Vicar of Laleham ..	Dean, Nov. 3—S.C.
,, Victoria alba	Donaldson, Nov. 3—S.C.
,, Victoria Kidney	Edwards, Nov. 3—F.C.
,, White Elephant	Daniels, Nov. 3—S.C.
,, Fenn's Seedling No. 29	Fenn, Aug. 19—F.C.
Tomato Dedham Favourite ..	Carter, July 26—F.C.

Heliotrope Oxonian.—This is one of the most charming varieties of Heliotrope for winter forcing in cultivation. It is especially adapted for bouquet making, and is strongly perfumed. The flowers are borne in small trusses of dark purple, and as the individual florets expand, their centres are white, which contrasts well with the larger body of purple. Large quantities of this variety are now in flower in the Ember Nursery, Thames Ditton, where over 300 dozen plants are also being potted off for spring flowering.

NOTES ON SOME RECENT FORAYS AMONG FUNGUSES.

THE study of fungi is admitted on all hands to be one of considerable difficulty, especially when pursued by any one alone and unaided. It was a happy thought of Dr. Bull's some thirteen years ago to organise field excursions under the guidance of experienced mycologists in connection with the Woolhope Club for the examination of the fungus flora of Herefordshire, for it rendered the study much easier, and raised up a band of students, who in their turn have afforded help to beginners in various parts of the country. London, Edinburgh, Leeds, and Birmingham, have followed the lead of Hereford, and have had their autumn foray among the funguses, so that there is every probability of the study becoming every year more popular.

The Leeds meeting, of which a brief account has already appeared in these columns, bids fair for another year to be a formidable rival of Hereford in the zeal displayed and the excellence of the exhibition. It was amusing to see the heaps of Agaricus melleus, A. fascicularis, A. squamosus, and that perplexing plant to the beginner, A. laccatus, with which the tables at Leeds were loaded. Of the first species there could not have been less than a cartload! Doubtless more discrimination will be displayed another year, as a knowledge of the common plants has been acquired.

The Hereford meeting this year was remarkable for the absence of our most eminent men. The Rev. M. J. Berkeley, to whom we all look up with reverence and admiration, and who is always so willing to help with his vast knowledge of fungi the humblest tyro in the study, was unfortunately not able to be present, though he did not fail to show his interest in the meeting by sending from that classic ground, in a mycological sense, Coed Coch, some very interesting plants, amongst which may be mentioned Hygrophorus fœtans. The absence of another well-known face was felt to be a drawback to the meeting, namely, Mr. C. E. Broome, whose severely critical mind has been found so valuable in checking too hasty conclusions, and whose intimate knowledge of rare species we have all benefited by.

Notwithstanding these drawbacks to the interest of the gathering, and the comparative scarcity owing to the dryness of the season of many familiar species, yet the meeting must be considered to be a successful one. An opportunity was afforded of reviewing, and in some cases correcting, former work, while several new species were added to the Hereford list, and a few new ones to the British list.

Lactarius flexuosus, Fr. (fig. 155A), was collected in Heywood Forest—a very fine species, and new, we believe, to Britain. It has probably been confounded with Lactarius pyrogatus, Fr., but is abundantly different in the larger stature, repand pileus, solid obese stem, and thicker and more distant gills. Another interesting addition to the British list is Agaricus (Tricholoma) orirubens Quelet (fig. 155B), which in many points resembles A. terreus, but has gills tinged with flesh-red, especially at the margin. The first impression is that it should belong to the pink-spored group. Agaricus (Hebeloma) glutinosus, Lindgr. (fig. 153), was found in Heywood Forest. The tenacious viscous gluten, and the superficial white scales on the pileus, together with sub-bulbous stem, distinguish this species from its congeners. Amongst the rare species found, mention must be made of Agaricus Candopus) depluens, Batsch, which occurred on a charcoal bed in company with A. carbonarius, Fr., and Cantharellus carbonarius, A. and S., in the Whitcliffe Wood, near Ludlow. A. depluens is an excessively fragile species, and grew on the perpendicular side of a rabbit-run. This same wood yielded a few good Cortinarii, such as C. torvus, Fr.; C. impennis, Fr.; C. hemitrichus, Fr.; C. armeniaceus, Schæff.; C. armillatus, Fr.; and C. sublanatus, Fr. A little further on, in the Sunny Gutter, a beautiful valley, which is believed to be the scene of Milton's "Comus," were found some fine specimens of Peziza cupularis and a mass of A. tumulosus, Kalchb., which we have known for years as a charcoal species under the name of A. fumosus, var. polius. Mr. Plowright collected some good specimens of Peziza micropus, Pers.—a rather uncommon species—on decayed wood in Moccas Park, otherwise the Pezizæ were not well represented.

Several subjects of much interest were dealt with in the papers read at the evening meetings, and not the least interesting was the *vexata questio*, whether there is any genetic connection between Uredo graminis and Æcidium berberidis, which Professor Anton de

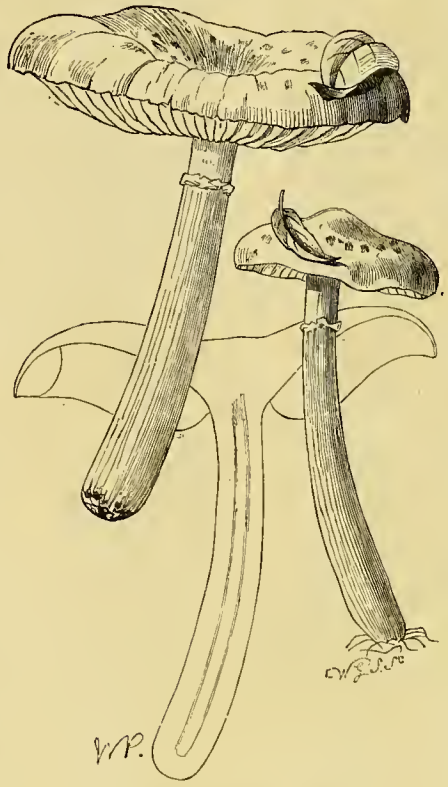


FIG. 153.—AGARICUS GLUTINOSUS.

Bary has by no means set at rest for British mycologists. Mr. Plowright read a paper in which he detailed a series of experiments conducted with the utmost care on the inoculation of protected Wheat

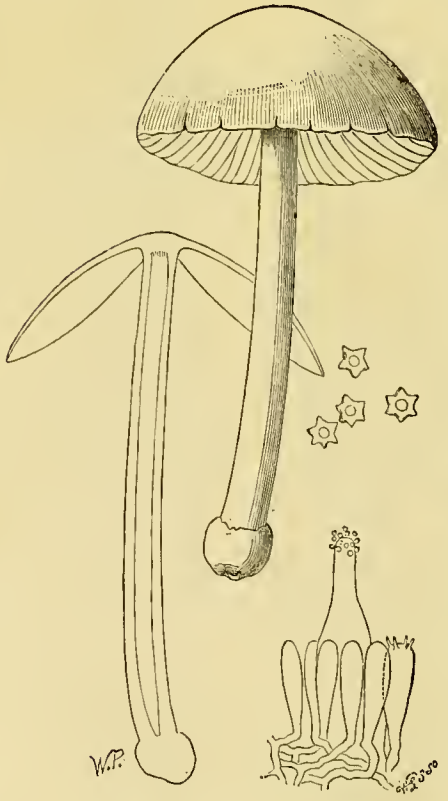


FIG. 154.—AGARICUS PERSOONIANA, WITH SPORES; AND CYSTIDIUM WITH APICAL GRANULES.

plants with the spores of Æcidium berberidis; but there appeared little or no evidence that the Uredo which manifested itself on nearly all his Wheat plants was the result of the inoculation, as it appeared also on his uninoculated test plants though planted many miles away in much the same proportion. Mr. Renny, whose absence from the meeting was much regretted, entrusted a paper to the writer of these notes on two new species of Ascoboli, accompanied by beautiful drawings—namely, Ascobolus Boudieri, Renny, and Saccobolus Cæsariata, Renny—the first found in Herefordshire in 1873, the second in Sussex in 1875. These are two most distinct and interesting species. This paper was read at Mr. Cam's, and will be published in due course.

The Rev. Canon Du Port called attention at one of the evening meetings at Dr. Bull's to an Entoloma found by him in Norfolk, with a bulbous stem, and which could not be satisfactorily referred to any species in Fries' *Hymen. Europæi.* Specimens of this plant were kindly forwarded to us, and being compared with Persoon's description and figure, *Icon. et Descript.*, p. 17, t. 6, fig. 2, of A. sericeus, Pers., no doubt was left on our mind that this was the exact plant. We give Persoon's description *verbatim*:—

"Differentia: Pileo campanulato squamoso, tomentoso candido, lamellis rubris; stipite longiusculo subtuberoso fibrilloso albido. Locus: Mense Julio in sylvis perraro hamæ speciem inveni. Descriptio: Stipes basi sub-bulbosus et hic solidus, ceterum cavus, pro ratione tenuis, 2½ lin. crassus, superficie pilososquamulosus, lamellæ confertæ, duas lineas latæ, stipite subadnexæ, obovatæ seu versus apicem latiores, incarnato-rubræ, sporulis maturis vero, colore obscuriores fiunt; pileus latitudine semiuncialis, sericeonitidus, convexus, obtuse umbonatus, candidus, dein pallescit, substantia subcarnosus, valde fragilis (*l.c.*)." Fries quotes this species under his Agaricus sericellus, with the following remark:—"A. sericeus, Pers., non Bull, differt statura majore, stipite subbulboso, pileo campanulato, lamellis confertis; nunc distinguendus nescio." *Hymen. Europ.*, p. 194. There is no doubt in our mind that this is worthy of specific rank, and we propose to call it Agaricus Persooniana, if the name be not already occupied (fig. 154). *William Phillips.*

A SYNOPSIS OF THE KNOWN SPECIES OF CRINUM.—X.

(Concluded from p. 760.)

Subgenus III. CODONOCRINUM.—Perianth-tube permanently curved. Limb horizontal or suberect, the oblong-lanceolate or oblong segments permanently connivent in the lower half. Stamens declinate, nearly parallel with one another and the style.

***** Tropical American species.

60. *C. longiflorum*, Herb., Amaryll. 271; Kunth, Enum. v. 583; Griseb. Flora Brit. West Ind. 583; Amaryllis longifolia var. longiflora, Ker, in Bot. Reg., t. 303.—Bulb ovoid, 3—4 inches in diameter, with a distinct neck. Leaves lorate, very long (4—5 feet), about 2 inches broad, moderately firm in texture, tapering to a point, rather scabrous on the edge, not glaucous. Peduncle 1½—2 feet long, faintly compressed. Flowers 6—8 to an umbel; pedicels short; spathe-valves deltoid, 3—4 inches long. Ovary oblong, with 9—10 ovules in a cell. Perianth-tube 3—4 inches long; limb funnel-shaped, as long as the tube. The oblong acute segments flushed with pink in the centre, but not distinctly banded. Filaments much shorter than the perianth-segments; anthers about ½ inch long. Style not reaching nearly to the tip of the perianth-segments.

Grisebach gives this a native of Jamaica and Antigua, and I have one of the specimens which he used in drawing up his description now before me. It was figured in the year 1818 from a plant received by Mr. Griffin from a garden in Jamaica. Herbert thought it was a garden hybrid between capense and erubescens, but it is much nearer the former of the two, and may perhaps prove to be only a variety of capense (as was suggested by Mr. Bellenden Ker) transferred to a tropical garden.

61. *C. scabrum*, Herb., in Bot. Mag., t. 2180; Amaryll. 262; Kunth, Enum. v. 571; C. scaberrimum, Herb., in Trans. Hort. Soc. iii. 195.—Bulb large, purplish-brown. Leaves very long, lorate, bright green, 3—4, or even 5 feet long, 2—2½ inches broad, firm in texture for the genus, closely veined, tapering to a point, scabrous on the edge. Scape compressed, green, 1—2 feet long. Flowers 6—8 in an umbel, very fragrant; pedicels short; spathe-valves green, 3—4 inches long. Ovary oblong, with several ovules in a cell. Perianth-tube curved, greenish, 4—5 inches long; limb funnel-

shaped, with oblong acute segments, about 1 inch broad, banded with bright red down the back. Filaments about 1 inch shorter than the perianth-segments; anthers about ½ inch long. Style reaching to the tip of the perianth-segments.

Herbert, and following him Seubert, give this as a native of upland woods near Rio Janeiro. I believe it will be found to be really an African plant, and to be identical with the robust many-flowered plant I have mentioned under C. yuccæflorum, found by Speke and Grant at Madi in 1863, and by Schweinfurth in 1869 in Bongoland, and in 1871 in Djurland. We have a drawing at Kew of a plant that flowered with Messrs. Veitch in June, 1861, from bulbs sent to them from East Africa by Speke, which looks to be just the same thing. It was originally figured from bulbs imported from the Azores by Messrs. Loddiges & Son. I cannot make out that C. submersum, Herbert, in *Bot. Mag.*, t. 2463, differs from it materially. It is a very fine species, that fits in midway between yuccæflorum and zeylanicum.

62. *C. virgineum*, Mart. in Schultes, Syst. vii. 855; Kunth, Enum. v. 570; Seubert, in Fl. Bras. iii. 160; C. petiolatum var. virgineum, Herb. Amaryll. 261.—Bulb large, brown. Leaves lorate, green, thin in texture, 2—3 feet long, 3—4 inches broad at the middle, narrowed gradually to an acute point, and 1 inch above the base, the veins as distant as in giganteum, and furnished with the same distinct cross-bars between them. Flowers about 6 to an umbel; pedicels none, or very short; spathe-valves green, lanceolate-deltoid, 4—5 inches long. Ovary oblong, with several ovules in a cell. Perianth-tube 3—4 inches long, curved, grennish; limb 3½—4½ inches long, pure white, the oblong acute segments 1—1½ inch broad, only slightly tinged with green on the back. Filaments above half as long as the limb, white; anthers ½ inch long. Style reaching nearly or quite to the tip of the perianth-segments.

This was found by Consul Langsdorff, near Rio Janeiro, between Mandiocca and Porte d'Estrella, and described by Martius from specimens obtained from his garden. Burchell got it in October, 1826, near San Bento, in the province of St. Paulo, but his notebook states expressly that in this station it was only an outcast from a garden. Burchell gives Susenna as its native name. Its nearest alliance is with C. giganteum, but the flower is quite different, with a limb as long as the tube, with oblong acute segments, so I do not think it can possibly be a mere variety of that species, as suggested by Herbert. Judging from the description C. Binsii, Hoffmans (Kunth, *Enum.* v. 572), is most likely a near ally, but the flowers are said to be only 4½—5 inches long, whilst in C. virgineum they are 7—8 inches. Herbert mentions also (*Amaryll.*, p. 261) a C. petiolatum var. extorre, with leaves rather narrower, more shining, erect, and undulated than in giganteum, "found by my collector growing near the sea in the neighbourhood of Rio Janeiro." Ordinary giganteum is naturalised in Jamaica. If virgineum be not a genuine species it may be a hybrid between giganteum and erubescens. None of the American species of this set can be considered to be so clearly established as genuine natives.

This concludes the enumeration of all the known species. *J. G. Baker.*

Fig. 155.—A, Lactarius flexuosus; B, Agaricus orirubens. (see p. 784.)

Hieracium aurantiacum a Troublesome Weed.—A contributor to Coulter's *Botanical Gazette*, writing from Brockport, New York, states that Hieracium aurantiacum is quite common there, and fast becoming a troublesome weed.

Orchid Notes.

VANDA LAMELLATA VAR BOXALLII. — When writing of Mr. Schofield's Orchids a few weeks ago, I mentioned a plant of this new Vanda that was just about to burst its flowers. It has since then continued progressing, and has developed twenty-four flowers on one spike, and seventeen on the other—a few more on the latter spike than could be counted when I had the opportunity of inspecting it. These spikes I consider exceedingly fine, in fact, I doubt very much whether, up to the present, any two on one plant have produced as many blooms; of course as age and strength are attained with all the plants, it is almost certain that even these numbers will be exceeded. I have heard that a plant in a newly-formed collection near the Lancashire coast has eight spikes on it. I congratulate in anticipation the fortunate owner of such a specimen. I am indebted to Mr. Schofield for two blooms taken from his plant—it is a veritable gem. New it certainly is; but, better than being new, it is a fine thing. I remember calling on one occasion at Messrs. Low's, of Clapton, and there was shown the original sketch as it was taken by Mr. Boxall, and I also saw the plants that were sent with it, or about the same time — stout healthy pieces with many leaves upon them. It is now to be met with in many collections, and will doubtless be coming into flower in not a few. It is described as a new plant on p. 743, No. 337, vol. 13 (new series), and again on p. 369, No. 377, vol. 15, where we read it had flowered in Sir Trevor Lawrence's splendid collection. Here it is so fully described that it is only necessary to say the flowers are about the size of those of Vanda Roxburghii; the upper sepals and the petals being white, with a faint shade of soft yellow at their extremities; and the lower sepals also white on their outer halves, whilst the inner divisions are of a bright reddish-brown. The lip is a bright rosy-purple, the upper part running into clear longitudinal bars. I should imagine that several varieties may appear amongst so many imported plants; it would be well to compare them, or, at all events, that a written description of them should be made. *W. Swan, Fallowfield.*

ORCHIDS IN FLOWER AT CROMWELL RANGE.

Mr. O. Schneider, of Cromwell Range, has at the present time some very beautiful Orchids in flower. The collection here is continually receiving additions, which, with those already obtained, will soon cause this to be one of the most select in the neighbourhood of Manchester. I noticed some excellent Odontoglossums, scores of Alexandræ and Pescatorei in bud or flower, some large and fine varieties of O. Rossii majus; amongst these latter were some that had flowers of a bright rosy hue. Sophronitis grandiflora was also well represented, Oncidium tigrinum had flowers of unusual size and colour; O. incurvum, varicosum, and unguiculatum were also very gay; Phalænopsis amabilis were represented by a number in flower, and Schilleriana with several spikes in bud. Maxillaria grandiflora was also in flower; the more this is seen the better it must be liked, for it stands erect, and the inside of the flower can be seen—a far more satisfactory thing than can be said of Maxillaria venusta. Calanthe Veitchii and vestita in variety were very good and plentiful. Dendrobes promise well—D. crassinode, Wardianum, Ainsworthii, nobile, &c., showing well along their bulbs. *W. Swan, Fallowfield.*

MASDEVALLIA TOVARENSIS.

This pretty little species is now flowering very freely in the collection of J. S. Bockett, Esq., at The Hall, Stamford Hill. The plants are exceedingly healthy, and quite covered with flowers and buds. It is grown during the summer months and well into the autumn in the cool-house, and is then removed to the Cattleya-house, where it is thought the flowers open better than in the cool-house, where the temperature would be 10° lower. As this species is now quite common, and will be grown in all collections, it is as well to know that it likes a higher temperature in winter, but our own plants are flowering quite freely, and growing well in a cool-house. M. ignea is also very beautifully in flower in quite a cool-house temperature; there are two varieties, both very fine; the orange-scarlet flowers thrown well above the foliage contrast admirably with the numerous curving spikes of Odontoglossum crispum in its endless varieties. This species flowers at a time when M. Veitchiana, Harryana, and Lindeni, richly coloured species, do not, and is the more valuable on that account. *J. D.*

MR. BOCKETT'S COOL-HOUSE.

This is a narrow structure of considerable length—a lean-to against a wall facing north—in which Odontoglossums succeed well. The Odontoglossum crispum is very beautiful; O. Pescatorei is also showing flower, with branched spikes; O. cariniferum is also in flower, and is a distinct and free-growing species. The flowers have narrow pointed sepals and petals of a yellowish-brown colour, the lip white when the flowers open, but afterwards a yellowish-white. There are numerous natural hybrids amongst the Odontoglossums, and of O. Murrellianum, a hybrid form of Pescatorei, Mr. Bockett possesses a very handsome specimen. *J. D.*

THE CATTLEYA-HOUSE AT "THE HALL."

Here Mr. Bocket has Cymbidium Mastersii finely in flower. It is not quite such a good species as C. eburneum, but its pure white flowers, with a dash of pale yellow on the lip, last long in beauty; it is at least a fit companion for the handsome C. eburneum, flowers earlier, and requires similar treatment. In this house a very handsome plant of Vanda cristata has two growths, and is showing two flower-spikes from each. This rare and distinct species from Northern India does not require a very high temperature, and is of a neat compact habit. Amongst Orchids occupying the warmest house the Phalænopsis Schilleriana in many fine varieties are just coming into flower, amongst them some of the strongest spikes ever seen, some of them with five and six branches. A fine form of Cypripedium selligerum, one of the very best of Mr. Seden's hybrids, had two spikes, one with three and the other with two flowers. C. Dayanum was also in flower. This species succeeds best in the warmest house; it is distinct and pretty enough, but has I think been over-rated, and owing to its scarcity has, like some other Orchids, generally commanded a price considerably above its intrinsic worth. *J. D.*

AN ORCHID TO BE AVOIDED.

Cœlogyne barbata, also in flower in Mr. Bockett's collection, is certainly not worth growing; the bearded lip is best described as sooty, and there are so many beautiful white-flowered Orchids that this species, which is also difficult to grow and flower, may well be dispensed with. I think it was first exhibited from Sir Trevor Lawrence's collection at one of the meetings at South Kensington, some time last autumn, in the form of cut flowers. It seems to be very easily imported, the plants arriving in capital condition, but they are not so easily established as their appearance would suggest, and, now we have seen the flowers in several places, it does not matter much. I would venture to predict that it will go out of cultivation in a few years. *J. Douglas.*

SLUGS IN ORCHID-HOUSES.

Having recently had a large house built for cool Orchids, now containing about 3000 Odontoglossum Alexandræ and O. Pescatorei, and knowing that the ground was full of slugs, I had the floor, which is of earth, sprinkled over with salt, but finding that I still had a few on the stage, and the plants all standing on inverted pots and laths, I gave the stage a good dressing of salt, and so confined the slugs to the plants; then by continual searching at night, and the baits laid for them in the way of sliced Apples, Potatos, Swede Turnips, Carrots, and fresh gathered Lettuce leaves, I soon reduced the number of slugs, and have lost only three small spikes up to the present time out of 250. These are cheap commodities compared with Odontoglossum spikes. I also occasionally sprinkle salt outside the door and ventilators so as to prevent them coming in when the ventilators are open. If baiting well and a thorough search for them at night and the first thing in the morning are well attended to the number of slugs will soon be less, and pleasure will take the place of vexation and disappointment. *F. Newman, Enfield.*

—— If Mr. Warner's Orchids are growing under similar conditions to what they were when I saw them some twelve years ago—viz., on stages covered with ashes for the purpose of retaining moisture near the plants, the pots standing upon the ashes—I would advise him to procure 1 cwt. of coarse salt, and to remove the pots from off the stages, examining them carefully to see that there are no slugs underneath, and place them on the floor of the house for twenty-four hours to allow the ashes to dry a little. Afterwards sprinkle the whole of the staging with the salt, and then replace the plants, taking care not to put any plant back whose roots protrude through the bottom of the pot; then every night afterwards look carefully through them in case any slugs may have burrowed in the potting material. A very useful thing for the purpose is the inside of a policeman's lantern—the part which contains the oil—as it is small, and easy to put amongst the plants. *James Hodges, The Gardens, Gravelly Hill.*

Garden Operations.

HARDY FRUIT GARDEN.

The lower temperature with which the week commenced will be helpful in checking the many evidences of premature growth that were beginning to appear in this department. Advantage will have been taken of the previous mild weather to bring nailing and other operations on walls to an advanced condition. The quantity of rain that fell during the last fortnight was rather hindering, but with the use of planks under the feet to prevent the soil from being worked into a mass of puddle, nailing was proceeded with in comfort, and without detriment to the borders. Espalier trees of Apples and Pears may have any necessary pruning proceeded with as opportunity offers. Remove a portion of the oldest and least promising spurs where there is any appearance of crowding, reduce others that are extending beyond reasonable limits, and cut in closely any that are carrying no bloom-buds, and that will be benefited by being thus reduced when the opportunity offers of doing so without loss of fruit-buds. The points of shoots for extension will be the better for being shortened a little to a good bud on the lower side of the shoot, which will then start again straightly. If the summer pruning has been attended to, little will require to be done to the espalier trees now. In cases where due attention to the removal of the breast-wood during the growing season has not produced the desired fruitful character, the attention must be turned to the state of the roots, to the character of the subsoil—into which it will probably be found they have penetrated, and to the rectification of this state of things by carefully lifting the roots and replanting them nearer to the surface. Old trees that have long occupied restricted borders frequently get into an unfruitful state through lack of food supplies, and it will be well if this fact be borne in mind at this time, when a good dressing of well rotted manure can conveniently be supplied to such trees as are likely to require assistance in this direction. In proceeding with the pruning of pyramidal trees see that all crossing branches are removed, and that no more shoots are retained than will be required to furnish the tree when each branch will have become well studded with spurs, which will make an apparently thin tree in a young state sufficiently close in the branches in after years. Extensions that proceed in the required direction and are not too long need no pruning, but are likely to arrive at a fruitful state sooner by being left entire, others may be cut back to a bud that points in the required direction. The central leader may be cut back to a little over 1½ foot in length, in order to keep the tree regularly supplied with branches as it advances in height. Any ill-directed or crossed branches that are yet placed in positions where the balance of the tree requires their retention may be brought into better form by being secured in the desired position to a stake, or, if required to be drawn down, they may be attached by a cord to a strong peg in the ground. Where it is contemplated to make any fresh plantations of bush fruits, the trenching and thorough enrichment of the ground, if not already done, should be proceeded with at an early date. If the ground has been previously occupied with fruits it will be found advantageous to apply a large addition of fresh soil to assist, in conjunction with a liberal dressing of farmyard litter, in restoring it to its original fertility. It is advisable to occasionally remove a row or so of Gooseberries and of each of the sorts of Currants where they have been long established, and where individuals are getting past their best, in order to trench and enrich the ground, and to replant with healthy young bushes. By this means the plantations will be kept in a vigorous condition, which is seldom the case when the places of worn-out specimens are filled up individually, and without that due preparation of the site that the systematic replanting of an entire row affords an opportunity for. For Gooseberries for bottling, or for preserving generally, there is no sort more useful than the Warrington, which also has the good properties of bearing freely and hanging well on the bushes when required to be kept for late use. The large Lancashire berries are not so generally grown as they deserve to be, when the very fine flavour that is combined in so many varieties with their great size is taken into consideration. They are also useful as affording berries that reach a gatherable size very early, and while yet retaining that lack of acidity peculiar to very young Gooseberries. The following sorts will be found to be amongst the largest of the Lancashire varieties, viz., Freedom, Catherina, Lady Leicester, London, Queen of Trumps, Felton Hero, Thumper, Trumpeter, Huntsman, Ringer, Dr. Hogg, Snowball, Beauty, Garibaldi, Plunder, Overseer, and Handsome. The five first mentioned are noticeable as being of very fine flavour, and they may all be depended upon for yielding berries of great size; but, unfortunately, a few of the kinds are not such free growers as might be desirable. With the preparation of the soil recommended for bush fruits generally, and with annual attention in

keeping the surface enriched with manure, combined with moderate cropping and summer pinching to throw the vigour of the bushes into the crop, large berries will be obtained that will be alike interesting and uselul. *Ralph Crossling, St. Fagan's.*

PLANT HOUSES.

Stoves.—The Christmas festivities being now close upon us, a greater demand for plants for special decorative work in the mansion, may in many cases be looked forward to during the next few weeks. Where this is likely to be the case, the plants so required from the stove should be kept at a slightly reduced temperature for a few days previous; then, under ordinary care, no fear need be entertained for their safety, unless the weather be excessively cold. For decorative work the following are especially adapted—viz., Crotons of sorts, the same of Dracænas, including those with bold foliage and robust growth; Marantas and Dieffenbachias also, Erythrina marmorata, and the Acalyphas, with nice plants of Cyperus alternifolius and laxus, both green and variegated forms, together with well-coloured Pandanus Veitchii, and the Rhopalas, Aralias, and hardier forms of stove Ferns, will give a good selection. Palms, of course, ought not to be overlooked. The following are always useful, viz., Areca lutescens and sapida, Chamædorea glaucifolia and graminifolia, Geonoma gracilis, and Cocos Weddelliana, with Euterpe edulis, the Kentias and Seaforthias; these are among the best for furnishing work, and the smaller the pots in which they are grown, consistent with the health of the plant, the better will they be for moving. Keep a watch on the following plants against any inroad on the part of insects:—Alocasias may be troubled with red-spider that will permanently disfigure the leaves; the fine-foliaged Anthuriums are subject to scale, that will soon bring about yellow patches in their noble leaves; and thrips are at times very troublesome to Dracænas. Where dipping cannot be practised, sponging should be resorted to, using an insecticide that is effectual. White scale is oftentimes troublesome around the base of the stem of many kinds of Palms, a small but rather stiff brush will soon dislodge them. Every opportunity should be taken advantage of during the next few weeks to do this kind of work; the turn of days and increased attention in other departments as the spring advances, will frequently cause it to be neglected. If any stove plants have been left thus long in a cooler house, be watchful if frost sets in, causing the temperature to fall lower than is safe for their well-being.

Forcing-houses.—In addition to fresh batches of plants and bulbs of various kinds as named previously, a few of the more promising of the stock of Deutzia gracilis and Azalea mollis may be introduced, together with good crowns of Astilbe (Hoteia) japonica. Imported stools of this latter plant are more to be depended on for early work than English-grown ones. Of Hyacinths, a few of the earliest may soon be had in flower, provided they were potted up early in the autumn. Norma is a good pink kind, Grand Vainqueur (single) and La Tour d'Auvergne (double), both good whites, and Argus and Uncle Tom of the single blues, are amongst the best for early forcing. Tournesol and Duc Van Thol (various) are still the best early forcing Tulips, and may now be safely relied on to give a quick return.

Greenhouse.—The earliest of the Epacrises are now with me in full flower; with these and Erica hyemalis, gracilis, and melanthera, not forgetting Chinese Primulas, Roman Hyacinths, and the berried Solanums, which are of more service now than earlier, a good succession is to be had after the Chrysanthemums are quite over. Watch closely the watering of Epacris, Heaths, and Camellias in flower; the first named are very sensitive to the least drought, but with these, as other plants having fine fibrous roots, avoid excessive watering, *i.e.*, sufficient for the ball to become sodden. Old stock plants of Aspidistra lurida variegata may be divided now and placed in a little heat; they will again do good service for any rough and ready work when they become re-established. Large clumps of Agapanthus that have become pot-bound to the danger of bursting their pots should also be divided and repotted in good fibrous loam with plenty of drainage. Ophiopogon Jaburan variegatus may be treated likewise, using rather light soil. This makes a good decorative plant. Any overgrown plants of Phormium should be divided and repotted, using good loam and sound fibrous peat in about equal proportions. Imported bulbs of Lilium auratum may be potted as soon as received, using good fibrous soil (peat and loam), adding thereto a good quantity of silver-sand. For these the soil had better be rather on the dry side; stand them afterwards in a cool place safe from frost, but do not water till growth commences. Lilium longiflorum should also be potted up without delay: the great demand for this kind of late years is a sufficient proof of its popularity.

Conservatory.—Where a display of Chrysanthemums has been made it will be advisable on their removal to take advantage of the opportunity thus afforded to give the house a good cleansing previous to bringing in the next succession of plants. If Camellias constitute the main arrangement keep the house somewhat cool. In the event of applying artificial heat see that the proper amount of moisture is afforded them. A slight sprinkling on fine days will be beneficial, and aid them in developing their flower-buds. *James Hudson, Gunnersbury House Gardens, Acton.*

FRUIT HOUSES.

Orchard-house.—If it is intended to force any of the trees they ought now to be thoroughly looked over, and all wood that may be deemed superfluous ought to be removed, as next to a healthy fruitful condition of the trees their form is next in importance. If any of the young wood is thought to be too vigorous and has extended further than it ought to have done, cut back to a triple bud. The fruit-buds may readily be discerned now even by an inexperienced person. In pruning always cut back to a wood-bud. The blossom-buds are round, and the wood-buds pointed. It is always safe to cut to a point where there are three buds together, as the two side buds are flower-buds, and the centre one a leaf-bud. Look carefully over all the branches of the trees, and remove any scale or aphis which may be clinging to the young wood. The scale may also be found attached to the old wood. If the trees are in pots they should be arranged in the house, where they are well exposed to light; and if it is thought that they are too far removed from the glass when the pots stand on the ground large pots may be inverted, and a tree placed on each. It may be taken for granted that the wood and glass-work of the house has been made quite clean, and the Strawberry pots on the shelves have also been washed. The trees should be started with just enough heat to keep the temperature up to 45° on frosty nights. Peach and Nectarine trees only should be forced so early in the season as this. Trees not intended to be forced, but that will be grown for a late crop only, if they are under glass may be watered, say twice during this month—that is, if they are in pots; if they are planted out they may not require any water, but it will be necessary to see that the border where they are planted does not become very dry. When the roots of planted-out trees are confined entirely to borders inside the house, if they are shallow, well-drained borders, it is just possible that they may suffer for want of water before the person in charge is aware of it. Dry borders are a frequent source of buds dropping off at blooming time. I have stated before that in our district we always plunge the trees out-of-doors, where they require no attention; in cold, wet districts, it may not be desirable to place them out-of-doors; in that case all the attention they require is to see that they receive a sufficient supply of water at the roots. *J. Douglas.*

Orange Trees.

The ordinary routine work has been fully described in previous numbers; it may therefore be enough to state that any trees at present that have ripe fruit upon them may be removed to a vinery where ripe Grapes are hanging. The temperature best adapted for the one will suit the other. Under such conditions ripe Oranges will keep juicy and good for two months at least. Trees loaded with green fruit must be kept in a hothouse temperature of not less than 65° at night. As the fruit approaches the ripening stage water must be applied carefully to the roots, as it is not unlikely that the fruit may crack while the skin is yet green and be spoiled. Too much atmospheric moisture is also injurious at this dull season. The possessor of a few Orange trees of the Tangierine and St. Michael's varieties may be able to gather fine dishes of fruit now or later, and be also in a position to serve them placed in wreaths of their own sweet-scented blossoms. *J. Douglas.*

Pines.

The weather has changed from "very mild" to frosty, and an increased amount of fire-heat has to be allowed; therefore the temperatures may be lowered a few degrees all round. Keep the fruiting houses at 65° at night, let the thermometer stand near that figure at 1 P.M.; this may be allowed to fall to 60° by 7 A.M. In very severe weather the temperature may fall through the night as low as 57°; but every effort should be made to get up the temperatures early in the morning. Keep the fruiting houses by day at 75°, which may rise to 80° by 12 A.M., if the temperature rises without too hard firing. In mild weather both night and day temperatures may stand 3° to 5° higher. The bottom-heat for fruiting plants may be kept about 85°. Keep succession plants at 60° by night, with a rise of 10° by day, and the bottom-heat about 80°. Suckers in different stages may be kept at 57° by night, with a rise of 5° to 10° by day, and the bottom-heat about 75°. Assuming that the early batch has been selected and put in a compartment by themselves, they may be started at once. The sorts should be Queens for early fruiting, with some Smooth Cayennes and Charlotte Rothschilds; the two latter varieties force, and do as well as Queens for early work, only they take a longer time to swell their fruit. These, however, make a good succession, as well as variety, and where a large and varied dessert has to be furnished, are valuable additions. The same temperatures will suit this batch as those above recommended for fruiting plants. The early batch should not contain plants that are growing and not likely to start, but are kept back for a later batch. The best guide in choosing the plants is to select those that throw open their centre leaves, and if the centre leaves are carefully pulled to each side the eye can see that the base of the centre leaves forms a round cone: this cone is the fruit in its embryo state. A second batch of plants should be got in readiness to start in the beginning of January; these will come in about June and July—the London season—when the "lordly fruit" is in especial favour, and must be procured to give the table its proper finish. The present is a seasonable time to get good maiden loam for the next spring potting, as it will then be sufficiently decomposed and will be in prime order; for when stored too long the fibre loses its finest qualities, which no after-ingredients can recoup. *D. Wilson, Castle Hill, Devon.*

Vines.

The earliest Vines will now be breaking fast and the temperature can be steadily increased until it reaches 65° at night when they are showing bunches, but if the weather is very severe outside a few degrees lower night temperature will be better than excessive fire-heat. Raise the temperature early in the day to 70° with fire-heat, which will be sufficient if the weather is cold and sunless; but on bright days let the temperature run up to 75°, then admit air with caution on the back ventilators only, closing the house early while the sun has full power. The Vines will now be better tied up where they are to remain or some of the young growths will get broken. Any young rods that made extra strong growth last season and are not breaking freely, can still be left down over the fermenting material in a horizontal position until they break. Water when the border becomes dry with clear tepid water at a temperature of 85°, and keep the evaporating troughs well supplied with water. Add fresh fermenting material on both inside and outside borders as the heat declines, sufficient to keep it steady, mixing old and new together, and damp the house down several times daily. Continue to syringe the Vines overhead for some time longer, but discontinue it when the bunches show prominently. Hamburghs still hanging on the Vines or in the fruit-room should be kept as advised in my last Calendar, but the season for them to be had in good condition is fast drawing to a close. After the fruit is all cut, throw the house open for a few days before pruning, to allow the Vines time for the sap to get thoroughly down and at rest. After the Vines are pruned and the cuts dressed with styptic, if the border is very dry water with cold water, and leave back and front ventilators open night and day, except when the frost is very severe; wash the glass and woodwork thoroughly with clean water, and clean and dress the Vines as recommended in previous Calendars. Muscats still hanging on the Vines can be kept at a night temperature of 50°, or if the weather is very cold outside a few degrees lower, taking care to only give sufficient fire to keep the berries plump and without shrivelling, for if fire-heat is used too freely they will soon shrivel up. Give air on all favourable occasions, but on bright days, if the wind is cold, admit air only on the back, for a cutting draught will turn the berries brown and disfigure them. Houses where the fruit are all cut can be pruned as soon as ready; cut them back in most cases to one good eye on every spur, but if the spurs are thin, leave two good eyes to each where they are wanted. If the Vines are young, and have not got to the top of the house, shorten the leading canes according to their strength, letting them fruit to the top in three years. Late houses of Lady Downe's and Alicante can either hang on the Vines a short time longer, or be cut and put in the fruit-room. It is a great benefit to Vines to get the fruit off at the earliest opportunity, and they will keep equally well in a good grape-room as on the Vines. Before putting them in the grape-room cleanse it thoroughly, and keep the temperature according to the weather, as near 45° as possible, and the atmosphere dry. Before bottling put a few knobs of charcoal in each bottle and use soft water. Fill the bottles a few days before using and stand them in the grape-room. If the fruit is still left on the Vines keep them as advised in my last Calendar. Pot Vines will now be better kept at a night temperature of 65°, with a rise of 10° by day, and a steady bottom-heat of 75° to 80°. They will now take liberal supplies of clear tepid water, and damp the house down several times daily; admit a little air when the temperature reaches 75°, and close the house early in the afternoon. *Joshua Atkins, Lockinge Gardens, Wantage.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec 19	Sales of Lilium auratum, at Stevens' Rooms; and of Dutch Bulbs, at the Auction Mart, by Protheroe & Morris.
WEDNESDAY,	Dec. 21	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Dec. 22	Sales of Imported Orchids, at Stevens' Rooms.
SATURDAY,	Dec. 24	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

THE last meeting of the year of the several committees of the ROYAL HORTICULTURAL SOCIETY was held on Tuesday last, under circumstances of gloom and depression outdoors, which contrasted with the business-like air indoors, caused by a large concourse of members and the presence of an excellent and varied display of horticultural produce. These committees do such useful work, and such an attractive display is brought together, that the meetings are a source of enjoyment and profit to working horticulturists in all departments—scientific and practical. Their educational value is relatively, we think we may say absolutely, much greater than that of the large shows, and their cost to the Society is trifling. In the great exhibitions the number and variety of the objects exhibited and the inevitable bustle tend rather to distract than otherwise, and though they have the advantage of bringing together a larger number of the fraternity, yet anything like quiet examination and comparison of the objects shown is to a great degree impracticable. On such occasions, too, the judges necessarily do their work in sections—one set of judges to each section—and there is and can be nothing like community of action. But at the committee meetings every member is, so to speak, a judge—the whole court consists of judges, and the wide knowledge and varied experience of the whole committee is brought to bear on the objects exhibited. This, at least, is the theory, and in practice also it works fairly well; nevertheless, every now and then it happens that the decisions even of these courts of appeal do not meet with universal assent. The judgment of the members is sometimes too much fettered by commercial, or what we may call market considerations; so that a plant is judged too exclusively upon its assumed commercial merits. This is right enough in certain cases, but the Royal Horticultural Society is not intended as a great market, but as a teacher and leader of taste. Real merit, as estimated on horticultural and scientific grounds alone, without reference to market value—which should be assessed elsewhere—is what the Society and its committees should aim at. By keeping one object before their minds too exclusively, and that not the highest, it sometimes happens that some commonplace flower of little intrinsic interest, and whose fellows may be numbered by scores and hundreds, as in the case of a Coleus say, or a Dracæna, or a Dahlia gets invested with the highest honours, while some less familiar but intrinsically much more important plant is honoured, satirically so, with the same award, or is passed over. Again, the committees, as a rule, are too large to allow of that concentration of attention on the work in hand which is so desirable, the consequence of which is, that the voting does not always so fully represent as it ought to do the collective opinion of those qualified to judge. The large number present engenders a certain amount of looseness in carrying on the business of the meeting, in consequence of which some members rarely vote at all, or vote more because some one else has done so than from independent conviction. On the other hand, some members vote on almost every occasion, as, indeed, they are legally permitted to do; but it must, and does sometimes happen that the voter in such a case passes judgment on what he does not understand. There are certain broad principles on which every member is competent to express an opinion, else he would not be there, and there are occasions when it is desirable or necessary that he should exercise his trust. But when we come to details—to specialities—then it is clear that the man who has a reputation, say, as a competent Orchid grower is not likely to be the best man to adjudicate upon the points of a Dahlia, and it is hardly probable that the man cunning in florists' flowers is the equal of a good "plantsman" in his particular sphere. So much may be said without in any way reflecting on the committee or its individual members. A man must be an Admirable CRICHTON, indeed, who is equally at home in all departments of plant knowledge and plant cultivation—or rather, let us say, that no such man exists.

If there is any truth in these observations it surely becomes the duty of the Council to consider what means can be taken to obviate or remedy the defects to which we have alluded. It is not our place to find a remedy, but we may suggest that one way in which something could be done in the right direction is either to establish a new committee under the title of the Plant Committee, to deal especially with new plants or plants of special horticultural or botanical interest, leaving the present Floral Committee to deal with florists' flowers and plants of market interest chiefly; or to divide the present Floral Committee into two or more sections, each section being practically independent, but having the power to confer with the others in case of need. These, however, are points of detail on which we need not further enter. We are simply contending for the principle, the details could very well be arranged by the Council and Superintendent, and would shape themselves in the working. For the present the Superintendent examining the entries might readily see before which section any particular entry should most appropriately come, and make his arrangements accordingly, in concert with the chairman of the committee. We may add that the division of labour such as we are now advocating is already acted upon in the Paris Horticultural Society, where they have even what we should call an Arboricultural Committee—in the great Massachusetts Society, in Edinburgh, and, we believe, in many other societies, which have copied the procedures of the parent Society, and in some respects improved upon them.

While advocating some such scheme as that above alluded to, we by no means overlook the desirability of providing for the occasional conference and co-operation of all the three committees or of particular members of those bodies. At present each committee acts in an isolated manner, and if we may judge from the great disparity in the number of awards made, the principles acted on by one committee are different from those which regulate the other. This should be avoided as much as possible, and one means of ensuring something like uniformity would be provided by occasional joint conferences. Were it not for the fact that the Scientific Committee must sit in immediate proximity to the Lindley Library, we should even be of opinion that its meetings should be held at the same time and place with the others, so as to afford opportunities of more direct conference, and of gaining mutual information, which is denied by the present arrangements. On this point, however, no change can be made till a suitable meeting-room, capable of fulfilling all the requisite conditions, is constructed—and that is a thing not likely to happen just yet.

—— VERONICA LONGIFOLIA SUBSESSILIS (fig. 156). —Since the introduction of Delphinium formosum about thirty years ago, which in a few years found its way into nearly every garden in the kingdom, perhaps no hardy herbaceous plant has been brought out which is destined to become a more prominent feature in cottage gardens than V. longifolia subsessilis. Its great hardiness, and the ease with which it may be propagated and kept, make it suitable to become a poor man's plant; and its conspicuous large spikes of bright blue flowers, produced all through summer, will cause it to be a general favourite. The young shoots taken on in early spring strike readily, and make flowering plants the same summer: but two joints of stalk, one to make root and one to grow from, even if taken from a flower-stalk after the flower is withered, are sufficient to make a plant; and those gardeners who strike the largest number for distribution, will be the greatest benefactors to horticulture. The plant increases fast at the root, and may easily be divided either early in spring or late in autumn. Its only objection is its long name. The plant is a native of Japan. The figure was taken from a specimen in Mr. WARE's nursery. *C. Wolley Dod, Edge Hall, Malpas, Nov. 26.*

—— THE "BOTANICAL MAGAZINE. —The current volume of this venerable and valuable publication is dedicated by the Editor, Sir JOSEPH HOOKER, to the Rev. H. N. ELLACOMBE, in the following appropriate terms:—Allow me, when adding your name to the list of recipients of this modest tribute, to record my high appreciation of the value of your venerable father's and your own intelligent interest and zeal in the introduction and cultivation of interesting rare and beautiful hardy plants, and your disinterested liberality in the distribution of them amongst horticulturists."

—— THE LATE MR. JOAD.—We understand that the herbarium of the late Mr. JOAD is to be presented to the Royal Gardens, Kew, and that a selection from his fine collection of alpine and herbaceous plants is also to find a resting-place there. In the event of the formation of a good rock-garden at Kew, this gift would be most opportune.

—— LUCULIA PINCEANA.—Mr. LATHAM, of the Birmingham Botanic Gardens, sends a spray of this lovely Rubiaceous plant. Its elegant lance-shaped leaves and terminal trusses of powerfully scented pink salver-shaped flowers render it a valuable plant for the conservatory or cool stove at this season. It is a near ally of the Cinchonas which furnish the quinine of the druggists.

—— EUCHARIS AMAZONICA.—Some very fine and vigorous plants of this useful stove subject are now blooming freely, and throwing up fine flowers at the Hackney nurseries of Messrs. DIXON & Co. It is at the Christmas season that this plant is most valuable, though at any season of the year it commands attention. Mr. C. ORCHARD, the manager of Messrs. DIXON's nursery, states that he re-pots his plants in alternate years, and not annually, as is the practice of some. It is when the plants are well established during the second year and carefully fed that they throw up a plentiful supply of fine blooms. A plant in flower properly hardened off will stand within-doors for a long time with a little attention.

—— LIVERPOOL HORTICULTURAL ASSOCIATION. —The summer exhibition of this Society in 1882 will be held in Sefton Park on August 5 and 7, and the autumn exhibition on November 22. We are glad to learn that the late exhibition of Chrysanthemums and fruit was a great success, £204 being taken at the doors.

—— THE METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., the following papers will be read:—"The Rainfall of Cherrapunji, Assam;" by Professor JOHN ELIOT, M.A., F.M.S. "On the Meteorology of Cannes, France;" by WILLIAM MARCET, M.D., F.R.S., F.M.S. "The Principle of New Zealand Weather Forecasts;" by Commander R. A. EDWIN, R.N., F.M.S. "Report on the Phenological Observations for 1881;" by the Rev. T. A. PRESTON, M.A., F.M.S.

—— A HANDSOME HERBACEOUS PLANT TO LOOK FOR IN NEW MEXICO.—Among the plants collected by the naturalists of the United States' Mexican Boundary Commission, some thirty years ago, was a very fine species of Scrophularia, perhaps the finest of the genus. Under the name of S. coccinea it is described as "a truly handsome species." Specimens raised from seed—at Cambridge, Massachusetts, we presume—in the autumn of 1852, displayed, it is stated, flowers as bright red as those of

FIG. 156.—VERONICA LONGIFOLIA SUBSESSILIS. (SEE P. 788.)

Stachys coccinea. Unfortunately the plants were soon lost, and we believe the plant has never been met with again. It is a robust species, having coarsely toothed stalked leaves, and the flowers are about half-an-inch long in the wild state. This species was collected at the base of a rocky ledge, near the summit of a mountain, at Santa Rita del Cobre, New Mexico.

—— ENTERPRISE IN BEE-KEEPING.—We learn that Mr. BLOW has just started for the East (Cyprus, Syria, &c.) to make a large importation of the bees of these countries. It has always been a reproach that the Americans were more energetic in advancing bee culture than ourselves, especially in the matter of the introduction of foreign and improved races of bees into their country. We shall hear from time to time of Mr. BLOW's movements, and get some information, too, respecting bee culture in those countries—formerly flowing with milk and honey.

—— TO SOFTEN PUTTY.—The following recipe is from the German:—Take soda or potash—the latter is preferable—dissolve it in water and mix the solution with fresh-burnt fresh-slacked lime. After the mixture has stood for a time pour off the clear fluid, and bottle for use. Putty moistened with this fluid quickly softens, and is easily removed. Muriatic acid (spirit of salts), or nitro-muriatic acid, put on with a pencil, also quickly softens putty. Alkaline salt is the best thing to remove spots of paint from glass.

—— DESTRUCTION OF TREES IN THE THIERGARTEN, BERLIN.—The storm of October 14 and 15, as we learn from a German contemporary, committed great havoc in the Thiergarten, Berlin, where no fewer than 231 trees were blown down, or so severely injured that they had to be felled. Never since December, 1869, has there been so great a destruction of trees at Berlin.

—— FLOWER-BUDS OF COMMON BROOM AS A SUBSTITUTE FOR CAPERS.—We read in a German contemporary that the flower-buds of the common Broom (Sarothamnus scoparius), steeped in vinegar, have lately become a very much esteemed delicacy as a substitute for Capers in France. It is curious to note how old customs are revived and regarded as new.

—— THE RATING OF COVENT GARDEN MARKET.—Judgment was given on Monday, in the case of the Duke of BEDFORD *v.* the Overseers of St. Paul's, Covent Garden. It appeared that in 1879 the total amount received by the Duke of BEDFORD as rents and tolls was £17,805, of which sum £8747 came from rents, and £9058 from tolls, the total expenses of conducting the market being £8346. The Assessment Committee had rated the Duke both with respect to the rents and the tolls, whereas his Grace, while admitting his liability as to the rents, contended that he was not liable with respect to the tolls, and he further claimed that as £3500 were the expenses attributable to rents, there should be a deduction from the £8747 which constituted the rents. Mr. HOLL, Q.C., and Mr. CASTLE were counsel for the parish of St. Paul; Mr. GRANTHAM, Q.C., and Mr. GOLDNEY were for the Duke of BEDFORD. Their Lordships were unanimously of opinion that the Duke was liable to be rated for the tolls where payable by individual holders of stalls, or who had a tenancy in common. They therefore affirmed the decision of the Assessment Committee.

—— ARALIA PAPYRIFERA IN FLOWER.—Two of those plants are now producing fine heads of their handsome Spiræa-like flowers in the conservatory of C. F. CORBETT, Esq., Embury Court, near Thames Ditton. The plants are from 7 to 9 feet high, and their large-lobed leaves are strikingly handsome at this season. The particular attraction of the plants above-mentioned is, however, mainly owing to their happy association with Orange trees in fruit, Camellias, &c. The heads of the Aralias are from 12 to 18 inches above the Orange trees, where their white inflorescence has a very pretty effect.

—— GLOIRE DE DIJON ROSES IN DECEMBER.—Over a dozen blooms of this fine Rose were cut in the Ember Nursery of Mrs. M. LEWIS, near Esher, Surrey, a few days ago—a fact which further testifies to the extraordinary mildness of the season. The blooms were cut from plants in a cold house, which usually begin to come in about the first or second week in March. The plants have not yet been pruned. *Apropos* of this fine Rose, which is famous in Covent Garden Market, the bud has a different hue from the ordinary sulphur-colour of this variety; it is also distinct in shape, being longer, and the pinky tinge it assumes is said to greatly increase the sale and not unfrequently enhance the value of the blooms. By the way, Rose growing as managed at this nursery is not unprofitable. A house 45 feet long, with an addition at one end included—say 20 feet more—has realised the handsome sum of £180 for Rose blooms during the past season.

—— CRYSTAL PALACE SCHOOL OF GARDENING.—On Wednesday the Rev. G. HENSLOW took the Chrysanthemum as the subject of his lecture, and traced the history of its cultivation from the earliest time known to the present day. Having been cultivated probably for ages in China and Japan, they appear to have been introduced into Holland two centuries ago, where six varieties are described by BREYNIUS. They seem, however, to have been all subsequently lost, as the next introduction was by M. BLANCHARD, of the purple kind, in 1789, into Marseilles. It reached England in 1790, and blossomed here for the first time in 1795. In the early part of this century fresh forms, distinguished by their colour, were introduced, so that forty varieties were in cultivation in 1827. There appearing to be some confusion in the nomenclature, Mr. SABINE undertook in 1823 to unravel the mystery, and came to the conclusion that the Chrysanthemum indicum of LINNÆUS, under which name the purple form was described (CURTIS, *Botanical Magazine*, iii., 327) applied only to certain small-flowered kinds, the larger flowering sorts being of a different species, which he named C. sinense—the former are the origin, in all probability, of the Pompons, introduced by Mr. FORTUNE in 1846. The lecturer then described how the transformations in the corolla are brought about—the two principles of hypertrophy and atrophy both conspiring to effect the remarkable changes. Thus, while the corolla enlarges, to change from a 5-toothed minute disk-floret into a broad, flat-petalled ray-floret, two petals are gradually dwarfed and finally disappear; while a corresponding atrophy takes place in the essential organs, for the stamens are totally arrested, and the pistil changes its form, the style-arms becoming much reduced in size. The tubular condition of the corolla may remain while the tube itself elongates without any or much splitting—hence the quilled and tasselled forms are arrived at, both representing a more or less arrested stage in the process of change into ray-florets. The ligulate petal may be broad—which gives rise to the incurved and recurved ball-like forms; or it may be greatly elongated and narrow—whence the Japanese linear-petalled forms; or it may be expanded at the mouth, and the teeth multiplied—which gives the trumpet-like so-called Dragon Chrysanthemum. Lastly, if the disk-florets enlarge but remain more or less tubular while the ray retains its distinctive character, the Anemone form is secured.

—— THE NEW BOTANY.—When we read the title of this lecture by Professor BEAL, our impression was that we were to read a discourse on the growth of cells and nuclei, the differentiation of tissues, the search for homologies between Cryptogams and Phanerogams, genealogical links between those groups, and so forth. As it is, we have a lecture on the method of practically demonstrating the facts of the morphology of flowering plants, in association with such physiological procedures as fertilisation by insect agency and otherwise, the movements of plants, digestion in plants, and the like—matters, indeed, which have received great impulse of late, but which can hardly be called new. Be this as it may, the advice to teachers given by Professor BEAL is very sensible, and to the point, and might furnish hints to many a school teacher.

—— TWO PLUMS FROM ONE FLOWER.—Every one who has examined the double-flowered Cherry is aware that the flowers often contain several ovaries instead of only one, the usual number in the single-flowered kinds. Often, too, these ovaries are replaced by leaf-like organs exhibiting various stages between normal ovaries and perfect leaves—a circumstance that gives the flowers a place on the table of the lecturer on vegetable morphology. The same phenomenon occurs in double-flowered Plums, and in various other plants. An instance of this kind is described in this journal for 1852, p. 452. But what we believe is rather rare in these anomalous conditions—namely, the ripening of the fruit—is described and figured in the *Deutscher Garten*. In this example the flowers are double, the number of petals especially being considerably augmented, and the number of ovaries is commonly two or three, occasionally as many as four. The Plum is a dark purple variety of the Reine Claude group, and it is not unusual for two of the ovaries to grow out and develope into ripe fruit. More rarely three grow out. Where there are only two they are quite free from each other, though seated close together at the base, but where there are three they are commonly more or less united.

—— DISPERSION OF THE SEEDS OF NYMPHÆA.—Mr. R. H. WARDER, who cultivates several species of Nymphæa in an artificial pond at North Bend, Ohio, as we learn from COULTER'S *Botanical Gazette*, observed numbers of seedling plants coming up around the margin of the pond, without being able to account for the conveyance thence of the seeds from the plants in the centre of the pond. The seed, as he knew, is of greater specific gravity than water. But while gathering flowers one day he noticed something resembling toad-spawn floating on the surface of the water. A quantity was collected, and upon examination proved to be seeds of Nymphæa kept afloat by the distended sac-like aril. This membranous sac, though open at the top, contains enough air to float the seed for a time, and thus by favouring winds and currents it may be transmitted some distance from the parent plant. A number of specimens remained floating in a bottle, after being roughly handled in transportation for about twenty-four hours, when they became detached from the sacs, through their partial decay probably, and sank to the bottom, leaving the sacs floating.

—— THE ELECTRIC LIGHT.—A sad calamity, we cannot call it an accident, has happened at Hatfield. Two electric wires, as the report says, were carried along the garden wall 3 feet from the ground, not protected as they should have been; the consequence was, that a labourer at work in the garden was killed. If the report be true, the so-called accident was due to gross carelessness.

—— BEE-KEEPING in several counties is looking up under the fostering care of the British Bee-Keepers' Association. New county associations are in course of formation in Cornwall, Derby, Hants, Sussex, Cambridge, &c., and during the past month a series of lectures (accompanied by practical illustrations) has been given in Wiltshire and Norfolk. In Wilts the results were very gratifying, the number of members of the Wilts Bee-Keepers' Association being nearly doubled during the tour. The towns visited were Salisbury, Trowbridge, Devizes, Chippenham, Malmesbury, and Swindon. In Norfolk meetings have been held at Swaffham, Yarmouth, Norwich, and Litcham. At the inaugural meeting of the Norfolk Bee-Keepers' Association at Norwich the Hon. Secretary announced that the society at its commencement was the third strongest in number in England; Herts being first, Lincoln second, Norfolk third. The lecturer in both these tours was Mr. T. B. BLOW, expert of the British and Herts Bee-Keepers' Association.

—— TAPIOCA CULTIVATION IN INDIA.—The Bitter Cassava, or Tapioca plant (Manihot utilissima), which is a native of South America, is now largely grown in Travancore, where the soil seems so well suited to its cultivation as to warrant a still more extended growth. It is stated that, "as the price of Rice has risen of late years, Tapioca has become the more essential as an article of food. It will grow in any soil, and needs but little care, except to preserve it from the depredations of cattle. After the roots are dug the stem is cut into pieces about 4 inches long and planted some 3 feet apart, with a little ash or other manure. The root requires occasional weeding and earthing, and arrives at maturity in nine or ten months. Well boiled it is eaten with fish-curry. It is sometimes given to cattle. In a green state the root does not keep long, but it can be sliced and dried in the sun, or grated and made into farina. A field of this valuable and nutritious root is

planted at but little cost; its yield is very large, and its cultivation highly profitable. The produce has been estimated in Ceylon at 10 tons of green roots per acre; this weighs one-fourth when dried, and if the dried roots gave half their weight of flour, it would amount to 2800 lb. per acre. With some care and attention any amount of the granulated flour might be prepared for home use and export, but though this plant grows almost wild the people do not take the trouble to prepare it."

—— A New Cinchona Bark from Colombia.—A good deal of attention has been drawn of late to a new kind of Cinchona bark from Colombia, known in commerce by the name of "Cuprea" bark. It is stated in the *Pharmaceutical Journal*, on the authority of a Continental report, "that the district, in the province of Santander, Colombia, in which the bark was originally found, is being worked by two companies, employing between them 1700 men. As each man is estimated to be able to collect 20 lb. of bark daily, or equal to 8½ lb. of dry bark, this number of men would be able to collect in thirty days upwards of 400,000 lb. of dry bark; and, enormous as this quantity may appear, the consignments being sent in by the collectors appeared to indicate that it would be exceeded. The original 'Cuprea' bark yielded about 2 per cent. of quinine sulphate, and if this harvest were of equal quality, it would represent more than 8000 lb. of quinine sulphate." It is further stated, in confirmation of the above facts, that some 8000 serons of "Cuprea" bark were imported into London during the last week of September, and that the effect of these enormous consignments upon the price of quinine is already being felt.

—— Gardenias and Stephanotis.—Mr. Ladds has filled another of his monster houses at Bexley with Gardenias, thinned out from that which has hitherto held his flowering stock of these plants. Many of them now run from 9 to 10 feet high, and as much through. As they get too large their heads are sawn off in the way a Laurel or other hardy shrub is often treated, after which they produce numbers of stout shoots that soon make strong bushy plants. Gardenias do not usually open their flowers freely in the short sunless days of winter, but here they have kept on up to the beginning of December, with a promise of more to follow. In another house were some 1500 Stephanotis, fine young flowering plants in 10-inch pots, each trained round sticks. It is a free blooming seedling variety; some of the plants had continued flowering all through the autumn, and are not yet over. Roses now fill six houses; five of them are 300 feet each by 25 feet wide, and one 250 feet by 25 feet, producing through the winter and spring flowers that might be supposed were enough to glut the market.

—— Annual Dinner to the Employés of Messrs. Hurst & Son.—This annual gathering took place at the "Three Tuns Hotel," Aldgate, on Saturday evening, the 10th inst. About sixty-five persons were present, Mr. J. S. Johnson being in the chair, supported by Mr. N. Sherwood and friends, with Mr. Hugh Aiton in the vice-chair.

—— Formal Training of the Azalea.—A great deal has been written from time to time against the practice of training which makes a flowering specimen Azalea look such a formal and prim object, and yet, if symmetry of appearance is an attraction in the plant, some such training is absolutely necessary. The habit of the plant, and the weight of the bloom when fully expanded render tying of some kind absolutely essential. The debateable ground lies between how much or how little training should be given to the plants. The usual plan adopted in the case of conical-trained plants is to place a stake in the centre, and then tie the shoots to it, or to one another, so as to have something like an even surface and yet leave the buds on the outside. This, if done neatly, must of necessity produce a somewhat formal aspect; but there is nothing inconsistent with a free circulation of air among the branches. Appearance goes for a good deal in plants, and in a well arranged conservatory shapely plants of Azaleas seem to be more acceptable than untrained and uneven plants. The ties on the circumference of the plants should be used in moderation, so that there may be, as far as possible, an aspect of naturalness with a symmetrical appearance. In the case of the Azalea uneven masses of flower may exhibit somewhat of an undulating surface, and be, therefore, less artificial looking. But, it has been remarked by a good authority, only the prominent points will stand inspection for individuality of bloom. The contention is that on well trained plants the flowers are, or at least appear, of a better shape than those on untrained plants. Every shootlet of a finely flowered Azalea must be exposed to light and air during the growing season in order to ripen the wood sufficiently to produce bloom-buds, and it is part of the gardener's duty during the season of rest to tie the buds into positions favourable for allowing the flowers to expand. Any treatment short of this would lessen the bloom, and provide green leaves more abundantly than is desirable, which would be the signal for general discontentment. To allow the plants to become irregularly formed bushes would certainly be more natural, but the flowers would neither be so plentiful nor so well formed.

—— British Bee-keepers' Association.—The monthly meeting of the committee was held at 105, Jermyn Street, on Wednesday, the 14th inst.; Mr. T. W. Cowan in the chair. A letter was read from the Secretary of the Royal Agricultural Society, approving of the draft schedule of prizes for bees, hives, and honey, to be offered for general competition at the Society's show to be held at Reading in July next. The committee considered at considerable length a proposal made by the Hon. and Rev. H. Bligh, for the encouragement of cottage apiaries. It is proposed to offer valuable prizes to the most successful competitors who shall set apart and work a certain number of hives in their apiary, to be called the "Poor Man's Economic Department;" such department to be worked upon any system or combination of systems, and accurate accounts to be kept of all items of receipts and expenditure in connection therewith. The further consideration of the question was deferred until the next meeting of the committee. It was resolved to hold the next quarterly *conversazione* on January 18, subject to this date being approved by the Rev. G. Raynor, who had promised to read a Paper on "Hives and Bee-houses." The prize list for the Association's annual show, to be held at the Royal Horticultural Society's Gardens, South Kensington, on August, 3, 4, 5, 7, 8, 1882, was revised, and ordered to be printed.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending December 12, issued by the Meteorological Office, London:—The weather has been very cloudy and cold, with rain, sleet, or snow in all parts of the kingdom. The temperature has, at length, been below the mean in all districts, the deficit being as much as 7° in "Ireland, N.," 6° over central England, and from 2° to 5° elsewhere. The maxima occurred on the 6th, and were as high as 55° in the south-west, and 57° at Llandudno. The thermometer was lowest on the 11th or 12th, when it fell to between 15° and 20° over central Ireland, to 20° at many of the inland English stations, and to between 24° and 28° elsewhere. The rainfall has been a little more than the mean in most districts of Great Britain, but less in Ireland. Bright sunshine was generally deficient, the percentages ranging from 39 in "England, S.W.," 32 in "Scotland, W.," and 30 in "Scotland, E.," to 13 in "England S." Depressions observed:—At the commencement of the period a deep depression was travelling in a north-north-easterly direction across our western coasts, causing southerly gales in the west, and southerly and south-westerly breezes elsewhere. The wind, however, soon veered to W., and moderated, with a rising barometer. By the 13th a small shallow depression appeared over England with very variable breezes, but from that date until the end of the period the wind, though still rather variable, was generally northerly.

—— Gardening Appointments.—Mr. John Lindsay, outside Foreman to Mr. Pettigrew at Cardiff Castle, has been engaged as Gardener to the Earl of Gainsborough at Exton Park, Oakham.—Mr. George Harris, Gardener to H. W. Tugwell, Esq., Crowe Hall, Bath, and formerly principal Foreman at Syon House, is engaged to succeed the late Mr. A. Ingram as Gardener to the Duke of Northumberland at Alnwick.—Mr. John Ellicott, Foreman at Syon, is to be Mr. Harris' successor at Crowe Hall.

PLANT PORTRAITS.

Agave Hookeri, Jacobi, *Bot. Mag.*, t. 6589; Baker, in *Gard. Chron.* 1877, vol. ii., p. 718.—A giant Agave, which flowered for the first time last year at Kew. Leaves reflexed, lanceolate, with reflexed spines; flowers large, yellow, very numerous, in stalked, panicled cymes.

Anguloa purpurea, Linden, *Illust. Hort.*, t. 427.—Terrestrial Orchid; pseudobulb ovate, pyramidal, fluted, with two broadly oblanceolate leaves at the top, and a solitary flower-stalk from the base. Flower 4 by 2½ inches, yellow externally, purplish-brown within.

Aruncus astilboides, Max., *Florist*, November.—A very elegant, hardy herbaceous plant, similar in general character to Astilbe japonica.

Campanula Tommassiniana, Reuter, *Bot. Mag.*, t. 6590.—Sometimes grown as C. Waldsteiniana, but from which it differs. The present is a hardy perennial with erect stems, glabrous, lanceolate, shortly stalked leaves, and terminal racemose cymes of lilac-blue bell-shaped flowers. Native of Istria.

Carnation Clove, The Governor, *Floral Mag.*, t. 476.—A double white Clove Pink, to be sent out by Mr. Cross, of Salisbury, and likely to be a great favourite.

Cattleya hybrida picta ×, *Floral Mag.*, t. 473.—A hybrid raised at Exeter by Mr. Dominy in 1855 or 1856 between C. guttata and C. intermedia. Sepals oblong acute, green, with red spots; petals of the same form, but broader, and with pink edges; lip 3-lobed, lateral lobes erect, pink; median lobe flattish, with a purple disc, red-striped at the base, white edged. Fl. September and October.

Delphinium corymbosum, Regel, *Gartenflora*, t. 1059.—A singular herbaceous perennial, covered with retrorse hairs and with rounded palmately divided lower leaves; the flowers are in dense racemes, the sepals pale violet, greenish externally and hooded at the tip, petals blackish. Native of Eastern Turkestan, whence seeds were sent by A. Regel.

Dendrobium Treacherianum, Rchb. f., *Bot. Mag.*, t. 6591.—Rhizomes creeping, pseudobulbs 2-leaved; racemes from the apex of the bulbs; flowers pinkish-lilac; sepals and petals linear-lanceolate.

Euadenia eminens, Hook. fil., *Bot. Mag.*, t. 6578.—A handsome and very remarkable Capparidaceous stove shrub, native of West Tropical Africa, whence it was introduced by Mr. W. Bull. The glabrous leaves are stalked, 3-foliolate, the segments oblong acuminate; the flowers numerous, in terminal racemes, pedicels spreading; sepals four, lanceolate, green; petals four, sulphur-white, oblong acute, tapering into long stalks, the two uppermost 4 inches long, twice the length of the lower pair. Hort. Kew.

Gloxinias, *Florist*, November.—A fine series of unnamed seedlings, in addition to one, Chiswick White, which is remarkable for "size, purity, and stoutness of texture."

Hypecoum grandiflorum, Benth., *Gartenflora*, t. 1060.—Annual, with pinnately divided leaves, with the ultimate segments linear; flowers yellow, in cymes. Pyrenees.

Incarvillea Koopmanni, Lauche, *Bot. Mag.*, t. 6593.—Bignoniaceous undershrub with pinnatisect leaves, with linear-lanceolate glabrous segments; flowers in racemes 1½ inch long, curved, funnel-shaped, 5-lobed, pink. Native of Taschkent. Flowered in July against a wall at Kew.

Lycopodium squarrosum, *Illust. Hort.*, t. 428.

Olearia Haastii, Hook. f., *Bot. Mag.*, t. 6592.—One of the finest New Zealand shrubs, which we have often had occasion to mention as one of the best of hardy flowering shrubs. See *Gard. Chron.* 1872, 1195, c. ic.

Rhododendron Daviesi ×, *Floral Mag.*, t. 474.—A cross between R. retusum and R. javanicum. Flowers tubular, funnel-shaped, orange-red, in dense trusses. Raised by Davies & Co., Ormskirk. Flowers in spring.

Rose Camoens (Hybrid Tea), *Journal des Roses*, November.—Flowers medium size, moderately full petals, rose-pink, flat. Raised by M. Schwarz, of Lyons.

Rose Duke of Albany, H.P., *Floral Mag.*, t. 475.—A Rose raised at Waltham Cross by Messrs. W. Paul & Son. Flowers of medium size, full, rounded; petals bright crimson, edge revolute.

Scilla puschkinioides, *Gartenflora*, t. 1050, f. 1.—A plant like Scilla sibirica, but with very pale lilac flowers. Turkestan, A. Regel.

FRUIT NOTES.

The Profits of Fruit Growing. — Permit me briefly to state that Kentish fruit growers do not do as "Victim" does—viz., experiment on every new sort that comes from France, for there is not one in a hundred of them of any use for their purpose; also, that while your correspondent is looking for the coming sort—the ideal form which he describes—we are making the best we can of the sorts we have. We do not dive into the future to inquire if Williams' Bon Chrétien will become a drug on the market, or not; for it serves us well at present, and so do Jersey Gratioli, Sweetwaters, and several others; but, as I stated before, we grow to sell, and get crops, too, in spite of our being benighted; and we know, too, that the really first-class Pears, like Winter Nelis, would land us in the same condition as the "Victim" now finds himself. I am quite aware that Gansel's was a favourite years ago, but did ever any one find it prolific? *Pomona.*

King of the Pippins Apple. — I have been struck with the high character your correspondents "A. F. B." and "A. D." have given to the King of the Pippins Apple as a dessert fruit. I can confirm all that is said about its qualities as a good bearer, and it certainly is a very handsome Apple on the table. It might be called Golden Pearmain, or King of the Pippins, as far as appearance goes, and is a likely Apple to catch the eye for market purposes; but I am at a loss to find an atom of quality in it as an eating Apple, especially when I have had for the last two months in use, first, King Pippin [?], Margil, Cox's Orange Pippin, Ribston Pippin, and the old Golden Pippin, true. Those, I grant, are good in quality. I have now to follow, Cockle Pippin, Fearn's Pippin, Adams' Pearmain, and others. In those I have no difficulty to find flavour enough to write a word in their praise. For years I have sent King of the Pippins in as a dessert fruit on account of its golden appearance, and for those years it has had the honour of being consumed in Pug's parlour, but not in the dining-room. *William Culverwell, Thorpe Perrow.*

—— Your correspondent, "A. F. B.," proposes that the name King of the Pippins should be transferred to Golden Winter Pearmain. I must enter my humble protest against the change, which, if made, would put me in the following fix:—I have 150 trees of Golden Winter Pearmain, which were planted out some four years back in orchard rows. Next to these I have twenty-three trees of King of the Pippins, planted out in the same way at the same time. If the name of King of the Pippins is transferred to Golden Winter Pearmain what name can I give to my twenty-three trees of King of the Pippins? I cannot call both lots King of the Pippins, as they are perfectly distinct in habit. Has "our greatest pomologist" retracted his very distinct description of the two sorts, and has "our best authority," Mr. Scott, of Merriott, recanted his opinions on the subject? I wish philomelists would imitate the latter in the way in which he describes the habit as well as the fruit of these two Apples; it would save a vast amount of confusion. Could you not persuade Chiswick to set the good example? *Philomelos.*

Gros Colmar *v.* Alnwick Seedling Grape.—When the last-named variety was introduced I thought it would probably be a good late-keeping Grape for market purposes, and advised Mr. John Ward, of Leyton, to plant a cane or two of it on trial; he has, I think, given it a very good chance. He planted about twelve canes of both varieties in one house, and they were treated exactly alike. This is the third year of their growth, and the Gros Colmar carried on an average between 7 and 8 lb. of Grapes to a rod, which brought in Covent Garden 5*s.* 6*d.* per pound. Alnwick Seedling carried on an average 5 to 6 lb. on a rod, which were sold by the same salesman for 3*s.* 6*d.* per pound. Alicante was planted in juxtaposition to Golden Queen (Pearson), and the Alicantes brought 5*s.* per pound, Golden Queen 2*s.* 6*d.* Mr. Ward found Alnwick Seedling set its fruit very well, but I believe his neighbour, Mr. Sweet, found it to be a very bad setter. The above are facts, and speak for themselves. I give them because they may be useful to others planting Vines, especially if it is intended to sell part of the produce. *J. Douglas.*

Pearson's Golden Queen Grape.—What Mr. Wallis stated respecting Pearson's Golden Queen Grape, in the remarks he first made was:—"Unlike your correspondent 'J. S.' I am very pleased with this Grape, as it does remarkably well here, being equal in colour and berry to the finest coloured Muscats, and nearly equal in point of flavour;" and to prove there was no comparison in this latter respect between the two, I offered to send a bunch of Muscats to the Editors if Mr. Wallis would forward one of the Golden Queen, that the one might be fairly pitted against the other; but this trial of the merits of the two he appears to decline, and I have therefore despatched one of each, and await the Editors' decision. The bunches I send, the Muscat and Golden Queen, are grown in the same house, and have therefore the same chance of aspect, &c., and both are fair samples. As to my condemning the Grape without giving it a fair trial, it has had all the advantages here that the Hamburghs and others enjoy—except, as I stated, the Vine in one house being next the division, the bunches did not get full light thrown on them, and I always like to have white Grapes exposed to its influence. After asserting, as he does above, that his Golden Queens are nearly equal to Muscats in point of flavour, I am surprised that Mr. Wallis should say he would not think of putting them in competition, and to make the admission, he now does, that Golden Queen is only second class—which, if it is that, it is very low down. But I shall be glad to hear what some of our noted growers have to say on the matter, as to plant worthless sorts of Vines leads only to vexation, loss of time, and disappointment, which we all wish to avoid. This is why I have contributed my mite to the Fruit Notes. If I could, I would rather praise than condemn, as the former is by far the more pleasant occupation of the two. *J. S.* [In appearance the sample of Golden Queen was nearly equal, though wanting in brightness, to the Muscat of Alexandria sent with it—both being handsome in bunch and berry—but in appearance only. It is very juicy, but altogether wanting in richness, and has far too much acidity to be acceptable as a winter Grape. If it could readily be had at midsummer it would be very refreshing. Bunches of each sort shown by Mr. Wallis at South Kensington on Tuesday quite bore out his remarks as to colour, but we did not test them for flavour. EDS.]

Beurré Sterckmans Pear.—I cannot acquiesce in Mr. Culverwell's condemnation of this Pear as being utterly worthless as a dessert fruit. I admit that situation, soil, and climate, influence in a remarkable manner the quality of fruits in general; and I find that most Pears are this season somewhat erratic as to their proper season of ripening—Beurré Sterckmans Pear is now quite ripe and fit for table, which is quite a month earlier than it has hitherto ripened with us. The tree is very vigorous in growth, healthy, and a good bearer. From trees upon a south-west wall we find the fruit melting, very juicy, with a brisk vinous flavour, which is very pleasing. Altogether I consider this a very valuable winter dessert Pear, which may be had in use for some time, as it is not so liable as many sorts are to decay. The Beurré Sterckmans certainly does not possess the qualities of a culinary Pear, the flesh being so melting; but as a dessert Pear I have every confidence in recommending it. The tree is of a compact habit of growth, and well adapted to form handsome pyramids. *Geo. Westland, Witley Court, Stourbridge.*

Premature Ripening of Pears.—Some time back a correspondent wrote saying how well Pears were keeping with him, but I am afraid his are exceptional, as here and elsewhere most sorts are, and have been, ripening prematurely, and from present appearances all will be in and over long before the season they should be. They not only spot and rot at a great rate, but go in a way I have never seen them do before, which is that they turn mealy, swell, and burst by splitting wide open in the skins, something like a steamed Potato, the sort that has gone in this way most being Joséphine de Malines, which in ordinary seasons keeps good longer than most others that are fit for dessert. Glou Morçeau, so fine generally, is almost worthless, as, though large and well coloured, when handled most of them are found to be gone to a pulp. Easter Beurrés have not been so bad, but they, like most others, are in months before their time, and keeping them after this, with us, is quite out of the question. Ne Plus Meuris and Bergamotte d'Esperen are behaving better, but how long they will keep remains to be seen. All this is very disappointing, as never have I witnessed finer looking fruit here than we have this season, or had our storing places so full. No doubt the mild weather has had much to do with this premature ripening, but what in my opinion has influenced it more was the heavy rainfall and lack of sunshine in the autumn—a time when Pears stand much in need of solar heat to bring them up to the mark, as by its aid the crude juices are converted into saccharine matter, without which no fruit can keep. *J. Sheppard.*

Home Correspondence.

Vine Fruiting, &c.—With a view to avoid offensive personalities, and a distasteful paper war with "Peregrine," who has for some time occupied so much space, as a critic of other people's sayings and doings, in the columns of the *Garden*, I ask him to prove the value of his preaching and practice by giving a challenge to any one of those whose practice he so much finds fault with to meet him, say, in London, Manchester, or other place (the town nearest to him if he likes), with a collection of fruits, say, Grapes, Peaches and Nectarines, Apples and Pears, &c., and to have the same properly adjudicated upon, the loser to pay to some charitable institution any sum that may be agreed upon beforehand. I feel sure that by so doing "Peregrine" would meet with some one who would be worthy of his steel; but should he not meet with a response from any other quarter, I shall be pleased to enter the lists against him myself in the most friendly spirit, so that all may see, in a tangible way, whose preaching is best supported by practice. I have for some years cooled down my enthusiasm for competing, but there is quite enough warmth left in me to enable me to take action in conjunction with "Peregrine." The success of the latter in a cause like this would do infinitely more to warrant the truth of his preaching, and establish his name as a true benefactor to horticulture, than all the epithets, sweeping denunciations and criticisms, which he has poured forth against those whose practice has warranted their pursuing a course differing from that advocated by him. *M. Temple, Impney.*

The Welsh Emblem of the Leek. — In reference to this subject, as adverted to in your excellent article on p. 748, a Welsh tradition says that Cadwallon ap Cadvan, the 107th king of Britain, and father of Cadwaladr, the last British king, obtained a great victory near a field of Leeks, and since that battle the Leek has been the Cambrian emblem. Another Welsh tradition says the wearing of the Leek originated in a great victory obtained by the ancient Britons over the Saxons, when the former wore the Leek as the emblem of the order of Dewi, St. David (Welsh Taffid—hence Taffy). No reliance can of course be placed on these traditions, and the feast of Cymmortha, with the contribution of one Leek to the general pot is perhaps more worthy of notice than other explanations. The following lines from an old black-letter broadside have reference to this subject:—

"And now if you would know
why they the Leeke do weare
In honor of St. David's day,
it plainly shall appeare.
Upon St. David's day,
and first of March that weeke,
The Welch-men with their foes did joyne,
then honored be the Leeke.
And being in this field
their valour they did try:
Where thousands on both sides being slaine
within their bloods did lye.
And they not knowing how
their friends from foes to seeke,
Into a garden they did go
where each one pull'd a Leeke.
And wore it in his hat
their countrymen to know,
And then most valiantly they did
o'ercome their warlike foe.
Then were noe colours knowne
or any feathers eeke;
The feathers first originall
it was the Welch-man Leeke."

W. G. S.

A New Horticultural Thermometer.—Any improvement in garden thermometers must always be welcomed by plant growers. The kind now sent for your inspection has been used by me for several

months both in the Orchid-house and out-of-doors. The advantage over the old form with red-coloured spirit is material. In the first place the colour has not been discharged, although fully exposed to the powerful rays of the sun during the last summer. Secondly, the liquid being fluorescent the reading of the instrument is obtained with far greater readiness and in much less time at night, and with much less risk of influence from the proximity of the observer and of the lamp. During the late severe winters I have had several thermometers in use under the influence of the external atmosphere—one upon the grass and another at 5 feet elevation, which method is always desirable as an aid for determining the probable cold before morning. It is not possible to read the ordinary form without affecting the reading, and it is a long time before the instrument regains a normal condition after being so disturbed, even when the temperature is at zero of Fahrenheit. The new instrument does not pretend to scientific accuracy, though not more than 1° from the truth, and is consequently reasonable in price. It is manufactured by the well-known glass-worker in scientific apparatus, Mr. Hicks, 8, Hatton Garden, who supplied me at the rate of 3*s.* 6*d.* each or 40*s.* per dozen, the royalty included. *J. T. Barber, Spondon.*

Covent Garden Market.—In the *Times* of Saturday last I see that Peaches are quoted as being sold in this market at 6*d.* to 2*s.* 6*d.* each; Plums at 4*s.* to 8*s.* per pad; English Melons at 5*s.* to 10*s.* each; Figs at 1*s.* 6*d.* to 3*s.* per dozen; Cos Lettuces at 2*s.* per dozen; Vegetable Marrows at 3*s.* to 5*s.* per dozen; Gladiolus at 2*s.* to 2*s.* 6*d.* per dozen spikes; outdoor Roses at 2*s.* to 4*s.* per dozen; and Asters at 1*s.* to 1*s.* 6*d.* per dozen. Can any of your readers tell me where all these things come from in the first week in December, and in such quantities that they can be sold at the prices mentioned? *Countryman.*

Leucojum vernum fl.-pl. (p. 763).—With "Alpha," I agree that it is a pity so many good old plants seem to be totally lost. As far as concerns the bulb line, which is our speciality here, the Dutch nurserymen in general, and our firm, perhaps, yet more than many others, are very conservative, and every real good bulbous plant is kept as long as possible, and only lost now and then by fatal accidents. So the Leucojum vernum fl.-pl., which is perhaps not to be found elsewhere, does exist here in our own collection, and certainly in one other nursery. It is, however, a very difficult plant to deal with, and requires more care than other allied sorts. It must be carefully preserved from the early spring frost, and does best planted in the shade against a north wall, and kept covered during winter. If in spring the cover must be removed, it would be prudent to remove it only in the daytime and to replace it before evening, to keep the leaves and stems free from frost. The bulbs may also be lost by the black rot, to which all Galanthus and Leucojum sorts are subject, therefore one is never sure of being able to supply a certain number of bulbs in due time. Usually our firm can procure a few bulbs every year. In the years 1869 to 1873 the late Mr. F. Rodigas of St. Trond, Belgium, was a fortunate cultivator of this plant, and our firm several times received one or two dozen bulbs from him. *J. H. Krelage, Haarlem.*

——The late Mr. G. Wheeler, of Warminster, had a great knowledge of old plants, and he told me that he had never seen this plant, and did not believe in its existence. But with respect to the double white Hepatica he believed that there was no such plant truly, but that when the double pink Hepatica flowers in autumn (which it does sometimes, though rarely) the flowers are often white. I have never seen either; but as they are both recorded I suppose they must have been accidental sports that were not lasting. *Henry N. Ellacombe, Bitton, Dec.* 10.

Dwarf Scabious.—The merits of these for winter flowering under glass have already been adverted to, and I can fully endorse all that was said in their favour on p. 726, where those grown by Mr. Roberts, of Gunnersbury, are noticed, and if treated in the way he manages his—plunged out all the summer—there seems no end to their blooming. Here we have them up to the present quite gay in the borders, and as some among them are very rich and fine in colour we have just taken up a few of the best to take cuttings from in the spring. To start with these Scabious, the readiest way is to get a packet of seed, and if for beds sow in April under glass, and later on, if the plants are wanted for pots, as they grow quickly, and soon attain sufficient size for ordinary use in a greenhouse. *J. S.*

Old Plants: Double White Hepatica, &c.—I do not believe such a plant ever existed; at the same time, some forty years back, I saw in the nursery of Mr. S. Appleby, St. James, Doncaster, a flower of double white Hepatica. In a large bed of the double blue Hepatica some plants late in autumn threw up a quantity of light blue flowers, and one plant produced two or three pure white; this plant was carefully marked, but in the following spring the flowers came as blue as the rest on the bed. When a boy I well remember in the garden of my birthplace in North Nottinghamshire three or four good clumps of double Leucojum vernum, and there had been a good many roots at various times given to neighbours who admired them. I was some years abroad, and on my return found them all gone, as well as many other rare bulbs, among which I well remember a Narcissus which used to throw up its flowers after the foliage was gone. I never saw it before or since, and now often think it might have been N. serotinus, a plant I do not know. Leucojum vernum fl.-pl. I believe yet exists, and a valued reverend correspondent could tell something about it, which I do not feel justified in doing. Since my remarks were made in the *Gardeners' Chronicle* I have discovered Fuchsia alpestris, F. boliviana, F. cylindrica, F. cordifolia, and F. syringæflora. *Alpha.*

——I have never seen the double white Hepatica, although I found it sometimes offered in catalogues (not lately, however), but it always proved to be untrue. I am much inclined to agree with Vilmorin (*Les Fleurs de Pleine Terre*, 3d ed., p. 97), that it does not exist—at least, not in the trade. I should yet wish to go further, and to say that it does not exist at all. *J. H. Krelage, Haarlem, Dec.* 10.

When to Lay Box.—About the first Calendar note I read when I receive the *Gardeners' Chronicle* weekly is that written by your correspondent, Mr. H. W. Ward, who is seldom at fault in anything that he writes. I can, however, hardly agree with him in his last Calendar (see p. 755), wherein he advises the laying of Box at the back end, or, indeed, at any time during the winter—I mean, of course, to any great extent. In my younger days I should think I have laid miles of Box edging, and it was then laid down as a maxim that early in March was as soon as it was safe to proceed with laying Box. I once assisted to lay the edges of a large garden, not 20 miles out of London, at the beginning of winter; the winter was open until after the new year, when severe frost set in, and two-thirds of the edging of the whole garden was killed and had to be relaid. The district is a very wet one, and no doubt to this fact may be ascribed the extent to which the Box edging was killed. At any rate, it would be well for those having a stiff holding soil to deal with in a wet district to defer Box planting extensively until the spring. *H.*

Galanthus Elwesii.—Amongst the more recently introduced species of Snowdrop this will probably occupy the foremost place. It is quite as beautiful as our more common Snowdrop when in its best dress, but it is one of the earliest to flower, and is now to be seen in some gardens in beautiful condition. I saw a large bed of it in Mr. Ware's nursery at Tottenham on December 8 in beautiful condition, many of the flowers just at the point of opening. *J. D.*

Miniature Chrysanthemums.—I venture to commend to your readers a mode of procedure which has enabled us to use this "queen of winter flowers" with the greatest success as miniature plants for room decoration. Good branching shoots are selected and cut about 18 inches long, bearing as many expanded blooms as possible. These are inserted (one or more, according to size) in 5-inch pots, filled full of sand, and dipped in water until all air bubbles cease. The base of each is supported with a neat green stake, the pots mossed over and watered through a rose, which helps to settle the moss and make it look brighter. Treated in this manner they stand quite fresh for a fortnight when well supplied with water. As it is impossible to grow Chrysanthemums carrying good blooms in such small pots, and at the same time dwarf enough to admit them being used for such purpose, we have found the above plan extremely useful, and nothing looks better than plants treated in the manner indicated, mixed with small growing Palms and Dracænas for window decoration. *E. C. H.*

Fuchsia serratifolia.—If the great merits of this good old Fuchsia were only better known I feel sure it would be much more frequently met with than it is, it being one of the most valuable plants that can be had for flowering during winter, when it comes on naturally in a temperature a little above that of an ordinary greenhouse. It is an evergreen species, of dwarf bushy habit, having rich-looking, glaucous, green leaves, and when well grown and ripened it blooms freely from the ends of the shoots. The way to manage it is to strike cuttings any time early in spring and then nurse the young plants on under glass, treating them pretty much in the same manner as the ordinary kinds till the end of May or June, after which, till the end of the summer, they do best plunged outdoors in a half shady situation, as there the young growth they make becomes firm and mature. The soil most suitable for Fuchsia serratifolia is good fibry loam, to which some rotten cow-manure should be added, and when the plants become pot-bound they will take plenty of dilute liquid-manure. *J. Sheppard.*

Pandanus Veitchii from Small Cuttings.—Amongst the many little practical hints to be found in the writings of your correspondent, Mr. J. Hudson, not one is more true than the advantage of choosing very small cuttings for raising Pandanus Veitchii. The results can easily be seen in plants that have been grown under exactly the same conditions, with the difference in choice of large and small cuttings; those from the latter are more pure in colour, more graceful in habit, and, indeed, models of a foliage plant so useful for vases and for table-work. *H. S.*

Wintering Caladium Tubers.—Seeing there is some difference of opinion as to the best manner of wintering Caladium tubers, perhaps it would not be out of place for me to give my experience in the matter. In the first place it is necessary that the tubers should be well ripened; the watering should not be withheld too soon. The foliage should be allowed to leave the tubers naturally, and not be forced off; when that occurs cease watering. Afterwards turn the pots on their sides, allowing the soil to become gradually dry. When dry shake the tubers out, placing each sort separately in a pot of dry silver-sand, afterwards placing them on a shelf 6 inches above a warm pipe where the temperature does not fall below 50° nor rise above 70°. The sand keeps the tubers plump, and checks the extremes of temperature which would result from the pipe acting on the tubers. In this manner we find them keep better than in any other. *W. Gibson, Royal Hospital Gardens, Chelsea, S.W.*

Names Taken from Plants.—Okeden, the name of a good old family in Dorsetshire, is taken from the Oak; and Raby, a very ancient North Country name, is said to have been derived from the Rose, which flower they still use as their crest. *H.*

Winter-flowering Begonias.—Now that we have quite a new race of summer-flowering Begonias, it is to be hoped that they will not refuse an alliance with those even more useful kinds, the winter bloomers, which are at present too few in number, as they are confined to some half dozen sorts, the best among them being B. semperflorens Saundersi, B. nitida, and B. manicata, the latter a very beautiful species, bearing most delicately pink-tinted blossoms on erect stalks about 1 foot high. For cutting to dress in vases or epergnes I know of nothing more telling, as the blossoms depend in a very elegant way, and quite sparkle under the light, which shines through them and show up their form and the rich blending of colour. B. semperflorens, as its name implies, flowers the whole year round, and is, I should think, a most valuable sort to breed from. The habit of this kind is particularly free and easy, and so gracefully drooping as to render it specially adapted for growing in baskets or pots, to be elevated in vases. B. nitida is a fine old kind, having thick shining leaves, and bearing large racemes of pinkish-white flowers. B. insignis is a desirable variety, and one that will stand in a temperature lower than most of the others. B. socotrana, so highly spoken of, I have not yet had the pleasure of seeing, but from what is said of it it would appear the very thing to work on and breed others from, and it may be that we shall soon be inundated with sorts that will bloom in the winter, and, if so, I, for one, shall be glad. *J. S.*

Mr. Rochford's Boilers.—We endorse all that "T. B." (p. 762) says in favour of these boilers. We have three of them in use at present, each 14 feet 6 inches long, two at our vineyard, the other one at Stanstead Park, which did its work most satisfactorily last winter, when the thermometer stood at zero on several occasions. If Mr. Warhurst will favour us with a call we shall be pleased to show him our boilers and their doings. *John Laing & Co., Forest Hill, S.E.*

Richardias.—At p. 758 attention was drawn to the flowering of Richardias at Christmas. Most gardeners practise the planting-out system, which for early forcing is a mistake. The plants make a quantity of roots, and consequently many leaves; but when placed in a forcing-house, how few get them to flower with the certainty required by those who grow them to pay! I am not acquainted with the details of the treatment adopted by market growers, but have found the following plan a good one:—In the spring, after the plants have done flowering, gradually dry them off enough to allow the old foliage to be easily torn from the crowns; shake away all soil, cut up the old crowns, and pot singly, the largest in 32, the others in 48-sized pots. Use good stiff loam with some coarse sand or road grit added; plunge them out-of-doors and keep them always well supplied with water: root restriction will cause the growth to become short

and firm, and when placed into heat one may hope to get from twelve plants a dozen flowers. *H. S.*

The Mildness of the Season.—It came as a strange commentary upon the gushing description of the unnatural spring-like aspect of the season, that when, on Saturday morning last, I was sitting at breakfast and reading the various paragraphs under this heading in the *Gardeners' Chronicle*, a member of my family suddenly called out, "Oh, look, look!" and turning round, I saw through the window the air full of snow, and the ground in a moment became winterly white. I thought of the titlarks'nests, and of the foolishly precocious spring flowers that had been charmed by the few mild days into an unreasonable display of their charms, and thought also of the miserable, stained, draggled condition they would be in when the snow followed by inevitable frost had passed away. Perhaps because our soil is not a warm one, very few of these manifestations of floral precocity have been seen here—certainly not more of them than are common in ordinary open autumns, whilst far worse than frost is the excessively saturated condition of the soil, for being of a clayey, retentive nature it is about the consistency of worked brick-clay. There is little fear that plants would push too early under such conditions. None the less, I think soil which enables plants to resist the temptations of excitable but unseasonable temperatures has its advantages, as those plants which have made early growth must suffer considerably when really hard weather does come. It is worthy of remark that even Roses in a house, their roots being in outside borders, do not show that remarkable forwardness found elsewhere, indeed are no earlier than usual, so that altogether we here in the valley of the Thames have little that is sensational in the plant way to write about. Perhaps when frost does come we shall be all the better off for it. *A. D.*

—— Observing a paragraph under the above heading in one of the London dailies with the names of some things in fruit and plant flowering in the open air at the Isle of Wight, it occurred to me while reading over the list that some of the plants still in flower here are equally remarkable, being so much further north. Heliotrope is still fresh in the open air, sheltered by some creepers at the front of my house, amongst Pelargoniums, Lobelias, Cupheas, Echeverias, &c., with Jasminum over them, having some flowers fully expanded. In the open borders Mignonette and various sorts of annuals are still flowering, and many sorts of perpetual and China Roses are in flower and full of fresh-growing buds. Cauliflower is as large and perfect as in midsummer. The following dates of the lowest temperatures up to December 9, extracted from our daily meteorological readings last year, will show how open the weather has been in this locality:—October 17th, 31°.6; November 2d, 30°; 19th, 31°.8; 26th, 31°; December 4th, 30°.3; 9th, 29°.5; while on November 14 this year the maximum temperature in the shade was 62°, and lowest night 51°.2. The daily readings have ranged principally between 45° and 57°. It has only once during the two past months receded to 41°. The contrast with the same month last year is so great that I mention the dates of some of the severest nights of the corresponding months. The first warning of the arrival of winter was a heavy shower of large hail, which covered the ground perfectly white on October 2; on the 20th, 2 inches snow, and temperature 25°.5, with three nights of frost in succession; November 15, minimum thermometer reached 2°.5; 16th, 25°; 17th, 32°; 18th, 28°.1; 19th, 27°.8; 20th, 24°; 21st, 16°.7; 22d, 19°. During this period ice-houses were filled, and skating and curling were going on from 22d to 25th. *J. Webster, Gordon Castle Gardens, Banff, N.B., Dec. 9.*

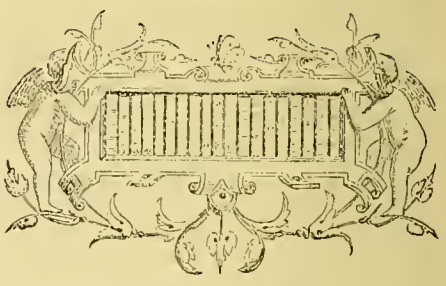
NOTES ON VEGETABLES.

Seed Potatos.—It is by no means an unusual thing to hear people growling over the price they may be called upon to pay for seed Potatos when they procure their needed stock for planting in spring. When asked why they do not purchase in the previous autumn, and when no doubt stocks might be obtained much cheaper, the reply made is, "Oh! there is too much risk both by frost and disease." That shows very clearly how much through the winter months seed Potato stocks are subject to depreciation when in the hands of sellers, and how needful it is that because of this, and, not least, because of the extensive storeroom needed, and the costly labour involved in the hand-picking, turning, protecting, and packing, incidental to a seed Potato trade, that prices must in the late winter and spring be largely enhanced. Only those who deal largely in seed Potatos know of the risks run—of the quantity that will, even in stocks that, when first stored, seem perfectly sound, yet before the end of the year show rot and decay. Then sometimes, if the winter be unusually severe, frost gets in, and plays havoc; and even if this enemy may be kept at bay, it is only when well protected by straw, mats, sacks, and other costly material. Where any real pride is shown in the quality of the seeds sent out, not only are all big as well as small tubers eliminated, but also all that are ungainly or in any way bruised or injured; indeed, it will not be wide of the mark to say that any stocks as received from the field or from the growers must be subject to a reduction of quite one-fourth ere thought satisfactory to send out to customers. Such would follow in the case of conscientious dealers. The present season adds another difficulty to those incidental to safe Potato storing. Owing to the exceeding summer heat all early kinds ripened even earlier than usual, and now that the early winter is proving unusually mild the tubers are excitable, and will push a precocious growth. Where lying in bulk this presents a great difficulty, and one not easily surmounted. Of course, plenty of air may or should be given, but with a mild temperature and an atmosphere somewhat moist, it is not easy to prevent unseasonable germination. *D. R.*

Exhibiting Vegetables and Judging Them.—This subject, which was so ably handled in the article on p. 687, where some of the causes of divergence of opinion in judging are noticed, is a matter of much interest at the present day, when so many new varieties of all kinds of vegetables are yearly sent out, that it is more than probable a want of judgment is being occasionally practised in the supply of vegetables for the dining-room table, as well as errors committed in the decision of the relative merits of those exhibited for competition on the tables at horticultural shows. The general rule laid down in the article in question—that the most suitable examples for exhibition are such as would also be considered the best for an employer's table—is a sound one, and one that might be supposed to be sufficiently comprehensive to at once bring any present existing eccentric ideas on judging into speedy unison and easily working accord. But unfortunately there is such a difference of opinion amongst both cultivators and consumers as to the standard of table merit necessary to be arrived at, as leaves still much to be desired in the matter of general agreement. The ever-growing rage for novelties is a factor that ought not to be left out of account in considering the causes of the different opinions that are held on the particular merit to which should be allotted the highest number of points in judging. Many of the new varieties are no improvements on previously existing sorts, if size be not a consideration; and, as in this consists often the only difference, specimens are consequently thought to be insufficient samples of the particular variety, if that extreme size which is said to be its distinctive property be not fully developed. The fancy for large Cucumbers, which at one time existed, is now happily displaced by a more just appreciation of the merits of such comparatively useless monstrosities; but can the like be truthfully said of Asparagus, Broad Beans, Tomatos, and Peas? The last two vegetables seem yet to be either largely appreciated or held of small account, in accordance with their possession or lack of extreme size, and the question of flavour is apparently judged of secondary consideration. It is questionable if there is one of the large Peas that are almost exclusively grown in some gardens, and are most frequently selected for awards on the exhibition table, but would be found inferior in flavour to that old and highly flavoured variety, Veitch's Perfection. A further evidence of the tendency to run after size is shown in the introduction of such coarse overgrown things as the new Tomato, President Garfield, which is, if justice has been done to it by the Continental illustrations, the most ugly variety yet introduced to commerce. In the schedules of some horticultural societies classes are provided for new vegetables, or, at least, some preference is shown for them in certain classes; but as all new introductions ought to be in advance of their predecessors, and should be able to hold their own in competition against old standard sorts, it is quite a move in the wrong direction to give any favour to novelties, simply as such, in the general classes. The fashion for growing large varieties of vegetables is the principal cause of the exhibition of overgrown specimens which alone would be considered fair samples of those new and improved (?) kinds, many of which are coarse, and comparatively flavourless, and are—as in the case of some of the monstrous Broad Beans—often less prolific, and are consequently not so desirable for ordinary garden crops as smaller sorts. As soon as mere size is generally selected for distinction and reward horticultural shows will have departed from their legitimate sphere of usefulness, in that they will tend to diminish the supply of the best table vegetables rather than to guide to further advance and improvement. Such an event is fortunately, however, not likely to arise. The principal exhibitors and judges, backed by such articles in the horticultural journals as the one that called forth these remarks, may be depended upon to prevent such an abnormal state of things, by the free use of sound judgment, unfettered by fashion. Novelty, rareness, or difficulty of cultivation (all of which justly bear weight in floricultural matters) should not affect the decision in vegetables adversely to the interests of real worth, if progress is to be made on the road to the desired haven of "good vegetables, and plenty of them." *R. C.*

Early Peas.—On p. 666 Mr. Douglas says the Fortyfold Pea is of the Ne Plus Ultra type. Mr. Douglas, or his seedsman, must have made a mistake in the seed, or the Pea must be a regular turncoat, as it has always been with me one of the Champion of England type. Mr. Douglas has done good service in mentioning Laxton's Earliest of All Pea. It is a first-class early variety, and a free cropper—indeed, the best of Mr. Laxton's very early kinds; and will no doubt take the place of Harbinger, being earlier and shorter in the haulm. *Omega.*

Brussels Sprouts, Aigburth.—As one of the novelties of the current year this variety deserves a passing word of comment. Sown and planted out at the same time and growing side by side with Imported and Scrymger's it has with us proved itself to be much the best of the three, and we shall certainly discard these two old friends in the future and confine ourselves to the Aigburth until we make the acquaintance of a better. The Sprouts are solid and of good flavour, and as grown on our poor soil the *beau ideal* of what Brussels Sprouts should be—not overlarge or coarse, but of a nice medium size. On strong soils, or with high cultivation, it will doubtless greatly exceed that which in the dining-room is justly regarded as being the normal size of Sprouts, and for this reason it ought when grown on good land to be subjected to what is generally known as the "starvation treatment." I was pleased to see at p. 724 allusion made to those gigantic productions of kitchen gardens, which in some quarters meet with so much favour. There can be no question about the great majority of consumers entertaining strong feelings against these monstrosities, and the maxim "good stuff lies in a small compass" applies with great force to vegetables. *J. Horsefield.*



Notices of Books.

British Bee-keeper's Guide-Book. By T. W. Cowan. (Houlston & Sons.)

As far as we know the information in this little book is for the first time collected together in a compact form, and it is presented to the reader with that best of all recommendations—the test of practical and disinterested experience. We, therefore, welcome it as a most useful addition to the literature of the bee-keeper. During the last few years the science of which the book treats has made great and important strides. Old, wasteful, and untrue theories have gradually given place amongst a large class of educated bee-keepers to much more rational and profitable ones. The happy-go-lucky straw skep and the autumnal destruction of valuable stock are now doomed. But the want of efficient descriptive handbooks has been much felt. Of course it is hopeless to convert the old hands who have been regularly jumbling their bees into the unexplorable darkness of skeps every spring, and as regularly slaying half their stock every autumn. There is, however, a largely increasing class who begin to see that a cottager with a garden—a small farmer who is deploring the hopelessness of competition with American food produce—or a poor clergyman with a large family, may make no despicable increase to his yearly income by keeping bees, provided he does so scientifically. We met with a clergyman in Essex at one of the summer honey-shows,

who told us that he had made a nett profit of £27 this year from the produce of fifteen hives. Such results as these are by no means uncommon; but they are altogether impossible under any but the best system of management, such as is fully described in the work before us. In the early days of our keeping bees we spent much time in reading bee-books and journals, most of them written with the professed object of advancing scientific bee-keeping; but too often we found them dead-sea fruit. The writers of such books do not tell the public which is the best hive, the best feeder, or the most valuable super, for the simple reason that they are too often interested in the manufacture of these articles, and it is to their interest to keep many kinds before the public. The reader is left to extract the grain of truth from the sack of nonsense by his own subtlety. Mr. Cowan, however, comes before the public as a disinterested bee-master, and his name is so well known in connection with the science that his opinion may be regarded as authoritative. The chapters upon supering and comb foundation are especially valuable. Probably the time is not far distant when the use of English honey will be more prevalent than it is at present, nor do we think that a greatly increased production will decrease the price or spoil the market. The wax-comb foundation and the wood sections offer great facilities for saving the labour of the bees. Honey is often an awkward article to sell, on account of its liquid nature, but nothing could be much more handy than these little boxes filled and sealed by the bees themselves. Were these sections in more common use, every grocer in the country might keep a stock of honeycomb on sale without incurring the difficulty which attached to the old bell-glass supers both as to value and bulk. We heartily commend this book both to present and future bee-keepers. It is plentifully illustrated with engravings; the style is terse, the explanations are exhaustive and free from pretence, and the price need not prevent even the humblest cottager from becoming a purchaser.

A Manual of Rational Bee-Keeping. By C. de Ribeaucourt. (David Bogue.)

This is one of those books "which no bee-keeper" who prides himself on a complete library "should be without." Much of the theory and practice described in it is good, but the reader fancies himself travelling on a diligence instead of by a railway train, and he can almost believe he hears the tra-la-la-it-i of the horn. The worthy French pastor who describes his antiquated methods in the book before us would probably open his eyes considerably if he paid a visit to the South Kensington honey show, and would return to his native country certainly a wiser man, if not a sadder, at the thought that he had tried to instruct English bee-keepers. It would almost appear as if the writer had heard distant rumours of inventions, of which he has had clumsy imitations made by the village carpenter. In so far as he is not a straw-skeppist we are thankful, and his pattern hive would do very well if it had a quilt, and the bars bad frames to them. What possible ventilation can the bees have in winter but that which is most dangerously obtained from a hole near the top of the hive? Every hive of bees must be decimated by dysentery before the spring. We are recommended by M. Ribeaucourt to make use of bee-houses. Such contrivances are still adopted by some bee-masters as a matter of necessity, but it is now pretty generally acknowledged that the plan of placing hives out in the open has many advantages. By the latter method the combs of a hive can be removed for examination with less risk of disturbing other hives, the queen is less likely to enter the wrong hive after her wedding flight, and there is less general likelihood of robbery. The Ribeaucourt hive is made with that old abomination, a crown board, which we are significantly told is made in several pieces, so that they may be *turned, if they warp!* Every bee-master will understand what this means. M. Ribeaucourt has discovered from his own observation that bees evolve the wax from some internal sac, and he throws doubt upon the received theory of the abdominal glands. He likewise tells us—as an encouragement to adopt his method of Italianising, we presume—that he loses three Italian queens out of six in the process of introduction. Another recommendation altogether at variance with English practice is to strengthen weak hives by removing into them combs of brood from strong ones. But we have said enough to show how much we differ from the author. Either the translator did not consider whether the production of this book would be useful to English bee-keepers, or else he is also himself ignorant of the present advancement of the science in England. To those who like to read about the practices of other countries the book will be interesting, but we cannot help feeling that if the President of the Société d'Apiculture de la Suisse Romande knows so little of modern bee-keeping, the members probably know less, and that it would be a charity if some one would translate for them either Mr. Cowan's or Mr. Cheshire's book. M. Ribeaucourt is many years behind the times in this country. There is much simple-minded uncertainty about his ideas and his methods. We fear he cannot teach us anything. We are sorry for it because he would evidently like to do so. As a manual for English bee-keepers, the book is a failure, but who knows whether it might convince Mr. Pettigrew or some of his straw-skeppest disciples of the error of their ways. If so, it will not have been written in vain.

Reports of Societies.

Royal Horticultural: *Dec.* 13.—The Rev. G. Henslow took for the subject of his lecture the "Diversity of means utilised by Nature to secure similar or identically the same ends." He illustrated it (1), by the process of doubling in flowers; (2), by a peculiar method of securing the fertilisation of flowers in Salvia, in Calceolaria, and in Roscoea of the Gingerworts, each representing a different family. The process consists of a kind of lever which oscillates in a vertical plane. (3), By various methods of coloration so that different organs may be coloured, but which secure respectively the same object of rendering the flower attractive to insects; and (4), methods of entrapping insects for prey as food.

The process of doubling varies much in different flowers. Thus, the pistil may remain perfect, but the petals and stamens (now converted into petals) are multiplied, as in Carnations, Pelargoniums, &c. The pistil may become foliaceous, and the rest of the flower a mass of petals as before. Such occurs to the double Cherry. The petals alone may be multiplied, the stamens and pistils remaining perfect. The simplest condition was a supernumerary corolla within the usual one, as in Bouvardia; or it may be multiplied indefinitely, as in Stocks; or the whole flower may be converted into a dense ball of more than fifty petals, as in a double Wallflower. Again, a double flower may consist of a repetition of calyx and corolla, as a Rock-rose. Lastly, "double" Poinsettias were merely a multiplication of coloured bracts. As illustrations of coloured organs the lecturer exhibited Poinsettias and Euphorbia jacquiniæflora as showing how bracts could mimic a true flower, while in Anemones and Marsh Marigold it was the calyx which was brilliantly coloured and did duty for the corolla. A Nepenthes illustrated a carnivorous habit, and the lecturer made observation on the use of such habit, as proved by Mr. Francis Darwin's experiments on a Drosera, which clearly showed that the chief benefit lay in the reproductive system, or the production of seed.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair.

Larvæ in Bulbs of Japan Lilies.—Mr. McLachlan showed specimens of larva which eats into the centre of Lily buds. It was supposed to be the larva of one of the weevils (Curculionidæ), and perhaps belonging to the genus Brachyceras.

Larvæ in Cocoa-nut Palm.—Mr. McLachlan showed specimens of a larva of a wood-boring beetle, now doing much damage to the wood of the Cocoa-nut Palms in the Seychelles islands. The beetle is supposed to be allied to Hylocœtus, and its larva has a very remarkable conformation, which will form the subject of future comment and illustration in these pages.

Proliferous Cones.—Dr. Masters showed a specimen of a proliferous cone of the Douglas Fir, Pseudotsuga Douglasii, which did not differ from other proliferous cones in which the bract assumes a leafy condition, while the seed-scale is either entirely suppressed or greatly reduced in size. In a cone of Sciadopitys received from Messrs. Veitch, and similar to one figured in their recently published *Manual of Coniferæ*, the conditions are exactly reversed, the bract remaining in a rudimentary state, like a perula or bud-scale, while the seed-scale is represented by a so-called "leaf." Thus this very interesting specimen is of importance in respect both to the interpretation of the true nature of the leaves or leaflike shoots of Sciadopitys, and the seed scale of the Abietineæ. A further description of the cone will be given on another occasion.

Galls in Oak.—Mr. W. G. Smith showed a subglobular woody excrescence taken from between the wood and bark of an Oak in Norfolk by the Rev. J. M. Du Port, who states that considerable numbers of these bodies grow in the tree referred to, and are removed by boys. Such outgrowths, which are considered to be shoots arrested in development, are not of uncommon occurrence.

Growth of Embryo.—A letter was read detailing some experiments made on the growth of the embryo of a cereal after the removal of the albumen. Reference was made to the remarkable experiments of Van Tieghem, who deprived embryo plants of their natural food supply by removing the albumen, and fed them with nutritive solutions, forming an artificial albumen.

At this, the last meeting for the year, the existence of the committee terminated, to be reconstructed next year. A vote of thanks to the Chairman, Sir J. D. Hooker, was proposed and carried by acclamation.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. The most important novelty brought before this body was a good sample grown at Chiswick of Messrs. Rutley & Silverlock's new Celery, Winchester Red, a variety with very broad leaf-stalks, very crisp, and of a rich nutty flavour. A First-class Certificate was awarded to it. From Mr. R. Gilbert, Burghley, came good examples of Bath Cos and Barr's Giant White Cos Lettuces, and of Cucumbers Veitch's strain of Telegraph, Montrose Seedlings Nos. 1 and 2, and Frost's Prolific, all of the same type and of excellent quality. Mr. D. Wilson, the Castle Hill Gardens, South Molton, sent four capital Smooth Cayenne Pines, of the aggregate weight of 24 lb. 8 oz.; and from Mr. Wallis, gr., Keele Hall, Staffordshire, came fine examples of six sorts of Grapes, including Gros Colmar, Golden Queen, Mrs. Pearson, and Muscat of Alexandria; and a very good dish of three bunches of Golden Queen also came from Mr. G. R. Allis, gr. to J. Shuttleworth, Esq., Old Warden Park, Beds. Mr. W. Sutton, gr. to J. S. Sassoon, Esq., Ashley Park, Walton-on-Thames, showed a brace of Model Cucumbers nearly 2 feet long; and Mr. Lyons, gr. to Sir E. H. Scott, Sundridge Park, had a beautiful dish of Mushrooms. Mr. S. Ford, gr., Leonardslee, Horsham, sent samples of a seedling Apple named Margaret Henrietta, a variety which in size and colour much resembled a Devonshire Quarrenden. Mr. T. Laxton, Girtford; Mr. Batters, Hill House, Stanstead; and the Rev. G. M. Straffin, Petworth, also showed Apples of various sorts, but none calling for any comment. Messrs. James Carter & Co. exhibited samples of the Golden Queen Onion, a counterpart except as to colour of the well-known Silver Queen; and Mr. Finlay, gr., Wroxton Abbey, Banbury, showed the Wroxton Onion, said to be a seedling between Improved White Spanish and Williams' Magnum Bonum, but more globular in form than either. Three very good bunches of Black Alicante Grapes, cut from Vines planted in 1880, were exhibited by Messrs. John Laing & Co.; and a bunch of Gros Colmar with enormous berries came from Mr. Fisher, gr., Bangor Castle, Co. Down.

The six prizes offered for collections of vegetables by Messrs. James Carter & Co. brought out seven competitors and a first-class sample of kitchen garden produce. The prize-takers were Mr. Austin, gr. to Sir G. Smythe, Ashton Court, Bristol, 1st; Mr. S. Haines, gr. to Earl Radnor, Coleshill, 2d; Mr. Phillips, gr. to Captain Jackson, Meopham, 3d; Mr. R. Gilbert, Burghley, 4th; Mr. R. Lloyd, Brookwood Asylum, 5th; and Mr. G. Goldsmith, Hollanden, 6th. Mr. Austen's collection was in every way a credit to him, only one sample (white Celery) being open to exception on the score of quality. The others were Schoolmaster and King of Potatos, Maltese Parsnips, Musselburgh Leeks, Scarlet Intermediate Carrots, Carter's Perfection Brussels Sprouts, King of Cauliflowers, Carter's Jersey Lily Turnips, Improved Reading Onions, Carter's Perfection of Beet, and Hathaway's Excelsior Tomatos. The Messrs. Carter had also a very imposing display of vegetables—good things in the way of Potatos, Kales, Cabbages, Savoys, &c., among the more noteworthy being admirable samples of the Winningstadt Cabbage, Little Pixie and Green Curled Savoys, Dwarf Purple, Thousand-headed and Chou de Russie Kales, and the yellow Capsicum Prince of Wales.

A cordial vote of thanks to the Chairman concluded the labours of the committee for 1881.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Seldom are these pleasant gatherings held under such gloomy atmospherical conditions as prevailed on Tuesday—a sharp frost in the morning, and fog and darkness all day, completely preventing the due enjoyment of the flowers, though appropriate enough for the display of smoke abatement appliances in the neighbouring arcades, and which we must say the horticultural element well patronised. It was quite impossible to do justice to colours, and we shall not therefore attempt it. The largest contribution came from Chiswick, a fine bank of plants made up of well-grown and very freely-flowered specimens of Begonia insignis, double and single Chinese Primulas, Euphorbia jacquiniæflora, Poinsettia pulcherrima, &c. Messrs. H. Cannell & Sons also showed Primulas, two dozen plants of the old

Double White, superbly grown and flowered in 48-pots. The Swanley contingent also included a dozen and a-half bunches each of grand single and double zonal Pelargoniums, amongst the former being a white flowered variety named Czarina, which measured 2¼ inches in diameter; also cut blooms of Salvia Pitcheri and S. rutilans, blue and scarlet combined, and a good plant of the new Heliotrope White Lady, a very fine white flowered variety, even finer to-day than when shown in the summer. Messrs. James Veitch & Sons put up a pretty bank of Cyclamens; a good plant of the new Jasminum gracillimum, a winter white flowering plant that every gardener should make a note of; the white-flowered but scentless tree Carnation Andalusian; the pink Begonia socotrana, and several Orchids, including Calanthe bella ×, a hybrid between C. vestita and C. Turneri, with a bold spike of large pale rose-coloured flowers; Masdevallia ignea Massangeana; and Cypripedium microchilum ×, a hybrid between C. niveum and C. Druryi, with the habit of the former, and with white sepals marked with a central reddish stripe, the lip, as the name implies, being very small. Mr. Bull had a fine well marked variety of Odontoglossum polyxanthum named pictum, and the white flowered Cœlogyne barbata, the pretty Bouvardia Alfred Neuner, small plants all in bloom; and Bilbergia farinosa, a striking thing, with oblong leaves, covered with whitish meal and marked with cross bars of deep green colour; the flowers and their attendant bracts are rosy-pink. Mr. B. S. Williams showed Phalangium elegantissimum, a plant with tufted linear leaves, striped with longitudinal bands of green and creamy-yellow; Sisymbrium millefolium, a Canary Island slender greenhouse subshrubby plant, with finely divided greyish leaves; Cypripedium Meirax and Nepenthes Dominiana, &c. Mr. R. H. Vertegans, Chad Valley, Birmingham, also showed the Sisymbrium and flowering plants of Nicotiana undulata and the white Phlox Miss Robertson. Mr. Balchin, Hassock's Gate, had some fine cut blooms of Bouvardia Dazzler and well-grown plants of his double-flowering Mignonette. Messrs. James Carter & Co. again exhibited a group of their blue Primula Holborn Gem; and Mr. Holden, gr., Effingham Hill, Dorking, sent Pelargonium Lady Maxse, a double salmon-pink sport from Wonderful. Cut flowers of the new yellow Calceolaria Burbidgei came from Mr. Douglas; and Mr. Turner, of Slough, put up a nice group of high-coloured tree Carnations, two of which—Negro, very dark blood-red, and Duke of Albany, crimson-scarlet—were Certificated. Mr. Read, gr., Moat Mount, Mill Hill, had a splendid variety of Oncidium Forbesi named Carderi, which had been in bloom seven weeks. Mr. Anthony Waterer sent from Knap Hill a box of flowering plants of various hardy Primroses; and Mr. Herbst, of Richmond, half a dozen well forced pots of Lily of the Valley. Cut flowers of the noble Dahlia imperialis were brought by Mr. Wheble, Bulmershe Court, Reading.

Edinburgh Botanical: *Dec.* 8.—The Society met in 5, St. Andrew Square, Professor Isaac Bayley Balfour in the chair. The following office-bearers were elected for the session 1881-2:—

President: Professor I. Bayley Balfour, Sc.D., M.B., C.M.

Vice-Presidents: Alexander Buchan, A.M., F.R.S.E.; Hugh Cleghorn, M.D., F.R.S.E.; William B. Boyd, of Faldonside; Isaac Anderson-Henry, F.L.S., F.R.S.E.

Councillors: Sir Robert Christison, Bart., M.D., D.C.L.; Professor Thomas R. Fraser, M.D., F.R.S.E.; Professor Douglas Maclagan, M.D., F.R.S.E.; John Sadler, F.R.P.S., F.R. Cal. Hort. Soc.; Robert Gray, F.R.S.E.; William Craig, M.D., C.M., F.R.C.S.E., F.R.S.E.; Malcolm Dunn; Thomas Alexander Goldie Balfour, M.D., F.R.C.P.E., F.R.S.E.; James Robson Scott, M.D.; James Buchanan.

Honorary Secretary: Emeritus Professor Balfour, M.D., F.R.SS. L. & E.

Honorary Curator: The Professor of Botany.

Foreign Secretary: Professor Dickson, M.D., F.R.S.E.

Treasurer: Patrick Neill Fraser, F.R. Cal. Hort. Soc.

Assistant Secretary: Andrew Taylor, F.C.S., 37, South Clerk Street.

The President delivered his inaugural address, which was devoted to a consideration of the occurrence and formation, and the chemical and physical characteristics, of chlorophyll—the green colouring matter in plants. In his address he dealt with Pringsheim's discovery of a new substance named hypochlorine—got by the addition of dilute acids—which he supposed was the first product in the assimilation of carbon by the plant; as also with his "screen theory," that chlorophyll did not take a direct share in the assimilation of the carbon, but that its share in that was purely a physical one, due to its colour, which diminished the intensity of light. In the present state of their information, Professor Balfour indicated that both contentions must be received with reserve.

Mr. Sadler, the Curator of the Royal Botanic Garden, gave some notes regarding the progress of vegetation there for the past month. The thermometer had stood at or below the freezing point only seven times during the month of November, viz., on the 1st, 2d, 4th, 8th, 18th, 19th, and 26th, and the total degrees of frost registered for the month were only 7. Since December commenced they had had no frost. This was in singular contrast to last season, when during November they registered 93°, while from December 1 to 8 135° of frost were registered. The mild season had had the effect of causing many late flowering plants still to bloom, as well as to bring some of the early spring plants into flower. Upwards of twenty species and varieties were that day in flower on the rock garden.—The President said that in the neighbourhood of London he quite recently saw Primroses and Stocks in bloom.—Mr. Dunn, Dalkeith Palace, said it was remarkable that, with so much open weather, there had been so little growth of vegetation of any kind. He never saw less. Trees generally stopped all growth about the end of July, and since then they had scarcely moved a bit. He had seen Rose shoots 2 inches long at this time, but at present they were next to nothing.—A member said that Turnips had grown very well during the open season.

Mr. Buchan stated that meteorological records for 118 years back showed that the temperature for last month had been over the British Islands very greatly above the November of any recorded year. This was particularly the case in the upper parts of the valleys of the Tweed and Clyde, and of the Trent and Thames, where the temperature was 6° to 7° above the average of the previous Novembers. Going back on the whole 118 years, last November was the warmest November in those restricted parts, and over the rest of Great Britain it was nearly the warmest. Professor Sir Robert Christison had a weather prognostication that if there was sufficient frost to harden the ground in the last week of October or the first week of November, the coming winter would be mild, and so far that had turned out to be correct.

I. Miscellaneous communications:—

1. Mr. John Campbell, Ledaig, Argyllshire, sent Escallonia macrantha and Rhododendron Nobleanum in bloom from his garden, the greater part of which had been washed away by the great gale of November.

2. Sir Robert Christison, Bart., exhibited twigs with fruit from a vigorous Oak tree about 170 years old, and 10 feet in girth of trunk at narrowest, being one of several in an avenue in Dalswinton Park, Nithsdale, 1880; also twigs with acorns from several natural Oak trees at or near Ballachulish, August, 1880.

3. Mr. A. Campbell, Burntisland, sent a specimen of the fungus Lenzites sepiaria, Fr., on a Fir log near Burntisland.

4. Dr. John Fraser, M.D., Chapel Ash, near Wolverhampton, sent specimens of a Willow designated Salix holosericea, Wild., Koch.; by the Rev. J. A. Leefe and Dr. J. T. Boswell, taken from two small trees or shrubs, 10 to 15 feet high, growing by the side of a small pool at Field House, Tettenhall, near Wolverhampton.

Liverpool Horticultural Association's Chrysanthemum Show: *Nov.* 30.—The second annual exhibition of this vigorous young Society was held in St. George's Hall, and notwithstanding the unusually late day to which it was unavoidably deferred the show was admitted on all hands to be on the whole the best that has been held in Liverpool during the last twelve years. As was to be expected on the last day of November, the muster of Chrysanthemums in pots was smaller than usual, nor were they up to the usual standard of excellence, being mainly past their best. The 1st prize lot in the class of six large-flowered, grown by Mr. Stevenson, gr. to Major Pilkington, and the 1st prize lot in the class of six Pompons, grown by Mr. Tugwood, gr. to J. G. Morris, Esq., may be excepted as models of their kind, and they were exhibited in splendid condition, with no fault whatever but their extreme formality in training, in which the natural habit of the plant was obliterated entirely. The collections of miscellaneous plants were fully up to the standard of excellence of former shows, while the cut blooms of Chrysanthemums have never been surpassed in the numbers of exhibits or the general excellence of the individual flowers. Of hardy fruits there was a splendid display. Pines were few but excellent, those particularly from Mr. Tunnington, gr. to C. McIver, Esq., would have done honour to the grower on any exhibition table, though they were unaccountably placed 2d to others which at best could only be called ordinary. Grapes were numerous, but hardly to be characterised as generally excellent. There were seventeen entries in the class of two bunches of black Grapes, the 1st prize being taken by Mr. Wallis, of Keele Hall, with two superior bunches of Barbarossa; the 2d prize by Mr. Finnigan, gr. to W. Burnyeat, Esq.; and the 3d by Mr. Goodacre, of Elvaston. There was a goodly muster in the class of twelve dishes of fruit, the premier prize in which was awarded to Mr. Hannagan, gr. to R. C. Naylor, Esq., Hooton Hall, Chester, whose collection comprised Gros Colmar, Muscat of Alexandria, Black Alicante, and Lady Downe's Grapes; Glou Morceau, Beurré Clairgeau, Beurré Diel, Duchesse d'Angoulême Pears; King of Pippins, Ribston Pippin, Golden Reinette Apples, and an excellent Melon, Conqueror of Europe.

The keenest interest of gardeners and the public was centred on the contest for the ten guinea cup presented to the Association by Messrs. F. & J. Mee for twenty-four incurved cut blooms of Chrysanthemums, which was closely contested by Mr. W. Mease, gr. to C. W. Newman, Esq., Allerton; Mr. Roberts, gr. to R. D. Holt, Esq., Sandfield Park, West Derby; and Mr. Jellico, gr. to F. H. Gossage, Camphill, Wootton, who were placed in the above order by the judges. Between Mr. Mease and Mr. Roberts the fight was very close, but the former undoubtedly had the best of it in the uniform excellence of his stand, while Mr. Roberts showed weakness in several blooms, which depreciated the splendid points of others. Mr. Mease's stand comprised Queen of England, Mrs. W. Shipman, Miss Mary Morgan, St. Patrick, Golden Empress, Princess Beatrice, Jardin des Plantes, Prince Alfred, John Salter, Princess of Teck, Sir S. Carey, White Venus, Bronze Jardin des Plantes, Empress of India, Inner Temple, Nil Desperandum, Guernsey Nugget, Barbara, Hero of Stoke Newington, Princess of Wales, Pink Venus, Cherub, and Mrs. Rundle. Mr. Jellico showed flowers of such grand substance of petal (albeit somewhat past their best) that he may be reckoned on to come to the front at no distant day. Mr. G. Mease, gr. to W. Nicol, Esq., took 1st prize in the class of eighteen incurved blooms, with a splendid stand; while Mr. Foster, gr. to T. Brancker, Esq., was a close 2d.

In the class of eighteen Japanese Chrysanthemums, Mr. Roberts showed a splendid stand, and Mr. W. Mease was a close 2d. For twelve incurved blooms, Mr. Roberts was placed 1st. For twelve Japanese, Mr. Jellico stood 1st.

There was a larger display of Orchids than is usually seen at this season of the year in Liverpool. Calanthes were particularly well done, some magnificent pots of C. Veitchii being shown by Mr. Sherwin, gr. to Morton Sparks, Esq., and by Mr. Blorinley, gr. to Henry Crossfield, Esq. Epiphyllums, Mignonette, and Primulas were exhibited numerously, and in fine condition as to flower and culture. There was also a considerable show of Roman Hyacinths in pans, which reflected much credit on the growers, those especially of Mr. Peers, gr. to R. Rayner, Esq., which took the 1st prize.

The "trade" was well represented at the show, both from the metropolis and the provinces. Mr. B. S. Williams, of Upper Holloway, exhibited a splendid group of Cyclamens with flowers of enormous size, substance, and brilliancy of colour. The Cranston Nursery Co., of Hereford, showed a basket of Carnations in flower, of splendid growth. Mr. Tomkins, of Birmingham, exhibited his "Queen" Primula, which attracted considerable attention. A numerous and splendid collection of Apples was staged by Messrs. Richard Smith & Co., of Worcester; Messrs. Ker & Sons displayed a fine group of Palms and other plants of graceful habit; and the Liverpool Horticultural Company a miscellaneous group of Crotons, Dracænas, and other stove and greenhouse plants of excellent quality, and also a number of bouquets and other floral decorations. Messrs. Cannell & Son, of Swanley, Kent, sent a bright display of their matchless zonal Pelargonium blooms and a collection of Primulas, which were greatly admired. A novelty in Chrysanthemums was exhibited by Mr. W. Kipps, of Warrington, in the shape of a sport from White Globe, named Mrs. John Crosfield, being a White Globe with pink-shaded flowers. *W. S.* [The publication of this report has been unavoidably delayed.]

Variorum.

TAR-DIPPED HURDLES.—Mr. George F. Wilson writes to the *Times* from Heatherbank, Weybridge:—"In these difficult times for farmers even the smallest improvement connected with their stock is of use. I therefore ask the favour of space to suggest the dipping of the hurdles used by them in tar. The notion was arrived at thus. In our wild garden at Oakwood, Wisley, I had to contrive shade and shelter for some plants on a hot hill-side. Close wattled hurdles answered the purpose, and had the merit of taking nothing out of the soil, but had the drawback of only lasting two or three years, as exposure to weather rotted them, beginning at the part at the surface of the ground. We tried tarring with a brush, but could not get the tar into all the interstices; then proposed a heated tank for dipping in, but, before putting this up, on speaking to some friends at the Walton Gasworks, it was proposed to dip them in a vessel there. I have now in use a number so tarred. They have the appearance of being black varnished, and are weather-proof. An experienced farmer, well known and highly thought of in our neighbourhood—Mr. Shears, who farms the part of my small farm which I do not occupy—on seeing the black hurdles, said they would be desirable for farmers, and asked if he could get some dipped, and, on calling at the gasworks at Walton-on-Thames, I found that it was proposed to dip for farmers, and that they had just dipped some hurdles different from mine for a neighbour to his great satisfaction."

EFFECTS OF FURNACE GASES ON TREES.—For very many years past the attention of scientific men has been directed to the injurious effects of the gases escaping from the various smelting furnaces of the Upper Hartz. These gases, apart from being detrimental to men, cattle, soil, and pasture, ruin forests and assist in rendering soil unfit for cultivation by destroying the surface and causing the particles of soil to be disintegrated. Drs. Reuss and Schröder have especially been investigating the subject, and from a report by the former we learn that since 1867 these injurious effects have more than doubled. In his report he observes that to obviate these injurious effects it is in the first place necessary to ascertain which of the constituents of furnace gases are the active ones, inasmuch as furnace gases consist chiefly of sulphurous acid and the oxides of lead and zinc. The changes which deciduous trees and Fir trees undergo when subjected to the action of sulphuric acid are so very similar to the injurious effects produced by insects, fungi, frost, dust, or poor soil, that

it is difficult in many cases to really distinguish the cause of the damage unless one has had considerable experience, and in many cases (*i.e.*, when the changes are the result of the influence of dust or poor soil on vegetation) to find any difference whatever. In order to prove that visible injuries originated from the influence of furnace gases, the cones of Fir trees were tested for sulphuric acid. In most cases satisfactory results were obtained, but it was also thought that chemical analysis alone was insufficient and could not be considered as conclusive without a comparison with a microscopic examination. The large number of Fir trees examined showed that, as the percentage of sulphuric acid in the cones increased, so much more did the plant suffer. Fir trees were, with 0.323 and 0.332 per cent. of sulphuric acid in the cones completely destroyed. Experiments were also made to discover the degrees of resistance offered by trees to these gases, and the result shows that Fir trees are the most sensitive. Of other trees the Oak resisted them the longest; next came the Norway and field Maples; next the Ash and the large-leaved Maple; the Alder and the Aspen following. All these resisted the gases for a comparatively long period, and are numbered respectively 1, 2, 3, and 4, as indicating their degrees of resistance. The other trees—with lesser degrees of resistance—are: 5, the Hawthorn and Apple tree; 6, the Linden; 7, the Hornbeam, the Mountain Ash, and the Birch; 8, the Hazel; 9, the Elm and Chestnut; 10, the Beech; 11, the Larch; 12, the Fir; 13, the Pine; and 14, the white Pine or deal. *The Field.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 14, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity: Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
8	29.68	−0.09	43.0	35.0	8.0	39.0	− 2.4	35.8	89	W.	0.00
9	29.41	−0.37	39.0	35.0	4.0	37.5	− 3.7	36.5	96	W.	0.15
10	29.45	−0.33	39.0	32.5	6.5	34.8	− 6.2	33.0	93	E.	0.23
11	29.53	−0.26	36.0	31.0	5.0	33.7	− 7.1	32.1	94	W.	0.03
12	29.72	−0.07	38.5	34.5	4.0	36.7	− 4.0	35.0	94	N.	0.10
13	30.15	+0.35	38.0	31.0	7.0	34.3	− 6.3	33.5	96	N	0.04
14	30.08	+0.29	42.2	31.0	11.2	37.7	− 3.0	35.1	90	E.: S.W	0.00
Mean	29.72	−0.07	39.4	32.9	6.5	36.2	− 4.7	34.3	93	N.W.	0.55

Dec. 8.—A fine bright day and night.
— 9.—A dull, rainy, foggy day. Great gloom from 10 A.M. to 3 P.M.; great darkness in London from 11 A.M. till 2 P.M. A fine night; black sky.
— 10.—A dull day, snow falling all the morning. Dark night, thin rain falling.
— 11.—A cold, still, raw day, rather misty and damp. Thin rain at night.
— 12.—A dull, damp, rainy day. Fine night.
— 13.—A fine bright morning, but cold and foggy; fine bright after, blue sky, damp. A dense black fog, which continued all the evening.
— 14.—A fine bright day; sun shining; rather cold. A dull, cloudy evening; thin rain from 10 P.M.

LONDON: *Atmospheric Pressure.*—During the week ending December 10, the reading of the barometer at the level of the sea increased from 30.25 inches at the beginning of the week to 30.28 inches by 9 A.M. on the 4th, decreased to 30.15 inches by 3 P.M. on the 5th, increased to 30.27 inches by midnight of the same day, decreased to 29.84 inches by 9 A.M. on the 7th, increased to 29.96 inches by midnight of the same day, decreased to 29.65 inches by 9 A.M. on the 10th, and was 29.67 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.92 inches, being 0.04 inch higher than last week, and 0.03 inch lower than the average for the week.

Temperature.—The highest temperature in the shade during the week was 50°, on the 27th. On the 9th and 10th the temperature did not rise above 39°. The mean of the seven high day temperatures was 44.5°.

The lowest temperature in the week was 32.5°, on the 10th; on the 5th the lowest temperature was 40°. The mean of the seven lowest temperatures was 36°.1.

The greatest range of temperature in one day was 13°.5, on the 6th; the smallest was 4°, on the 9th. The mean of the seven daily ranges was 8°.4.

The mean daily temperatures were, on the 4th, 41°.2; on the 5th, 44°.3; on the 6th, 43°.6; on the 7th, 43°; on the 8th, 39°; on the 9th, 37°.5; on the 10th, 34°.4—of these the 5th, 6th, and 7th were above the average by 2°.6, 2°, and 1°.5 respectively; and the 4th, 8th, 9th, and 10th were below the average by 0°.6, 2°.4, 3°.7, and 6°.6 respectively.

The mean temperature for the week was 40°.4, being 3°.3 lower than last week, and 1° below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 72°.5, on the 6th; the highest, on the 10th, was 42°. The mean of the seven readings was 58°.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 29°.5, on the 8th and 10th. The mean of the seven readings was 31°.5.

Rain.—Rain fell on four days, to the amount of 0.98 inch, of which 0.39 inch fell on the 7th. *Snow* fell on the 10th.

ENGLAND: *Temperature.*—During the week ending December 10 the highest temperatures were 57° at Truro, 55° at Plymouth, and 54° at Bristol. The highest temperature at Liverpool was 49°.9; at Blackheath, Leicester, Sheffield, Hull, and Sunderland, it was 50°. The general mean was 51°.4.

The lowest temperatures in the week were 22° at Wolverhampton, 23°.7 at Nottingham, and 24° at Hull. The lowest temperature at Truro was 34°, at Plymouth was 33°.2, and at Blackheath was 32°.5. The general mean was 28°.

The greatest ranges of temperature in the week were 28°.3 at Wolverhampton, 26°.8 at Nottingham, and 26°.6 at Bristol. The least ranges were 17°.5 at Blackheath, 18° at Brighton, and 19° at Sunderland. The general mean was 23°.3.

The mean of the seven high day temperatures was highest at Plymouth, 50°.4, and at Truro, 50°.3, and lowest at Hull, 41°.9, at Leicester 43°, and at Cambridge 43°.6. The general mean was 45°.4.

The mean of the seven low night temperatures was highest at Truro, 40°.6, and at Plymouth 40°.4; and was lowest at Wolverhampton, 31°.9, at Hull 32°, and at Nottingham 32°.1. The mean from all stations was 35°.7.

The mean daily range was greatest at Nottingham, 12°.4, and at Wolverhampton 12°.3; and was smallest at Cambridge, 8°.3, and at Bristol and Blackheath, 8°.4. The general mean was 9°.7.

The mean temperature for the week was highest at Truro and Plymouth, 45°.3; and was lowest at Hull, 36°.8, at Leicester 37°.8, and at Wolverhampton 37°.9. The mean from all stations was 40°.4.

Rain.—The largest falls were 1.82 inch at Brighton, 1.65 inch at Truro, and 1.07 inch at Plymouth. The least falls were 0.17 inch at Liverpool, 0.26 inch at Hull, and 0.28 inch at Nottingham and Sunderland. The general mean was 0.65 inch. *Snow* fell on the 10th at Sunderland. *Fog* was very prevalent on the 9th and 10th.

SCOTLAND: *Temperature.*—During the week ending December 10 the highest temperature was 58°, at Glasgow; at Dundee the highest temperature was 48°. The general mean was 51°.8.

The lowest temperature in the week was 21°.5, at Glasgow; at Leith the lowest temperature was 28°. The general mean was 26°.

The mean temperature for the week was highest at Paisley, 41°; and lowest at Dundee, 36°.4. The general mean was 38°.6.

Rain.—The largest falls were 1.55 inch at Greenock and Paisley. The smallest falls were 0.12 inch at Edinburgh, and 0.15 inch at Leith. The general mean was 0.70 inch.

JAMES GLAISHER, F.R.S.

Obituary.

MR. HENRY SANDERSON, florist, Whalton, Newcastle-on-Tyne, died recently, after a life of continual suffering, at the age of twenty-nine years. Owing to ill-health he was prevented from following the occupation of his father, and since 1871 he devoted himself (more for the sake of occupation than of gain) to the cultivation of florists' flowers. The gold-laced Polyanthus was his special delight. He commenced the cultivation of this favourite old flower with a few plants of Buck's George the Fourth, Burnard's Formosa, and Stead's Telegraph, which were the sole remains of some twenty-six varieties cultivated by his father, an old florist. He made several attempts at raising seedlings, and in all that he did in this direction he followed the old standards, and was most particular in the flowers he selected for cultivation. He raised William the Fourth a good useful pale red ground flower, and Formosa Improved. Since producing these he flowered some thousands of seedlings, but of these only about thirty were selected—some, it is said, of a very high order of merit, equal to the best, and superior to most of the named varieties now in cultivation. It is probable that some of these will shortly be put into commerce. Mr. Sanderson also devoted much time to the Auricula, but not with that amount of success which crowned his efforts with the Polyanthus. It is mainly to his energy, and to the fact that he was a constant exhibitor of both the Auricula and Polyanthus at the spring exhibitions of the Newcastle Horticultural and Botanical Society, that something like a revival in favour of these flowers has been brought about in the North.

The Carnation, Picotee, Pansy, Aster, and Marigold, were also the subjects of his care, and he bent his energies to the improvement of these also. In the district in which he resided there was a great demand for his Asters and Marigolds. He also had a remarkably good collection of Hollyhocks, and seedlings obtained by him are flowers of fine form and substance, and undoubted merit. He was one of the most successful exhibitors of florists' flowers in the North of England, and was greatly respected and esteemed by all florists who had the pleasure of his acquaintance. *R. D.*

Enquiries.

He that questioneth much shall learn much.—BACON.

ASTERS FOR MARKET.—Which are the best varieties of Aster to grow for cut blooms for market outdoors; also the best under glass, and for the like purpose, in pots; also the best late Chrysanthemums for cut blooms? *An Old Subscriber.*

Answers to Correspondents.

ARTIFICIAL PLANTS: *C. & R.* We have never seen anything of the kind you describe in London, but they are used on the Continent. We do not know where you can get them.

BEET SPINACH.—"H. S." asks, "What is Beet Spinach, and how dressed?" Beet Spinach is, I believe, generally better known under the name of Perpetual Spinach; and, indeed, I do not think it is so widely known as its usefulness demands. If sown in March or April, or even later, it will (after acquiring proper size) supply a valuable dish of its succulent green leaves at any time until the following spring. One good point in favour of this Spinach is that it never runs to seed until the following spring. It is dressed similar to any other Spinach. *E. Campbell.* [Are not the leaves of Beta Cicla intended? EDS.]

BOOKS: *Pomona.* We do not know of any one book that gives all the information you want, but you can make a start with Baltet's *The Art of Budding and Grafting*, published at *The Garden* office, Southampton Street, W.C.

BONES: *Constant Reader.* It is only the grease that is boiled out, not the phosphates. Bones are now almost always boiled before being crushed, and we should prefer them so treated.

EUCALYPTUS CHARCOAL.—In reply to a query which appeared in your last issue as to the suitability of any species of Eucalyptus wood for yielding charcoal, I beg to state that in Baron von Mueller's *Forest Resources of Western Australia* (Reeve & Co., London, 1879), Eucalyptus marginata is said to afford one of the least inflammable woods for building structures, and one of the very best in West Australia for charcoal, not burning so readily into ashes as most kinds of Eucalyptus wood; and in a small volume by Elwood Cooper, entitled *Forest Culture and Eucalyptus Trees*, published in 1876 by Culery & Co., San Francisco, Eucalyptus obliqua is described as affording an inferior fuel, but produces the best charcoal for the forge. Eucalyptus amygdalina is also said to be a bad wood for domestic fuel, but is a first-rate smith's charcoal. *J. M. Hillier, Museum, Royal Gardens, Kew.*

INSECTS: *Gardener.* The small white insects on the Tomatos are Aleyrodes chelidonii. Repeated fumigation, with alternate syringing of the plants with water, will keep them in check and from spreading to other plants. *I. O. W.*

NAMES OF FRUIT: *J. Chapman.* Your Apple is the Cat's-head Codlin.—*G. B. G. Apples:* Nos. 1 and 2 are identical—Blenheim Orange, of which Blenheim Pippin is a synonym. This Apple varies somewhat in form, colouring, &c., from different trees. Gravenstein is very different, being much ribbed, and in use in September. No. 3 is similar to Hanwell Souring. —*A. J. Sinclair.* 1, Downton; 2 is probably Hughes' Golden Pippin; 3 is evidently from the stock, not having been grafted.—*R. C. Morris.* 1, Wadhurst Pippin; 2, King of the Pippins; 3, London Pippin; 5, Northern Greening; 7, Catillac; 8, Easter Beurré; 10, Ne Plus Meuris; 11, Beurré de Capiaumont; 12, Bellisime d'Hiver; others not recognised.

NAMES OF PLANTS: *T. D. M.* 1, Oncidium aurosum; 2, O. sphacelatum.—*W. G. Turner.* The

Spindle-tree (Euonymus europæus).—*W. W. Morse.* Odontoglossum maculatum.—*T. Russell.* A species of Jungermannia, which we cannot name without fruit.—*A. F.* 1, Asplenium bulbiferum—a variety approaching A. flaccidum ; 2, Pteris cretica albo-lineata ; 3, Adiantum affine ; 4, Scolopendrium vulgare, var. multifidum, of which there are many forms ; 5, Polystichum angulare proliferum ; 6, Pteris cretica.—*M. A.* Cypripedium insigne—the leaf specimen is too imperfect.—*J. H.* Clerodendron Balfourianum.—*H. L.* 1, Oncidium Forbesii, a fine variety ; 2, ditto, a poor form ; 3, insufficient ; 4, Lastrea patens ; 5, not sufficiently developed—probably an Alsophila ; 6, Selaginella Galeottii. —*C. W. D.* Perhaps Picea Alcockiana ; but it is impossible to tell without the cones.

NERINE : *No.* 24. Both species are natives of the Cape of Good Hope.

ROMAN HYACINTHS. — Neither these or other varieties cause any irritation of the skin in handling. I believe it will be found the dust from Buckwheat husks, so generally used for packing bulbs, is the cause. I always experience more or less irritation when unpacking and cleaning bulbs from Holland ; sometimes when packing, using Buckwheat ; never when handling the bulbs in small quantities. *R. H. Poynter.*

WATERCRESS : *J. H. M. The Home Culture of the Watercress,* by Mr. Shirley Hibberd, published by E. W. Allen, at about 2*s.* 6*d.*, will probably meet your wants.

☞ FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED.

JAMES CARTER & Co., High Holborn, W.C.—Vade-Mecum for 1882.

W. M. CROWE, The Boleyn Nursery, Upton, Essex—Florists' Flowers, Hardy Trees and Shrubs.

COMMUNICATIONS RECEIVED.—J. Carter & Co.—Dr. P. (many thanks).—J. H.—A. M.—D. T. F.—P. G.—W. B. H.—L. M.—Alpha.—J. H.—H. L. & Co.—D. M.—W. R.—F. S. & Co.—H. W.—W. Fox (many thanks).—W. H.—J. A. M.—Capetown.—Sir John Kirk.—P. W., St. Petersburg (packet, with thanks).—C. N.—S. W., Boston, Mass.—S.—W. B. L.—G. N.—C. W. D.—J. B. (two).—Chev. D. J. de N. M., Portugal.—A. S.—S. H.—G. T.—W. E. G.—G. O'R., Dublin.—J. D. H.—E. A., Paris.—E M., Brussels.—J. H. M.—E. P., Heidelberg.—J. C.

Markets.

COVENT GARDEN, December 15.

We have no alteration to quote, there being no improvement in business. Apples remain dull, large arrivals reaching us from Canada. St. Michael Pines are in good supply. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 3 6	Pears, Eng., ½-sieve	2 6– 7 0
Grapes, per lb.	1 0– 4 0	— French, per doz.	1 6– 4 0
Kent Cobs, p. 100 lb.	70 0–77 6	Pine-apples, Eng., lb.	1 6– 2 6
Lemons, per 100	4 0– 5 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Horse Radish, bund.	4 0– ..
Asparagus, French Sprue, per bundle	1 6– ..	Lettuces, Cabbage, per doz.	0 6– 1 6
— New Fr., bundle	5 0– ..	— Engl. Cos, score	1 6– ..
Barbe de Capucin, per bundle	0 8– ..	Mint, green, bunch	0 4– 0 6
Beans, French, p. lb.	1 0– ..	Mushrooms, p. baskt.	1 6– 2 0
Beet, per doz.	1 0– ..	Onions, per bushel	4 0– ..
Cabbages, per doz.	1 0– 2 0	— Spring, per bun.	0 6– ..
Carrots, per bunch	0 4– 0 6	Parsley, per bunch	0 4– ..
Cauliflowers, English, dozen	2 0– 4 0	Potatos (new), punnet	1 6– ..
Celery, per bundle	1 6– 2 0	Radishes, per bun.	0 2– 0 6
Celeriac, per head	0 4– ..	— French, p. bund.	0 6– ..
Cucumbers, each	0 6– 1 0	Rhubarb, per bundle	1 0– ..
Endive, per doz.	1 0– 1 6	Salsify, per bundle	1 6– ..
Garlic, per lb.	1 0– ..	Seakale, per punnet	2 0– 2 6
Herbs, per bunch	0 2– 0 4	Small salading, pun.	0 4– ..
		Spinach, per busbel	2 6– ..
		Tomatos, per lb.	0 9– 1 0

Kent Regents, 100*s.* to 110*s.* ; Roses, 80*s.* to 90*s.* ; Myatt s, 100*s.* to 120*s.* ; Champions, 50*s.* to 70*s.* ; Magnum Bonums, 90*s.* to 110*s.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d
Aralia Sieboldii, per dozen	18 0–42 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 6
Begonias, per doz.	6 0–12 0	Hyacinths, per doz.	8 0–12 0
Bouvardia, per doz.	9 0–18 0	Lily of the Valley, per pot	4 0– 6 0
Chrysanthemums, per dozen	6 0–18 0	Myrtles, per doz.	6 0–12 0
Cissus discolor, doz.	18 0–24 0	Palms in variety, each	2 6–21 0
Cyclamen, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen	3 0– 6 0
Cyperus, per dozen	6 0–12 0	Poinsettia, per doz.	12 0–18 0
Dracæna terminalis	30 0–60 0	Primula (single), per dozen	4 0– 6 0
— viridis, per doz.	12 0–24 0	Solanums, per dozen	9 0–12 0
Epiphyllum, per doz.	18 0–30 0	Tulips, per dozen	8 0– 9 0
Euonymus, various, per dozen	6 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 6	Lilac (Fr.), p. bunch	8 0–10 0
Anemone, 12 bun.	4 0– 6 0	Marguerites, 12 bun.	4 0– 6 0
Azalea, 12 sprays	1 0– 2 0	Mignonette, 12 bun.	6 0– 8 0
Bouvardias, per bun.	0 9– 1 0	Pelargoniums, 12 sprays	0 6– 0 9
Camellias, 12 blooms	3 0– 6 0	— zonal, 12 sprays	3 0– 6 0
Carnations, 12 blms.	1 0– 2 0	Primula, double, per bunch	1 0– 1 6
Chrysanth., 12 bun.	12 0–18 0	— (single), 12 bun.	6 0–12 0
— 12 blooms	2 0– 4 0	Roses (indoor), doz.	1 0– 3 0
Cyclameo, 12 blooms	0 3– 0 6	— Tea (French), per dozen	1 0– 2 0
Epiphyllum, 12 blms.	0 9– 1 0	Tropæolum, 12 bun.	1 0– 3 0
Eucharis, per doz.	6 0– 9 0	Tuberoses, per dozen	3 0– 6 0
Gardenias, 12 blms.	9 0–18 0	Violets, 12 bunches	1 6– 2 0
Heliotropes, 12 sp.	0 6– 1 0	— (French Parme), per bunch	4 6– 5 0
Hyacinths (Romao), 12 sprays	2 0– 3 0		
Lapageria, white, 12 blooms	4 0– 6 0		
— red, 12 blooms	1 0– 3 0		

*** These prices must not be relied on for orderiog for Christmas week.

SEEDS.

LONDON : *Dec.* 14.—Extreme quietness continues to characterise the trade for farm seeds. As regards American red, c.i.f., quotations continue to be supported by the German demand. The new English Alsike, being both good and cheap, meets with favour. Some few transactions have been passing in Trefoil. The sale for bird seeds, as usual towards the close of the year, is meagre. Blue Peas, owing to the cold weather, are held with greater firmness. In Linseed, a further advance is noted. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday English Wheats were in moderate supply but poor condition, and business was restricted. Foreign Wheats were not in heavy supply, and were held for steady value, but met a slow sale. Barley and malt upheld late values, Beans were rather dearer, and Peas unaltered. Oats, with a fairly ready sale, showed 3*d.* to 4*d.* advance on the previous Monday's value for new Russian ; and Maize was 6*d.* dearer for flat corn.—On Wednesday the trade was very quiet all round. Wheat remained unaltered from Monday's currency, but little was done. Malting Barley was firm, with a moderate enquiry ; grinding sorts steady but quiet. Oats were firmly held, but a slow sale, though at full prices. Maize continued to harden in value, Beans tended ageinst buyers, and Peas were steady in value.—Average prices of corn for the week ending Dec. 10 :—Wheat, 44*s.* 9*d.* ; Barley, 32*s.* 6*d.* ; Oats, 20*s.* 2*d.* For the corresponding period last year :—Wheat, 45*s.* 1*d.* ; Barley, 32*s.* 8*d.* ; Oats, 20*s.* 9*d.*

CATTLE.

At Copenhagen Fields on Monday the Christmas exhibition of cattle was pronounced magnificent by many of those who are more immediately concerned in the breeding and feeding of stock. In beasts the entries—8270 head—surpassed that of last year, whilst in the quality of the various breeds it has not been surpassed. As in the Christmas market of the preceding year, the Scotch breeds most strikingly preponderated. Other breeds there were in goodly numbers, and in point of quality not behind the Scotch classes, by which they were, however, perceptibly outnumbered. The Herefords were a very superior selection, the Devons nearly all of the true Christmas character, the cross-breeds in good force, shorthorns well represented ; and Welsh runts, though in rather small supply, were good. The entries of sheep were 10,570 ; the proportion of Christmas sorts was, however, small and select, including some very choice pens of the various breeds, but more especially of Downs. The weather was greatly against the trade, gloom and drizzling rain prevailing during the principal market hours. Sales progressed slowly in both the beast and sheep market. For the current top rate of Christmas meat, 6*s.* per stone was the most general figure, though in exceptional cases 6*s.* 2*d.*, and even 6*s.* 4*d.* may have been paid. Sheep ranged currently up to 7*s.* 4*d.* for downs and half-breeds, anything over being quite exceptional. — Thursday's trade was very quiet. There was a fair supply offering, but it was almost exclusively the surplus from Monday's market. Both beasts and sheep changed hands quietly at that day's quotations.

COALS.

The following are the prices current at market during the week :—Bebside West Hartley, 15*s.* 3*d.* ; Ravensworth West Hartley, 15*s.* 3*d.* ; East Wylam, 17*s.* ; Walls End—Haswell, 18*s.* ; Hetton, 18*s.* ; Hetton Lyons, 16*s.* 6*d.* ; Hawthorns, 16*s.* 9*d.* ; Lambton, 17*s.* 6*d.* ; Original Hartlepool, 18*s.* ; Wear, 16*s.* 6*d.* ; South Hetton, 18*s.* ; Chilton Tees, 17*s.* ; Caradoc, 18*s.* ; Thornley, 17*s.* 3*d.* ; Tees, 17*s.* 9*d.* ; East Hartlepool, 17*s.* 9*d.* ; South Hartlepool, 17*s.* ; Nixon's Navigation, 19*s.* ; Radford Navigation, 18*s.* 6*d.*

Government Stock.—Consols closed on Monday at 99⅛ to 99¼ for delivery, and 99⅜ to 99½ for the account. On Tuesday the figures were, for delivery, 99¼ to 99⅜, and 99½ to 99⅝ for the account. Wednesday's closing quotations were 99⅛ to 99¼ for delivery, and 99⅜ to 99½, for the account. The final figures of Thursday were, for delivery, 99⅛ to 99¼, and 99 5/16 to 99 7/16 for the account. The above quotations are all ex div.

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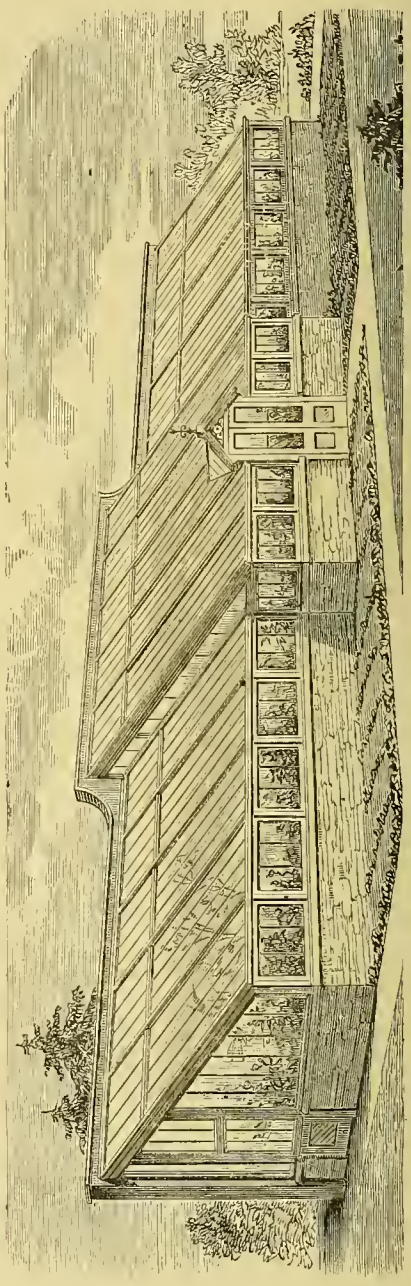

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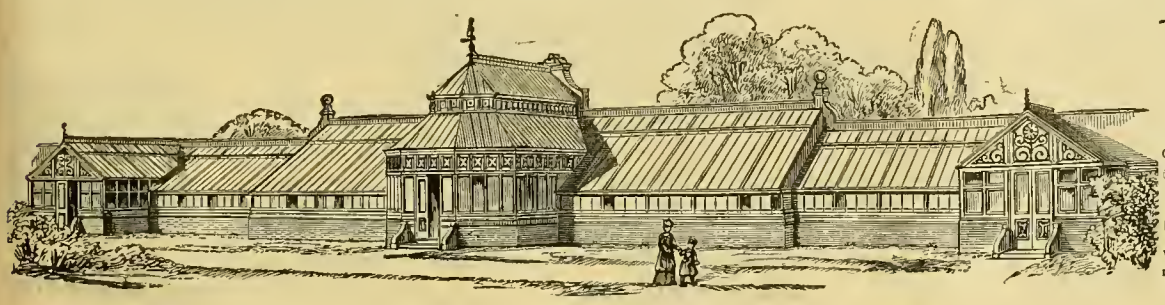

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Also 26-oz., 28-oz., and 32-oz. Glass.

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POWERFUL COPPER BOILERS, to Heat 400 feet of 2-inch Pipe, with a maximum of 15 feet of Gas per hour, or 100 feet in eight hours, for £9, being as cheap in first cost and for fuel as most brick-set boilers.

ONE BEN'S BOILER

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over 7,000 feet of Piping,

Having been specially selected to replace another form (the second in four years) that has burst under the pressure.

Another one (3000 feet power) is "easily heating double the length of pipes previously heated by a CHECK-END SADDLE" of same size; and a letter just received adds:—"The flow-pipes are both wonderfully soon heated." Another Gardener says "It will burn anything—ashes, refuse, and the commonest breeze."

A 5-foot Boiler will easily heat 3000 feet of 4-inch pipe with a minimum of fuel, as no heat can escape into any brickwork, there being no outside flues to rob the Boiler of its heat; and with the special cross-bridge outlet the flow-pipe is warm in fifteen minutes from lighting the fire.

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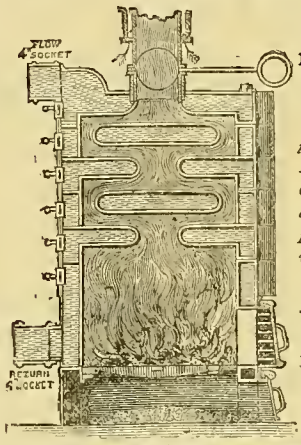
Wright's Patent "Endless-Flame Impact" Hot-water Boilers.



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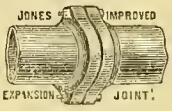

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SOCKET HOT-WATER PIPES.

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Pipes (6 ft. long)—2-in.,	1 9 ..	3-in.,	3 0 ..	4-in.,	3 10	each.
" (9 ft. long)— "	— ..	"	4 3 ..	"	5 3	"
Elbows (No. 12)— "	1 1 ..	"	1 8 ..	"	2 0	"
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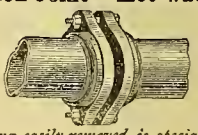
Syphons (No. 23)— "	1 3 ..	"	2 0 ..	"	3 0	"

"Expansion Joint" Hot-water Pipes.

The "Expansion Joint."



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" (9 ft. long)— "	— ..	"	4 0 ..	"	5 0	"
Elbows (No. 3)— "	0 8 ..	"	0 10 ..	"	1 0	"
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Joint complete, with Rubbers and Pins, 2-in., 1s. each; 3-in., 1s. 3*d.*; 4-in., 1s. *6d.*

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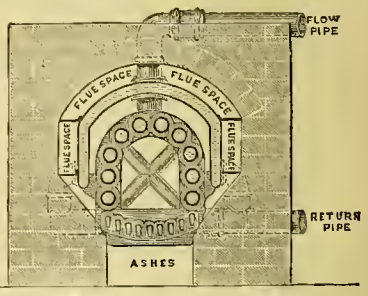

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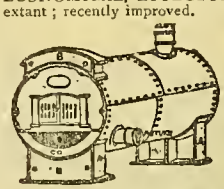
After long experience, has proved the most SIMPLE, ECONOMICAL, EFFECTUAL, and LASTING BOILER extant; recently improved.



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Aubert's Patent Secateurs.
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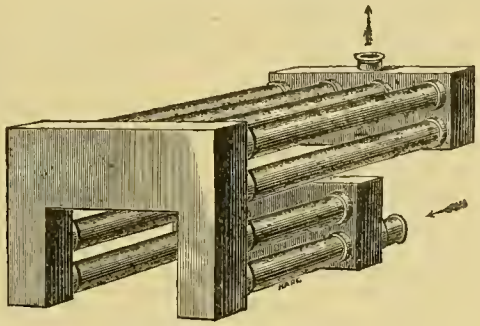
UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete stock in the Trade to choose from.

Hot-water Boilers, PIPES and Connections, *and all Castings for Horticultural purposes.*

Their New Illustrated CATALOGUE, 12th Edition, now ready, price 1s.



NEW HORIZONTAL TUBULAR BOILER, made from 6 to 14 feet long.

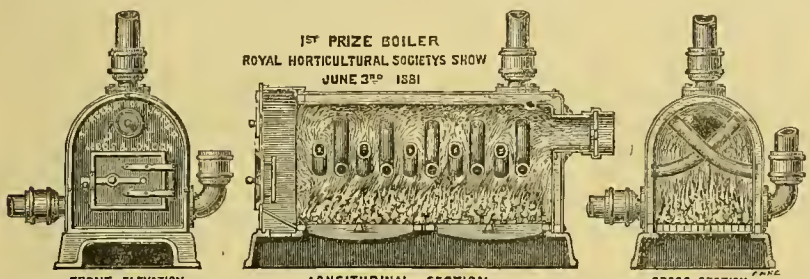
Hot-water & Hot-air APPARATUS erected complete, *or the Materials supplied.*

PRICE LIST on application free.

GREEN'S PATENT TUBULAR SADDLE BOILER

Had the First and Highest Prize, a Silver Medal,

Awarded at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3, 1881.



FRONT ELEVATION — LONGITUDINAL SECTION — CROSS SECTION

The "Journal of Horticulture" of June 9 says:—

"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The "Garden" of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

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And 54 and 55, BLACKFRIARS ROAD, LONDON, S.E.

ROCHFORD'S IMPROVED HORIZONTAL BOILER

UNEQUALLED FOR SIMPLICITY, POWER AND ECONOMY.

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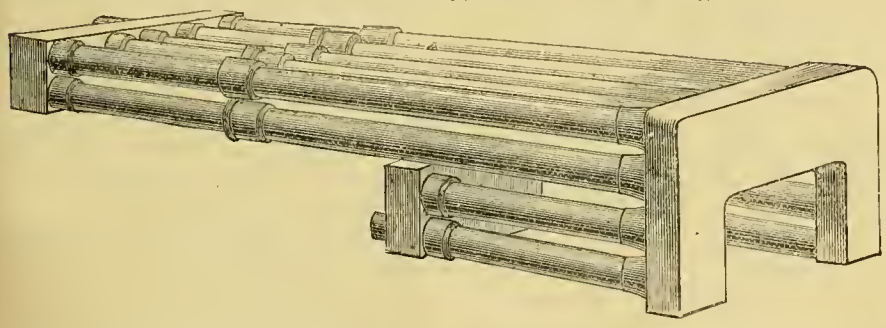

As inferior imitations of this now well-known Boiler are being advertised and sold, to the detriment of its reputation, C. P. K. & Co. beg to inform Gardeners and the Trade generally that Mr. ROCHFORD has assigned to them the sole and exclusive right for its Sale and Manufacture.

Hot-Water Pipes and Boilers from stock at Wholesale Prices.

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THE COTTAGE POULTRY HOUSE, TENANT'S FIXTURE.
Of improved construction, can be erected in a few minutes with Roosting House, Covered Run, Nests, Perches, &c., complete, 12 feet long, 4 feet wide. Price £6 10s., carriage paid. Write for Illustrated Catalogue, containing useful Treatise on Poultry Management, free by post.
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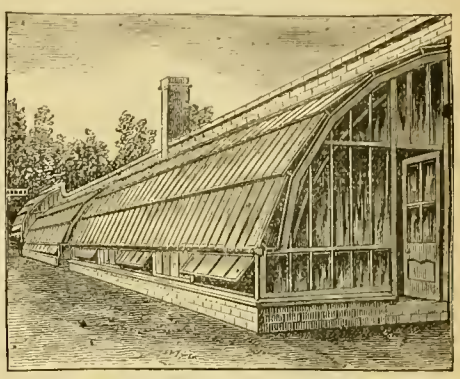

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15-oz., 9s.
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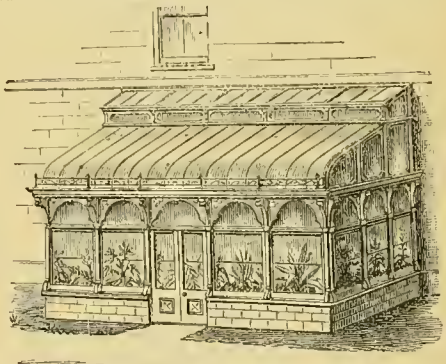

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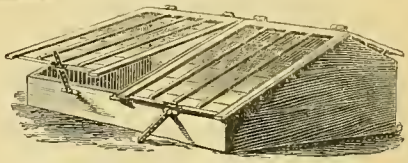

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CASH PRICES—Carriage Paid.

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12	,,	..	.. 0 7 0	23	,,	..	.. 0 12 6
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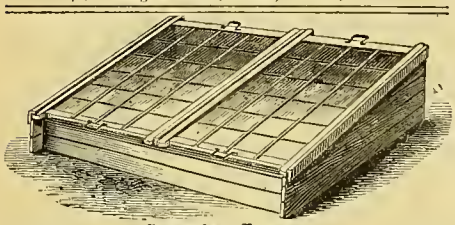

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Prices, delivered to any station in England, also Dublin and Belfast:—

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2-light frame, 8 feet by 6 feet	3	10	0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

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Forget-me-not, the	818	Turf	826
Fruit tree protection	825	Tweedside vineyard	814
Garden operations	819	Vegetable judging	826
Gongora similis	812	Wall coping	824
Grape Golden Queen	816	Yuletide	820
Heckfield, the bedding at	820		
Heliotropes in winter	827		

ILLUSTRATIONS.

Bouquet of Orchids, Dr. Paterson's .. 817
Nepenthes Hookeriana .. 813
Subtropical Bedding at Heckfield .. 821

Now Ready, in cloth, 16s.,

THE GARDENERS' CHRONICLE, Volume XV., JANUARY to JUNE, 1881.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
Dates of MEETINGS of FRUIT and FLORAL COMMITTEES, SHOWS, and EVENING FÊTE, in 1882:—

FRUIT and FLORAL COMMITTEES' MEETINGS.

Tuesday, Jan. 10. July 11, 25.
" Feb. 14. Aug. 8, 22.
" March 14, 28. Sept. 12.
" April 11, 25. Oct. 10.
" May 9, 23. Nov. 14.
" June 13, 27. Dec. 12.

SHOWS and EVENING FÊTE.

Tuesday, March 28, Promenade Show.
" April 11, Promenade Show.
" " 25, National Auricula Society's Show.
" May 9, Promenade Show.
" " 23 } Great Summer Show.
Wednesday " 24 }
Thursday " 25 }
Tuesday, June 13, Promenade Show and Evening Fête.
" " 27, Pelargonium Society's Show.
" July 4, National Rose Society's Show.
" " 11, Promenade Show.
" " 25 { National Carnation and Picotee Society's Show.
Thursday, August 3 } Show of the Association of British Bee-keepers.
to Tuesday " 8 }
(inclusive)

CHESTNUT (Spanish), Hazel, Ash, Larch, Scotch, Birch, Alder, Willow, and Thorn Quick.—Stout, well-rooted, transplanted. A large quantity to be sold.
GEO. CHORLEY, Coaster's Nursery, Midhurst.

SPECIMEN AZALEAS, Four large Pyramidal Plants, beautifully trained; Three fine Bushy CAMELLIAS, about 4 feet high; and three SPECIMEN EPACRIS. The above all finely set for bloom, and fit for Exhibition. Price £8 the lot, package included.
W. JACKSON, Blakedown, near Kidderminster.

OUR NEW CATALOGUE of SPRING FLOWERING PLANTS of all kinds is now issued, and will be sent post-free to all applicants.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

BRIERS, Standard, Half Standard, and Dwarf, at 8s. 6d., 7s., and 5s. 6d. per 100, delivered on Rails at Ashbourne Station, nett cash against invoice.
Extra strong stock Plants of BOUVARDIA HUMBOLDTII CORYMBIFLORA, 18s. per dozen, not in flower.
A. GODWIN AND SONS, Ashbourne, Derby.

To Osier Growers, Basket Makers, and Nurserymen.
BRADFORD AND SONS, Yeovil, Somerset, now Grow and Cut yearly 100 Acres and upwards of OSIER BEDS, and will quote prices to the Trade, *according to quantity required.* Samples and prices of Osier "Sets" on application.

WEBB'S PRIZE COB and other FILBERT TREES, Calcot Gardens, near Reading.
Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

SEED POTATOS.—Myatt's Kidneys, fine, £5 5s. per ton in ton lots, £5 in 5-ton lots, £4 10s. in 10-ton lots, on rails. All other leading sorts in great quantities, equally cheap.
LITTLE AND BALLANTYNE, Seed Growers, &c., Carlisle.

LILIUM AURATUM, splendid sound bulbs, at 4s., 6s., 9s., 12s., and 18s. per dozen; 30s., 40s., 50s., 75s., and 100s. per 100; extra strong, 30s. and 42s. per dozen.
LILIUM HUMBOLDTII, beautiful, hardy and easily grown, 18s. and 30s. per dozen; gigantic roots, 42s. per dozen.
LILIUM WASHINGTONIANUM, a splendid, hardy, easily grown species, 30s. and 42s. per dozen.
LILIES OF VARIOUS SORTS, either for Greenhouse, Conservatory, or Open Border, by the dozen, 100, or 1000.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Notice to the Trade.
HURST AND SON'S General Vegetable and Flower Seed CATALOGUES have been posted to all their customers; should any not have received them, will they please apply to
152, Houndsditch, London, E.C.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 15s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.
BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

SCOTCH FIR SEED.—Seed from the true Native Highland Scotch Fir (guaranteed). Price per pound on application to
R. AND A. MORRISON, The Nurseries, Elgin, N.B.

LARGE SPECIMEN CAMELLIA "IMBRICATA," 8 feet by 5 feet, well-shaped and closely grown; price £6.
W. JACKSON, Blakedown, near Kidderminster.

PEACHES.—Early Savoy, Barrington, Early Leopold, Princess of Wales, Rivers' Early, Stump the World, Grosse Mignonne, Royal George, Pitmaston Orange Nectarine. Lifted last season. Cover house 40 × 12. No reasonable offer refused, or EXCHANGE.
W. AND G. DROVER, Florists, Fareham.

ROSES.—A few hundreds of fine Standards still on hand. Price on application. SPHAGNUM MOSS, fresh, 2s 6d. per bushel; bags included. WANTED, a few Thousand MANETTI STOCKS. State price, &c.—BATCHELOR AND DRURY, Harlow Heath Nurseries, Harrowgate.

NOTICE to SENDERS.—STEPHANOTIS, GARDENIAS, TUBEROSES, ARUM LILIES and other CHOICE FLOWERS are now in request. Also GRAPES, CUCUMBERS, TOMATOS, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

Floral Commission Agency.
WANTED, all kinds of CHOICE WHITE FLOWERS.—Nurserymen and others having the above will please communicate with W. CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.

WANTED, CUT FLOWERS, in large or small quantities. Regular Supply. Good price returned. Send to
The FLORAL DEPOT, Richmond Station, Surrey.

WANTED, Perpetual or Autumn-flowering CLEMATIS, good 2-yr. old plants. State price per 100 or 1000 to
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

WANTED to PURCHASE, about 1500 MANETTI STOCKS, fit to work. Apply, stating lowest price per 100?, to
E. WILSON SERPELL (late Pontey), Plymouth.

WANTED, Six PINUS INSIGNIS, good, about 5 feet. For Sale, HOVEA CELSII SEEDS.
W. TROUGHTON, Nurseryman, Preston.

WANTED, fifty Standard, Double, or Single WHITE THORNS. Send price to
RICHARD MASON, Windlesham, Bagshot, Surrey.

WANTED, 300 strong transplanted LARCH FIRS. Not less than 5 feet. Sample, carriage paid and price to
WOOD AND INGRAM, The Nurseries, Huntingdon.

WANTED, CRAB STOCKS, extra strong, for ensuing season's working. Quote to
GEORGE P. DARBY, Nurseryman, Watford, Herts.

WANTED, Strong PLUM, BROMPTON, PARADISE, QUINCE, MANETTI and Black Sallow WILLOW STOCKS, all fit for working. Also 2-yr. untrimmed Victoria PLUMS. State price per 1000, and send samples, carriage paid, to
WILLIAM FELL AND CO., Wentworth Nurseries, Hexham, Northumberland.

WANTED, strong Standard DAMSONS—Crittenden's Prolific or Cluster, Rivers' Early Prolific and Victoria PLUMS; also extra strong Standard APPLES (Cider sorts preferred).
T. L. MAYOS, Nurseryman, Hereford.

To the Trade.
JAMES CARTER, DUNNETT, AND BEALE'S Wholesale CATALOGUE of Seeds, Horticultural Sundries, Novelties, &c., for 1882 has now been posted to all Customers. A duplicate copy will be forwarded immediately, post-free, on application to
237 and 238, High Holborn, London, W.C.

WHITE EVERLASTING FLOWERS. First quality. Immense stock of same.
CHARLES AVRES, Wandel Street, Cape Town, South Africa.

CAMELLIA BLOOMS, Double White. Can arrange for regular weekly supply.
J. PAGE, The Hornsey Nursery, Hornsey.

Vines.
STRONG PLANTING CANES of BLACK HAMBURGH and MUSCAT of ALEXANDRIA, 36s. per dozen.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

RASPBERRY CANES. — Fastolf, 20s.; Carter's, 30s. per 1000.
R. BATH, Crayford, Kent.

Cypripedium japonicum, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 54) is just published, and will be sent free on application.
Lion Walk, Colchester.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees Prices, sizes, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

CONTINENTAL SEEDS.—O. KNOPFF & Co., Erfurt (Established 1832), offer their well known FLOWER SEEDS to the Trade. For CATALOGUES, &c., apply, BECK & POLLITZER, 211, Upper Thames Street, E.C.

RHODODENDRON CATAWBIENSE. Exceptionally fine, with flower-buds, 2 to 3 ft. high.
CHARLES NOBLE, Bagshot.

IMPORTANT NOTICE.—First-class NURSERY STOCK, specially cheap for Cash only, to clear the ground by March next.
CATALOGUES on application to
WALTER DAWSON, Nurseryman and Seedsman, Coventry.

ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz. 12s. and 15s.; extra selected, for potting (specimens), 18s. per doz.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4½-inch pots, £2 per 100, for cash. Now ready, Isabella Sprunt, Gloire de Dijon, &c.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

The Best Dwarf Roses in the Trade.
JAS. GARAWAY AND CO. offer the above, 100 in Best Leading Varieties, their selection, packed and carriage paid to any railway station, on receipt of Post-office Order for 60s.; 50 for 33s.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

SPECIAL OFFER to the TRADE of the following clean grown well-rooted Trees:—
LARCH, 15 to 24 inches, 1½ to 2, 1½ to 2½, and 2 to 3 feet.
SCOTS FIR (true Native), 2-yr. 2-yr., and 2-yr. 3-yr.
PINUS AUSTRIACA, twice transplanted, 9 to 18 inches.
Price and samples on application to
STEPHEN WILSON, Nurseryman, Aberdeen, N.B.

FOR SALE, CROTON WEISMANNI.—Very fine plant, nearly 6 feet high, 5 feet through, in perfect health and colour.
ELLIOTT AND CO., High Street, Marlow, Bucks.

DEUTZIA GRACILIS, good plants, price per dozen, 100, or 1000, on application; also VINCA ELEGANTISSIMA, strong.
T. HOLDFORTH & SON, Saunders Lane Nursery, Woking.

THORN QUICKS.—Strong and extra strong, in very large quantity and of very excellent quality.—Prices, samples, and all particulars on application to
Messrs. JAMES DICKSON AND SONS, "Newton Nurseries, Chester.

English Yews.—English Yews.
ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

TROPÆOLUM SPECIOSUM.—To the Trade.—A few thousand Roots of the above superb hardy Climber for sale cheap. Figured in the *Journal of Horticulture*, December 8.—Apply to
JONES & SONS, Shropshire Seed Establishment, Shrewsbury.

SALES BY AUCTION.

Lilium auratum.

MESSRS. PROTHEROE AND MORRIS beg to anoounce that they have received several large onsignments of LILIUM AURATUM, and other JAPANESE LILIES, which will be SOLD by AUCTION at the Mart at the beginning of JANUARY.

Catalogues at 8, New Broad Street, E.C.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDEY NEXT, December 28, at half-past 12 o'Clock precisely, Standard, Pyramid, and Dwarf FRUIT TREES, including Apples, Pears, Plums, Cherries, &c.; Dwarf ROSES, of sorts; CARNATIONS, PICOTEES, WALLFLOWERS, SPIRÆAS, LILY of the VALLEY, and other HARDY HERBACEOUS BORDER PLANTS, BULBS from Holland, &c.

On view morning of Sale, and Catalogues had.

10,000 Lilium auratum, just received from Japan, in extra fine condition.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 29, at half-past 12 o'Clock precisely, an importation of 108 cases, in 108 lots, containing 10,000 LILIUM AURATUM, just received from Japan in splendid condition, and some of the finest ever imported; good Bulbs of LILIUM HUMBOLDTII, L. WASHINGTONIANUM, L. PARDALINUM, L. PARRYI, and other rare LILIES; some fine flowering Bulbs of CALOCHORTI, "the lovely Butterfly Tulip;" 2000 Tuberous-rooted BEGONIAS, GLOXINIAS, 600 LILIUM SZOVITZIANUM, &c., from Ghent; a consignment of BULBS and PLANTS from Germany, BELLA DONNA LILIES, DUTCH BULBS, &c.

On view the morning of Sale, and Catalogues had.

WANTED, TO RENT, in the neighbourhood of London, a good GARDEN, with several Glass Erections thereon, or a good COTTAGE with large Garden, suitable for a Florist.—Address, J. D. R., 77, Mildmay Park, N.

To Seedsmen.

FOR SALE, a SEED BUSINESS, in Edinburgh, with Stock and Goodwill. The Business is an Old-established one, possessing a connection throughout the United Kingdom of nearly a centnry's standing, and might be largely extended in the hands of a man of energy and skill. The LEASE of a neighbouring NURSERY, having fifteen years to run, might also be arranged to be transferred, if wished, with the Nursery Stock.

For particulars, apply to GRAHAM, JOHNSTON, AND FLEMING, W.S., 66, Frederick Street, or to FRASER, STODART, AND BALLINGALL, W.S., 16, Castle Street, Edinburgh; by the latter of whom offers will be received up to and including Monday, January 2, 1882.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Special Notice.

MESSRS. WM. CUTBUSH AND SON would be greatly obliged to their Friends and Patrons if they will kindly address all Business Communications to HIGHGATE, and *not* to their *Branch Nurseries at Barnet*, as much time is saved thereby.

HIGHGATE NURSERIES, LONDON, N.

TO LANDOWNERS having Farms to Let, and not wishing to have the trouble of farming the same themselves.—ADVERTISER would be glad to Manage a Farm on the co-operative principle, Manager paying rent, all outgoings, and interest on owner's outlay, and taking the balance as his remuneration. Hightly satisfactory references given.—T. R., Bookstall, Paragon Station, Hull.

JAMES COCKER, NURSERYMAN, begs to announce that he has succeeded in acquiring from the late firm of James Cocker & Sons (which was dissolved on the death of his father) the Leases of Sunnypark and Morningfield Nurseries, and has secured the greater and more valuable part of the NURSERY STOCK.

On this arrangement he has assumed his three Sons, JAMES, WILLIAM, and ALEXANDER, into Partnership with him in the business, and it will be carried on in all its departments as formerly, under the name of JAMES COCKER AND SONS.

The valuable stock of ROSES, which met with so much success last season, is strong and healthy, and CATALOGUES are now ready, and may be had on application.

The FOREST and ORNAMENTAL TREES, SHRUBS, FRUIT TREES, &c., are in excellent condition, and being of a hardy constitution are sure to give satisfaction.

The FLORIST DEPARTMENT is replete with all the best varieties of PANSIES, CARNATIONS, PICOTEES, PINKS, PYRETHRUMS, PHLOXES, PENTSTEMONS, &c. All Seed Orders entrusted to the new firm will have their best attention; and Seeds of the best quality only, and from the most reliable source, will be supplied.

JAMES COCKER AND SONS trust that they will be honoured with the patronage so long enjoyed by the late firm, and all orders will be esteemed a favour.

Sunnypark Nursery, Aberdeen, December, 1881.

Hardy Rhododendrons and Azaleas.

ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.

Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands.

AZALEA MOLLIS, seedlings and best named varieties covered with buds, many thousands.

Knap Hill Nursery, Woking, Surrey.

FOREST and FRUIT TREES and SHRUBS.

SCOTCH FIRS, true native, 6 to 12, 9 to 18 inches, and 1½ to 2 feet.
LARCH, 9 to 18 inches: 1½ to 2, 2 to 3, and 3 to 4 feet.
SPRUCE, 6 to 9, 9 to 12, and 12 to 18 inches.
THORNS, 1 to 2 feet. HAZEL, 1½ to 2 feet.
SILVER FIRS, 9 to 15 inches.

Special offers, with samples (if desired), on application to MUNRO BROS, Inverness, N.B.

Vines.—Vines.—Vines.

B. S. WILLIAMS has much pleasure in intimating that his stock of VINES is unusually fine this year, the Canes being very strong and well ripened. For List of Prices see B. S. W.'s BULB CATALOGUE for 1881.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

SPECIAL OFFER.

	Per doz.	Per 100.
OAK, English, 8 to 10 feet	9s. 0d.	60s. 0d.
CHESTNUT, Horse, 8 to 10 feet	6s. 0d.	40s. 0d.
COTONEASTER MICROPHYLLA ..	6s. 0d.	..
CRYPTOMERIA JAPONICA, 8 to 10 feet	24s. 0d.	..
COB-NUTS, Kentish	6s. 0d.	40s. 0d.
HONEYSUCKLE, Late Dutch	4s. 0d.	30s. 0d.
YEWS, Common, 2½ to 3 feet	9s. 0d.	60s. 0d.

FIR, Larch, fine stuff, 2 to 3 feet, 35s. per 1000; 3 to 4 feet, 45s. per 1000.

PEAT.—Good fibrous Peat, put on the South-Eastern or London, Chatham and Dover Railways here, 14s. per yard.

C. F. CATTELL, Sevenoaks, Kent.

Notice to the Trade.

NUTTING AND SONS have now posted their ANNUAL TRADE CATALOGUE of Garden Flower and Agricultural Seeds to all their friends. If not duly received, they will be obliged by an early intimation, when another copy will be posted.

NUTTING AND SONS, Seed Merchants, 60, Barbican, E.C.

To the Trade.

THORNS, 1-yr. Seedling, 2s. 6d. per 1000, in quantities of 100,000 and upwards.

LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

Deutzia gracilis.

WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty branches in each plant. Very cheap. Price on application.

Ottershaw Nursery, Chertsey.

Raspberry Canes.

FOR SALE, 40,000 SEMPER FIDELIS, the best Raspberry in cultivation; also a large quantity of the undermentioned varieties:—

NORTHUMBERLAND FILLBASKET.
CARTER'S PROLIFIC.
RED ANTWERP.
FASTOLF.

And the leading varieties of STRAWBERRY PLANTS.

JOSIAH H. BATH, Manor Farm, North Cray, Kent.

STUART, MEIN AND ALLAN have to offer the undernoted LARGE TREES for immediate effect:—

ELMS, 3 to 15 feet.	FIR, Spruce, 2 to 2½ feet.
MAPLE, Norway, 10 to 16 ft	HAZELS, 3 to 5 feet.
CHESTNUT, Horse, 6 to 14 ft.	CHERRIES, Standard, strong
CHERRY, Wild, 10 to 18 feet.	APPLES, Pyramid, strong.
POPLARS, Black Italian, 10 to 18 feet.	SNOWBERRY, 4 to 6 feet, strong.
ASH, Mountain, 5 to 6 feet.	SPIRÆA, in variety.
ALDERS, 4 to 8 feet.	THORNS or QUICKS, 1½ to 2 feet.
LARCH, 2 to 4½ feet.	

CUPRESSUS LAWSONIANA, large specimen plants, 6 to 8 feet. The Nurseries, Kelso, N.B.

CHRYSANTHEMUMS, best and newest, now ready. Large stock of 300 distinct sorts. Purchaser's selection, plants 2s. 6d. per doz., 14s. per 100; W. E.'s selection, 2s. per dozen, 10s. per 100, post-free. Cuttings much cheaper. CATALOGUE one stamp.

W. ETHERINGTON, Manor House, Swanscombe, Kent.

Chrysanthemums.

S. MAHOOD AND SONS, Windsor Nurseries, Putney, have now to offer Cuttings of their splendid collection, which has taken three First-class Prize Cups (*vide Gardeners' Chronicle*, Nov. 19 and 26). 2s. per dozen. Rooted Plants later on.

CATALOGUES on application.

CHARLES NOBLE has fine plants of

CUPRESSUS LAWSONIANA
THUYA GIGANTEA (Lobbii)
" AMERICANA
RETINOSPORA PISIFERA
} 6 to 12 feet high, transplanted last August.

Exceptionally handsome AVENUE TREES.

LIME TREES, 14 to 16 feet.

DWARF PYRAMID PEARS, in fine variety, on Dwarfing Stock (so that they bear quantities of Fruit when only the size of Currant Bushes), just coming into bearing: some produced fruit last season.

The finest Bedding Rose ever raised,

ROSE "QUEEN of BEDDERS" (Noble).

Requires no pegging, has never (with me) produced a shoot without a flower, and I have cut Bouquets from the open ground during five months consecutively.

Bagshot.—December, 1881.

Gooseberries and Black Currants.

GEORGE BUNYARD AND CO. can offer the above in large or small quantities, in the best Garden or Market kinds, as recommended in *Fruit Farming for Profit*.

The Old Nurseries, Maidstone.

HALF-STANDARD H.P. ROSES, in large or small lots.

GEORGE BUNYARD AND CO., Maidstone.

"The Celebrated North of Ireland Roses."

THE ONLY ROSES in IRELAND having any claim to such a title are those grown by us, and we repudiate the right of any other Nurserymen to claim such "celebrity."

Having gained many hundreds of First Prizes at the leading shows all over the country, WE ALONE have thus made North of Ireland Roses celebrated. Our stock of Standards and Dwarfs numbers over 100,000 plants, in the finest possible health, and embraces every good variety in cultivation.

Descriptive CATALOGUES may be had on application to ALEX. DICKSON AND SONS, Nurseries, Newtownards; or, HUGH DICKSON, Belmont Nursery, Belfast.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection, which was again awarded first prizes at all the London great Flower Shows. Sealed packets, free by post, 1s. and 2s. 6d. each. All first quality. The Trade supplied.

JOHN LAING AND CO. Seedsmen Forest Hill, S.E.

CUT FLOWERS of LILY of the VALLEY and TULIPS.—The Advertisers can now offer a regular supply of fine Blooms. Price on application to

TURNER BROS., Allerton, Liverpool.

SELECTED POTATOS for PLANTING.—Our LIST, which includes all the best kinds, with specially low prices for present delivery, is now ready, and will be sent post-free on application.

JOHN AND GEORGE McHATTIE, Seed Merchants, Chester.

MISTLETO.—A handsome, well-berried bush, 2 feet 6 inches through, nicely packed, and delivered to any railway station in England, for 5s. RICHARD SMITH & Co., having now bought a large quantity of Worcestershire Mistleto, are enabled to sell at this low rate for cash.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CHRYSANTHEMUMS. — Shaw's Golden Madame Marthe is the finest yellow Pompon in the world. Will be grown by everybody, shown by everybody, and admired by everybody. Plants, 3s. per dozen; twelve very best varieties for Exhibition, including Golden Madame Marthe and Souvenir d'un Ami, for 2s. 3d., all post-free.

SHAWS, The Leeds Florists, Knostrop, Leeds.

FRISBY'S EXCELSIOR BEET. — The best and most distinct Beet in cultivation. It is excellent both for the Flower Garden and for Table use. The top is small, with dark shining leaves; Root growing about double the length of most kinds, is of fine tapering form, with very dark skin; flesh deep crimson, of fine quality and exquisite flavour. Price per ounce packets, 1s. 6d.

EDMUND PHILIP DIXON, Hull.

NEW CHRYSANTHEMUM—LADY SELBORNE.

One of the Best Whites yet raised.

MR. H. JAMES, of Castle Nursery, Lower Norwood, Surrey, has now the pleasure of announcing to his numerous Customers and Friends that he intends sending out the NEW CHRYSANTHEMUM, LADY SELBORNE—raised by Mr. C. Salter, and which has already gained Three First-class Certificates—on January 1, 1882. Price 5s. each.

P.O.O. payable at Thomas Terrace, Lower Norwood, S.

RASPBERRY CANES. — 100,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 100 for 5s. Also 50,000 Fastolf, at £1 per 1000. 250 for 6s., on rail. The Canes are small, but being well rooted are equally as good as large grown ones. Payments to accompany orders. Postal Orders on Knockholt. Apply to

A. AND E. BATH, Colgates Farm, Sevenoaks, Kent.

STRAWBERRIES.—Strong roots for fruiting next year, 4s. per 100. Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen, Worcester.

SPIRÆA PALMATA, the largest stock of forcing plants in Europe.

DWARF ROSES, good, 9s. per dozen.

RHODODENDRONS, covered with buds, for forcing.

STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.

CHARLES NOBLE, Bagshot.

Fruit Trees.—Fruit Trees.

R. AND G. NEAL have to offer Dwarf-trained MORELLO CHERRIES, APPLES, and PLUMS; also PYRAMID APPLE, PEAR, and PLUM TREES. These are some of the finest Trees in the Trade. CATALOGUES and Prices on application. An early inspection invited.

The Nurseries, Wandsworth Common, and Garrett Lane, Wandsworth, S.W.

SINGLE DAHLIAS.

YELLOW DWARF, 1s. 6d. each, 15s. per dozen.
SCARLET GEM, 1s. 6d. each, 10s. per dozen.
COCCINEA, 1s. 6d. each, 15s. per dozen.

A pot-root of each of these splendid kinds, post-free, 4s. 6d.

We have the most complete collection of doubles, and always grow not less than 10,000 pot-roots, and can therefore offer best in cultivation.

H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent.

LILIUM AURATUM, and other LILIES, the best picked Bulbs only. Size No. 1, 9d.; No. 2, 1s.; No. 3, 1s. 6d.; and the largest Bulbs imported, 2s. each. Equally low prices for other Lilies, and Special LIST of Orchids forwarded on application to

WM. GORDON, City Office, 10, Cullum Street, London, E.C. Special Price to the Trade.

GRAPE VINES.—All the leading sorts, well ripened Canes in fruiting and planting sizes. Quantities of STRAWBERRIES also, in pots, to offer. Prices, &c., on application to

FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

TREES for AVENUES and STREET PLANTING.—The trees here mentioned have all stout stems, are handsomely furnished well balanced heads, and splendidly rooted. They have always had ample room and thorough exposure, and are without doubt the finest stock of Avenue Trees to be met with in any Nursery in Europe. The girt of the stems is taken at 4 feet from the ground, and not at the base, which is often deceptive:—

ACER DASYCARPUM, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 8 to 9 inches.
" PLATANOIDES (Norway Maple), 12, 14 to 16 feet, girting 5 to 8 inches.
ACACIA BESSONIANA, 10 to 12 feet, and 12 to 14 feet.
BEECH, Common, 10 to 12 feet.
" Purple or Copper, 10 to 11 feet.
CHESTNUT, Horse, 10 to 12 feet; 14 to 16 feet, girting 7 to 10 inches.
" Scarlet, 10 to 14 feet, girting 8 to 10 inches.
LIMES, 12 to 14 feet, girting 5 to 6 inches; 15 to 18 feet, girting 9 to 11 inches.
OAKS, Scarlet American, 12 to 14 feet, girting 5 to 6 inches.
PLANES, Occidental, 12 to 14 feet, girting 5 to 6 inches; 16 to 18 feet, girting 7 to 10 inches.
POPLAR, CANADENSIS NOVA, 12 to 14 feet; 14 to 18 feet, girting 8 to 10 inches.
SYCAMORE, 12 to 16 feet.
" Purple, 14 to 15 feet.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

THE

LAWSON SEED & NURSERY COMPANY (Limited)

Abound in the following—all of the best quality, at very low prices, as the ground must be cleared for other purposes.

Special Offers on application:—

PINE, Black Austrian, transplanted, 1½ to 3 ft. in height.
PINUS CEMBRA, 2 to 3, and 3 to 5 feet.
„ LARICIO (Corsican Pine), 9 to 15, and 18 to 24 inches, fine.
LARCH, 12 to 18 inches, 1½ to 2, 2 to 3, and 2½ to 4 feet, all extra fine.
PINE, Maritime, 12 to 18 inches, fine.
„ Mountain, 9 to 15 inches, extra stout.
FIR, Scots, true native, 6 to 12, 12 to 18, and 18 to 24 inches, extra fine.
SPRUCE, Norway, 6 to 12, and 12 to 18 inches.
„ Black American, 1½ to 2, and 2 to 3 feet.
YEW, Common or English, 18 to 24, and 24 to 30 inches.
ALDER, Common, 12 to 18 inches, and 5 to 7 feet, fine plants.
BARBERRY, Common, 9 to 18 inches.
BEECH, Common, 12 to 18 inches.
CHESTNUT, Horse, 2 to 3 and 3 to 5 feet, strong.
„ Spanish, 12 to 18 and 18 to 30 inches.
ELM, Scotch or Wych, 1½ to 2 and 2 to 3 feet.
„ English, 1½ to 2 and 2 to 3 feet.
HAZEL, 2 to 3 feet.
HOLLY, Common, 4 to 6, 6 to 9, and 12 to 15 inches.
HORNBEAM, 12 to 18 inches, and 5 to 6 feet.
LABURNUM, 2 to 3 feet.
LIME, 2 to 3, 3 to 4, 4 to 6, and 6 to 8 feet.
MAPLE, Norway, 4 to 6 and 6 to 8 feet.
OAK, English, 12 to 18 inches.
POPLARS, of sorts, 2 to 3, 3 to 4, and 4 to 6 ft.
PRIVET, Evergreen, 2 to 3 feet, extra fine.
THORNS, 12 to 18, and 18 to 24 inches.
WILLOWS, of sorts, 2 to 3 and 3 to 5 feet.

THE

LAWSON SEED & NURSERY COMPANY (Limited)

Abound in the following

SEEDLING and BEDDED PLANTS

AT MODERATE PRICES.

SPECIAL OFFERS ON APPLICATION.

PINE, Black Austrian, 1 and 2-yr. seedlings.
„ Corsican (Pinus Laricio), 1 and 2 years.
LARCH, 1 and 2-yr. seedlings and 1-yr. seedlings 1-yr. bedded, all extra fine.
PINE, Mountain, 1 and 2 years.
FIR, Scotch, 1 and 2-yr. seedlings, and 1-yr. seedling 1-yr. bedded.
SPRUCE, Norway, 2 and 3-yr. seedlings.
ALDER, Common, 1 and 2-yr. seedlings.
ASH, Common, 1 and 2-yr. seedlings.
BEECH, Common, 1 year, very fine.
BIRCH, Common and Weeping, 1 year.
CHESTNUT, Spanish, 1 and 2 years.
HAZEL, 2-yr. seedlings.
HOLLY, Common, 3 years, fine.
MAHONIA AQUIFOLIA, 2 years, fine.
MAPLE, Norway, 1 year, fine.
OAK, English, 1 and 2 years.
„ Turkey, 1 year, fine.
SYCAMORE, 1 year, very strong.
THORN, or QUICK, 1 year, fine.
WHIN, or GORSE, 1 and 2 years.

CATALOGUES of the General Nursery Stock will be sent Free upon application.

EDINBURGH, December, 1881.

RICHARD SMITH & Co. WORCESTER

SEVENTY-FOUR ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for 1*d.* stamp.

TWELVE ACRES of ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea-scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing.
See Descriptive Price LIST, free for 1*d.* stamp.

TWO HUNDRED THOUSAND HERBACEOUS and ALPINE PLANTS for Borders, Rockwork, &c. See Descriptive LIST, giving colour, height, time of flowering, &c., free by post for 1*d.* stamp.
R. S. & Co.'s selection of 100 good showy varieties for 25*s.*

GRAPE VINES and ORCHARD-HOUSE TREES in POTS.—GRAPE VINES, extra strong, short-jointed and well-ripened Planting Canes, 3*s.* 6*d.* to 5*s.* each; extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* ORCHARD-HOUSE TREES, Fruiting in Pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs.
Descriptive Price LIST for 1*d.* stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for 1*d.* stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

SEAKALE.—Extra Strong, for Forcing, 2*s.* 6*d.* per dozen, 16*s.* per 100.

RICHARD SMITH & Co. WORCESTER

ROSES.

The Largest Rose Gardens in England

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

120 FIRST PRIZES, 1880-1881.

STANDARD and HALF STANDARD.
DWARF STANDARDS.
DWARFS ON MANETTI, Magnificent Plants.
DWARFS on SEEDLING BRIER.
DWARFS on OWN ROOTS.
DWARF TEA-SCENTED and NOISETTE on SEEDLING BRIER.
CLIMBING and PILLAR ROSES.
EXTRA-SIZED ROSES, in 8, 9, and 10-inch Pots, Grown especially for Forcing.
NEW ROSES, French and English.
CRANSTON'S NEW ROSES, "MRS. JOWITT," and "MARY POCHIN."

Descriptive Priced Catalogue on application.

Special quotations for 100 and 1000 plants.

ADDRESS—

CRANSTON'S NURSERY and SEED CO. (LIMITED),
KING'S ACRE, NEAR HEREFORD.

ORCHIDS.

The Largest and Best Stock in Europe of good Established Plants.

Tens of Thousands of Plants to select from.

MR. WILLIAM BULL

Begs to intimate that his Orchid-houses are always quite a sight, from the large number of plants in flower, and he will be pleased to show them to any one interested in this beautiful class.

MR. WILLIAM BULL

Recommends those desirous of having their Houses gay with Orchid flowers, to purchase good established well-cultivated plants, which bloom well, are far more satisfactory, and comparatively cheaper than newly imported or semi-established plants.

Establishment for New and Rare Plants, 536, KING'S ROAD, CHELSEA, LONDON, S.W.

FOR POT CULTURE.

Barr & Sugden's Collection of Bulbs for Indoor Decoration, 10s. 6d., 21s., and 42s.

HYACINTH, finest bulbs and best varieties, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* per dozen; 40*s.* and 63*s.* per 100.
NARCISSUS, Polyanthus varieties, best kinds, 2*s.* 6*d.*, 3*s.* 6*d.* and 4*s.* 6*d.* per dozen; 21*s.* and 30*s.* per 100.
TULIPS, Double and Single, finest colours and largest flowers, 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per dozen; 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.* per 100.
CROCUS, in many fine sorts, all large bulbs, 6*d.* per dozen, 3*s.* 6*d.* per 100, 30*s.* per 1000.
SNOWDROPS, large selected bulbs, 6*d.* p. doz., 3*s.* 6*d.* p. 100.
SCILLA SIBIRICA, rich Blue, 1*s.* per dozen, 5*s.* 6*d.* per 100.
CHIONODOXA LUCILIÆ, the most beautiful Blue flower of Spring, 2*s.* 6*d.*, 3*s.* 6*d.*, and 4*s.* 6*d.* per dozen.

FOR FLOWER GARDEN DECORATION.

Barr & Sugden's Collection of Bulbs for Outdoor Culture, 10s. 6d., 21s., and 42s.

The weather being favourable, planting of beds and filling of borders with Spring Flowering Bulbs should be proceeded with.

HYACINTHS, a mixture of beautiful colours, fine bulbs, in splendid condition, 3*s.* 6*d.* per dozen, 21*s.* per 100.
NARCISSUS, Polyanthus varieties, in fine mixture, 1*s.* 6*d.* per dozen, 10*s.* 6*d.* per 100.
DAFFODILS, a fine mixture of Trumpet, Noosuch, Peerless, and Poeticus, 1*s.* per dozen, 5*s.* 6*d.* per 100.
TULIPS, Double or Single, beautiful colours, in mixture, 1*s.* per dozen, 5*s.* 6*d.* per 100.
CROCUS, all colours in mixture, 1*s.* 6*d.* and 2*s.* 6*d.* per 100, 14*s.* and 21*s.* per 1000.
SNOWDROPS, Double or Single, 2*s.* 6*d.* per 100, 21*s.* per 1000.

FOR PLANTING IN GRASS, ORCHARDS, AND WOODS TO NATURALISE.

WOOD HYACINTHS, in mixture and varieties, 3*s.* 6*d.*, 5*s.* 6*d.*, and 7*s.* 6*d.* per 100; 21*s.*, 30*s.*, and 42*s.* per 1000.
DAFFODILS, in mixture and varieties, 3*s.* 6*d.*, 5*s.* 6*d.*, and 7*s.* 6*d.* per 100; 30*s.*, 42*s.*, and 63*s.* per 1000. In named varieties, 10*s.* 6*d.*, 12*s.* 6*d.*, and 15*s.* per 100; 84*s.* and 105*s.* per 1000.
STAR OF BETHLEHEM, mixed varieties, 2*s.* 6*d.* per 100, 21*s.* per 1000.
ALLIUM, mixed varieties, Yellow, White, and Lilac, 2*s.* 6*d.* per 100, 21*s.* per 1000.
PLANTAIN LILIES (Funkias), in twelve sorts, 5*s.* 6*d.* and 7*s.* 6*d.* per dozen.
HEPATICAS, Red, Blue, Pink, Mauve, Purple, Lilac, and White, in mixture, 3*s.* 6*d.* per dozen, 21*s.* per 100; in clumps, Blue or Red, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.* each.
DAY LILIES (Hemerocallis), 5*s.* 6*d.* per dozen.
SNOWFLAKES, the largest-flowered varieties, 7*s.* 6*d.* and 10*s.* 6*d.* per 100.
ANEMONES, Double and Single, in mixture, 2*s.* 6*d.* p. pound.
ANEMONE FULGENS, the brilliant Scarlet Windflower, 10*s.* 6*d.*, 15*s.*, and 21*s.* per 100.
FUMATORY MUSCARI, WINTER ACONITES, &c., 3*s.* 6*d.* per 100.
LILIES, hardy free-growing varieties, 21*s.* per 100.
MILLA UNIFLORA CONSPICUA, LILACINA, and CANDIDA, in mixture, 3*s.* 6*d.* and 5*s.* 6*d.* per 100.

BARR & SUGDEN,
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LONDON, W.C.

GLADIOLI, DAHLIAS.

ANT. ROOZEN & SON

OVERVEEN, HAARLEM, HOLLAND.

OUR AUTUMN LIST is now ready, and will be sent, post-free, on application to our Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., or to ourselves direct.

CRANSTON'S NURSERIES.

(ESTABLISHED 1785.)

NEW CATALOGUES

OF ROSES AND FRUIT TREES

Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED), King's Acre, Hereford.

STRONG QUICK, for Hedging; extra strong ditto, for Gapping. Prices on application to RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LARCH and QUICKWOOD PLANTS for SALE.—3,000,000 Larch, 1 to 2, 2 to 3, and 3 to 4 feet; 2,000,000 Quickwood, 1 to 2, 2 to 3, and 3 to 4 feet; 100,000 Spruce, 1 to 2, and 2 to 3 feet; 500 do. for Christmas Trees, 3 to 4 feet; 100 Weeping Ash, Elms, Poplars, Pears, &c.; also Scotch Fir, Weeping Beech, &c.; all recently transplanted and well grown, with good leads and well rooted. For particulars apply, FRANCIS BELL, Nurseryman, Easingwold.

DAFFODILS, in many beautiful varieties, to Naturalise in Grass, Orchards, and Woods, and for the Flower Border, mixed varieties, 3s. 6d., 5s. 6d., 7s. 6d., per 100; 30s., 42s., and 63s. per 1000; named varieties, 10s. 6d., 12s. 6d., and 15s. per 100; 84s. and 105s. per 1000.
Descriptive LIST on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

To the Trade.
SEED POTATOS.
H. AND F. SHARPE, having secured their Crops of SEED POTATOS in fine condition, are prepared to make special offers of all the leading varieties worthy of cultivation. The Prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

TO THE TRADE.
PRIMULA SINENSIS FIMBRIATA, "New Scarlet," a most distinct variety, with rich crimson-scarlet flowers of great substance, and beautifully fringed.
PRIMULA SINENSIS FIMBRIATA RUBRA and ALBA.
JOHN CATTELL has a fine stock of the above Primulas (harvested this year) to offer to the Trade. Special low prices will be given on application.
Nursery and Seed Establishment, Westerham, Kent.

SPECIAL OFFER.

		s.	d.	
ALMONDS, standard flowering		12	0	per doz.
ASH, Weeping, 8 to 10 feet		24	0	,,
,, ,, 10 to 12 feet		30	0	,,
AZALEA AMŒNA, in pots		12	0	,,
CEANOTHUS DENTATUS, in pots		6	0	,,
CHESTNUT, Scarlet Horse, 6 to 8 feet		9	0	,,
,, ,, ,, 8 to 10 feet		12	0	,,
ELM, Chichester, 8 to 10 feet		12	0	,,
,, ,, 10 to 12 feet		15	0	,,
,, English, 8 to 10 feet		12	0	,,
GUELDER ROSE	3s. and	4	0	,,
LILACS	3s. and	4	0	,,
WEIGELAS, in sorts	3s. and	4	0	,,
APPLES, pyramids, 3 to 4 feet (J. G. & Co.'s own selection of varieties.)		15	0	,,
,, ,, 4 to 5 feet		16	0	,,
CURRANTS, Red and Black (J. G. & Co.'s own selection of varieties.)		10	0	per 100.
FILBERTS, transplanted layers (J. G. & Co.'s own selection of varieties.)		20	0	,,
PEARS, pyramids, 4 to 5 feet (J. G. & Co.'s own selection of varieties.)		15	0	per doz.
,, ,, 5 to 6 feet (J. G. & Co.'s own selection of varieties.)		18	0	,,
,, ,, Beurré Diel and Marie Louise, 6 to 8 feet (J. G. & Co.'s own selection of varieties.)		30	0	,,
PLUMS, pyramids, 4 to 6 feet (J. G. & Co.'s own selection of varieties.)		18	0	,,
,, ,, extra strong (J. G. & Co.'s own selection of varieties.)		21	0	,,
WALNUTS, 6 to 8 feet (J. G. & Co.'s own selection of varieties.)		12	0	,,

JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

LILIUM AURATUM.—Splendid direct Imported and Home-grown Bulbs, 30s., 40s., 50s., 60s., 75s., and 100s. per 100.—SANDER AND CO., St. Alban's.

APPLE TREES with MISTLETO growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

To the Trade.
THOMAS IMRIE AND SONS draw special attention to the following SURPLUS STOCK, all clean grown, healthy, well rooted, and in excellent condition for removing, for which special quotations will be sent on application:—
PINUS AUSTRIACA, 1 to 1½ foot.
,, LARICIO, 1 to 1½ foot.
LARCH FIRS, 1½ to 2, 2 to 2½, 2½ to 3, and 3 to 4 feet.
,, ,, extra fine, with perfect leaders.
SCOTCH FIRS, true Native, 2-yr., 2-yr., and 2-yr. 3-yr., extra fine.
SILVER FIRS, 6 to 9, and 9 to 12 inches.
SPRUCE FIRS, Norway, 6 to 9, 9 to 12, and 12 to 18 inches, very bushy.
ALDER, Common, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet, twice transplanted.
ASH, Mountain, 5 to 6 and 6 to 8 feet, grown singly, and good stems.
BEECH, Common, 1½ to 2, 2 to 3, and 3 to 4 feet.
CHESTNUT, Spanish, 8 to 12, and 12 to 24 inches.
HAZEL, 12 to 18 inches, and 2 to 3 feet, twice transplanted.
LIMES, 3 to 4, 4 to 5, 5 to 6, 6 to 8, and 8 to 10 feet; all grown singly, and several times transplanted.
POPLARS, sorts, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet, all twice transplanted.
PRIVET, Evergreen, 1-yr. cuttings, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
SERVICE TREE 4 to 5, and 5 to 6 feet, good stems, and grown singly.
THORNS, or QUICKS, 1-yr. 1-yr., 9 to 12 inches, 12 to 20 inches, and 1½ to 2 feet.
Also ORNAMENTAL TREES—consisting of Plane or Sycamore, Flowering Chestnuts, Purple Beech, Ash, and Elms, sorts, &c.
The Nurseries, Ayr, N.B.

FOREST TREE SEEDLINGS.—One of the finest and largest Stocks to choose from, including both True Native and Tyrolese LARCH, 1-yr. and 2-yr., of which we have without doubt the finest lot in Scotland. True Highland Scotch FIR, also Austrian, Laricio, and Montana PINES, SPRUCE, ELDER, ASH, BEECH, BIRCH, BROOM, Spanish CHESTNUTS, English and Wych ELM, HAZEL, HORNBEAM, HOLLY, LABURNUM, SYCAMORE, THORNS, WHIN, &c. Also a very large stock of nearly all kinds of transplanted FOREST TREES, of all sizes, in splendid condition for removal. Special prices on application.
PETER S. ROBERTSON AND CO., Trinity Nurseries, Edinburgh.

To the Trade.
WAITE, NASH, HUGGINS, AND CO. have posted their GENERAL CATALOGUE to all their Customers; if not received another copy will be sent on application.
79, Southwark Street, London, S.E.

QUICKS, 500,000 extra fine Transplanted, at 20s., 25s., 30s., 40s.; and extra extra strong for gapping, at 50s. per 1000. Also fine strong Spanish CHESTNUTS.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

ANTHONY WATERER respectfully invites the attention of intending Planters to the following List of desirable and in every way first-class Nursery Stock:—
BOX, Green and Variegated, many thousands, 4, 5, 6, 7, and 8 feet high.
YEWS (Common English), 5, 6, 7, and 8 feet high, many thousands.
,, Golden, many thousands, 3, 4, 5, to 10 feet high.
The Golden Yews in this Nursery are quite unequalled, and purchasers will be highly gratified by an inspection—the only means of obtaining a correct appreciation of the plants.
,, Irish, hundreds of fine specimens, 6, 7, and 8 feet high.
HOLLIES, Common Green, many thousands, 3, 4, 5, 6, 8, to 10 and 12 feet high.
,, LAURIFOLIA, MYRTIFOLIA, SCOTTICA, HODGINS', and other fine varieties, a very large number, 5, 6, 7, 8, and 10 feet high.
,, Variegated, many thousands, 5, 6, 7, and 8 to 10 feet high.
,, Golden Queen, many handsome specimens, 4, 5, 6, to 10 feet high.
,, Silver, in variety, 4, 5, 6, to 10 feet high.
,, Waterer's, as Standards and Pyramids, the finest plants in the Trade.
CHINESE JUNIPERS, 6, 7, 8, to 10 feet high; hundreds.
PICEA PINSAPO, 6, 7, 8, to 10 feet high; hundreds.
,, NORDMANNIANA, 4, 5, 6, 7, to 10 feet high; hundreds
CEDRUS DEODARA, 4, 5, 6, and 8 feet high.
PINUS AUSTRIACA, 2, 3, and 4 feet high, transplanted Spring, 1880.
SPRUCE FIR, 3, 4, 5, 6, and 7 feet high, an immense Stock, well furnished and finely rooted.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet high, affording a choice to be met with in no other Nursery.
,, ,, GRACILIS 4 and 5 feet high.
,, ,, ARGENTEA, 4 and 5 feet high.
,, ,, LUTEA, 2, 3, and 4 feet high; hundreds of beautiful plants.
LIBOCEDRUS DECURRENS, 5, 6, and 7 feet high.
PINUS CEMBRA, 4, 5, 6, and 7 feet high.
RETINOSPORA PISIFERA AUREA, hundreds of fine plants, 3, 4, and 5 feet high.
THUYOPSIS BOREALIS, 4, 5, and 6 feet high.
,, DOLOBRATA, 3, 4, and 5 feet high.
ABIES ORIENTALIS, 5, 6, 7, 8, 10, and 12 feet high splendid specimens.
THUYA WEAREANA, an immense quantity of fine specimens up to 10 feet.
,, AUREA, 2, 3, and 4 feet high.
,, SEMPER AUREA, 2 to 3 feet high, 4 and 5 feet in circumference.
RHODODENDRONS of all Colours, and for the most part well budded; many thousands of fine specimens, 3, 4, 5, 6, 7, 8, to 10 feet high.
,, Standard, the finest Plants to be found in any Nursery.
AZALEAS, Hardy, of the best kinds, 3, 4, 5, and 6 feet high.
The Plants referred to in this Advertisement have all been recently transplanted.
Knap Hill Nursery, Woking, Surrey.

THREE NEW MELONS.

THREE FIRST-CLASS CERTIFICATES AND SILVER MEDAL.

A beautiful Coloured Plate of above is published in

J. CHEAL & SONS'
NEW SEED CATALOGUE
and CULTURAL GUIDE for 1882.
Fifty-four pages and one hundred illustrations, post-free for seven stamps.

Or Descriptive LIST of NOVELTIES post-free.

J. CHEAL & SONS,
CRAWLEY, SUSSEX.

GEO. JACKMAN & SON,
(ESTABLISHED 1810,)
Cultivators of
FRUIT and FOREST TREES,
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.

THE CLEMATIS
A SPECIALITY.

Descriptive Priced Catalogues free.
WOKING NURSERY, SURREY.

PAUL & SON,
The Old Nurseries, CHESHUNT,
Respectfully ask for the Orders of Planters of any of the following well-grown

TREES AND PLANTS.

ROSES, Standards of the best Hybrid Perpetuals.
,, Standard Teas, for Rose or Orchard-house or Conservatory decoration.
They hold the largest Stock of Standard Roses in Europe.
ROSES, Dwarfs, of all the finest varieties, of both Hybrid Perpetuals and Teas, Ground Plants.
,, Pot, in large and very select varieties.
DWARF-TRAINED FRUIT TREES of the best Apples, Pears, Plums, Cherries, Peaches, and Nectarines.
STANDARD APPLES—the finest trees in the country of the best sorts.
PYRAMID FRUIT TREES, all carefully formed and pruned.
CURRANTS, GOOSEBERRIES, STRAWBERRIES, and all the small fruit in variety and in large quantities.
VINES, Fruiting, all from eyes this year.

EVERGREENS.

ARAUCARIA IMBRICATA, 2 feet, 3 feet, and 8 feet to 9 feet in height.
BOX, Green and Variegated, in large quantities, 5 feet, 6 feet, and 7 feet in height.
CEDRUS DEODARA, 2 feet, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet to 9 feet in height. Splendid specimens.
CUPRESSUS LAWSONIANA, in some twenty varieties, 1 foot to 6 feet in height.
AUCUBA JAPONICA, extra bushy and fine colour, 1 foot, 2 feet, and 3 feet in height.
HOLLIES, common Green, 1 foot, 2 feet, 3 feet, and 4 feet in height. A splendid lot, in fine nursery condition.
,, Variegated, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet, 4 to 5 feet, 5 to 6 feet, 6 to 7 feet, in very large quantities.
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,, Golden Queen, by the 100 or 1000, in various sizes.
PINUS EXCELSA, extra fine specimens, 10 to 16 feet in height.
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RHODODENDRONS, best named varieties, by the 100 1 foot, 2 feet, and 3 feet in height.
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YEWS, splendid pyramidally-cut plants, 5 feet, 6 feet, and 7 feet in height.

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LIMES, 10 to 12 feet (extra scented), 12 to 14 feet, 14 to 16 feet in height.
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CHESTNUT, Horse, 10 feet, 12 feet, to 14 feet in height.
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Deciduous Ornamental flowering and fine-foliage Trees in splendid variety.
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Fifty-four pages, one hundred illustrations, and beautiful coloured Plate of three NEW MELONS, post-free for seven stamps.
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EXOTIC AND BRITISH FERNS,
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NOVELTY 1882.

First-class Certificate, November 16, 1880.

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It possesses several decided advantages over all others, which must secure for it general cultivation.

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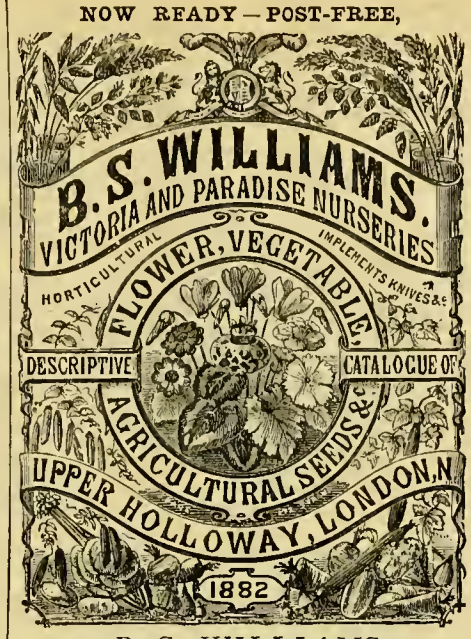

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Bulbs of I. Quality, £1 per 100, £9 per 1000, nett.
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"Imported Bulbs do die."
I have only a few to offer this season, but they are fine; 7 to 9, 9 to 10, 10 to 11, and 11 to 13 inches in circumference.
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WM. MAULE AND SONS offer Two SACCOLABIUM GUTTATUM, Loddiges' fine old variety, at 105s. each; One Bunney's distinct and good variety, 105s; Two CATTLEYA LABIATA, Loddiges' true old Autumn flowering, at 84s. each; all from the original establishments; also Two CATTLEYA AMETHYSTOGLOSSA, the best short-Bulb variety, 63s. each, same as figured in Warner's *Select Orchids*, vol. i., p. 2. All are thriving young home-grown established Plants; the Saccolabiums have from four to five leaves, and the Cattleyas two stems.
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Seed of this beautiful Eucalyptus is now offered for the first time. It is not a large growing species, like most others of the family, but is of quick growth, and plants of it are soon covered with its magnificent trusses of crimson coloured flowers; its leaves give an essential oil, which has proved a valuable febrifuge.
Price 5s. per packet.

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A bright and pretty variegated Cruciferous plant. Being quite hardy its distinct yellow variegated leaves make it a useful and attractive plant for the decoration of borders, beds, and edgings throughout the year, especially during the autumn, winter, and early spring months, when gardens are somewhat bare. Its flowers are yellow, as in the normal type.
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The double flowering group of the Chinese Primula is among the most useful and desirable of ornamental flowering plants, alike useful for cutting and greenhouse decoration. The Seed now offered, having been saved from a strain of unusual excellence, will produce double flowers of the most beautiful description in various colours.
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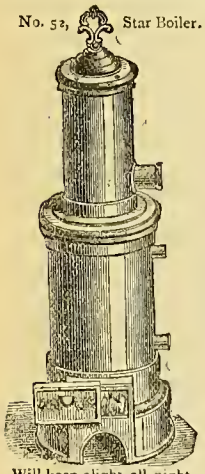

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Also of WROUGHT, WELDED RANGE BOILERS and KITCHEN RANGES.

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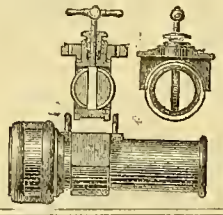

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RAIN-WATER GOODS and FITTINGS.
STABLE and CATTLE FITTINGS.
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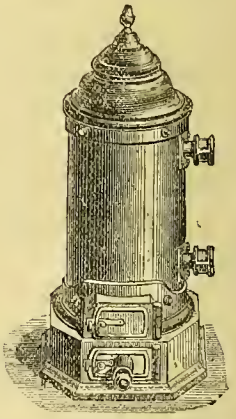

SPECIAL NOTICE.

THE

GARDENERS' CHRONICLE

For SATURDAY, JANUARY 7, 1882, will contain a

BEAUTIFULLY COLOURED ALMANAC

(18 inches by 13 inches), from an Original Design.

PRICE, FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY;

or with Almanac mounted on Oak Rollers, and enclosed in Case,

SEVENPENCE; POST-FREE, EIGHTPENCE-HALFPENNY.

Purchasers are specially recommended to order the Almanac in a Case, to prevent injury from folding. The Publisher cannot be responsible for injury to the Almanac unless it is so protected.

NOTICE TO ADVERTISERS.—As a LARGE EXTRA SALE of this Number is guaranteed, it will be a very valuable medium for Advertisements. Applications for space should be sent in as early as possible.

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CATALOGUE

OF

THE YEAR

NOW READY.

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Contains a List of The Best VEGETABLES

Every one who has a Garden should send for

Contains a List of The Best FLOWERS.

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For 1882,

Contains a List of The Best POTATOS.

New and Improved Edition, with

Contains Splendid Coloured Plates, &c.

Original and Complete CULTURAL INSTRUCTIONS,

ALSO MANY

NOVELTIES

OF STERLING MERIT.

THE QUEEN'S SEEDSMEN,

and Seedsmen to His Royal Highness the Prince of Wales,

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Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz. :

15 per Cent. for Cash with order,
10 per Cent. for Cash within One Month of date of invoice.
5 per Cent. for Cash within Three Months of date of invoice.
After Three Months no discount can be allowed.

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ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 9*s.* to 15*s.* per dozen, 63*s.* to 100*s.* per 100, £28 to £40 per 1000.

,, Dwarfs of Teas and Noisettes, best old kinds, 12*s.* to 15*s.* per dozen, 80*s.* to 100*s.* per 100.

NEW ROSES—French Varieties of 1881 and English of 1880, 24*s.* per dozen.

,, French Varieties of 1880, 18*s.* per dozen, 130*s.* per 100.

CURRANTS—Black, good bushes on stems, 3*s.* to 6*s.* per dozen, 20*s.* to 30*s.* per 100; cheaper by the 1000.

NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6*s.* to 9*s.* per dozen, 40*s.* to 60*s.* per 100, £18 to £27 10*s.* per 1000.

ASPARAGUS—extra fine, strong planting roots, 2*s.* 6*d.* to 3*s.* 6*d.* per 100, 20*s.* to 30*s.* per 1000.

HERBS of many kinds, 3*s.* to 6*s.* per dozen.

DOGWOOD, Red-twigged (Cornus alba)—Stout bushes. This shrub gives a fine effect in winter. 2 to 3 feet, 16*s.* per 100; 3 to 4 feet, 25*s.* per 100.

ELM—Wych, transplanted, 4 to 6 feet, 8*s.* per 100, 60*s.* per 1000; 6 to 8 feet, 25*s.* per 100, 200*s.* per 1000.

POPLAR—Black Italian, 6 to 8 feet, 3*s.* per dozen, 20*s.* per 100, 160*s.* per 1000; 8 to 10 feet, 5*s.* per dozen, 30*s.* per 100, 240*s.* per 1000.

WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3*s.* per dozen, 15*s.* per 100; 8 to 10 feet, 4*s.* per dozen, 25*s.* per 100; 10 to 12 feet, 6*s.* per dozen.

,, Cœrulean, 6 to 8 feet, 3*s.* per dozen, 15*s.* per 100; 8 to 10 feet 4*s.* per doz., 25*s.* per 100; 10 to 12 feet, 6*s.* per doz.

ASH—(Fraxinus excelsior) atrovirens, 3 to 4 feet, 12*s.* per dozen; aucubæfolia, 4 to 6 feet, 12*s.* per dozen; 6 to 8 feet, 18*s.* per dozen; 8 to 10 feet, 24*s.* per dozen.

,, spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6*s.* per dozen; 4 to 6 feet, 9*s.* per dozen; 6 to 8 feet, 12*s.* per dozen; 8 to 10 feet, 24*s.* per dozen.

BEECH—Crested-leaved, a very ornamental tree, 4 to 5 feet, 9*s.* per dozen; 5 to 6 feet, 12*s.* per dozen; 6 to 8 feet 24*s.* per dozen.

,, Cut-leaved, very beautiful, 4 to 5 feet, 12*s.* per dozen; 5 to 6 feet, 18*s.* per dozen; 6 to 8 feet, 24*s.* per dozen; 8 to 10 feet, 36*s.* per dozen.

,, Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12*s.* per dozen; 4 to 5 feet, 18*s.* per dozen; 5 to 6 feet, 24*s.* per dozen.

,, **Purple-leaved,** the best dark broad-leaved variety, 3 to 4 feet, 9*s.* per dozen, 60*s.* per 100; 4 to 5 feet, 12*s.* per dozen, 75*s.* per 100; 5 to 6 feet, 18*s.* per dozen, 120*s.* per 100; 6 to 8 feet, 24*s.* per dozen.

,, Weeping, 4 to 5 feet, 12*s.* per dozen; 5 to 6 feet, 18*s.* per dozen; 6 to 8 feet, 24*s.* per dozen.

HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9*s.* per dozen, 60*s.* per 100; 10 to 12 feet, 12*s.* per dozen, 75*s.* per 100.

,, Scarlet-flowered, 6 to 8 feet, 18*s.* per dozen; 8 to 10 feet, 24*s.* per dozen.

ELM—Variegated, Weeping, fine Standards, 5 to 8 feet in stem, 24*s.* per dozen.

,, Giant or Huntingdon (macrophyllus), 10 to 12 feet, 12*s.* per dozen, 75*s.* per 100; 12 to 15 feet, 18*s.* per dozen.

,, Silver Variegated, 4 to 5 feet, 12*s.* per dozen; 5 to 6 feet, 18*s.* per dozen; 6 to 8 feet, 24*s.* per dozen.

,, Scampston's Weeping, the finest Weeping Elm, fine straight stems and good heads, 10 to 12 feet, 24*s.* per doz.; 12 to 15 feet, 36*s.* per doz.

POPLAR—Golden-leaved Canadian, 4 to 5 feet, 6*s.* per dozen; 5 to 6 feet, 9*s.* per dozen; 6 to 8 feet, 12*s.* per dozen; 8 to 10 feet, 24*s.* per dozen.

MAPLE, Norway (Acer platanoides), 8 to 10 feet, 9*s.* per dozen, 60*s.* per 100; 10 to 12 feet, 12*s.* per dozen.

WILLOW—Scarlet Palm, a Willow of extraordinary vigour. The bark of the young wood is of a deep purplish-red in winter, and it bears "lamb's tails" in spring of very large size. 4 to 6 feet, 3*s.* per dozen, 16*s.* per 100; 6 to 8 feet, 4*s.* per dozen, 20*s.* per 100; 8 to 10 feet, 6*s.* per dozen, 40*s.* per 100; 10 to 12 feet, 12*s.* per dozen.

EUONYMUS—radicans argenteus variegatus, a very useful plant for edges to winter beds, 3 to 4 in., 2*s.* per doz., 12*s.* per 100; 4 to 6 in., 3*s.* per doz., 16*s.* per 100.

ELDER—(Sambucus nigra) variegated: a beautifully variegated plant, which thrives close up to the sea; 6*s.* per dozen, 40*s.* per 100.

,, cut-leaved—a handsome laciniated form, and, like other Elders, extremely useful for ornamental planting close to the sea. 6*s.* per dozen, 40*s.* per 100.

A slight extra charge must in most cases be made for packing. Where cash in payment of goods is sent *with the order*, the amount for *package* may be forwarded in stamps *after* despatch of goods. All the above prices are subject to the discounts named at head.

THE GENERAL AUTUMN LIST

will be forwarded Gratis and Post-free to all applicants.

N.B. Post-office Orders should be made payable to EWING AND CO., at Eaton, near Norwich. Cheques crossed GURNEY AND CO., Norwich.

Trade Terms on application.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 24, 1881.

CHRISTMAS DECORATIONS.

THESE have become almost as essential to Christmas festivities as roast beef and plum pudding. No one is content to let the great annual festival come or go without wreathing it with flowers or foliage, or bedecking it with berries. In fact, Father Christmas is now so richly crowned with beauty that he is in considerable danger of losing his characteristic locks, thickly powdered over and half hidden with snow. Much of the stern robustness, albeit benignant aspect, of the olden time, has been merged into a summer-like prodigality of grace and beauty. Christmas decorations have become less characteristic, inasmuch as all seasons are drawn upon to drape it more richly.

Nothing is held too choice or valuable for the decorations of Christmas-tide. The most valuable Orchids may often be seen in combination with the Holly and the Mistleto, and the glory for the year is crowded into midwinter to do it homage. Even the poorest, who can neither grow flowers nor shrubs, manage to buy a sprig or two of Holly or Mistleto from the coster's barrow, and make some considerable sacrifice to render their single room, or garret, or cellar the greener or the brighter on Christmas Eve. In the poorest neighbourhood the trade in greens seems the most brisk. The deepest feelings of joy and grief ever seek expression by means of flowers or plants. When deeply moved we gain sympathy from their pure and ennobling companionship. We neither greatly rejoice nor deeply mourn without them.

This growing appreciation of the gentle ministry of flowers and plants is one of the most pleasing signs of the times; it pervades all classes, and is often as powerfully felt and as chastely expressed in the cottage as in the palace; for, fortunately, taste is more essential to its expression than wealth. The latter may purchase any amount of material, but there is no royal road through either wealth or social status to arranging it in a satisfactory manner. The two keys to effective decoration may be in the hands of the poorest—they are lightness and simplicity. These may be illustrated by the disposition of a branchlet or two of Holly and a spray of Ivy: they may be totally lost under the ponderous weight of ten or twenty guineas' worth of the choicest flowers and foliage. With the enormous resources provided for the decorators of the present day, one of the chief dangers ahead is that of excessive ornamentation. Where this is done, it is difficult to say whether the decorators or their work suffers most. What should be a pleasure becomes a toil, and the traces of the latter are seen in the work.

Many of the more elaborate decorations remind one very much of certain paintings one meets with on which the impress of the brush seems still visible. The colour lies in daubs on the canvas, instead of forming the

distinguishing features of a cloud-capped mountain, a rolling sea, or of the human face divine One longs to scrape the colour off just as one would like to clear away a half, three-fourths, or nine-tenths of not a few decorations met with, which do not make but rather hide beauty. Heavy masses, elaborate designs, complex details tire; while chaste simplicity and elegant lightness never fail to refresh and please. Taste should never be satiated: to impart the highest happiness it should feast on what it feeds on, and still retain its appetite for more.

Neither should the material be too much mixed. Next to sheer excess, mixture of material is one of the most common causes of muddle and failure in decorations. Meaningless combinations afford one of the surest, shortest cuts to mediocre decoration. Two or more striking contrasts are far more telling than half-a-dozen or a dozen differing forms of tints or tones. Neither is it needful always to have many plants to obtain sufficient variety of decoration. What contrast, for example, stronger than between the coral berries and the verdant branchlets of the Holly, so universally popular as a decoration for this season as to be best known among the poor as "Christmas." The very name illustrates the correctness of their taste as well as the soundness of their judgment. Truly, those who have plenty of Holly, so richly coralled over with berries as it is this year, will have the best of all decoration for Christmastide; and if a bunch of Mistleto, with its snow-white berries, can be set into the glowing Holly as silver rosettes on a coral strand, such a decoration may be pronounced perfect in its simplicity. Used sparingly it may be made as light as it is simple, chaste, and pleasing.

If more variety is wanted there are golden, silver, and variegated Hollies, Ivies, Yews, Retinosporas, Junipers, and every shade of colour and variety of form in Box, Euonymus, Piceas, Cotoneasters, Pinuses, Cedars, Cypresses, Berberis, &c. And then as to flowers there are two most seasonable — Christmas Roses and Camellias. These are a host in themselves and go well together; or Heaths, Epacrises, Azaleas, Spiræas, Deutzias, Lilacs, Lilies of the Valley, Arums, Roman Hyacinths, Violets, Euphorbias, Odontoglots, Gardenias, Calanthes, Primroses, Cyclamens, forced Roses, may be used to light up with purity or colour the greenery employed as a basis. Instead, however, of mixing these or other flowers indiscriminately, either one or at most two or three of them would be far more effective than any flowers wildly or erratically mixed. And then the hardier Ferns, Palms, or Selaginellas, may be used to give a change of colour and form to the green. Poinsettias, too, are striking as rosettes in large decorations, and in appropriate positions this is equally true of Tacsonias and Passion-flowers. The white and pink Lapagerias are among the most chaste and lasting of all flowers, and the two on a base of Holly, Lycopod, or Fern, are exquisite, without addition of any sort.

Chrysanthemums, being rather *passé*, should never be used to decorate a festival which suggests life and gladness in the present and hope for the future, rather than memories of the dead past. They are, however, often used, and last well in almost any position. To impart greater dignity to Christmas decorations nothing is more useful than evergreen trees and shrubs in pots of either pyramidal, standard, bush, or round-headed forms. Most hardy Pinuses, Piceas, and Abies, Retinosporas, Cypresses, and Cedars, are admirably adapted for the purpose; while Hollies of all colours, Sweet Bays, Aucubas, green or spotted; golden, Irish, and common Yew; and Laurustinus, produce a rich and varied effect. The latter in the form of standards alternated with Hollies or golden Yews, are among the most valuable of all material for Christmas decoration. Of course Palms, Ferns, Crotons, Yuccas, Anthuriums, Dracænas, &c., may also be used; but many of these suffer severely in cold dry atmospheres and in draughts, while the hardier plants remain fresh and green for weeks in all positions and in any weather.

Of course, too, flowers may be used to fill baskets and vases as well as flowering plants; but where possible, only a few varieties should be employed in any single decoration—such, for example, as Snowdrops, where they can be had in time, and blue Forget-me-not, white Spiræa, and pink or scarlet Bouvardias, white Azaleas, or double white Primroses and Violets. Vases of pure white flowers, such as Deutzias, Spiræas, or Azaleas, fringed with Maidenhair Fern, are also most pure and chaste. In all cases where flowers are used they should be placed on a base of damp moss or in water.

Nothing is more barbarous and less satisfactory than the use of living flowers for forming the outline or lettering of designs and then the placing them in such positions that they begin to fade and die before the decorations are well finished. The same idea of simplicity and lightness should run through all the designs, whether crosses of different kinds, symbols, viz., the reversed triangles, scroll and diaper work, interlacing of arches, clothing of gallery, pulpit, or altar rails, bordering of illuminated texts or berried lettering, wreathing of pillars, candlesticks, forming of mottos, dressing of altars, &c. As overcrowding, overmixing, or overloading should not be indulged in, the sprays and wreaths can hardly be too light or elegant. Even massive columns seem dressed the best, if not the most, when draped with a light touch, or wreathed with almost vanishing lines of beauty. Some decorators seem to be running a race with the massive grandeur of Gothic architecture. This is manifestly absurd. Christmas decorations are neither meant to convert the church, hall, or cottage into a wood, nor to bring the wood into either the one or the other, but simply to drape our homes or church with a few sprigs of greenery and some beautiful flowers as an expression of our gladsomeness and to brighten our joy. Box, Holly and Yew, green and variegated, golden and silvern, with the berries of the Holly, Mistleto, Ardisia, Solanum, and the larger haws and brighter hips and Ivy berries are among the most useful material for lettering texts of Scripture or other mottoes. The lettering often takes the form of a scroll or framed picture, and as the character is mostly old English, and a prodigal use is made of scrolls, these afford greater scope for the exercise of patience and the development of very considerable ability and taste. The letters should be carefully and distinctly made, and the greater the contrast between their material and colour and the groundwork on which they are formed, the more easily they can be read, and the greater pleasure they will afford. For example, in lettering with Holly berries the text or motto will show to far more advantage if the border or fringe is of silvern or golden leaves than if of green. Occasionally the bronze or purple leaves of the Holly-leaved Berberry are used, which makes it almost impossible to read the words when made of Holly-berries. Snowberries or Mistleto are also much used for letters. In all cases the contrast of colour between the letters and the ground colour of the decoration should be as broad and distinct as possible.

Thus by allowing simplicity, lightness, distinctness and sharp contrasts to prevail throughout the decorations, they will be more easily made, and give far more effective results.

New Garden Plants.

NEPENTHES HOOKERIANA.*

This is a handsome and now well-known form, quite sufficiently distinct, for horticultural purposes, from N. Rafflesiana, although referred to that species by Sir Joseph Hooker—and probably correctly so—on botanical grounds. There are, however, several distinguishing features which appear constant under cultivation, on which account we think it desirable to give an illustration (fig. 157), and to refer to its history, which seems but little known, and which is not cited in the monograph in the *Prodromus*. The first notice we find is a mere reference in these pages in the year 1848, p. 87, where the name is cited and reference made to Low's *Borneo*, p. 68. The book intended is evidently Mr. Hugh Low's volume on *Sarawák*, bearing date 1848. This is what Low says about our present plant, which he evidently thought distinct from N. Rafflesiana:—

"The Nepenthes Rafflesiana produces its pitchers singly; they are large, and generally crimson; it grows on rocky islands in the neighbourhood of Singapore, and it is easily distinguished from its near ally, the native of Borneo and Mount Ophir, by its inferior size, shortness of the column which supports the lid, the white and powdered appearance of its stem and its bushy habit, never exceeding 4—5 feet in height, while the larger Bornean one, which I propose to call N. Hookeriana in honour of Sir W. J. Hooker, the able director of the Royal Gardens, Kew, is found growing in deep and shaded jungles climbing to the tops of the trees. The pitcher is 9 inches in length, having a large lid standing on a column which is a continuation of the beautiful edge of the pitcher: that part which is broadest and turned toward the midrib of the leaf from which it depends is furnished with two broad wings, which are beautifully ciliated with large ciliæ. The broad pitcher—for this, like the Rafflesiana, produces two kinds—is generally crimson; the long pitcher differs from the other in its trumpet shape and green colour, which is spotted with crimson. The flower I have not seen, but the leaves, which are moderately large and broad—at least those of them which produce the broad pitchers, and which are found near the base of the plant—are dark green above, and of a fine peach-coloured red beneath. Six plants of this kind are now in England, but have not yet produced their pitchers."

We quote Mr. Low's description, from which it would seem that what he meant for Rafflesiana was a form of bushy habit with white meal-covered leaves, and a sessile lid to the pitcher. Now those who know N. Rafflesiana, as it is usually seen in gardens, will remember that it is a plant of straggling or climbing habit with large pitchers of two forms, but both remarkable for the very long process supporting the lid. It is probable that Sir Joseph Hooker's Rafflesiana var. β nivea is Mr. Low's plant, as that is mentioned as a native of Singapore and Borneo, and as covered with copious white down. But the difficulty does not end here, for the plant grown in English gardens as Hookeriana does not agree well either with Mr. Low's description or with Sir Joseph Hooker's.

The plant as seen in our gardens is of robust habit, with the short leaf-stalks very broad at the base, the leaves themselves leathery, thicker than in N. Rafflesiana, nearly glabrous, acute at both ends, with 3—5 secondary nerves on each side of the midrib and parallel to it, the tertiary transverse nerves much more closely arranged than in N. Rafflesiana, and with ciliate margins. The pitchers (see fig. 157) are subglobose pouches, or sometimes elongated, red-spotted, with a flattish, finely-ribbed margin surrounding the ovate mouth, and scarcely prolonged at the back; the wings are very deep, broad, and rounded at both ends, and sharply laciniate at the margin; the flat lid is obovate emarginate, provided with a simple spur at the base, and with two lateral nerves prominent at the back, and one central one projecting on the inner surface.

The plant differs from ordinary Rafflesiana in its short petiole, its venation, but more especially in the flatter (not hoodlike) lid, and in the absence of that long process supporting it, which is so marked a feature of Rafflesiana as usually understood, though, as before mentioned, it is precisely that "column," as he calls it, that Low lays stress on in his account of Hookeriana. The varying statements are not easily to be reconciled, unless on the supposition that all are forms of one and the same species, viz., Rafflesiana, which is known to occur both at the extremity of the Malay peninsula, Sumatra, and Borneo, and which is further known to be very variable. Still for garden purposes, and for the reason above cited, it seems better to keep to the name Hookeriana, especially as the distinguishing characters are marked. The illustration is from a drawing by Mr. W. G. Smith, taken recently in the nurseries of Messrs. Veitch. *M. T. M.*

GONGORA SIMILIS, *n. sp.**

A new species of Gongora, sent by Mr. F. Sander, most probably from the United States of Columbia or Brazil. It is very much like G. gratulabunda, but in lieu of having small dots on a light straw-coloured ground it has large cinnamon blotches on a fine yellow ground. The lip is white, with brown blotches. The hypochile gives the best character. It is very broad, and shows small basilar blunt horns, which are quite wanting in Gongora gratulabunda, which has a similar sigmoid stalk to the lip. *H. G. Rchb. f.*

EUPHORBIA JACQUINIFLORA IN PANS.—Pans of this showy winter-flowering stove plant are made up by Mr. Barron by turning out of the cutting pots the firm rooted cuttings that are full of bloom, and placing the contents of some half-dozen pots in a large pan. The plants are under 2 feet in height, and, being heavily laden with bloom, form in the pan a compact and very effective mass. This is much better than the long, lanky specimens one meets with in stoves at this season of the year.

* *Nepenthes Hookeriana*, Hugh Low, *Sarawak* (1848), p. 68; *Gard. Chron.* (1848) p. 87. N. Hookeri, Alphand, *Prom. de Paris*, icon tantum. N. Rafflesiana, Hook. f. in DC. *Prod.* xvii. 1873), p. 96.

* *Gongora similis*, n. sp.—Racemo elongato flaccido; sepalo imoari cuneato oblongo acuto, sepalis lateralibus triangulis margine revolutis multo majoribus; tepalis ligulato-aristatis curvatis; labelli ungue sigmoideo, hypochilii lati cornubus basilaribus angulatis minutis, margine superiori angulato, aristis erectis subulatis, lacinia antica ancipiti triangula curvo subulata. *H. G. Rchb f.*

SMOKE ABATEMENT.

The conversion of the arcades which surround the Royal Horticultural Society's Gardens at South Kensington into receptacles for a smoke abatement exhibition may seem at first sight somewhat a departure from the original object of these cloisters, but those who have too often found them but vast unpeopled and unoccupied caverns will surely be gratified to see them just now so worthily and so usefully occupied. But there is considerable connection between plant life and smoke abatement, just as on the reverse side there is, alas! too obvious affinity between smoke and plant death; therefore any effort, however crude or inefficient it may yet be, to purify the atmosphere, or, better still, to destroy in the production these abominations that poison our town atmosphere and kill vegetable life wholesale, must merit the best wishes of all horticulturists. Those of our fraternity who attended the last meeting of the Royal Horticultural Society at South Kensington were forcibly and very unpleasantly reminded of the association of fogs—that terror of the metropolis—and coal smoke. The vapour, like the Egyptian darkness that plagued the obstinate Pharaoh, was a vapour that might be felt. If some of it were the natural evaporation from the river, much of it was that sulphureous vapour, the which, laden with sooty particles stifling with its carbon, was borne down by the heavier and moister vapour, poisoning all vegetation, nearly choking busy humanity, and inflicting on all innumerable troubles and vexations.

Cynics perhaps sarcastically asserted that the anti-smoke exhibition when in full operation did but make the fog the more dense; but good objects have ever found disparaging critics. Perhaps the innumerable stove pipes and temporary chimneys erected around the arcades lent naturally the impression that these could only be needed to carry off the smoke generated at the many lighted fires and furnaces, but of that point the fog gave no clue. It was just one of those tests which probably few who visit the exhibition care to ascertain the importance of, but without it other results are of no great moment. Tenniel, in his amusing cartoon in *Punch's Almanac*, presents us a prophetic vision, with a view of Smoke and Fog, twin demons of disease and darkness, fast fading into the dim distance, whilst a sooty army of smoke-attending sprites, the sweeps, are rapidly scuttling away. Some day the artist's conception may be realised; for as it is but a dream, and though gas and electricity may and will help us much, customs and habits are so difficult to change, that generations must pass away ere the smokeless and fogless millennium arrives. If the Ethiopian cannot change his skin or the leopard his spots, we yet hope that at a period not too remote we may wash the blackened atmosphere white, and permit it once more to gain and maintain all its native clearness and purity. Whilst, therefore, we recognise to the full the importance of getting rid of smoke and fog, because, from the gardener's somewhat limited view they are enemies of plant life, it must be admitted that, in a garden sense, there is not a very large portion of the exhibition to specially interest the horticulturist. The exhibits are chiefly of a domestic character, grates and stoves for ordinary house purposes largely predominating, whilst furnaces and engines consuming the highly sulphureous but comparatively smokeless anthracite coal, make up much of the remainder.

Of course gas comes into use largely, and if the exhibitors of appliances with which it is associated as a heating power are to be believed, the warmth emitted from a new-fashioned gas-stove is equal to that from an ordinary coal fire. As there are ample opportunities for testing the truth of this assertion, it must be admitted that as a matter of experience the open fires had a long way the best of the test.

In this department nothing seemed more satisfactory than a coke fire in an open grate associated with Dr. Siemens' patent gas-tube, the which passing round the front of the grate and pierced with small holes, enabled the gas to escape into the coke, and this lighted soon set the coke into a fervent state of combustion, so that the warmth emitted was remarkable, the combustion perfect, and the gaseous emission, so objectionable from any coke fire, was *nil*. The gas current can be regulated at the will of the occupant of the room by means of a handle placed near the stove. Fierce, indeed, was the heat thrown out by several diverse fixed upright stoves that were consuming anthracite, but the fumes emitted were intolerable.

Perhaps the most novel and successful heat generator to be seen in the exhibition is Perret's Multiple Stage Furnace, erected in the western arcade. It presents to the eye an unpretentious square block of brickwork, and running up the front are some three or four small furnace doors. From out the top comes an iron flue through which passes the heated air manufactured inside. A glance within through the open furnace doors reveals a series of fire-clay stages, apparently about the thickness of a brick, and which, slightly arched, stretch across the furnace much as the various parts of Cannell's Hot-water Circulator are placed, one stage being perhaps 12 inches short in front, and the next one as much short behind, so that the air current from beneath passes backward and forward through the four stages until, superheated, it passes into the conducting pipe. The heat generated in this furnace is simply marvellous, reaching to a height of 1000° at the top, where the fire is almost silvery white. The fuel used is simply rubbish, absolutely refuse—breese, cinders, ashes, small coal, a heap of motley such as would be turned out of thousands of stokeholes with contempt. How well the furnace does its work, how potent is the combustion, is evidenced by the dust, and dust only, that constitutes the product found after stoking. The charging, when once the furnace is in full operation, seems to be done from the top only, whilst with a narrow iron hoe the attendant draws forward or pushes back the fire from tier to tier until finally the whole furnace is replenished. It is a fact that once properly fed this remarkable furnace may be shut up and left for twenty-four or even thirty-six hours, and at the expiration of that time there will still be found ample combustion, and but small diminution of heat.

There is a principle of ventilation—if by that term is implied admission of external air—that is not universally recognised, even if here it is not absolutely novel; there are when the furnace is fully closed not only the smaller furnace doors but an outer one enclosing all the others. All the doors are double-cased, and in no case can the outer air rush in through the ventilators direct on the fire, but has to pass down between the outer and inner red-hot casing, and thus becomes heated ere it reaches the furnace. Naturally a heating apparatus of such exceeding power as this is, and yet capable of consuming such apparently valueless material, would be of much greater interest

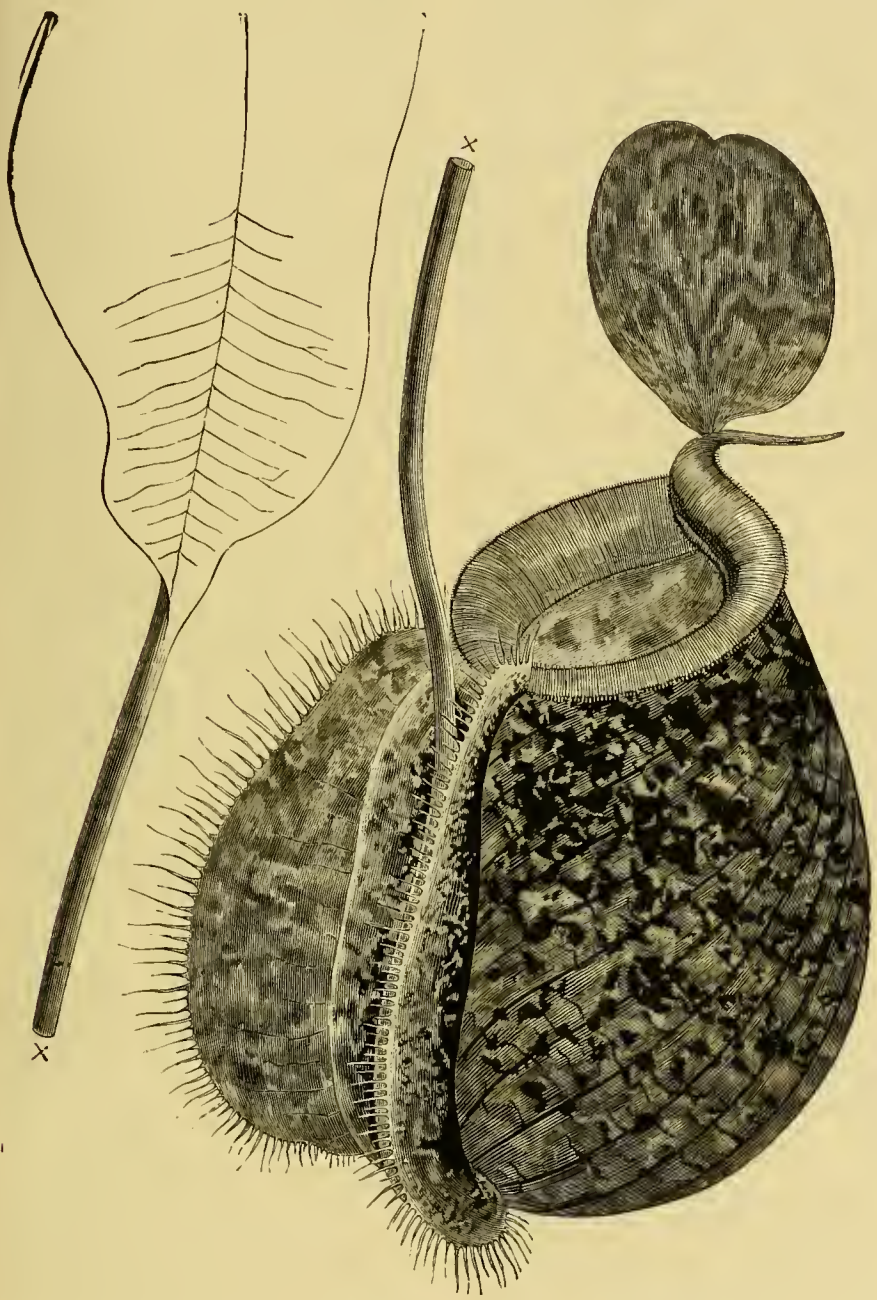

Fig. 157.—Nepenthes hookeriana of gardens: pitcher green, crimson-spotted. (see p. 812.)

to gardeners if applied to hot-water apparatus. How far it would be possible to introduce boiler stages instead of fire-clay stages is a matter for the consideration of boiler designers. It is just possible that water-pipes running round the sides of each furnace division might evolve a tremendous heat without detracting largely from the value of the furnace as a supplier of hot air, and thus whilst the one was warming buildings, such as factories and warehouses, the other might be heating glasshouses. The furnace has not before been exhibited in this country, and well merits the attention of all who want to generate heat on the simplest and cheapest principle. The attendant casually mentioned that he had charged the furnace prior to leaving it at 4 P.M. on Saturday, and had found it literally full of fire at 9 A.M. on the following Monday morning. What a boon would such a furnace prove to poor gardeners, especially when hard weather renders the heating of forcing houses a matter of grave anxiety.

Of real interest to all concerned in the heating of plant-houses, however, is Hockings' patent boiler, which, fitted with some 480 feet of 4-inch piping, is the first thing which meets the eye of the visitor when passing round the lower end of the Council chamber. Seeing a mass of eight lengths of piping, 60 feet in length, fixed in the angle here formed in the arcade, the visitor is naturally tempted to see whether the pipes are heated, by laying a hand upon one. Demonstration is at once afforded that the pipes are heated—so hot, in fact, that the haod is withdrawn as quickly as it is placed there; and this heat is not confined to any one single pipe or place, for the heat is remarkably well distributed. It is as great on each of the four flows at 60 feet from the boiler as it is close by, and this constant equability is maintained under the disadvantage of having a huge stream of cold air constantly poured upon the pipes from the "entrance lobby." Such heat as these eight pipes emits boxed into a vinery would suffice to "burn a town down," in current phraseology, and it is as plain as a pikestaff that if the half of the pipes were run on the other side of the boiler, thus heating a range of glass 120 feet in length, the work would be well done. But what is the heating power? Simply a medium-sized, unpretentious-looking copper boiler and furnace all in one, resembling as it stands here in the arcade a huge extinguisher with the top or apex cut off. There is no massive swing furnace door, but just one of very moderate size, which runs in grooves, and this opened reveals the fire, consisting entirely of well broken coke burning clearly, being fed from a centre cone, whilst the boiler consists of but two or three wedge-shaped concentric tubes that broaden and unite at the top of the boiler, but at the bottom are narrow points. The case of the boiler is one of these, and even throughout. The inner one forms the sides of the feeding cone, and the middle one has the fire playing fully upon both surfaces. The simple result is seen in the admirable way in which the pipes are heated. Of course coke does not generate so much smoke as coal, and that is one reason why this boiler is found at the exhibition; but there is farther about it this peculiar aspect, that the smoke does not pass up through the new fuel, but passes off in another direction. If a feeder that will hold a couple of bushels of coke be placed on the top of the boiler the fire may be left without attention for twelve or fifteen hours—a very important matter. But the most striking feature about this boiler is the ease with which it may be placed in any position. It wants no stokehole, no fixing; indeed, judging by the way it is here presented, it might stand in one's kitchen and prove no nuisance. Its place, however, most certainly would be in a potting-shed, at the back of a vinery or stove, where it could be worked with the greatest ease, and in return would give back to the shed some of its heat. This particular boiler stands about 3 feet in height. Several eminent gardeners who have seen it regard it, apart from its intrinsic value as here exhibited, as the most valuable boiler yet offered to be kept at hand in any large establishment for supplementary purposes in the event of a break-down. Most certainly all horticulturists who may in the coming weeks visit the exhibition should make a note of this simple and apparently most efficient apparatus. Messrs. Hocking & Co. are a Liverpool firm, and have never before shown their manufactures in London. To amateurs who have gas at command their small gas boiler, made on the same principle as the larger one, and here heating 60 feet of 3-inch pipe, is very attractive. Judging by the warm state of the pipes under such adverse conditions, we should say that one of these boilers would heat a 15-feet lean-to greenhouse most efficiently. This result is effected at the cost of 12 feet of gas per hour. The boiler should be stood in an adjoining shed or house.

THE TWEEDSIDE VINEYARD.

THOSE who take interest in the production of first-class Grapes, would do well to pay this noted establishment a visit. Mr. Thomson, its enterprising owner, has grown Grapes so well, for so many years, that there must be but few connected with gardening who do not know him as an excellent Grape grower. I had heard so much of this vineyard that I confess anything in a moderate way would have disappointed me. So far as large glasshouses go, well, we in the South have the Crystal Palace to look at, and are therefore not likely to be startled in that way. But agreeably startled in another way I certainly was, when on a fine morning at the end of last October I stepped into one of the Tweedside vineries. This was a span-roofed house, 200 feet long, 15 feet high, and 24 feet wide, filled with that well known Grape, Lady Downe's. The crop consisted of about 2000 bunches averaging 1½ lb. each. Every berry in the house was splendidly finished, and although ten men had taken part in the thinning the bunches all seemed cast in the same mould. The berries, having just enough room and none to spare, were large and so closely packed that I do not think either would have moved had the bunches been turned upside down. The short and thick footstalk of Lady Downe's would make it a good Grape for such an experiment, but such is the skill of Mr. Thomson's men that the bunches of Gros Colmar, Alicante, and Black Hamburghs were thinned to such a nicety that they also would have stood that test. The thinning takes place immediately the berries are set, and taking into consideration the size of the berries now, the young bunches must have been severely dealt with. For weeks these bunches must have looked on the thin side, especially in the case of the larger berried varieties, and it speaks wonders for the nourishing diet provided for the Vines that these berries are now not merely touching, but packed so close that it is well the growing season is over or some of their poor skins must burst.

As the sun streamed down this house of Lady Downe's, glinting here and there among the ripening foliage and lighting up the blue-black berries, it was truly a delightful and exhilarating sight. The foliage, which was not large but very thick and leathery, was gradually passing from green to yellow with a flash of crimson here and there. The best of such leaves were easily disposed of in Edinburgh, at 6*d.* per dozen, retail. I presume they are used for table decoration. The ends of this house faced north and south. Another house of the same dimensions, filled with the same Vine, had its ends north-west and north-east; while yet a third, a lean-to of the same length, had a north-east aspect. The various aspects made no difference as regards the perfection of the fruit, but the foliage of the shady lean-to was as green as ever. Alongside of the first-mentioned house, and of the same dimensions, were two houses filled with that grand looking Grape, Gros Colmar. Every bunch was as perfect in shape and finish as a prize bunch of Black Hamburgh, and as the berries were gigantic for even Gros Colmar, heavy bunches were the rule. Many of these Vines have the roots of Barbarossa and Muscat of Alexandria to support them. The rods of these two were united not far from the ground line, the Barbarossa then takes the lead, and upon this is worked Gros Colmar. Mr. Thomson does not place much stress on this particular circumstance. Be that as it may, the flavour of his Gros Colmar is very superior to the ordinary run of that Grape, and the berries are far more pulpy. Those who have discarded this Grape because of its watery insipid flavour, will smile to hear that the public buy it before all other Grapes, and gladly pay a third more per pound than for such Grapes as Lady Downe's and Muscat. Certainly Gros Colmar is a good thirst quencher, and would not even cloy the palate of an invalid. As good looks go so far in the market, I wonder growers do not get round Mr. Coleman, to find out by what means he produced that most fascinating bunch of Gros Maroc which he exhibited at the late International Show held at Manchester.

Mr. Thomson evidently believes in his own Duke of Buccleuch Grape, as he has one very large house entirely devoted to it. It is used for early work. The Vines were already pruned on the long-rod system, as the spur system adopted in every other house does not suit the Duke. Another similar house is filled with Black Hamburghs, which follow the Duke in the market. A small patch of this house was left uncut. The bunches were so large and hung so thick, that if it was a fair sample of the general crop I shall not be surprised to hear that these Vines have "thrown up the sponge." No gardener seeing the quantity and quality of the Grapes produced from each Vine in this establishment could fail to be convinced that something more than ordinary means were used. The "something" is no doubt a manure, which, after many years of experimenting, Mr. Thomson has so far brought to perfection that he no longer hesitates to put it in the market. No amount of "puffing" will keep it there, but I venture to prophesy that those who use it will be able to take 3 lb. more Grapes from every 15 feet of Vine-rod than they have hitherto done, with a gain in quality and less exhaustion to the Vine. I of course except those growers whose large experience has enabled them to prepare a manure for themselves, and who like Mr. Thomson, up till now, keep it to themselves.

Let no one suppose that Mr. Thomson trusts alone to his manure; he has given his Vines a very large root run. The floor of every house is simply so much border for them, as also is a larger space outside the houses. The soil used was for the most part ordinary garden soil, or I should say field soil, which Mr. Thomson described as wretched. With the exception that it looked as "hungry as a hunter," I could find no fault with it. Any tree or shrub planted in this soil would, to make a life of it, have to do the same as the Vines have done, viz., send out hundreds and thousands of fibry roots, so as to take from the soil every particle of nutriment. Now it is easy to understand how eagerly such hungry, healthy roots would take up nourishing liquids, and these Mr. Thomson gives his Vines liberally, and, fortunately for him, easily. First over the surface of the border is scattered a certain amount of manure, then, having the luxury of water laid on at high pressure, the hose is brought in, its rose-end nozzle placed through the handle of a fork, the water turned on and allowed to play in one place for at least twenty minutes, when it is turned on to another portion, and so on till the whole border is watered. Such waterings are given to every inside border at least six times through the growing season. Mr. Thomson's last effort to insure for some time the quantity and quality of his Grapes is to cart down from the side of a neighbouring hill an acre of turf cut four inches deep, which by degrees will be given the roots to run in, instead of the poor wretched soil.

J. C. Spyers.

CAUTION TO NURSERYMEN.

I HAVE no desire to obtrude my own private business affairs upon the attention of your readers, but when a man has had the ill fortune to fall into a bog, into which other hapless people might tumble unawares, it is his duty to sound a warning, or put up a "notice," for the benefit of the unwary.

On October 27 last, a case was heard in the County Court of Surrey held at Guildford, in which I was plaintiff. The action was brought to recover the balance of my account against the defendant for altering and laying-out his pleasure-grounds and gardens, and also for planting a lot of shrubs and trees in connection therewith. Some of the trees were supplied, at the special request of the defendant, by Mr. Young, nurseryman, of Milford; the remainder thereof, and the shrubs, were from my own nursery.

The planting took place in the autumn of 1879, and the whole of the work was finished to the entire satisfaction of the defendant. But, owing to insufficient watering afterwards, and the exceptionally cold and dry spring of 1880, a large portion of the tree died, and a portion of the shrubs also. As regards the trees, another reason for their dying was, that they were selected by the defendant too large (the average height being 18 feet), but he persisted in having them in spite of my urgent remonstrance.

The only point in dispute, at the trial, was as to whether I was legally liable to replace the trees and shrubs that had died. It was not proved, nor even contended by the defendant, that there was any express agreement, on my part, to replace any trees which might die, and I called two respectable nursery-

men, resident in Guildford, to prove that, in the absence of such an express agreement, there was no custom of the trade which required me so to do.

For the defence Mr. Young did not venture to state positively that any such custom existed, though he believed it did; but, on cross-examination, he admitted that he expressly stated, in his printed circulars, that it was his practice to replant, the inference obviously being that, if it was the custom of the trade, an express statement thereof in his trade circular was a superfluity! Upon the sole evidence of Mr. Young and his trade circular the Judge decided that the custom of the trade was against me, and accordingly he gave judgment for the defendant, with costs.

Now I could have brought a dozen nurserymen, if necessary, to prove that, in the absence of any express agreement, no such custom obtains in this part of the county of Surrey, whatever may be the fact elsewhere; and, in this particular case my charges for the shrubs and trees were on too low a scale to admit of my incurring any such a liability as the alleged custom implied.

Feeling dissatisfied with the judgment, I instructed my solicitor to apply at the next Court for a new trial. The application was made on two other grounds (one of which was that I was not allowed by the defendant to view the spot to ascertain how many of the trees, &c., had actually died), but the Judge refused the application, stating that his judgment was based on the evidence of Mr. Young, and that "as regards evidence we must look at weight as well as number." I quite agree with the principle of evidence affirmed by the Judge, but I think, in my case, he put the weight into the wrong scale. *William Kaile, Mead Row Nursery, Godalming, Dec.* 15.

THE KEW ARBORETUM.

THE MAPLES.

NEGUNDO ACEROIDES, Moench.; Gray, *Manual of Botany*, ed. v., p. 120. N. fraxinifolium, Nutt., Loud., *Encycl. of Trees and Shrubs*, p. 122, fig. 164. Acer Negundo, K. Koch, *Dendrologie*, theil 1, p. 544; Hemsley, *Handbook of Trees and Shrubs*, 110; Watson, *Dendrologia Britannica*, 2, p. 172 (fig.)—"Shores of Lake Champlain in Vermont; near Ithaca, New York; Eastern Pennsylvania; and south to Florida and Southern Texas; north-west to Wisconsin, Minnesota, and the Saskatchewan, in latitude 54° N.; west to the Wasatch Mountains, Utah, New Mexico, and Arizona." Sargent, *Catalogue of the Forest Trees of North America*.—Box Elder, Ash-leaved Maple.

This is now so extensively planted as a shade tree and for general ornamental purposes, both at home and abroad, that no description is necessary. It was the only species known to Loudon, and was according to him introduced to this country in 1688. Emerson, in his *Trees and Shrubs of Massachusetts*, states that "In its saccharine properties it is almost equal to the Sugar Maple, and excellent sugar has been made from its sap. It also furnishes good fuel."

Var. CRISPUM, G. Don; Loud., *Encyclop. of Trees and Shrubs*, p. 122, fig. 165.

Leaves variously cut and curled. This form is not nearly so vigorous a grower as the type.

Var. LACINIATUM.

A more extreme form than the last-named one, and, like it, not a very vigorous grower.

Var. VARIEGATUM: Negundo fraxinifolium foliis albo variegatis, *Flore des Serres*, ser. ii., vol. vii., p. 117. Acer Negundo variegatum, *Gard. Chron.* 1871, p. 1202, fig. 275.

This is now one of the most popular and most largely grown of all variegated trees. It originated as a chance branch sport in the nursery of M. Fromant at Toulouse, towards the close of the first half of the present century, and for many years seemed to have remained almost unknown until, at a horticultural exhibition at Toulouse, it was awarded a Gold Medal given by the ex-Empress of the French. For a complete account of its history see *Revue Horticole*, July, 1861, and *Gard. Chron.* 1861, p. 867.

Var. VIOLACEUM, Booth.

The young shoots of this form are covered with a glaucous violet bloom, like that which marks the young state of many species of Maple. In other respects it does not differ from the type.

NEGUNDO CALIFORNICUM, Torr. and Gray: Acer californicum, Torrey and Gray, *Flora of North America*, i., p. 250; Watson, Gray, and Brewer, *Botany of California*, vol. i., p. 108; Nuttall, *Sylva*, ii., 90, 172; Hooker and Arnott, *Botany of Beechey's Voyage*, 77, p. 327.

"Usually a small tree, sometimes reaching a height of 70 feet; leaves pinnately trifoliolate, more or less villous pubescent, densely so when young; leaflets ovate, or lateral ones oblong, acute, 3—4 inches long, the terminal largest, and 3—5-lobed, or very coarsely serrate; the lateral ones coarsely serrate, or somewhat lobed on one side, and much more shortly petiolulate; fertile racemes slender, at length 4—6 inches long; fruit pubescent, 15—18 lines long, including the slightly spreading wings. Common along streams in the coast ranges from San Luis Obispo northward. It closely resembles N. aceroides, Moench., which ranges from British America to the Gulf of Mexico and Utah, and is distinguished by its three to five smaller and narrower leaflets, which are coarsely toothed, but less distinctly lobed." The preceding description is taken from the *Botany of California*, and is given *in extenso* because in all probability nearly the whole of the so-called Acer californicum cultivated in this country is simply N. aceroides.

NEGUNDO CISSIFOLIUM, Sieb. and Zucc., *Fam. Nat.*, No. 184. Acer cissifolium, K. Koch, in *Ann. Mus. Lug. Bat.*, vol. i., p. 252; Maximowicz, *Mélanges Biologiques*, tome x., p. 610.—Japan.

A shrub or small tree, with small, light green, trifoliolate leaves; an elegant plant for the shrubbery, and quite hardy in this country.

NEGUNDO NIKOENSE, Nicholson, *non* Miquel. Acer nikoense, Max., *Mélanges Biologiques*, tome vi., p. 370; tome x., p. 609. Acer Maximowiczianum, Miquel, in *Archives Néerlandaises*, ii., p. 478.—Japan.

In this country this most distinct species is represented by living specimens at present only in the rich collections of Messrs. Veitch, by whom it was recently introduced from Japan. It has shortly-stalked trifoliolate leaves, the petioles and under-surfaces of which, as well as the shoots, the buds and the cells of the large fruits, are very hairy. The Negundo nikoense, Miq., was founded, according to Maximowicz (*Mélanges Biologiques*, tome x., p. 611), on sterile branches of N. cissifolium.

NEGUNDO MANDSCHURICUM, Nicholson: Acer mandschuricum, Max., *Mélanges Biologiques*, tome vi., p. 371; tome x., p. 610.—Mountain woods of Eastern Mandschuria.

This is a handsome species, very distinct from all the other members of the genus. It is a shrub or small tree, of graceful habit, with fruit much less than that of the last-named species, and with the cells smooth and the wings only half or less than half the width of those of N. nikoense. The terminal leaflet is long-stalked, and the petioles, leaves, and buds glabrous. Up to the present time this has not been introduced to cultivation in this country.

NEGUNDO MEXICANUM, DC.

As far as I can ascertain this species is not in cultivation, and the description in the *Prodromus* is so brief and imperfect as to render it impossible to identify any plant by its aid. If, however, there be a true species of this genus from Mexico, it is probably represented by a couple of specimens in the Kew Herbarium (No. 489), collected by Andrieux on the mountains about Toluca. Nearly the whole of the N. mexicanum so-called in herbaria seems nothing but typical N. aceroides, a species which has a wide range of distribution. The two specimens mentioned differ from this in their larger, regularly setosely-toothed leaflets, the texture and venation of these, and the longer fruit racemes.

The Negundo sessilifolium, S. and Z., is, as was pointed out in these columns, p. 137, fig. 30, only a form of Acer palmatum. *Geo. Nicholson, Kew.*

PITTOSPORUM UNDULATUM.—This pretty sweet-smelling shrub, old as it is, still finds considerable favour in some gardens. In the Cambridge Botanic Garden it is now in charming condition. Multitudes of flowers are open, which, though only pale yellow, are very attractive from their fragrance, and as forming with the leaves one of those softer associations of colour not unfrequently appreciated.

TO BLAIR ATHOLE.

THERE are few districts in the Scottish Highlands that are more satisfactory to the traveller who has an eye for bold, striking, and picturesque scenery, than that which is traversed by the Highland Railway between Dunkeld and Blair Athole; every mile in his passage brings to view some new and charming feature in the scenery; hill rises grandly above hill, varied in contour and aspect, some showing in huge displaced masses of rock (records of the great Ice Age) the primitive and enduring character of the material of which they are composed. Stretching away on the right until lost in the distance are the famous Athole woods, exhibiting but few traces of the fierce gale that wrought the Tay Bridge disaster, and at the same time prostrated 80,000 trees in these thriving tracts of woodland. The scenery is not all wild and rude—pleasant farmsteads, cornfields, and green pasturage occur again and again, the Duchess of Athole's model farm standing out conspicuously on a grassy eminence. As we advance north, cultivation is more frequently succeeded by ranges of hills stretching away into the far blue distance, all covered with brown Heath and golden Fern—these great bare mountain tracts being the realms of the grouse and mountain hare, and paying a rental the ancient lords of the soil never dreamed of exacting. The deciduous trees in many places along the Tay valley are remarkable for their great size and perfect beauty of growth. The Elm, Ash, Sycamore, and Beech, attain proportions that would be considered remarkable in our best English woodlands; but these trees grow in the rich river drifts that have a depth and fertility unknown in the South. The Scotch Fir, Larch, and Spruce, appear in masses high up in the hills, and the ever graceful Birch relieves the sombre aspect of these Pine woods by the silvery sheen of its bark. Water in one of its best aspects, that of a noble river, is frequently brought to view as we glide through this beautiful scenery, deep down in the glen the Tay flows over its boulder-strewn bed, and is presently joined by a mountain-born stream called the Tummel, which higher up receives the waters of the Garry, under which name we trace it to the famous glen from which it gathers its first strength.

With increased facilities for travelling there appears to be a growing and more appreciative taste for landscape scenery, although characterised by wild Heather-covered hills and rock-strewn streams; and we may accept as evidence of this the rapid expansion of such places as Birnam and Pitlochray, which a few years ago were mere hamlets, but which have now developed into towns, with suburban seats and palatial hotels, and establishments to meet all the requirements of an advanced civilisation. And it is not only that these Highland hills afford delight to the eye by their beauty of form and the rich colouring which the autumnal glories of blooming Heather throw over them, or by their nobly swelling height, but it is the benefit that is given to the jaded senator, or to the pale toiler in towns, by the fresh and pure and health-giving air, which, sweeping over mountain top, over Pine wood and blooming Heather, gathers an aroma that is at once healing and delightful. So much has modern teaching done that there are few now, though less steeped in the profundities of knowledge, who, wending their way through those Highland valleys, would echo Dr. Johnson's sentiment, "Oh, sir, a most dolorous country," nor need any cynical successors fear the bstraction of a thick walking stick owing to the ascarcity of timber.

The train on its way to Blair Athole carries us along the wooded hill that forms one side of the famous pass of Killiecrankie. As the passage is pursued the encompassing hills shut out all views of the surrounding country, and gliding along amongst the green trees we snatch occasional views of the Garry, stealing sometimes smoothly along the dark and profound chasm, or whirling white foam round eddying and dark pools, below the masses of rock which, falling from the precipitous hill, have stemmed the course of the stream and formed cascades; the stream thus broken adds greatly to the picturesque beauty of this wild and romantic pass, to which the story of Dundee's bloody battle lends additional interest. Blair Athole is reached shortly after leaving Killiecrankie, and Blair Castle, the chief residence of the Duke of Athole, stands within its guarded demesne, some half a mile from the small village and its pretentious hotel. The principal entrance to the Castle from the public road is near the hotel, and is made

secure from intrusive visitors by imposing gates, and is further guarded by a kilted Highlander, who occupies the lodge; an avenue of Limes bounds the approach road to the Castle, but terminates before reaching it. The desire of country gentlemen of the last two centuries to follow the fashion of forming avenues in their parks led to many grievous mistakes and misapplications in their disposal, and an avenue amidst this fine broken mountain scenery is especially out of place.

The Castle stands out boldly in its park-like expanse of grass, from which the native Fern and Heather have been banished. It was formerly a stronghold of considerable importance, and has suffered sieges and the occupation of enemies, and having still the character of an ancient Scottish castle we presume its friends have been more merciful and discreet in restorations than is usual when such improvements are taken in hand. It would tone in better with the surrounding scenery if the material of which it is built were allowed to assume its natural colour, or be tinted with the grey protecting lichen: a prevailing whiteness suggests an annual application of colour wash, which detracts greatly from the character it should possess from its age and history, of hoar antiquity. There are few opportunities for the exercise of the gardener's skill in the immediate precincts of a castle like Blair. Flowers would be intrusive and incongruous. An attempt to give a sort of gardenesque character to a slope within view of the Castle by planting dwarf hardy shrubs in a formal arrangement of beds has not proved altogether successful, the shrubs are hardly happy in their exposed position, and do not conform or assist by the precision of their growth in giving effect to the mathematical accuracy of the beds in which they are placed.

If in exchange for these formal beds masses of rock peculiar to the district were strewn with artful irregularity, or disposed as they are found on the hillsides, and hardy Heaths, Sedums, Saxifrages, and alpine plants distributed amongst them, an interesting and attractive natural garden would be formed, perfectly in keeping with the surrounding scenery, and conformable to the exigencies of that taste which forbids floral embellishment of a gaudy and ephemeral character to exist beneath the walls of a stronghold like Blair. On such a spot it is almost with impatience that the eye is permitted to rest on any attempt at gardening. In the presence of so grand an *entourage* the attention is absorbed, and the eye charmed with the glorious mountain scenery; castle, park, village, are all dwarfed by the grandeur of the towering hills that are exhibited on every side; to the north-east Ben e Ghlo rises lofty and majestic; and again, turning to the west, the massive crest of Schiehallion rises in the blue distance, associated with others of equal magnitude, forming a glorious assemblage. Extensive tracts of woodland to the north serve to remind us of the great planting Dukes under whose enlightened direction so many thousands of acres and millions of trees were planted, giving wealth and shelter and beauty to vast districts erewhile bare and almost profitless. Such woods as are found on the Athole estates are memorials of which the greatest men may be proud, and such grand works surpass all monumental records carved in stone. John, the fourth duke, planted 15,500 acres, and used the enormous number of 27,431,600 trees. Although the English or natural style of landscape gardening has in a great measure displaced the formal incongruities that existed here, in examples of the French and Dutch styles of gardening, there still remain instances in the avenues and in the long grassy glade bounded by lines of trees and shrubs and statuary, and terminated by a statue of Hercules—hence called the Hercules Walk—and also in the kitchen garden, which is of early date, as may be seen by the ancient walls; and the genius of a Dutch artist must surely have designed the artificial canal, which still occupies a large space in the lower part of the ground, and which has miniature islands and promontories with little gardens upon them; and to make the picture complete, a little boat and a Swiss *châlet!*

The climate so far north must be sufficiently moist and cold without adding a large evaporating surface of shallow water to a sheltered enclosure. Artificially formed lakes are more often than not a mistake and a nuisance, even in a pleasure-ground, and this piece of water must lower the temperature of the land about it several degrees. As might be expected, wall fruit is not cultivated with very marked success. Although good crops of Plums appear on the trees, their ripening cannot always be relied on. Apples, Mr. Macdonald informed us, have been less satisfactory of late years, but as the garden has produced good examples it may again. Bush fruits do well in Scotland, and especially the Gooseberry. The crops we saw of the rough red kinds in this and several other places were extraordinary, and the fruit delicious. Should the Phylloxera still extend its ravages in France, it would assuredly pay some speculator in vintages to establish Gooseberry farms in Scotland.

However unsuitable this climate may be for wall fruit, both soil and weather unite in assisting the production of vegetables; every yard of ground in this garden was cropped with admirable examples of Onions, Carrots, Parsnips, Kales, Cauliflowers, and Potatos, and the garden is made pleasant by borders filled with sweet flowers, notably Stocks, which seem especially a Scotch flower.

The story of the introduction of the Larch to Scotland has often been told, and of the sixteen plants brought by Mr. Menzies, of Culdares, from the Tyrol in his portmanteau, and given to Duke James in 1738, eleven were planted at Blair Athole; three of these still flourish on the banks of the Bonavie close to the old churchyard at Blair, and it was with feelings of great satisfaction and admiration we looked upon these magnificent trees, which tower aloft to a height of 100 feet, and girth nearly 18 feet, and it is interesting to note that, although approaching a century and a half, they still exhibit a youthful vigour, and still continue to add to the amplitude of their growth. The arboricultural taste of the fourth Duke led him to many interesting experiments in forestry upon his vast Highland estate. He tested the merits of the several European varieties of the Larch. The Norway Spruce was extensively planted, and beautiful examples of this elegant Fir occur in the woods; but this in altitude and bulk of timber is probably surpassed by the Silver Fir, of which magnificent specimens are growing on the banks of the Tay, and it may be presumed that the many fine examples of deciduous Firs, Oak, Sycamore, Beech, and Chestnut, were planted in the time of this enterprising nobleman.

The work of planting, so nobly inaugurated, has not been neglected by the successive wearers of the ducal coronet. An admirably managed estate nursery, at Ladywell, near Dunkeld, is maintained, that the acreage of woodland may be still further amplified and clearings restored; and, alive to the possibility of finding a substitute for the Larch, which is showing signs of weakness, all the promising Conifers of recent introduction are receiving a fair trial. Two trees have found everything in the soil and climate of Perthshire congenial to their nature and habits, and are receiving deserved attention from His Grace's chief forester, Mr. Macgregor; these are the Douglas Fir and the Caucasian Silver Nordmanniana; splendid specimens of each occur in the plantation, and the young stock in the nursery quarters promise to give a new and noble feature to the Athole plantations of the future.

On our way homewards we paid a short visit to the ruins of the church, within whose crumbling walls lie the remains of many warlike spirits, amongst others the fiery Dundee, who fell at Killiecrankie; a beautiful allegorical monument is also placed here to the memory of the late duke, whose coffin is placed in the vault under the aisle. It is a spot appropriate to perishing mortality, and impresses even the chance wayfarer by its aspect of solemnity, its mouldering monuments and crumbling walls, more deeply than the most elaborate and costly of mausoleums. *W. I.*

FRUIT NOTES.

The Kerry Pippin Apple.—At p. 792 you were quite right in putting question to the name "King" Pippin: what I did write, or intended to write, was Kerry Pippin. This Apple cannot be grown too much northwards. It is always good in quality; the tomtits tell you that, for they have a special liking for the Kerry Pippin. They are rather small, of a bright golden colour, often mixed with little red streaks next the sun, which makes them handsome for a dish for early autumn work. I sent a bushel of them on to the moors for the Liberal member of the North Riding of Yorkshire and his family in the early part of October, and they say it was the greatest treat they ever had in the way of an Apple feast. No garden should be without a Kerry Pippin tree or two. On the Paradise stock it is a great bearer. *William Culverwell, Thorpe Perrow.*

Pear Beurré Sterckmans.—I must remind Mr. Westland (see p. 792) that when I spoke of Beurré Sterckmans Pear being worthless as a dessert fruit I mentioned it as growing in the extreme part of North Yorkshire, and not at Witley Court, which is more than 150 miles south of this, and I would still recommend it not being planted far north of Witley Court. I have it growing on a south wall, ingrafted twice. It has borne good crops for three years, but none ripened fit to eat, although they were of good size. On the same wall we have had excellent crops of Easter Beurré, Glou Morçeau, Marie Louise, Winter Nelis, Beurré Hardy and Huyshe's, Prince of Wales, all of which have been excellent. Mr. Westland says Beurré Sterckmans does not possess the qualities of a culinary Pear. I have yet to learn what constitutes a so-called culinary Pear, unless it is one of those big, hard, gritty Pears that require so much good stuff put into them to make them eatable. We have no sticking point here as regards stewing Pears. We find the best dessert sorts the best in quality for stewing. Here we must leave our grandfathers' notions behind us, but they must be taken for cooking before they are ripe for eating. I have sent a lot of Marie Louise in for stewing to-day. *William Culverwell, Thorpe Perrow, North Yorkshire.*

Pear Knight's Monarch.—Our Pears have kept badly this year, and one has not far to look for the cause. The autumn was very wet, the fruit was full of watery juice instead of saccharine matter, hence the rapid decay. But the Monarch is as good as ever, and I have no hesitation in saying that it is the king of winter Pears. In the gardens here it bears as a standard, with little or no shelter, 400 feet above sea level, but on the south wall it is simply perfection; and it has also this advantage—that it lasts longer in season than any other kind, sometimes extending over a period of six or eight weeks. One peculiarity I must mention—the fruit is shed from the tree early, so that one must go over the tree three or four times in as many weeks, and so gather only those fruit which part readily from the tree. The late Mr. Andrew Knight, amongst many other things, did good service when he raised this fine fruit, and young men who may have a wish to try their hand at raising new kinds of Pears should make the Monarch one of the parents—the female, I should say—and the strain will be right. Let us have no more new Pears for autumn, but as many after Christmas as you like—if they are good. *J. Rust, Eridge Castle, Kent.*

Pearson's Golden Queen Grape.—Your correspondent, "J. S.," seems determined to question the correctness of my statements regarding the flavour of this Grape as grown here. They are facts, nevertheless, say what he will to the contrary. The fact of its being badly flavoured with him is no reason at all why it should not be good flavoured with me; soil, situation, and other causes may all tend to make it so. I never contended that it was equal in flavour to a Muscat, the merits of which are well known. "Equal" and "nearly equal" have a very different meaning, hence my reason for saying that I should not think of putting it in competition with that variety. I have made no admission that I am aware of from my first statement—at least it was not my intention to do so. I did not make use of the words "second-class" in the manner and sense "J. S." has done. "Only" second-class I take to mean scarcely second-class, or quite at the bottom—nearly third-class. What I said was "quite" second-class, which means, according to my idea of the term, at the top of second-class, or nearly first-class—nearly equal to a Muscat. The editorial remarks on the Golden Queen sent by "J. S." do not at all apply to it as it is here, being brighter in colour than Muscats, very juicy, rich, and good, with scarcely any acidity at all. I sent the Golden Queen, with other varieties, to the Fruit Committee meeting last week. I wished them to be tasted, and wrote to Mr. Barron to that effect, but have not yet heard from him whether they were tasted or not. However, to decide the question of flavour, I shall send a bunch of Golden Queen to the Editors, for them to decide whether or not it is not all I have said in its favour. I think I have said enough to convince any one with reason that it is so. And I, as well as "J. S.," would like to hear what other Grape growers have to say on the matter; for were I planting Vines I should not hesitate to plant Golden Queen either in an early, intermediate, or late house. *J. Wallis, Keele Gardens, Staffordshire.* [We agree in the opinion that Golden Queen, judging from the samples sent us, is "quite second class" in the sense meant by Mr. Wallis. Eds.]

PLANT PORTRAITS.

ALOE PERRYI, Baker, *Bot. Mag.*, t. 6596.—A caulescent Aloe, with a terminal tuft of lanceolate, glaucous green, spiny leaves; peduncle erect, branched; racemes cylindrical, many flowered; flowers tubular, red at the base, yellowish at the tips; the segments much shorter than the tube. This is a plant closely allied to A. vera or barbadensis, and which yields the true Socotrine Aloes, as proved by Professor Bayley Balfour, and others. The plant commonly called A. socotrina is a native of the Cape of Good Hope.

CALCEOLARIA SINCLAIRII, Hook., *Bot. Mag.*, t. 6597.—Leaves stalked, oblong, dentate; corolla pale lilac, purple-spotted; upper emarginate, lower scarcely longer, rounded, obscurely 3-lobed. A New Zealand species, introduced by Mr. Isaac Anderson-Henry.

CLEMATIS COCCINEA, Engelmann, *Bot. Mag.*, t. 6594.—A native of Texas, with glabrous 3—5 foliolate leaves, the leaflets stalked, cordate ovate, glaucous; peduncles very long, slender, with a solitary bell-shaped rose-pink flower. It is the C. Pitcheri of the *Revue Horticole*, but not of Torrey and Gray. A hardy climber. With this is given a synopsis of the North American species of Clematis, by Dr. Gray.

CYCAS SIAMENSIS, Miquel, *Illust. Horticole*, t. 433.—Trunk sub-globose at the base, cylindrical above. Leaves 2—3 feet, pinnate, spiny at the base. Leaflets broadly linear acuminate, spine-pointed, 16—20 cm. long by 7 cm. wide; the lower ones suddenly replaced by spines.

ESCALLONIA RUBRA, Persoon, var. FUNCTATA, DC., *Bot. Mag.*, t. 6599.—A shrub with ovate dentate leaves, red, 5-lobed calyces; cylindric red corollas, with a reflexed 5-lobed limb. Native of Chile. Hort. Kew.

GLADIOLUS, *Floral Mag.*, t. 465.—1, Countess of Craven, pale lilac, flaked with magenta; 2, Mrs. Marshall, rose colour, flaked with carmine.—Messrs. Kelway.

HOHENBERGIA FERRUGINEA, *Revue Horticole*, Nov. 16.—A very robust Bromeliad, not suitable for small collections. The lilac flowers are not remarkable, but the habit is striking and the leaves green, spotted with darker spots of the same colour.

MAXILLARIA HYPOCRITA, Rchb. f., *Gartenflora*, t. 1053.—Of botanic interest only.

PEAR DOUBLE CHERRY, *Bulletin d'Arboriculture*, November, 1881.—Fruit of medium size, regularly pyriform, with small eye and short stalk; skin yellow, bright red next the sun; flesh white, melting. A good cooking Pear, of handsome appearance, and suitable for market purposes.

PESCATOREA KLABOCHORUM, Rchb. f., *Illust. Horticole*, t. 431.—Flowers upwards of 3 inches across; sepals and petals oblong-obovate, obtuse, white shaded rose at the tips, lip three-lobed, lateral lobes erect, small, connected by a ribbed fold, central lobe much larger, obovate, whitish, column rose-coloured. See *Gard. Chron.*, May 31, 1879, p. 684.

PIPTOSPATHA INSIGNIS, N. E. Br., *Bot. Mag.*, t. 6578.—The curious Aroid figured and described by Mr. N. E. Brown in our columns, vol. xi., p. 138.

PRIMULA FOCULIFORMIS, Hook. f., *Bot. Mag.*, t. 6582.—A new Primrose, introduced to Messrs. Veitch's establishment by Mr. Maries, from Ichang. It has the habit and foliage of P. cortusoides, and the calyx of the Himalayan P. filipes (Watt MSS.). The flowers are in umbels, calyx cup-shaped, corolla pale lilac. Probably hardy, and likely to win public favour.

ROSE CAROLINE SCHMIDT (Noisette), *Journal des Roses*, December.—A seedling from Solfaterre. Leaflets dark green; flowers medium sized, full, yellow, shaded with salmon.

ROSE TRICOLORE DE FLANDRE, *Journal des Roses*, October, 1881.—A Provins Rose of moderate size, very double, petals convex, white, shaded and striped with rose. Van Houtte.

SALVIA BRASILIENSIS, var. M. ISSANCHON, *Illustr. Horticole*, t. 432.—Apparently a variety of Salvia brasiliensis (= splendens), with a yellowish calyx, striped with red, and a pale rose-coloured corolla.

TULIPA ALBERTI, *Revue Horticole*, Nov. 16.—Like T. Gesneriana, with very glaucous broad undulate leaves, and small orange-red flowers with a brown eye spot. Turkestan, A. Regel.

FIG. 158.—BOUQUET OF ORCHIDS PRESENTED TO THE QUEEN BY DR. PATERSON.

A BOUQUET OF ORCHIDS.

DR. PATERSON, the famous orchidologist, of Bridge of Allan, has been kind enough to send us photographs of the baskets of Orchid flowers recently presented by him at Perth to the Queen and Princess Beatrice, some account of which, including a list of the Orchids of which they were composed, we gave in a former number, at p. 695. We now give above an illustration of Her Majesty's bouquet, which all will admit must have been of a striking character.

Orchid Notes.

THE HOLLOWAY ORCHIDS.—The nurseries of Mr. B. S. Williams, Upper Holloway, are very interesting at the present time. There are some very choice Orchids in flower, and, what is the next most interesting part to the Orchid grower, many choice species are showing well for flower. Cymbidium Lowianum has a very long spike, with twenty-four flowers nearly expanded. There are a number of good plants of Zygopetalum Clayii × ; of this there are two varieties, one larger in all its parts than the other. They have been raised by crossing Z. crinitum with Z. maxillare. The cross has been made both ways, and this in every case will give distinct varieties. For instance, the best form of Cypripedium Harrisianum is that when C. barbatum is the pollen parent, the flowers being the darkest. So in this case, when Z. maxillare is the pollen parent the flowers have the best lip. This is a very distinct and desirable plant, and is quite distinct from Z. Sedeni, which is a different cross. The sepals and petals are thickly blotched with purplish-brown. The lip broad and of a bluish-purple colour. These winter-flowering Zygopetalums should be more grown than they are. The flowers of many of them are very showy, and some of them, as Z. Mackaii, are very sweetly scented. They are easily grown and flower very freely. Cymbidium Mastersii is also to be seen there in fine form. There is a handsome spike well furnished with its pure white flowers and yellow lip. A form of it named maculata is distinct, and equally good ; it is distinguished by its purplish markings. In the same house there is a noble plant of Angræcum eburneum with three spikes ; the sepals and petals are greenish, and the lip, which is broad and ivory-white, is a remarkable part of the flower. What a contrast between this gigantic species and the pretty little A. citratum. Vanda Boxalli I had seen, and remarked on this rather pretty and distinct species at the Clapton Nurseries, and here was another and better plant with seven spikes. Are we not in confusion about the proper designation to this species? It is evidently the same thing that is described by Mr. Swan as V. lamellata Boxalli. Messrs. Low and Mr. Williams both designate it simply V. Boxalli. It is also so described by Professor Reichenbach, as see p. 780, where a distinct form of it has flowered with Mr. Cobb. It is easily grown, and flowers freely. A good deal has been written about Cypripedium insigne lately. It is certainly a very useful old species, and there are many varieties of it. The variety C. insigne Chantini, at present in flower with Mr. Williams, is one of the best ; it seems to have more white on the sepal and has larger spots, they are also darker than those of Maulei. *J. D.*

RESTING ORCHIDS.

There are two sides to every question, and Mr. Williams is able to show his visitors a system of growing Dendrobiums in heat all the year round. In a house where young Crotons are grown there are a great number of Dendrobiums suspended from the roof, notably D. bigibbum and superbiens, although there are others, such as D. Ainsworthii ×, D. M'Carthiæ, &c.; they certainly have made splendid growths for several years in succession, and the growths are very firm and thoroughly ripened : they are never allowed to become very dry at the roots, and as soon as one growth is made another starts very sturdily with but little rest to the plants. At any rate this system seems to answer well for small specimens, but if a good bloom is wanted on large specimens I would give them a season of rest in a cooler and drier house, before starting them in heat again. *J. Douglas.*

PHALÆNOPSIS STUARTIANA.

Amongst a host of Orchid fanciers I paid a visit to the Clapton Nurseries to see the above plant in flower. I did see it, and was not disappointed. Some persons went there expecting to see a better Phalænopsis than the best varieties of P. Schilleriana, P. amabilis, or P. grandiflora. Of course those who did go with such great expectations, might probably be a little disappointed at first, as its beauties become more apparent on a closer acquaintance. As a decorative plant I do not consider it superior to the three Orchids named above ; but it seems to be quite distinct as a species, and well worthy of being placed beside them in the choicest collections. The full-page illustration on p. 753 gives a very good idea of the plant. The leaves are elongated in form, very much like those of an ordinary P. Schilleriana, while they are reddish beneath, and dark green above like amabilis. From the description at p. 748 many persons would fancy the flowers were yellow, whereas, as you see them nodding on the spikes, it is no more a yellow Phalænopsis than P. amabilis is yellow : the two petals are pure white. The outer portions of the three sepals are greenish-yellow, as those of P. amabilis sometimes are. This colour shows in the front of the sepals of newly-opened flowers. The sepals are in part thickly spotted with cinnamon, or, in some cases, brownish-crimson. The variety nobilis has the leaves of P. Schilleriana, and differs from the type in its labellum, which is more elongated and rather differently marked. There were at the time of my visit five plants in flower and a number showing ; one plant had a strong five-branched spike. Most of the principal Orchid fanciers who have been to Clapton think highly of it, and the small importation is rapidly diminishing. *J. D.*

HELCIA SANGUINOLENTA.

Another interesting and rather rare Orchid, Helcia sanguinolenta, is now in flower in Messrs. Low's nursery. The habit of the plant resembles some of the Trichopilias, while the sepals and petals are greenish-yellow, blotched and spotted with brown, reminding one of Cattleya guttata. The most striking part of the flower is the full recurved lip, of a pinkish-white colour, very freely marked with lines and spots of a purplish-crimson. It grows well in the cool-house potted in peat and sphagnum, and treated much like the Odontoglossums. *J. Douglas.*

NOTES FROM BELGIUM.

We read in the *Gardeners' Chronicle* of the 3d and 10th inst. some notes on growing Orchids in general under rather cool treatment, and also on growing them in ordinary stove-houses. Our Mr. Edmund Vervaet, who was for many years the Orchid grower to Mr. Linden at Brussels and Ghent, thinks that, with the exception of some East Indian and Madagascar Orchids the treatment you call cool gives much satisfaction. Having commenced to grow Orchids last year we give them cool treatment, and they are also grown in ordinary stoves and greenhouses mixed with Palms and other fine-foliage plants. The stove in which we grow the East Indian, the Brazilian, and other tropical Orchids is heated in winter to about 55° by night, to 60° by day. A good many plants are cultivated on blocks or in baskets hanging from the roof, and others in pots. This house is crowded with small and large stove Palms, and these hanging Orchids not only thrive very well mixed with the Palms, but when in bloom the flowers look beautiful, the green leaves of the Palms adding so much to their beauty. Our Odontoglossum and other cool-house Orchids are grown in the greenhouse, and in winter the temperature is only 38° to 42°, and our plants thrive exceedingly well, the leaves of almost all our Alexandræs having the dark bronzy appearance which proves the plants to be in the best of health. The numerous flowers we had in April and May last, and the good number of spikes we have just now, is the best proof that the plants are doing well. To show that the cold Odontoglossums and other cool-house Orchids can bear low temperatures, let me say that some years ago, at Mr. Linden's, Mr. Vervaet one morning found his Odontoglossum-house at 0°—that means at freezing point ; and there were, indeed, many plants of Cypripedium Schlimii, which were standing near the glass, which had their young roots growing out of their pots frozen to the soil on which they were standing. Mr. Vervaet was very anxious for some days afterwards to see if the plants would show any ill effects of the accident, but not a single plant was lost or spoilt. As in your number of December 3 we also read something about Pescatorea Lehmanni, we are happy to say that we have now in flower a plant of this species, and we can assure you that it is perhaps the most beautiful Orchid of recent introduction ; it is, at all events, a grand acquisition. We have only two small plants of it, and both are in bud, the smallest plant having two buds, of which one opened last week. The ground colour of the petals and sepals is creamy-white, striped with rich purple, the labellum being curiously set with white points on the purple ground. It is impossible to give an idea of its beauty—it must be seen. The treatment we have given to these plants during the last thirteen months is a position at the coolest end of a Cattleya or intermediate house, the plants being grown on blocks with peat and sphagnum suspended from the roof among the Palms. We have also had in flower a beautiful plant of Bollea cœlestis, and two plants of Pescatorea Klabochorum, which had the same treatment. At present we have in flower or bud amongst a number of other Orchids, Zygopetalum Mackaii and Gautieri, both of which thrive well in our stove, especially Z. Gautieri, which is nearly all the year round in bud or flower, although we hear that with some growers this plant flowers but indifferently. We have also tried to keep flowering Orchids in a sitting-room, experimenting successively with Odontoglossum grande, Lælia Perrini, Bollea cœlestis, Oncidium crispum, and Odontoglossum Pescatorei ; they all did very well, especially Odontoglossum Pescatorei, which, after having remained three weeks in the room, was exhibited at a flower show, and subsequently stood, still nice-looking, for another three weeks in its home, the greenhouse. The other plants above-named, instead of remaining in perfection for four or five weeks, lasted only two or three weeks in the sitting-room ; but all of them, after having been brought back to their respective houses, became themselves again, although during their stay in the sitting-room they had had neither care nor syringing. *E. Vervaet et Cie., Mont St. Amand lez Gand, Dec.* 12.

DENDROBIUM WARDIANUM.

I purchased last March a five-bulbed plant carrying sixteen blooms on one. In time it made its new bulb, 2 feet high, but the bottom of all the bulbs began to die ; all the old bulbs are dried up, and the new one also to two-thirds of the way up. There are four blooms pushing strongly, and that portion not dead is quite healthy looking, but the whole of the rest of the plant all shrivelled to nothing but skin. No scale or disease is apparent. Can any one tell the reason? *Angræcum.*

CŒLOGYNE BARBATA.

I was inclined to say last week what Mr. Douglas says this of Cœlogyne barbata—giving it a dirty-faced character, for it really reminds one of a dirty-faced child, though in the latter case we can make it beautiful with washing, while in the former soap and water would be useless. Quite the opposite may be said of its smaller neighbour, Cœlogyne oculata, which is quite as beautiful in its way as C. cristata, and should be in all collections of Orchids. *H. K.*

CALANTHE VEITCHII TURNERI.

I should like to say a word in favour of Calanthe Veitchii Turneri, which, as Mr. Williams says in his *Orchid Manual*, "blooms after the other forms of C. cristata are over." In every way this is a first-class Orchid, and quite distinct from the other form of Calanthe, "the colour being pure white with rose-coloured eye." *H. K.*

THE FORGET-ME-NOT.

LOITERING the other day at Kew,
Admiring flowers of varied hue
And various climes, I reached a spot
Where waved some blue Forget-me-not.
Ah me! the sight brought back the day
When in a valley far away
A maid and I drew near a brook
From which some living flowers she took.
Though many a year has fled since she
Offered the gathered flowers to me,
Her smile I have not yet forgot,
Nor musical "Forget-me-not."
Then was it strange that there, at Kew,
The brook that saw our last adieu
And all the scene should come to me
In sweet but mournful reverie?—
"Now tell me, child, what people call
These pretty flowers so blue and small."
Roused by these words I turned, and there
A sturdy boy with curly hair
Stood with his nursemaid near the spot
Where waved the blue Forget-me-not.
"Don't know," young Master Blunt replied ;
"Don't know!" said Jane, dissatisfied ;
"Come, try to recollect the name
They give this charming flower—the same
I lifted to my lips one day,
And then its name you heard me say."
Teased by her question, teased and vexed,
The boy seemed thoroughly perplexed ;
But conned her hint with all his power,
And gruffly muttered, "*Cauli-flower!*" *J. V. J.*

Garden Operations.

KITCHEN GARDEN.

The present will be a good time to make an early sowing of Peas in pots. For this purpose we use 3-inch pots three parts filled with light mould, into which about a dozen Peas are put, and then covered with some of the same soil. The pots are then removed to an early vinery or Peach-house, and thence, when the Peas have made a couple of inches of growth, to a cooler and more airy house, where they can be gradually hardened off preparatory to being finally planted out in sunny borders later on. For this crop we sow William I. (the best early Pea that I am acquainted with), Ringleader, Emerald Gem, Sangster's No. 1, and Day's Early Sunrise—the latter an early, large, wrinkled Marrow variety, growing from 2 to 3 feet high, which during the past summer I have tested alongside some of our recognised early varieties with the most satisfactory results. Concurrently with this sowing there should be one made out-of-doors in well prepared ground of the following varieties, in rows running north and south and 10 or 12 feet apart (the intervening space being planted with four or five rows of Cauliflowers later on), viz., William I., Ringleader, Day's Early Sunrise, Laxton's Supreme, Dickson's Favourite, and Culverwell's Telegraph. There can be no question as to the advantage gained by allowing a good distance between the rows and the good results thereby obtained. There should also be made a sowing of Early Mazagan and Seville Longpod Beans in boxes, for transplanting in a favourable situation out-of-doors when it is considered safe to do so; at the same time a sowing should be made in a south border at 2 feet between the rows: these, like the Peas, will make a good succession to those raised in pots and boxes. Peas which were sown out-of-doors at the end of October or beginning of November will now require to have a little soil drawn to them, and a sharp look-out must be kept to save them from the ravages of birds and mice, which, where they are not well kept down, are very troublesome at this time. The latter should be trapped and the former shot, and their feathers strewn among the ranks of Peas and other crops to which they have been troublesome as a deterrent to others. Horse Radish.—This useful root does not generally receive at the hands of the gardener the attention which it so justly deserves, as it may not unfrequently be seen growing in an almost wild or uncultivated state in some secluded part of the garden, where it is seldom attended to, and consequently it is occasionally found fault with by the *chef* as being too spindly, and is not easily grated for making the delicious sauce which is prized so much—especially at this season—by roast beef eaters. Horse Radish, like many other things, if grown at all, is worth growing well, and with this object in view the present will perhaps be the most convenient time to take up half of the old plantation, and proceed with the making of a new bed, which we do in this way:—We open a trench 2 feet wide and about 18 inches deep; this we fill up, and raise to the height of 18 inches from the surface with well-decomposed dung and leaves taken from an old Cucumber ridge or bed; the whole is trodden well together, and made into the shape required, when the line is put down 6 inches from either side of the ridge, and the whole covered or landed-up with soil, thus forming a good ridge 18 inches wide on the top, with the centre 3 inches lower than the side and end, thus forming a kind of basin for the water. In planting we select the second-size roots, which should, if to be had, be from 20 to 30 inches long, and plant them in their entirety with a long dibber, two rows, 1 foot apart, and 8 or 9 inches in the row, on the ridge or ridges, as the case may be, and slanting slightly to the interior of the ridge, with the crowns a little, say 1 inch, below the surface. A planting should be made every year, or every second or third year, according to the extent of previous years' plantings and the quantity of Horse Radish used in the year, so as to always have a supply of it good in quality and quantity. Herb-beds.—See that these, together with quarters of Cabbages, Onions, Spinach, walks, &c., are kept free of weeds, which, like more desirable crops, grow apace during the continued unseasonable weather, if not vigorously and frequently dealt with by hand-weeding them, after which a light covering of leaf-mould will be beneficial to beds of Mint and Tarragon, if not already done in anticipation of "seasonable" weather. With the same object in view, where not already done, provision should be made for protecting a good piece of Parsley with frames or other means which the necessity of the case will readily suggest, so that the sashes or shutters can be placed over the plants every evening, and if necessary covered with braken, and removed, or partly so, during the day, weather permitting.

Forcing Department.—Continue to maintain a bottom and top-heat of from 60° to 70° in Asparagus frames—no difficult matter up to the present—and should it be likely to fall below this the linings should be freshened up by the addition of fermenting material, a good heap of which should be kept in reserve for this and other purposes, for anything like a stagnant growth would be prejudicial to the quality of the "grass." Ventilate the frames in accordance with the conditions of the beds, the stage of growth at which the occupants of each frame may have arrived, and the weather, upon the nature of which so much depends. These remarks are also applicable to pits and frames which have been lately planted and sown with Potatos, Carrots, and Radishes. French Beans must be top-dressed with soil which has been slightly warmed by placing it in a position near the pipes the day before. Pinch out the points of the shoots so that the plants may branch, and damp them overhead with tepid water on fine days. The application of weak liquid-manure to the roots when the plants are podding is also a matter that requires attention.

Frame Ground.—Respecting the subjects in this department, which are of a very important character, there is little to be said that has not been said in former Calendars—further than remarking that they should have abundance of air on all favourable occasions and be protected from frost. *H. W. Ward, Longford Castle, Wilts.*

FLOWER GARDEN.

A Retrospective Note.—The present note ends the record of another year's work done in the flower and ornamental gardens here, and though occasionally the composition of the notes has been irksome, they have proved of immense benefit to the writer, and he trusts that in some humble measure they have also been beneficial to others; but whether they have or not, they have at least the merit of being a faithful record of work done here, though with what success others must judge; suffice it to say that it has been to the entire satisfaction of my employer; hence I may claim to have satisfactorily practised what I have preached, and a gardener above all else now-a-days needs to be practical—a theoretical one would soon go to the bad in these days of agricultural and consequent horticultural depression. The day for "gentlemen" gardeners is past, all employers now demand that brains and hands shall be combined, and personally I would not have it otherwise, for the pleasure is heightened by the recollection that it is one's own labour that has contributed to whatever success is attained. With respect to the weather, the year has again been a trying one for gardeners; but upon the whole a decided improvement on the two previous years; but looking at it from the point of view of a flower gardener, and remembering that, except July and August, even in this southern district, there was frost every month besides, there is still great need that we should continue to work in the direction of hardier plants for the summer and autumn adornment of the parterre. The vulgar gaiety which obtained in our flower gardens a few years ago has given place to more sombre hues, which may still be considerably extended with advantage, both as to fuller enjoyment and more lasting properties; for this purpose I advocate a liberal use of compact-growing evergreen shrubs. Amongst the best are the numerous varieties of Retinosporas, Thuias, and Cupressus—all these appropriately harmonise with any kind of bedding plant; whilst as deciduous plants for similar purposes, the Japanese Maples—now to be had in great variety—are equal to many of the finest subtropicals. Then there are the Yuccas, Phormiums, and, for the best climates, the Australian Dracænas. By the use of plants of this character the framework, so to speak, of the garden is secure the year round, and these, with the large number of hardy dwarf carpeting plants now so freely used, are fast making us independent of all plants that will not stand at least a few degrees of frost.

General Work.—The weather still continues open, and therefore whenever the ground admits of it the planting of shrubs and trees should be proceeded with, and every plant should be mulched and secured against the wind as soon as planted. When the ground is too wet for this work, trenching and digging out of old tree roots, draining and walk-making should be pushed on, or any work in fact that will relieve the pressure of work that the spring season invariably brings. Valued specimen Conifers, Hollies, or other favourite trees that may be waning in vigour may be made to renew that vigour by, at this season, giving them a good top-dressing of fresh rich soil. The manner of application is simply to roll back the turf, prick up the soil, and spread over whatever good soil can be spared; if only a couple of inches—4 inches would be better—in thickness, great benefit will result. The turf may then be rolled back and levelled, but not beat down till the trees have had the benefit of the winter rains.

Propagation of Bedding Plants.—Stock plants of the tender varieties should at once be got into growing quarters for the production of cuttings. Seeds that are long in germinating or of slow growth should also now be sown. Echeverias, Sempervivums, and Pachyphytons sown now make good plants for putting out in May; Dahlias that are to be propagated in quantity may also now be started, the single varieties are all the rage just now, and being obliged to go a little with the stream, ours are being potted and plunged in the propagating pit for the production of cuttings. We are desired to have a few, but I cannot understand the enthusiasm that some manifest about them, and so but few will be used here. Yellow and scarlet colours are all we have tried at present, but the pure white one will be a great gain; they were the most effective here last season used in large basket-beds in association with Acacia lophantha, Ricinus, and Cannas. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

Peaches and Nectarines.—The trees in the early house have this season commenced swelling their buds with the least fire-heat I ever remember using; a little more may now be put on, and the temperature increased a little during the day. On bright, sunny days it may be allowed to run up to 65° or 70°, with a nice gentle circulation of air, but still allow the night temperature to go down to 45° or 50° at the highest, with a little air left on the back ventilators all night. Use plenty of moisture on bright days by occasionally damping walls, pathways and borders. A second house may now be started—at least, where several houses are forced it is quite time another was going; in fact, our second house has started itself, although the ventilators have been kept open all night until the last few days. The buds are swelling fast, and will almost overtake the early house started a month ago. Give the trees in the second house a thorough watering with tepid water, at about 85°. Give the same treatment as to the early house when starting, always keeping a low night temperature of about 45°, which is very essential to produce good, strong, healthy blooms. Where fermenting material is used, keep it sweet by turning it over on alternate days, adding a little fresh dung and leaves as the heat declines. A third house may be prepared in the usual way for starting by the second week in the new year. Keep succession-houses as cool as possible by throwing the ventilators open night and day. Where such houses are filled with bedding or other plants give as much air as possible, only just keeping them above freezing point on frosty nights; keep the latest houses clear of plants, so that in frosty weather they may be kept open, and if syringed occasionally, so as to get them coated with ice, it will tend to clear them of brown scale and other pests that infest the Peach tree. Any succession-houses may be served in a similar manner, for unless you are pretty close on them as regards cleansing, &c., this season, they will get too forward for the usual dressing. Take every advantage of getting pruning and cleaning done in succession and late houses. *J. Wallis, Keele Gardens.*

Cucumbers.

Seldom has the last Calendar for the year been written under such exceptionally favourable circumstances of weather, and seldom have Cucumbers been more abundant or of better quality at this season. The weather has been genial enough to keep the plants in active growth without the usual pressure of artificial heat which is necessary in ordinary winters, and as a consequence plants are in vigorous health and bearing freely. There is also an immunity from insect pests unusual at mid-winter. With such favourable prospects at the close of the year there seems every reason to hope for a steady supply of fruits until spring-sown plants come into bearing. What is now most desirable is to keep well in hand the vigour of the plants by light cropping and proper attention to feeding at their roots. In the case of Cucumbers nothing has such a beneficial effect upon them as good drenchings of liquid-manure at a temperature of about 85°. If there are plenty of roots in an active state the liquid is absorbed rapidly, and the plants derive immediate benefit, which stimulates them into fresh growth, and sustains them under the impost of a heavy crop. In order to be methodical the border should first of all be examined, and its condition once ascertained, provision could then be made to give it a liberal drenching. In the absence of any better remedy an ordinary garden engine filled with liquid at the proper temperature would furnish a ready means of carrying out the operation, which should be performed about mid-day, when the sun is at its warmest. If the surface of the bed is mulched all that will be necessary will be to re-arrange the mulching to prevent evaporation. Plants in succession-houses should still be kept as dormant as is consistent with health until the days take a turn after the New Year, when, with assistance, they will be found to be a very valuable crop next February. *W. Hinds.*

SATURDAY, DECEMBER 24, 1881.

WHAT a contrast has been often afforded of late to the visitors to the ROYAL HORTICULTURAL SOCIETY. Outside dank, grimy fog, chilling to the bone, stifling to breathe, suggesting one idea only—that of getting away to one's own fireside as quickly as possible. Inside—that is, in the arcades—the state of affairs has been quite of another character. Soft but brilliant light floods the usually dreary corridors, glowing heat from grate and furnace converts the chill passages, as it were, into so many flues, that would be more pleasant if the hot dried air were a little more tempered with moisture. The object of this display of fiery furnaces is to secure means of abating the prodigious and ever-increasing nuisance caused by the tens of thousands of coal fires which pour their smoky clouds over the metropolis, to the detriment of every living thing, to the actual death-stroke of many. Gardeners and nurserymen are specially interested in these matters. Every year the cultivation of plants in the atmosphere of London, Manchester, and other of our great towns becomes more and more difficult, even where not rendered impossible. Partly driven further afield by the continuous growth of bricks and mortar, partly by the defilement consequent on this increase in the great city, nurserymen are finding it impossible to carry on their business within the metropolitan area. The old establishments still in many cases remain in the old quarters, it is true, but they are supplemented by branch establishments some ten or twenty miles off, which in former days were not requisite.

Unless something can be done to arrest this pernicious outpour of smoke, nurserymen will have to go yet further away. Some time since, when visiting a nursery in Epping Forest, shortly after the occurrence of a London fog, we found the leaves blackened with a grimy deposit almost as thickly as in a London square; and he who handles plants in the open in our great national establishment at Kew, will certainly not find his hands unsoiled. The effects on human beings, though marked enough in some cases, are not so generally obvious as in the case of plants, but though concealed by greater resisting power and superior means of adaptation to evil circumstances, yet there can be no manner of doubt that the sum of human happiness is enormously diminished by this foulness; and not only that, but life is shortened, and sometimes brought to a speedy end by it.

Residents in and near our great towns, and gardeners in particular, are interested in the exhibition now being held at South Kensington; and as it is not only a case of smoke abatement, but of efficiency and economy in the consumption of fuel for industrial as well as domestic purposes, we strongly recommend those of our readers interested in the matter to pay a visit to this novel exhibition.

We do not intend in this place to enter into details some of which are touched on in another column, and others will be alluded to hereafter; our present object is to call attention to some of those plants which resist the evil effects of London smoke best. A visit to the Parks, to the Embankment gardens, or the smokiest of the suburbs, reveals the fact that among evergreens—evergreens by courtesy, everblacks in reality—those which have the thickest, glossiest leaves are, other things being equal, least affected. The Hollies in Victoria Park, for instance, are really noble specimens, and even those on the Embankment are not to be despised. Yuccas are admirable town plants. Euonymus, when not hurt by frost, does almost as well as Holly. The Box and some of the evergreen Privets bear up well against adversity, and at this moment the latter are pushing their lateral shoots as if it were spring. Laurels, true and false alike, decline to compete. Aucubas are miserable. Conifers, where they exist at all, are in much worse case; probably their resinous exudation serves to form with the precipitated charcoal an impermeable covering, through which breathing and the inlet and outlet of moisture become impossible.

Among plants of lower stature which resist better than others may be mentioned Carnations and Irises The leaves of these plants afford comparatively little hold for the sooty particles, and, as in the case of more glossy leaves, the deposit is readily washed off by the rain. The Iris leaves are vertical, those of the Carnation smooth, and, like the Iris, well provided with breathing pores on both surfaces.

To those not familiar with the fact it may seem surprising that some of the alpines and dwarf succulents, as Saxifrages, Sedums, Sempervivums, are able to resist the smoke-laden atmosphere; yet so it is, and those who wish to test the matter for themselves on a very small scale can do so by visiting the Embankment garden, where at the south-west corner, by the entrance lodge, near the Charing Cross Station of the District Railway, they will find a tiny rockwork of the approved cockney type—"quite too dreadful" from an æsthetic point of view, but interesting to the cultivator, as there he may see a number of the plants we have mentioned—small, indeed, but for all that interesting.

If the smoke were pure smoke—*i.e.*, finely powdered charcoal—its effects would not be so injurious; the soot might be washed off, and from the presence of a little ammonia in it, it might even act as a fertiliser; but sulphurous and other vapours are mixed with the charcoal, and these are they which shrivel up the Rose leaves as if they were burnt, and destroy the tender leafage of so many deciduous plants. The frequent use of the hose, as in Paris, would do much to remove the dust and soot, but in the case of those acid fumes we have mentioned it is possible that water would only increase their power of mischief, and nothing remains but the strict enforcement of the Smoke Nuisance Act in the case of factories, and the adoption of those of the smoke consuming grates which the present exhibition may prove to be the best adapted for the purpose.

—— SUBTROPICAL BEDDING AT HECKFIELD.—A good many of our readers we suppose have seen the gardens at Heckfield, and are conversant with the style of bedding generally there followed by Mr. WILDSMITH, but doubtless a good many more only know it by repute. Much has been said anent the style of flower garden which for a good many years has been in fashion—the subject has been talked so far threadbare that it has ceased to be interesting. The advocates contending for each extreme are most likely to retain their own opinions, and no doubt will act upon them, but we may safely infer that nothing which can be said by those contending on either side will end in their respective views being adopted by the gardening community collectively, each one will suit his own tastes and inclinations, provokingly indifferent to the gratuitous teaching thrust before them. Even those who have a horror of high colour can scarcely find fault with the materials used in the group here shown (fig. 159), unless they object to distinct forms of handsome foliage associated with noble trees, shrubs, and water.

—— YULETIDE.—The Christmas ideal of poets and painters does not promise to be realised this year (or did not at the time of writing, for since these lines have been put in type symptoms of frost have made their appearance). A green Yuletide is, however, not a novelty, far from that; but it is not Christmas as our fancy dictates and the season of midwinter sometimes provides. Who cares for the Yule log crackling on the hearth, or its more modern substitute, a roaring coal fire, when the sun shines out warmly, and the air is as balmy as on an April day? Who cares for a Christmas that does not bring invigorating if sometimes cruel frost, that encrusts the lakes and rivers with an ice flooring, and over which the comfortable and well-fed may glide in keen enjoyment? Who cares for a Christmas that comes no nearer to the realisation of boyish hopes and dreams than an ant does to an elephant, is indeed a deception and a sham. Oh, Christmas is merry, it is glorious, it is Christmas indeed, when outside the snow lies thick, the trees are white with spangled hoar, the wind whirls the icy flakes with cutting intensity, and humanity gathers about it wraps and mufflers that the cold may be thus robbed of its terrors; then there is some joy in the warmth of the domestic fireside, some fitness in the ruby-red of the Holly berries and the snowy fruits of the Mistleto, with all the mirth and goodwill of the Christmas party. There is, however, another picture—one always, alas! too real, let Christmas be mild or be severe—it is the picture of want and hunger, of suffering and misery. Something may be done at this season, as at all others, to relieve the suffering and misery—much indeed is done; but nothing is so effectual as a mild mid-winter, a green Yuletide. If some would complain that their desired Christmas amusements are not to be vouchsafed them, at least many, very many, will rejoice that their privations will be the less. Gardeners look upon a mild Christmas with mingled feelings; for, whilst all perhaps gladly escape the bitterness of a severe winter, they are not without sad misgivings for the spring, that season of hope when the brightest anticipations are so often nipped in the bud. But just now, when the world is bid to be joyous, gardeners will not despair; their occupation is peculiarly one to inculcate hope and faith in the ultimate outcome of good. In that spirit, and in the determination, so far as in us lies, to promote the happiness of those around us, let us now enjoy the Christmas season.

—— COZTICOATZONTECOXOCHITL. — Popular names are so much nicer than scientific ones, especially in such a case as the above, which is the Mexican for Cattleya crinita.

—— "THE GARDENER'S MAGAZINE." — The Christmas Number of our contemporary will create many a laugh, and serve to amuse many a reader during the holiday season. The *Garden Oracle* is a more serious publication, and with its fellows, the *Garden Annual* and the *Horticultural Directory*, demands fuller notice, which shall hereafter be given.

—— NATIONAL DAHLIA SHOW IN 1882.—This, which was hinted at on several occasions during the autumn, is now in a fair way of being carried out to a successful issue. A number of gentlemen, comprising several leading growers and raisers of the Dahlia, have formed themselves into a committee, and are raising subscriptions for the purpose of holding during the next Dahlia season a great exhibition, open to the United Kingdom, which will include all classes of Dahlias, whether cultivated for exhibition purposes or garden decoration. Towards the prize fund, which is to be raised by public subscription, the directors of the Crystal Palace Company are willing to give a handsome sum, provided, of course, the show takes place at Sydenham. It is the intention of the promoters to make the exhibition a truly representative one, and by inviting Dahlias of every class they will hold out proper encouragement to all growers, both those with limited and those with extensive collections. To do this well a considerable sum will have to be raised. Mr. GEORGE SMITH, New Villa, Hedge Lane, Edmonton, is the honorary secretary and treasurer of the fund; and the well known names of KEYNES & Co., C. TURNER, Rev. C. FELLOWES, RAWLINGS, DOWNIE, &c., figure on the committee.

—— DIARIES.—Messrs. T. J. SMITH & Co., 83, Queen Street, Cheapside, send a selection of Diaries and Calendars of a useful character, and sufficiently varied to suit all tastes and requirements.

FIG. 159.—"BEDDING-OUT" AT HECKFIELD. (SEE P. 820.)

—— Welwitschia.—The Chevalier D. J. de N. Monteiro has obligingly sent us a dried seedling plant of Welwitschia, which is in the hands of the artist, and upon which we defer comment; but we may mention that Dr. J. A. de Souza has imported four splendid living Welwitschias. Two of the larger ones, 5 inches across, flowered on the voyage; one has female the other male flowers only. The specimens are deposited in M. de Monteiro's garden at Almada, Portugal.

—— New Species of Cotton. — Gossypium Kirkii is the name proposed by Dr. Masters for a new species of Cotton from East Tropical Africa. He mentions (Linnean Society's meeting, December 15) that it has an interest historically from being probably the origin of the very numerous cultivated varieties referred to G. barbadense. It was obtained by Sir John Kirk, growing wild at Dar Salam. Dr. Masters regards it as most nearly allied to G. barbadense, which is the form most commonly cultivated in Tropical Africa, though along the Nile valley G. herbaceum, L., is that usually in cultivation. According to authorities, Cotton was not cultivated in Egypt in ancient times, and the fact that the varieties now grown there are for the most part forms of G. herbaceum, suggests the idea that India is the source whence Egypt has derived the Cotton—a notion confirmed by various other considerations. The wild form of G. herbaceum, Dr. Masters had previously shown, is probably G. Stocksii, Mast., a native of Scinde.

—— Sagus Rumphii. — Mr. Walter Fox, acting superintendent of the Botanical Gardens at Singapore, has kindly sent us a photograph of a clump of the above-named Sago Palms, recently photographed in those gardens. Even in the home of the Sago plant to see them in fruit is a very rare occurrence, and many people long resident at Singapore have informed our correspondent that they have never seen them in fruit before. It appears that when the Palms have arrived at maturity, and show the first indications of flowering, they are immediately cut down, as at that time they contain the largest percentage of starch, or sago. For purposes of replanting there are always more than sufficient offshoots at the base, so that seeds are never required.

—— Pastila.—Under this name an obliging correspondent has sent us a sample of the sweetmeat made in Russia of the Antony Apple, as described in our pages at p. 174. It is so agreeable to the taste that it deserves to be better known in this country.

—— The Phylloxera Law at the Cape.—A correspondent writes that he has been prevented from exporting from Barbados to the Cape, plants of an Aloe likely to be of commercial importance in the latter country. This is only one of many completely unnecessary and mischievous restrictions, for, even if there were Phylloxera in Barbados, it would not live on Aloes.

—— The Abbey Park, Leicester. — Mr. Burns, who now for seven years has had charge of the Saltburn Gardens, has been appointed superintendent of the Abbey Park, Leicester. Those who are acquainted with the former place cannot fail to know how much it was improved in Mr. Burns' hands, and we have no doubt the Leicester Park will alike give evidence of his ability. The Saltburn Gardens always showed Mr. Burns' right perception of the fitness of things, for whilst he gave due attention to summer bedding, which the multitude so much admire, he was equally mindful of the more permanent occupants that go to make the flower garden and shrubbery at all times beautiful and attractive.

—— Ferns for London Fern Cases. — An inspection of the Ferns growing in Messrs. S. Dixon & Co.'s nurseries, Amhurst Road, Hackney, affords a good indication of some of the varieties that sell best in Moorgate Street to passers by, for growing in Fern cases, &c. Gymnogrammas are in great demand, delicate in character as they are generally esteemed to be; and of these G. Wetenhalliana is most sought after. This is a very handsome species, richly powdered with sulphur, and having the ends of the fronds finely tasselled. A seedling from this, raised at Messrs. Dixon's nurseries, has the sulphur powder deepened to gold, and it is found to come true from seed. This is to be known as G. Wetenhalliana aurea. The crested forms of Pteris serrulata are great favourites, especially one with a half-pendulous growth, and long handsome tassels, known as P. serrulata Dixoni. A finely pendulous form of this—a Fern with a true weeping habit—appears to be perfect as a basket Fern for suspending; the fronds are rather broader, and the tassels 6 inches and more in length. This has not yet received a name. Pteris cretica albo lineata is much in demand; the silvery appearance of the fronds has great attractiveness. There is a singularly pretty crested form of this to be seen at the Amhurst Nurseries, which cannot fail to make an elegant and handsome subject for pot-culture. The pretty Cheilanthes elegans is a great favourite for Fern cases, which is not to be wondered at, seeing that it has a very charming appearance. Of the Maidenhair Ferns, Adiantum cuneatum and A. gracillimum are, as might be expected, in large demand; indeed, the Fern appears to be a decidedly favourite plant for London sitting-rooms. Add to these the India-rubber plant, the handsomely variegated Aspidistra lurida, Dracænas, and Crotons, and we get a good idea of favourite foliaged plants for Londoners. The best plants of Ficus elastica come from tops, and make plants of handsome proportions quicker than do the side-shoots, or eyes, taken from the stem. These are always well-furnished specimens, and make a handsome appearance in windows. With reasonable care such plants will remain in good condition for a very long time.

—— Abies Pattoni.—Professor W. R. McNab, of Dublin, in a paper read before the Linnean Society (Dec. 15) mentions that the plants known in cultivation as Abies Hookeriana and A. Pattoni have long been a source of confusion and perplexity both to botanists and horticulturists. He then shows how this has occurred, and points out that the late Andrew Murray, in describing a new North American species mixed up in his description the leaf of A. Pattoni, Balf., from the Mount Baker range of mountains, with the cone of A. Hookeriana from Scots Mountains, Oregon, and originally collected by Mr. John Jeffrey. Dr. McNab now proposes that as Jeffrey's No. 430 from the Cascades, named by Balfour Abies Pattoni in the *Oregon Circular*, was unpublished, it should now be referred to Tsuga Hookeriana, and the Mount Baker tree be regarded as T. Pattoniana; and he further suggests the desirability of a fresh examination of the cones of the latter, as Jeffrey's account of the cones is somewhat defective.

—— Pyracantha.—Passing through Hampton Wick a few days ago a fine plant of this hardy shrub attracted attention. The main branches are tied, or, rather, nailed to the front of a large dwelling-house, with recumbent branches drooping about a foot in length. Fully 6 inches of the terminal point of each shoot is quite a mass of coral-coloured berries, which has a most pleasing effect. Larger and finer plants are often seen, but the effect of this natural system of training is not so often to be met with.

—— Cydonia japonica as a Shrubbery Border Plant.—Trained upon a wall the scarlet blossom of this old favourite is ever welcome in the early spring months, but it is seldom seen in flower in the shrubbery border at Christmas. A fine bush is now in flower in a shrubbery border at Ember Court, Thames Ditton, in a situation without any particular shelter. In the same border, almost beside the Cydonia, a bush of Berberis Darwinii is just coming into blossom.

—— A New Sand Distributor.—A trial of a newly-designed machine for scattering sand or salt in the public streets was made on Saturday afternoon last at Camden Town. The machine is invented and manufactured by the firm of B. Reid & Co., of Aberdeen, and consists of a modification or adaptation of their well known broadcast artificial manure distributor. The apparatus is composed of a hopper, that may be easily affixed to the end of any sort of cart, and into this the sand or salt is filled as required by the driver. The action of the machine is both continuous and automatic. The conditions under which it performed its work on Saturday were particularly unfavourable, a drizzling rain falling all the time; yet, despite this fact, the distributor did good service, and earned the encomiums of its judges. As the result of this trial, the London Street Tramways Company have determined, we understand, upon the adoption of Messrs. B. Reid's invention for use in the thoroughfares traversed by their cars. In addition to more effectual work, it was stated that a saving of at least 25 per cent. may be secured by the use of the new machine, compared with the methods hitherto employed.

—— Ceanothus azureus grandiflorus.—This plant, like many other shrubs, is now bearing a spring-like appearance, and in warm situations upon walls is beginning to open its clusters of blue flowers, which are rather a novelty now that the month of December seems about to assert its original character of fogs, frosts, and generally an uncomfortable atmosphere, which would hardly prompt one to go flower-hunting in the open garden.

—— "Dictionnaire de Botanique."—M. Baillon's splendid publication has reached its fourteenth number, which brings the text to the end of letter C. The articles are unequal in value, some being mere abstracts from descriptive monographs, and not always the most recent, whilst others are original articles of great merit. The woodcuts are numerous and beautiful, the typography excellent. With the present number is given a coloured plate of a very singular fungus—Montagnites Candollei—with a bulbous stem, and a flat parasol-like top. The spores are brown.

—— Zonal Pelargoniums for Winter.—If these are too hot for some people's eyes in summer, there does not seem to be any indication that they have a similar effect on those who buy flowers in winter—that is, if the extent of Mr. Ladds' cultivation of them is anything to go by. He has this winter twenty-three houses, each 200 feet long, all filled with them; they now present a sheet of colour such as no description can convey an idea of, and this notwithstanding that as many of the single varieties alone are cut daily as take fourteen pairs of hands from 12 o'clock until half-past 5 to gum them; the speed that nimble fingers with long practice attain is not the least interesting part of the work. This week about four times the number have been employed during much the greater portion of each twenty-four hours. The petals of the double varieties not being so liable to fall off before they fade, do not require to be so treated. Of the latter, Madame Thibaut, pink; Wonderful, scarlet; and a new variety even better than this well proved sort, are grown. Of the single scarlets Vesuvius still holds its own, and so does Master Christine as a pink; but the latter is likely to be supplanted by one of the newer varieties. The whole of these winter forced zonals are kept at from 50° to 60° in the night.

—— Myriocarpa stipitata (Bœhmeria argentea).—This fine subject is now to be seen in capital condition in one of the warm houses at the Chiswick gardens; and the infrequency with which it is seen leads to the supposition that it is only imperfectly known. Mr. Barron states that it is an old subject, brought from Calcutta by Mr. Head; it has the form of growth of Theophrasta imperialis, but with considerably broader leaves and a somewhat showy olive-green colour, edged with silvery-grey. In a young state the leaves are serrated on the edges, but as they age this peculiarity departs from them. The leaves are green when young, and as they become matured they take on the peculiar variegation characteristic of them. Mr. Barron speaks very highly of it as a plant that will bear a great deal of moving about, and it should therefore make a useful sitting-room plant. A cutting soon grows into a plant, and it does well in a temperate-house. A house that suits Pelargoniums will keep it in good condition. The leaves are of a thick texture, and will bear sponging without becoming disfigured. It is just now the central figure in the house at Chiswick, where it can be seen to good advantage.

—— Crisp-leaved Forms of Primula sinensis.—One of these is Mr. B. S. Williams' fine new variety, alba magnifica, a remarkably fine white-flowered form, with an even dwarf habit of foliage that does not rise up and hide the flowers from view, as is the case in some strains. In addition the edges of the leaves are handsomely crisped, and this imparts to the variety such a distinctive form as that it can be easily recognised. It is one well worth growing for home decoration. A variety received from Messrs. Vilmorin Andrieux & Co., of Paris, under the

name of crispifolia, has the leaves much more fringed than in the case of Mr. WILLIAMS' variety; but in this case less so than some varieties of this type we have seen among the collection in Messrs. SUTTON & SONS' nursery at Reading. Of late years more attention has, no doubt, been turned to the improvement of the flowers than of the foliage, and now that the former has reached such a standard of perfection that advances must of necessity be slow and infrequent there is ample room to improve the habit of growth in the direction of having it dwarfer, more compact, and the leaf-stalks horizontal rather than erect. If to this ideal habit we can add handsomely crisped foliage the Primula may be of some service as a foliaged plant before the flowers are produced. We are clearly on the way towards this end, and it is especially shown in the new Fern-leaved types being produced by that well-known raiser, Mr. J. TOMKINS, Sparkhill Nursery, Birmingham. In the case of these varieties the leaf-stalks, as well as the leaves, are materially shortened; but the latter have broadened, and they are deeply and handsomely cut, and somewhat crisped. The foliage, when well developed, is particularly handsome, and it is especially noticeable in the case of the large specimens Mr. TOMKINS produces in such splendid character at this season of the year.

—— EPPING FOREST.—At a meeting of the Essex Naturalists' Field Club, held on Saturday, Dec. 17, the following resolution was passed, having reference to certain schemes to be brought before Parliament in the session of 1882:—"That this Society respectfully requests the conservators of Epping Forest to oppose, on behalf of the large section of the population of London and others interested in the study of natural history, any Bill in Parliament conferring upon another public body rights over portions of the land placed in their care by the Epping Forest Act, which directs that the forest is to be preserved as far as possible in its natural aspect; and in particular to oppose the Bill of the Lea Bridge, Leyton and Walthamstow Tramways Company, which proposes to obtain permanent running rights over a part of the forest known as the Ranger's Road, so depriving the conservators of their powers over that portion of the forest hereafter. And that a petition be presented to the conservators to the above effect, and further praying that they will exert all their influence to oppose any schemes which would tend to injure the forestal character of the lands under their charge, or to destroy or disturb the *ferræ naturæ* inhabiting the same."

—— THE CHUFFA (CYPERUS ESCULENTUS).—In a recently received report of one of the meetings of the Agricultural and Horticultural Society of India, the Secretary is stated to have exhibited some tubers of Cyperus esculentus, which had been received from the Botanic Garden, Adelaide, and the following notice of these tubers by Dr. SCHOMBURG was read. He says:—"The American papers praise it, and say that for a few years after its introduction nothing was heard of it, except here and there as a curiosity, but within the past year or two the interest in the plant has revived, and the Southern papers are advocating its culture. It is said that an acre of Chuffas will produce more pork than an acre of corn. The yield is said to be about 200 bushels to the acre. It is also still extensively grown in modern Egypt. The Chuffa dies down during winter. It is planted in rows 2½ feet apart, and the tubers should be planted 2 feet apart and 2 inches deep. It does not seem to do so well with us as in America." Dr. ROYLE, alluding to this tuber in his *Himalayan Botany*, says:—"In addition to fecula, these roots contain a fixed oil which enables them to be formed into palatable emulsions, which, with the addition of sugar, have been employed as a substitute for Coffee and Cocoa."

—— THE CULTIVATION OF COFFEE IN QUEENSLAND.—The *Colonies and India* states, on the authority of the *Queenslander*, that the cultivation of Coffee is likely to form a substantial industry in that colony. Mr. PINK, of the Botanic Gardens, it is stated, has of late had so many applicants from the Rosewood scrub for Coffee plants that he has not been able to supply them, the stock of young trees in the garden having been reduced to a minimum. Upon questioning his applicants he was told that there is one German selector in that district who some few years ago planted a good many Coffee trees. These have thriven so well that they are now in full bearing, and the enterprising owner gathers his crops and gets 8*d.* per pound for it in Brisbane. So remunerative does this German find the occupation that he has expressed his intention of troubling no more with Maize growing, Pumpkins, and such-like, but has decided to plant all his land with Coffee. His neighbours, seeing how successful he is, wish to follow his example, and in order to get plants have applied to the gardens.

—— CHRISTMAS FLOWERS.—The show of flowers at Messrs. JACKSON'S nursery, Kingston, is of a very choice character for Christmas, and consists of several species of Orchids, including Dendrobiums, Calanthes of sorts, and the ever-charming little Sophronites grandiflora, Phalænopsis Schilleriana, grandiflora, and amabilis; Oncidium tigrinum, with fine spikes of its yellow-coloured flowers; a fine display of Odontoglots, in, or coming into, flower, including Odontoglossum Alexandræ, triumphans, cordatum, and gloriosum; early white Azaleas, Camellias, Bouvardias, a large stock of their decorative Pelargonium Rosy Morn, several varieties of the old Cape Pelargoniums, Cyclamens, early Cinerarias, dwarf white Chrysanthemums, scarlet Duc Van Thol Tulips, double Primulas, Richardias, &c. The Duc Van Thol Tulips have a very gay appearance in the show-house facing the entrance-gate, arranged in conjunction with other forced flowers, of which white and blue, and charming pots of a dwarf variety of Mignonette, are the most conspicuous in point of merit.

—— THE CULTIVATION OF LIQUORICE (GLYCYRRHIZA GLABRA).—The following notes on the cultivation and preparation of Liquorice in Spain are gathered from an article that recently appeared in the *Oil and Drug News*. Large exports of this root are now made from Spanish seaports to the United States. France also consumes large quantities in the manufacture of liquorice-paste. This root is used in America principally for sweetening in the manufacture of plug and other kinds of tobacco; it is also used in the manufacture of drugs and the preparation of medicines. It grows wild on the lower lands, in marshy ground, and on the banks of rivers. Probably the best quality obtained in Spain is found in the provinces of Arragon, Murcia, and Toledo. The very best Spanish Liquorice root is found near the margin of the Ebro, in Arragon; the next in point of quality is obtained near Cordova. When it once takes root it is almost impossible to eradicate it. It grows in many countries, and varies in quality according to soil. Spanish Liquorice differs quite materially in the several provinces, the principal variations being that in some parts the bark is red, brown, or light colour, the inside varying from light yellow to brown. The proportions of saccharine and starch vary also. Many kinds are fibrous, while others are almost as hard as wood. The ground is culled at intervals of three, four, or five years, according to circumstances, by digging trenches, pulling everything visible as long as possible until it breaks. After a year or two it shows above the ground with a little stem. From the time this stem appears until the flowers have all fallen the root is not in condition to extract, for the sap does not return to the roots until then. Each year that the ground is culled the quantity of roots and tops increase until the ground is unfit for cultivation of any kind. It is from September till March that the root is gathered, and goes through a process of drying, or curing, before it is considered marketable. Liquorice root is also found and gathered in Asiatic Turkey, Greece, Italy, and the Sicilies, and in Spain. In Italy and the Sicilies very little, if any, is exported as root, it being used in the manufacture of roll or stick liquorice. There is a small section in England which produces a limited quantity. Liquorice root is also grown in several parts of the United States, but the quality is not such as to give it value. The quality of root produced in the different countries is as follows:—Asiatic Turkey, decidedly bitter; Greece, bitter, but not so bitter as Asiatic Turkey; Sicily, sweet, but less so than Spanish; Spain, rich and sweet; Italy, richest and sweetest of all. Malaga has not, up to the present season, been considered an important shipping port for the root, Seville, Alicante, Barcelona, and Bilbao being nearer the producing districts. The value of this root does not admit of its being increased in crop by cultivation, and the quantity gathered depends greatly upon the severity or mildness of the winter. If severe, it lessens the quantity gathered. Again, if other crops are good, labour being scarce less root is gathered, consequently prices are higher. There are one or two large French establishments in Spain for making paste and stick-liquorice—one in Seville and the other in Saragossa, besides a few small Spanish concerns also engaged in the manufacture of liquorice-paste. In connection with this subject of the cultivation of the Liquorice plant it may be stated that an attempt is being made in Auckland, New Zealand, to establish its growth. If its cultivation proves successful it will be taken up on a very large scale by extensive landowners; for this purpose a large quantity of the root has been imported and distributed throughout the country districts.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending December 19, issued by the Meteorological Office, London:—The weather has been very unsettled, with frequent and heavy rain, hail, or sleet in nearly all places. The temperature has again been below the mean, the deficit ranging from 1° in "England, S." to 5° at our central and western stations. The maxima, which occurred at most places on the 17th, ranged from 44° in the north-east of England to 54° in the south and south-west. The minima were registered during the earlier part of the period, when the thermometer fell to 18° at Parsonstown, 21° at Laudale, and to 22° in some parts of central England and northern Ireland. Rainfall has been a little below the mean in "England, N.E.," and "Scotland, E.," but greatly above elsewhere; the excess at our south-western stations was very marked. Bright sunshine values were generally low, the percentages ranging from 8 in "England, N.W.," and 16 in "England, S.W.," to 33 in "Ireland, S." Depressions observed:—From the commencement of the period until the 17th a large but gradually decreasing area of high pressure existed over Scandinavia, while depressions, generally small and shallow, travelling over our western and northern coasts, giving us south to south-westerly winds, fresh to strong in the west, and moderate or light elsewhere. By the evening of the 17th, however, the barometer had become highest over France; a depression of considerable depth lay over Scotland, and strong westerly gales were experienced on nearly all our coasts. This disturbance passed eastwards over Scandinavia, the gales in our islands gradually subsiding.

—— GARDENING APPOINTMENTS.—Mr. THOMAS BEECH, late Foreman to Mr. BLOXHAM, at Brickhill Manor, Bletchley, as Gardener to BARTLE GOLDSMID, Esq., Holme Green, Wokingham.

Home Correspondence.

Cinchona Ledgeriana.—Having carefully followed the history of the introduction of the Ledgeriana seed, which has appeared in your paper, and also in the *Transactions* of different scientific societies, I applied through a firm in the City which was working direct with Eastern Bolivia, and on placing sufficient data before them I begged of them to endeavour to open the question of obtaining for me seeds from the districts in which the Ledgeriana was originally obtained. After some years and an immense amount of correspondence I obtained a package of seeds in husk. The tin-lined case ran through many vicissitudes, being seized by the Chilians, and by them liberated and forwarded to the address on the bag. It showed marks of having been opened several times. As the export of seed is entirely prohibited, the greatest precaution was taken not to identify the sender in any way, and an extremely scanty description was sent with the seed, saying that it came from one of the best varieties of Cinchona tree. This seed I tested, and found to germinate well, so I put it into circulation at once amongst planters. From suggestions I received from many of them, letters were sent out begging that leaves and flowers as well as specimens of the bark might be sent home with full descriptions. The leaves arrived with the names that the trees were known by locally. I then sent out a copy of a map of the district showing the hills and valleys, at the same time asking that some of the seed might be collected and sent home from the actual trees from which Ledger's men obtained their supply. This request has been at last complied with, and seed is now on its way home to me, which I expect to arrive any day, if no mishap befalls it. By a singular coincidence a gentleman has lately arrived here from this very district, and he has brought with him specimens of the bark taken from the different varieties of trees which he considers to yield the best results commercially. The local names of these trees I have compared with those yielding the sample of the leaves that was sent direct from a planter in the same neighbourhood, and he at once

explained to me the distinctive marks by which the trees were known. The leaves in only one instance corresponded with the names on the samples of bark that were produced, thus showing there were several valuable varieties. This gentleman perfectly well knew where the Ledger seed was obtained from, but his opinion is that the bark, and the leaves which he sent home representing different varieties of Cinchona, yield a larger percentage of sulphate of quinine than the trees which are now known under the name of Ledgeriana. Hearing this we have begged that supplies of the different varieties of seed may be collected and sent home. Taking an entirely commercial view of this subject I followed up the question to find out where this bark went to, and I asked my friend, Mr. E. M. Holmes, Curator of the Pharmaceutical Society, to be present at one of the interviews. Mr. Holmes examined the samples of the bark, and without an analysis he pronounced it to be remarkably fine Calisaya. He added that, at the present time, it is exceedingly difficult or almost impossible for the retail chemist to obtain Calisaya bark in commerce of a quality which answers to the test given in the *Pharmacopœia*, viz., that it should contain 2 per cent. of quinine. This fact has been alluded to in the *Pharmaceutical Journal*, October 29, No. 592, pp. 369, 370, from which the following is extracted:—"The wholesale dealer is often compelled by the requirements of his customers to purchase barks of fine appearance and moderate price rather than of superior quality. On the other hand, the cultivated Cinchona barks are not mixed with false barks, but there is at present, and probably will be for several years, difficulty in obtaining good qualities of yellow and pale barks, the supply of these not being as yet equal to the demand for them for the purpose of making quinine, while several hybrid species, yielding inferior bark, are not unfrequently sold with those of good quality, and cannot be distinguished by external characters except by experts. Dr. Paul said there could be no doubt that at the present time there was a need for alteration in the selection of bark used for pharmaceutical purposes. He gathered from the paper which had been read that there was some little difference of opinion as to the direction in which that change should be made. The officinal yellow bark and the flat Calisaya bark were almost invariably worthless, so far as the presence of quinine was an element of value. The flat Calisaya bark of commerce now really contained nothing more than a little cinchonine—1½ to 2 or 3 per cent., and was not at all equal to the character given in the *Pharmacopœia*, and it required to be replaced. Two new kinds of bark came to this country from Bolivia and the northern parts of South America, which were excellent barks for pharmaceutical purposes. They were mostly of the character of quill Calisaya, yielding 2½ to 4 per cent. of sulphate of quinine. There was an abundant supply of them, and there was no reason why they should not be adopted." I learned that this bark up to the present time has been principally sent to Germany. I also extracted another piece of valuable information, viz., that although the bark of certain varieties of trees yielded a larger percentage of sulphate, and fetched consequently a higher price per pound, yet for a planter some of the varieties yielded a much larger quantity of bark than others, from having a more robust habit, and consequently for a planter this was a more economical kind to grow. I am trying to ascertain if the value of the Cinchona tree is affected by the soil as the Cocoa tree (Theobroma Cacao). As far as I can learn at present this is not the case. The natives do not judge the trees by the flowers, but by the colour of the leaves and veins in them. *Thos. Christy, Fenchurch Street.*

Dublin Museum of Science and Art.—Mr. A. G. More, F.L.S., M.R.I.A., &c., the well-known author (with the late Dr. David Moore) of the *Cybele Hibernica*, has been appointed to the important post of Curator of the Dublin Natural History Museum. For the past fifteen years Mr. More has been principal assistant under the late curator, Dr. Carte, and by his numerous contributions to various branches of science (more especially to our knowledge of the zoology and botany of Ireland) has well deserved the honour of the appointment recently conferred upon him by the Lords of the Committee of the Council of Education. It may fairly be said that no one is better known as an authority on the natural history of Ireland, and, altogether apart from his own work, Mr. More has been especially apt and fortunate in promoting and assisting the labours of others; and this recognition of his labours will be peculiarly fortunate in helping forward the study of natural history in Ireland. All whose studies have led them to consult the collections in the Dublin Museum have found Mr. More ever ready and most anxious to satisfy their inquiries; indeed, it is in a great measure due to him that recent explorations of the fauna and flora of Ireland have been carried on. The published works of Mr. More are *A Natural History of the Isle of Wight*, a supplement to Dr. Bromfield's *Flora Vectensis*, an essay on the *Distribution of British Birds during the Breeding Season*, the *Cybele Hibernica*, as before noted, and its *Appendix*; and many detached papers on various branches of natural science. Mr. More is very popular in Dublin, and we hope that he may long be spared to carry on his work, and to enjoy his well-earned preferment. *B.*

Laying Box.—If your correspondent "H.," who at p. 793 takes exception to my remarks respecting the propriety of stopping gaps in Box edgings in December, will again be kind enough to refer to my Calendar notes in your issue of the 10th inst. he will find that I did not there specially recommend the laying of Box in December, or indeed at any particular time, but simply remarked that it would grow at any time of the year if subsequently attended to in the way of watering if necessary; and that, such being the case, the present would perhaps be the most convenient time to make good any defects in the edgings, &c.; and to this I would now add—perhaps as good a time as any other in the year for doing so, considering the nature of the weather which has prevailed during the present and preceding month. Moreover, I fail to see any reason why the process of transplanting Box edgings—weather permitting of its being done—in November and December, should not succeed as well as that of any other evergreen! Although spring—when the calls upon labour are more pressing than they are now—is considered by some people to be the only safe time to lay Box—and, as "H." remarks, where the soil is of a wet and heavy nature it would be well to defer the operation until then, I would, however, where the condition of the soil is the reverse of that just mentioned, and not forgetting the question of labour and the ultimate success of the undertaking, prefer laying Box—especially on an extensive scale—in November and December, providing that I had not the time to do so in September and October, than defer the operation until March. *H. W. Ward, Longford Castle Gardens, Dec. 20.*

The Birds and their Christmas Feast.—During the week ending on the 17th inst., the birds almost cleared off every Holly berry from the immense numbers of Hollies in our shrubberies and woods. This is the more singular as the weather was by no means severe, but open and wet. The rapidity of the clearance was also quite unprecedented in my experience. It is only a few days since that I sent some sprays crowded with berries, remarking that I had never seen so many, and now the plants are, writing broadly, all cleared. It seems as if the birds had determined to hold their Christmast feast in advance this season. It also seems remarkable that they could have eaten so many in so short a time. After all, how soon the most ample stores of food disappear when the time approaches to eat it up. No doubt there is a season of ripeness when all such foods reach their highest quality, and are forthwith devoured. The time of eating also seems less determined by the weather than many suppose. Had the cold been intense or frost severe, the sudden disappearance of the Holly berries would have been easily explained; but the ground had been soft, the weather open, and abundance of worms and other food abounds in all directions, and yet the Holly shrubs have been stripped bare as if by magic. By what rule of choice or necessity has all this been done? *D. T. Fish.*

Potato Disease in Winter.—In digging some very early Potatos under a south wall in the spring some tubers were accidentally left in the ground, and during this wet mild season have grown to 1 foot high, looking healthy and strong, but on examining them the other day I found them badly diseased in both leaf and stem. *W. Divers, Weirton House, near Maidstone, Dec. 20.*

Abutilon Crimson Banner.—There is hardly a class of winter flowering plants in cultivation that afford greater variety of colour, or that are more simple to cultivate, than the Abutilon. For bouquet making they are probably the cheapest flowers in the market at this season. A few degrees above greenhouse temperature is sufficient to keep plants in a growing and flowering state throughout the winter. Many varieties are most suitable for covering walls or trellises, or for producing flowers for cutting; but none are equal to the variety above-mentioned for growing as pot-plants in a small state for ordinary purposes of furnishing. The plant is of dwarf habit, and the freedom with which it flowers renders it unique among its class as a table or vase plant. *W. Hinds.*

Wall Coping.—Can any of your correspondents give me some information as to the best, cheapest, and most durable form of coping for kitchen garden walls? For the protection of wall fruit copings are of immense value. In France wall fruit are commonly protected by a "sloping tile coping," resting on the top of the wall, not supported by brackets, and fluted on the under-side in order to turn off the raindrops. I venture to think that all the information that can be obtained on the best and most durable wall copings would be of general interest to your readers at the present moment, when our climate is often so wet and variable in the spring and summer months as materially to injure the outdoor fruit crops. *G. R.*

Late Flowering Chrysanthemums.—I notice that a correspondent wishes to know the names of the best late flowering Chrysanthemums for cut blooms, and would therefore strongly recommend two old sorts which are the best I am acquainted with—the one being Bouquet Parfait, and the other Nelly, cuttings of both of which I shall have great pleasure in sending him if he will forward me his address. *J. Sheppard, Woolverstone, Ipswich.*

General Jacqueminot Rose Pegged Down.—Notwithstanding the numbers of new Roses that are yearly added to our already over-long lists, the above fine old variety is still a favourite with market growers, who ought to know what is most useful and pays best. Of the colour or quality of this Rose it is needless to speak, but it may be useful to mention that one market grower in Surrey whose stock I recently saw plants them in beds, and pegs them down, by which means three times the number of blooms are obtained than if the plants were cut close back in the ordinary way. Of recent years the requirements of private families are so closely approximating to the market grower that a practical hint from the doings of the latter may not be unacceptable to the private grower. The advantage of the system is the extra number of blooms that are obtained from the plants for button-hole or other bouquets, which, as nearly every one knows, should be cut when the "General" is about half-blown. The present season offers a favourable opportunity for planting for such a purpose in a preparation of rich deep soil. The stock to which reference has been made are growing but a few feet above the level of the River Thames, in a free, open loam, resting on a subsoil of generous clay, and the shoots of the Roses are nearly as thick as ordinary-sized Raspberry canes. *W. Hinds.*

Dion Edule.—Anything that is not ordinarily seen seems to attract attention, even if the object is more interesting than pretty. A small-sized plant of this Cycad now producing a fine cone in one of the Pine-houses at Embury Court, near Thames Ditton, Surrey, is something uncommon for the age of the plant. The cone very closely resembles a Fir cone, and is covered with a milky-white substance which at first sight appeared to be a liquid, but upon closer examination proved to be a powder. Is it usual for the plant to produce cones in a young state? *W. H.*

Disease of Disa grandiflora.—I have received from the Rev. H. H. D'Ombrain—who had probably noticed the article on the disease of Carnations in the *Gardeners' Chronicle*, p. 721—a leaf of Disa grandiflora in precisely the same condition as the Carnation illustrated. The base of the leaf was whitish, almost transparent, and entirely devoid of cellular tissue between the upper and lower cuticle. A search was at once made for presumed nematoids but with no further success than finding distinct traces of the creatures. Towards the middle and point of the leaf numerous minute livid-brown opaque patches were visible, and on submitting these patches to the microscope the nematoid worms were found ensconced within; the worms were also in the intercellular spaces amongst the perfectly healthy tissues. No doubt the worms had first attacked the collar of the plant and then made their way upwards into the body of the leaf. Healthy leaves are so essential for a plant's well-doing that attacks of the nature described now and under Carnation disease, where the base of the leaf is attacked, must needs be very injurious if not fatal to the plant attacked. It is a great mistake to suppose that these nematoids are confined to roots. The Cucumber disease is nearly always termed "disease of Cucumber roots," simply because the effects on the roots are clearly visible to the naked eye. One of the best known nematoids attacks the leaves, sheaths, and seeds of corn, and causes "ear-cockle" in the grain. Unfortunately, as is too often the case with correspondents, Mr. D'Ombrain has not furnished us with any particulars of his case—he merely asks, "What is the matter?" *W. G. S.*

Habrothamnus elegans.—I shall be very much obliged by Mr. Hudson informing me how he manages to keep his Habrothamnus free from insects. Mine, which grows in the slightly heated greenhouse on the wall gets so infested with insects that it has to be cut in severely, and the consequence is, it looks very ill now, and many branches are dead, and no sign of flowers. Is it a plant that has to be renewed often, or does it live for years? The kind here is the beautiful red, flowers like coral. What is the right season for it to flower? *F.* [The Habrothamnus elegans

growing here in the conservatory was planted by me in 1876. It was perfectly free from mealy-bug and scale when planted, in which condition I have kept it ever since. If thrips or fly are troublesome, fumigation is resorted to; for red-spider, frequent syringing with water from a tank in which a small bag of soot is kept; if mealy-bug or scale should in any case be troublesome, an insecticide should be the remedy. This is a plant that requires a plentiful supply of water at all times. I find it a continuous grower and bloomer the year throughout. I do not consider the wall of a greenhouse a position suited to the plant, unless it be the end wall of a span-roof structure, where it should do well and live for years. It is grown here in a position where it receives abundance of light, and is trained on an arch spanning the pathway. In this position it displays its flowers to advantage. *James Hudson, Gunnersbury House Gardens.*]

Head Gardeners.—I notice that among the gardening appointments recorded in your columns three-fourths of the appointments made are of young foremen to fill head gardeners' places. May I ask what has become of their predecessors? Surely there are not so many deaths in the gardening community as to make room for so many young successors, or do gardeners' places increase so rapidly as that all can find situations? A few of the old hands may perhaps have retired on their accumulated funds, but I do not think that many can have been so fortunate. *Constant Reader, Dorchester.*

Sequoia gigantea.—It would be interesting to learn whether any one in this country has raised young plants from seed of the Wellingtonia ripened in Britain. A tree here, from 35 to 40 feet in height, has a number of cones on it, the production of last year and also of the present—those of the former being still as green and healthy in appearance as the younger ones. Seed has been sown, the produce of the same tree, in former years, but failed to vegetate. The same query may be made to apply to Araucaria imbricata, which produces cones pretty freely in various places over the kingdom. *J. Webster.*

Mr. Rochford's Boilers.—I will at once admit that I have not seen Mr. Rochford's boilers, and when I wrote I could not find the original description of them given by Mr. T. Baines, at p. 77 of the *Gardeners' Chronicle*, January 17, 1880, but from my recollection of that article, or rather the drawing, I fancied that the fire occupied the whole of the space up to a division wall there mentioned, which would be nearly 10 feet from the front. Having admitted this (my only) error I must ask permission to state that I did know from "what I had heard" that the pipes were thick, but six weeks ago I saw a similar boiler 6 feet long lying on a rubbish-heap discarded by the nurseryman who had had it in, because one of the tubes had broken from a "slight blow in stoking" (or otherwise) "rendering it useless." As to cracking the pipes with the "biggest poker" let me say that I have seen the terminal end of a wrought iron boiler with a hole poked in it by another man, and last month was called to see a furnace front that had been dragged out by the stoker, imagining there were clinkers on the bars, and who tugged at them till he pulled the dead plate 2 inches out and so straightened the iron hooks that held the front in the brickwork. Such men would make short work of 4-inch water mains even, and the failures so caused would be anything but "imaginary" to those thus "practically acquainted" with them, and would not "provoke a smile" by any means. It is generally admitted that the horizontal form is better than the upright, but these long tube boilers must, as I said, occupy a space that in most gardens (other than nurserymen's) would be valuable, and though they may not require much depth they must have brickwork sides and some covering above—whether of tiles, flags, or bricks, matters not. These sides, with the brick bridge in the middle, and the upper covering, must absorb the heat from the fire, and must cost money. To show that I am not "completely at sea" as to excavating and brick-setting, I take "T. B.'s" figures for two boilers, each occupying for furnace portion only, including the water-way front, 5 feet long by 3 feet 10 inches deep, and I suppose nearly 4 feet wide over all, or 150 cubic feet. My men are now attaching to over 7000 feet of piping one "dumpy short boiler," which occupies an outside measurement of 8 feet long by 4 feet wide and 3 feet 9 inches deep (which cannot be exceeded 6 inches in any direction owing to the position), or 120 cubic feet, and the fire-box will not hold nearly as much fuel as two of the tube boiler furnaces to heat same quantity of piping. No portion of the direct fire-heat, except below the bars, can warm one brick, nor need there be "a single brick used over" it. Is this stokehole and setting likely to cost as much as the stokeholes and setting of the two boilers vaunted so much for their economy? I say nothing here of the extra 20 feet (twice 10 feet) long, with some sort of depth and width for excavation, which I will make "T. B." a present of for the purpose of comparison, as he says "the extremity will do just as well outside," wherever that may be. I said that the first cost of my boiler would be more, but as you cannot burn as much fuel in it as in the others, it will save in the long run. In that letter I made, as I thought, a fair criticism on a subject of great interest to the readers of your paper, by questioning (as I have done of others) whether such huge boilers as those referred to were truly economical "in ordinary circumstances," as I have never doubted their power, and had no idea before reading the reply that I was so lamentably ignorant. As illustrating the difference in the form of boilers, I will, if you please, mention one of many experiments recently made. I had a copper tubular boiler heated by gas which was more satisfactory than any I had before seen; but as I thought there seemed a waste of power or heat, I had another made with shorter and fewer tubes, differently arranged, and the surplus copper shaped into a "dumpy saddleback," with this result—that, burning the same gas, I get 30 per cent. more heat in the water-pipes, and only 5° lower temperature in the flue-pipe, the extra heat now secured having previously dissipated itself in the larger air space of surrounding casing. I see that a fire occurred at Mr. Badman's nursery, Gravesend, through the over-heating of the furnace of one of these pipe-boilers. Can "T. B." explain this, if they absorb so much of the fire-heat? With the "dumpy saddle-back" I should put in, having no outside flues, such an occurrence would be impossible, as all the fire-heat would be surrounded by a close-fitting water-jacket, with no cracks or openings for fire to get through, as it must with these pipes. *B. W. Warhurst.*

Podocarpus chilina.—As with others, my Podocarpus chilina have all succumbed to the two last terrible winters; but I was surprised to find that in one case it had shot up from the root. I was under the impression that Sequoia sempervirens was the only Conifer that would thus revive. *H. K.*

Euonymus atro-purpureus.—Before the planting season draws to a close the attention of planters should be directed to the above, as it ought to be grown in all places where berry-bearing shrubs are appreciated. When associated with Aucubas, Rhododendrons, Hollies, and other evergreens it has a most charming and attractive appearance. Its pendulous magenta-coloured opening capsules are exceedingly pretty, and may be used with a good and telling effect in church or table decorations. It has also the great merit of not being at all fastidious as to soil or climate, as it will thrive in the poorest of soils and will stand the test of zero with impunity. *J. H.*

White Varieties of Wild Flowers.—The sportive character of wild flowers is so well known that any lengthened comment on the subject in your columns would doubtless be regarded as being quite out of place and of little or no interest to any one. Assuming that such would be the case, and that there is nothing extraordinary in the existence of white varieties of different genera and species of British plants, the normal colour of which may be yellow, pink, purple, or blue, I will merely say that one of the chief characteristics of the soil in this locality is that of producing white flowers in abundance, and that amongst others white varieties of the following have been met, viz.:—Orchis maculata, O. ustulata, Gymnadenia conopsea, Malva moschata and Verbascum blattaria. Although the two latter are mentioned in Bentham's *British Flora* as occurring rarely white, I may here say that they are always so with us, *i.e.*, in their wild state. With regard to the three first I would further say that of O. maculata I have hitherto found only one white specimen, O. ustulata, frequently, G. conopsea occasionally. *J. Horsefield, Heytesbury, Wilts.*

Blackbirds and Slugs.—It may be a question of sentiment whether blackbirds in a garden are a nuisance or a blessing: it may depend partly on their number, but partly also on the true answer to this question of fact, Do they eat slugs? If they do the service would compensate for the loss of a large quantity of fruit. The writer of the article on p. 782 assumes that they do, and books on natural history generally follow one another in mentioning slugs as forming part of their food. Amongst authorities of the last generation, in speaking of the food of blackbirds, Leonard Jenyns mentions snails, but says nothing of slugs. Gould includes slugs, though in a catalogue of the contents of the stomachs of five blackbirds examined by him, varied as they were, no slugs are mentioned, but two or three species of snails. Yarrell speaks incidentally of the service the blackbird does for the gardener by destroying slugs and other vermin. Since the second edition of his work has been in progress I have asked the editor, Professor Newton, what was his own opinion on the subject; he replied that his observation inclined him to believe that blackbirds do not eat slugs. A gardener of great experience told me that he had often purposely watched blackbirds whilst feeding, and was convinced that they took no notice of slugs. Another friend, well known as an accurate observer, said, that he had investigated the subject, and had never found that any birds feed upon slugs, except ducks. One person informed me that a tame blackbird he had, when a slug was given to it, would toss it about with its beak, and roll it in the sand on the bottom of the cage, as if to get rid of the slime, and at last swallow it as a nasty dose. Perhaps this bird was kept short of animal food, and took the slug as medicine. It is the only certain instance I have been able to find of a blackbird eating a slug. Shell-snails, we know, are a favourite food; but if any one can prove that wild blackbirds are in the habit of eating slugs, he will improve the somewhat ambiguous reputation of these robbers of fruit. *C. Wolley Dod, Edge Hall, Malpas, Dec. 19.*

The Protection of Fruit Trees.—When one sees a heading as above we naturally begin to think of frost and fruit blossoms, but it is not the protection of these latter that I would call attention to, as they will not be open yet—I only wish just now to treat of the buds. These are in such a forward state as to be in great danger, not from frosts, but from birds, which, if we get a fall of snow so as to make their other food short, are sure to be at them. Apples and Pears, however, are safe enough so far as the feathered depredators are concerned, as they seldom touch them; but Plums, Cherries, Gooseberries, and Currants are quite at their mercy. The buds of the first-named trees are special favourites with the bullfinch, and sparrows greedily devour the others. To keep them off has long been a difficulty with many, but by the use of lime the matter is easy enough. The way to apply it is to syringe it on, and to do this it must be slaked in water and made into a thin wash. If there are many trees to be done the best plan is to get two tubs or other vessels, the one to slake the lime in, and the other to hold the wash as it is strained through a sieve, which straining is necessary to take out any lumps, that it may readily pass through the tube of the syringe. The fresher and stronger the lime is the better, as then it adheres tighter; and not only that but, used hot, it kills all moss, lichens, and other parasites with which the bark of trees is afflicted. A still day is the most suitable for putting it on, and if applied early in the morning after a foggy or damp night it will be found to cover the stems and branches more readily, and when dry adhere all the closer. In spring it gradually loses its hold and peals off, when it leaves the bark bright and polished looking, free from all conferva, &c., that does so much to make trees unhealthy, while as to sparrows and finches they are all through the winter placed at defiance, for without doing great violence to their palates they cannot get at the buds. If the whiteness of the lime is thought to be objectionable, a little soot added and stirred up in it will tone down the glare. *J. S.*

"Rowdyism" at Flower Shows.—The unfortunate occurrence at the Birmingham Chrysanthemum show, referred to on p. 726, is happily uncommon, but yet too common, as it is rarely that an instance of what has been termed "rowdyism" finds its way into the public prints—such acts find no record. So long as human nature is what it is, and passion usurps the place of calm reason, so long will conductors of flower shows be open to such practices. The larger and more important the exhibition, and the wider the area of the competition, the less likely is such a course of conduct to materially affect a show, but, unfortunately, there are localities where one local exhibitor is able to make or mar a show, and the withholding of his contributions would have the latter effect. Such an one is at once the master and terror of the managers, and the trouble and vexation he causes is great and deep. He is, unfortunately, not a creature of the imagination, but he exists, and at times works his will in this arbitrary fashion. The question arises, Who are the proper and responsible custodians of the plants, &c., after they are once placed in the exhibition tents? Clearly the managers or committee of a show, or the promoters of the same by whatever name they may be known. All schedules of prizes are issued under certain conditions, and among them the time is set forth for the duration of the show, and the hour for closing the same and removing the plants is stated also. During that time the plants are the temporary property of the managers of the exhibition, and in taking charge of them during the time the show remains open they incur a certain degree of responsibility. If the show remains open for more than one day the principle is universally recognised that the duty of the manager is to clear the tents at a certain hour, see that they are properly closed for the night, to take all reasonable precautions that no harm is done to the exhibits; and that this may be properly seen to it is the invariable practice to appoint night watchers. All this lends point to the position we are advancing, that the responsible custodians of the plants during

the time they are on exhibition are the managers of the show. The exhibits once staged under the rules laid down in the schedule, the exhibitor, whatever may be his sense of disappointment with the awards made, has no right to remove his exhibits in consequence. Under no circumstances can this be allowed, except in the case of special permission from headquarters. The judges may, as they sometimes do, commit an error of judgment—nay, they (to put an extreme case) may be guilty of wilfully giving an award contrary to the plainest facts and evidence, and yet the exhibitor could not claim to remove his subjects on this ground. A proper course of proceeding is open to him, and though schedules of prizes invariably contain a proviso that the decisions of the judges are final, any committee would be justified in reconsidering a decision they had reason to think was a corrupt one. And a chief point to be remembered by exhibitors is this—that the committee of a show enter into an engagement with the public of the nature of a contract to provide them with an exhibition that is open for a limited period for a certain payment. It is not the managers of a show merely that are aggrieved, but the public have just reason to complain when an unauthorised and irregular removal takes place. After all, it should be much more a matter of mutual forbearance and kindly feeling than regulations. But regulations must be made, and strict ones, too, as they may have to stand the test of ultimate appeal. Exhibitors should show a concern for the success of an exhibition; and they should be especially considerate towards the managers, who have generally more difficulties to contend with than the exhibitors and the public are aware of. Let good feeling operate all round; let there be confidence in the managers, and the managers will be found to take all possible care of the interests of the exhibitors, on the cordial co-operation of whom so much of the success of a horticultural exhibition depends. *Z.*

Trenching or Deep Tilth.—The object of this note is simply to extol the advantages of deep tilth as applied to gardening, and is written solely in the interests of those who—having to grow kitchen-garden crops for market or otherwise—do not make it a rule to trench over annually a certain portion of the land they have under cultivation, but content themselves with the too common and easy-going one-spit system. That the man who only tills his land a few inches deep does not get as much out of it as he might, there cannot be a shadow of a doubt; and the sooner such a man becomes convinced of this and alters his practice, the better. The importance of trenching cannot well be overrated, and all gardens under a regular and methodical system of cropping ought, in the writer's opinion, to be trenched to a depth of not less than 18 or 24 inches once every three or four years. Of course we all—or rather the majority—know that in gardens of large dimensions it is utterly impossible to trench over the whole of the ground in one year; and, indeed, even if it could be, it certainly is not necessary. The most convenient and by far the best plan is that of taking a third or a fourth in hand every season, inasmuch as the operation would not then interfere to any great extent with any other important and pressing work there might be elsewhere. Many persons complain—in some cases it may be with good cause—of the sterility or unproductiveness of the soil with which they have to contend, and think that by simply giving a good coat of manure they ought to have fair crops; but should it so happen—as most assuredly it will, when the system alluded to is carried out for a number of years in succession—that they only obtain poor and meagre results, the circumstance is regarded as a mystery, and a thing which is quite beyond their comprehension. This, however, is poor logic, and, to put the case plainly and in few words, the fact of the matter is simply this: Such soil is wholly unsuited to the growing of good crops, being deficient in those chemical properties which are essential to the building up of the constitutions of healthy growing plants, and which in a more or less degree they extract from the soil. For the majority of evils, it is said, there must be a remedy, and the remedy in this case is deep tilth. Surprise, both verbal and written, is occasionally expressed at the enormous crops produced on land which has been newly broken up, and to which for the first crop no manure was applied. I may here parenthetically remark that the difference between such crops and the crops obtained from land which has been highly manured and annually cropped, is sometimes adduced as evidence in favour of giving little or no manure for Potatos. Such ideas, however, are quite erroneous, and to a certain extent misleading; equally good results, or even better, may be obtained by deep tilth; this assertion I will endeavour to qualify hereafter. Meanwhile, let me say to the man who desires to obtain from his garden as good crops as it will produce, Dig deep, bring the bottom soil to the top, and *vice versâ*, or, in other words, trench the ground. All kitchen-garden crops are immensely benefited by the operation, and none more so than the Potato. "What, trench ground for Potatos!" says the reader; "Yes, and you will be amply repaid," is the rejoinder. To illustrate the value of deep tilth for such crops as Potatos, I give the following case, and do not by any means mention it by way of boast, but only with a hope that it may stimulate others to adopt the same plan, and that they may meet with like results. Last autumn a piece of ground nearly a quarter of an acre in extent was trenched two spits deep, and manure at the rate, as near as I can remember, of twenty tons per acre was incorporated with the bottom spit which was brought to the surface. On March 14 the plot was planted with Magnum Bonum, the sets being placed a yard apart. On September 13, owing to the prevalence of disease in the tops, they were dishaulmed, the haulm, as far as practicable, being burned (no easy task). A fortnight later the crop was lifted, and a disinterested person told off to select what he considered to be a fair rank, and to pick up all sound tubers of an eatable size from a given distance. This was done, and the sample weighed, and according to our calculation the yield was at the rate of 14 tons per acre; but to be within the mark let me say 12 tons, and assume that they were worth the current market price, of from 90*s.* to 110*s.* per ton. With these facts and figures as a basis to work upon, very little reasoning and reckoning would soon show on which side of a debtor and creditor account a good balance would stand. Here, then, is a case clearly demonstrating the great advantages to be derived from deep tilth. With reference to the above crop it may also be stated that there was less than a bushel of diseased tubers, and that the quality was superior to what I have previously known Magnum Bonum; but for this and the weight of the crop itself I must make some allowance for what we have all—so far as the Midland and Southern Counties are concerned—reason to be thankful to say has been a good year for Potatos. In conclusion, I cannot refrain from saying that notwithstanding the fact that it is said that the yield per acre of crops on the land in this country is greater than in that of most others, I honestly believe that it would be greatly increased were a deeper system of tilth resorted to. Of course I readily admit that that which I am now advocating is not applicable to all soils; for instance, to attempt such a thing on the chalky downs of Wilts, or on other very shallow soils, would be madness; but where there is one place where deep tilth is not admissible I think it might be conclusively shown that there are two where the system could be profitably carried out. *H. J. H.*

Vegetable Judging.—If "R. C." was not amongst the privileged ones who saw the fine lot of vegetables staged for the Messrs. Carters' prizes at South Kensington last week, then he will be pleased to learn that no display this season of these important garden products has shown better average quality than did the collections to which prizes were awarded. The element of mere bigness is evidently being eliminated; exhibitors are beginning better to understand what should be put up and what constitutes quality. Good vegetable growers are plentiful enough, but the capacity to select just the samples that are needed to win is not always found. Mr. Austen, of Ashton Court, has proved himself to be the premier vegetable exhibitor of the season, and well does he merit the honours thus won. He, however, may not be so much better a cultivator of the things exhibited than others, but he knows well what constitute the points of winning specimens. His twelve kinds staged at South Kensington last week were probably unbeatable. The good example thus set, allied to an occasional "rub" in these columns, will, without doubt, do much to keep alive that taste and judgment without which an exhibitor will meet with little success. Perhaps to this improvement in the general quantity of the exhibits is largely due the fact that the judging was perfect. By-the-by, one of the experienced gardeners who now and then, perhaps often, as a member of the Fruit Committee, have to bear the heavy responsibility of judging at these competitions, mentioned, that though at times taken to task for real or apparent mistakes of judgment, yet there was no honorarium of any kind given them as a solatium. That seems very ungenerous. I do not say that it is such on the part of the Society, because that doubtless does its part when it provides free of cost a place for the show, and all other needs. But the trade houses who offer the prizes which produced these competitions know that they must be judged, and they like to have the best men to discharge the duty. If anything is worth doing well, it is also worth paying for; and if rich firms find the offering of these prizes to be good advertisements, they surely should add to the sum paid for the prizes a trifle over for judges fees. Why should not these as well as other "labourers" be worthy of their hire. There is just one little matter in respect of which some exhibitors, in perhaps a novel fashion, lay themselves open to animadversion. It is a rather culpable anxiety to name things on the show-table rather to please others than themselves. No gardener who has perhaps for years grown his own carefully selected stocks of various vegetables, and which are practically his own strains, can acknowledge that it is a pleasure to him to sometimes call his Parsnips "Students," at another time "Maltese;" his Brussels Sprouts both "Exhibition" and "Perfection;" and have duplicate names for Onions, Turnips, Beet, Cauliflower, &c. Keen observers see these things and make mental notes of them—not, of course, to the exhibitor's advantage; and even those whom it is so desired to please, and perhaps are so, are none the less not deceived. *A. D.*

Turf, How to Obtain It.—For those who can have turf simply for asking, or those who are able and willing to pay for it, these remarks are not intended. Many there are, however—and it may be some few amongst your readers—who have not hitherto been successful in obtaining it for asking, and who are unable or unauthorised to pay for it. In such a predicament I once was, and for those who may be so at the present time this note is written. Soon after the writer was appointed to the situation he now holds, it was decided to re-plant two of the vineries, and, as a matter of course, he wanted the best turf he could find on the place, and forthwith commenced a survey of the park, this being the place wherein the best quality was to be found, and eventually selected a nice open spot away from the shade of all trees, and from which he thought he might have as much as was required. In this, however, he was reckoning without having first consulted a higher authority—permission had not yet been obtained, and when duly asked for was not granted, and so matters stood for a time. The idea of cutting up (or skinning, as it was then jocularly termed) the park for the sake of making new Vine borders did not at the time meet with much favour. Still, said the inner man, it must be had if possible, somehow or other; see if something in the way of reciprocity will do. A fresh proposal was made, and, as it met with success, it is presumed that it would succeed elsewhere, and I give it for what it is worth. The proposition was:—Could a few loads be had on condition that the place from whence it was taken was within twelve months made good and as green as that which was left? Yes, was the reply. A space of about 50 square yards was accordingly marked out, and no time lost in taking up half of it. Lines 1 foot apart from end to end were cut, every alternate row taken away and replaced with old soil, the same being sown down early in April with a mixture of Clover and grass seeds suitable to the land. The result was that in less than twelve months any one standing at a distance of 50 yards from the same place could not tell from where the turf had been taken. The rows which had been left were then treated in the same way, and it is pleasing to say that since that time I have experienced no difficulty in obtaining under the same conditions whatever turf I have wanted. I will hope that others, by adopting a similar course, may be equally as fortunate. *J. H.*

Late Roses.—While the million are bent upon procuring and planting novelties in Roses and show kinds that obtain the greatest number of prizes at exhibitions, really useful varieties are either altogether omitted or are planted in such small quantities that their true value is seldom discovered by the masses. The latest Roses that I cut out-of-doors last year were very fine blooms of Souvenir de la Malmaison and Mrs. Bosanquet, both alike in colour, but the latter much smaller than the former. Both should be cut in a half expanded state, and are charming colours for ball bouquets or used singly as button-hole bouquets for gentlemen—the colour, pale flesh, varying more or less to a pink tinge according to age, and is a shade which is much sought after by ladies, and which is not over-abundant at this time of year. The Souvenir de la Malmaison does capitally as a wall Rose, and well repays for shelter and liberal treatment. It blooms freely up to Christmas in a mild season. Mrs. Bosanquet (a hybrid China variety) is a dwarf grower, and succeeds well at the base of a wall or any sunny nook which is sheltered from north and east winds. To secure the full advantage of possessing such Roses they should be removed from bleak or exposed situations to warmer quarters: they bear removal without sustaining much injury, and seldom fail to produce a good crop of late flowers the year after lifting. As late flowerers they have time to establish themselves in the fresh soil, and the shift is rather beneficial than otherwise in promoting the object in view. A bed or group of either or both varieties, well looked after, seldom disappoints the cultivator in results. *W. Hinds.*

Sulphur Fumes for Cleansing Fruit Trees.—Sulphur, as is well known, has long been in use in gardens as a remedy against red-spider and mildew, but I have never heard of its fumes being applied as the cleansing of the bark of fruit trees, and I should have hesitated to venture with it in that way myself had I not discovered its value by chance through burning some in a hole in the wall to stifle a

colony of mice that had taken up their quarters in a hollow scarf, when not only were the mice asphyxiated, but every living parasite on the part of the branches where the smoke went was destroyed, and the bark of the tree made to look quite healthy and clear. I feared at first it must have suffered some injury, but such was not the case, as by a close examination I found it had not gone through the surface, and as the buds broke just as strongly and freely there was proof that they had taken no harm. Seeing the good effect it had, I am now having some old Pears and Plums gone over, and although these have only been operated on the last day or two, the difference in appearance between these and others can be seen a long distance off. The most economical way of using the sulphur is to have a few old pots or pans with lighted charcoal on which the sulphur can be thrown, and if applied on a still day when what little draught there is is against the wall where the trees are, the fumes will draw up among the spurs and branches without any waste. To fumigate pyramids, a cloth may be easily run round the weather side or let down the front of those trained, and then strutted out at the bottom over the fires, and if a space is left open against the wall at the top there will then be a clear current through. The one thing to avoid is overdoing it, and if ordinary care is exercised I am convinced that such a fumigation on old dirty trees will do a vast deal of good, and I shall be glad if others will try it and report results. *J. Sheppard.*

The Heliotrope as a Winter-flowering Plant.—The flowers of this sweet-scented plant, whether in a cut or growing state, are at all times in request, and a few sprigs of them with a base of Maidenhair Fern are much appreciated in the boudoir and drawing-room, as they are also in a bouquet, for the making of which they are valuable. Now, in order to have a supply of these favourite flowers throughout the winter and spring months—and, indeed, all the year round—a good batch of the summer-struck cuttings should be potted up at once singly in 3-inch pots in three parts sandy loam and one leaf-mould, and put along the side stages or on shelves near the glass, which will be a more favourable position for them, in a forcing-house, where the trailing habit of the plants will add grace to the delicious fragrance of their flowers. In the spring a few dozen of the strongest plants should be shortened back a little to make them bushy, and subsequently when they show signs of fresh growth be shifted into 6-inch pots, and again, later on, into 9-inch pots. In these pots, with frequent stoppings of the shoots, and feeding at the roots, the plants will make nice shrubby specimens by the autumn, when they should (weather permitting) have abundance of air day and night in order to consolidate their growth before being put into heat a few weeks later on. If larger specimens are desired of course the plants will have to be shifted into suitable sized pots as they require more room at the roots, and, as the Heliotrope is a very manageable plant, it may be trained almost into any kind of fashion or shape; however, for the purpose of supplying cut flowers and useful decorative plants, we prefer bushy plants, together with a few plants trained to a flat upright wire trellis, which is a very convenient shape, inasmuch as the plants thus trained can be placed in better positions—positions in which they will not interfere with the growth of the other plants: I refer to the glass ends and back walls of the forcing-houses, where the plants will not only look well but flower well also. We have a few plants in 14-inch pots trained as above described and occupying similar positions to those mentioned, which, together with a small batch of miniature bushes of this charming plant, yield us a good return in the shape of flowers for the care and attention given to their culture. We give our plants manure-water at the roots about twice a week, which results in the production of finer flowers. However satisfactory the floral results of pot plants may be, it is when the plants are planted in a border and trained against a trellis in a light warm house that the greatest success in flowering the Heliotrope during the winter and spring months is achieved. We have a plant here which is planted out and trained against the back wall of an old house which is at once valuable and interesting—valuable from the fact of its having annually supplied us with a profusion of sweetly-scented flowers, and interesting on account of its great age, which, according to the statement of an old tradesman in the neighbourhood, is over fifty years, the same authority adding that so far back as that date the plant in question appeared to be as large then as it is now! *H. W. Ward, Longford Castle.*

Gardening Books for the Unlearned.—One of the things which, as far as I am aware of, is non-existent is a catalogue of the known books upon all horticultural or allied topics published in this country. That they are legion, and would make up a goodly list, is certain, but ninety-nine persons out of every 100 are absolutely ignorant of many of them, and only learn of those that are specially pressed upon their notice. I am sure that a good service to horticulture would be performed by any one who would compile and publish an exhaustive list of all these books, their titles, prices, and publishers. But there is yet another matter that forces itself upon my mind as being still more important—it is the need of a really practical, yet cheap, series of elementary manuals on gardening, written by practical men for practical yet unlearned people. Nine-tenths of the books in existence, the authors of whom have any sort of horticultural reputation, are written rather for those who know something considerable about the topics treated of rather than for those who know nothing. It is the know-nothings, the elementary learners who need, and who want to be taught; and even if they could afford to purchase costly books, could not understand the mass of technical terms or names with which they are loaded. I very frequently get queries as to sound gardening books upon various branches, and knowing what I do of the cheap book-makers I have great hesitancy in recommending their products; on the other hand, it is simply mockery to recommend to a poor man a book that is very costly. Thus I have just been asked to recommend a book upon trees and shrubs, the querist wishing to learn something about them and their propagation, but I can commend only two books, one 16*s.*, the other 21*s.* value. This is but a fair sample of many other queries, and the difficulty of furnishing suitable replies. We want for the poorer amateur and working-class learner books that do not exceed 1*s.* to 1*s.* 6*d.* in price, that are clear and explicit in their instruction, and are not written by gardeners for gardeners, but rather by gardeners for learners, having full regard to the diverse conditions under which such learners have to work. *A. D.*

Foreign Correspondence.

Cephalotus follicularis.—At the last meeting of the Imperial Horticultural Society of Russia Mr. Batalin made a communication on the properties of the juice secreted by the pitchers of Cephalotus follicularis, which he finds to be narcotic and antiseptic. He was led to this conclusion by observation of the action of the juice on common domestic flies. A fly put in the pitcher soon lost its activity, and remained as dead; but on being taken out and washed in pure water, animation was immediately restored. The flies floating on the surface of the juice became covered with mildew, and corrupted the liquid, in consequence of which the pitchers suffered much, and became flaccid and yellow; but if the insects were wholly submerged they remained intact. Moreover, Mr. Batalin remarked that the plants visited by flies were more healthy and vigorous than when protected against insects. *P. Wolkenstein.*

COLONIAL NOTES.

Cinchona Planting in Jamaica.—With regard to the Cinchona planting in Jamaica the question is often asked: What will it cost per acre to start a plantation on the Blue Mountains and establish it, up to the time it comes into bearing? As an approximate statement, based on actual experience, we have been supplied with the following by Mr. D. Morris, the Director of Public Gardens and Plantations. It is understood that the land is taken up under the recently published system of grants made by Government, 2*s.* an acre, and that no buildings are required beyond labourers' barracks, sheds, and a small house for the headman or overseer. The plants are supposed to be Cinchona officinalis, planted at 3½ feet by 3½ feet, giving 3500 plants to the acre. If only about 5 acres are intended to be opened the relative cost will be a little more than the following; whereas, if a larger area is opened, and nurseries established on the spot the relative cost will be considerably less. Also when the plantation is opened from a neighbouring plantation the cost of superintendence will be much reduced.

According to the detailed statement of expenditure on a Cinchona plantation in Jamaica for planting 5 to 50 acres of Cinchona officinalis, 3½ feet by 3½ feet, with 3500 plants to the acre, the total outlay on the plantation up to the fourth or fifth year, when it begins to yield, amounts to £30 per acre. As to the returns from the plantation—the earliest crop of bark may be yielded by thinnings or uprootings of weakly trees at the end of the fourth year. Taking these at 25 per cent. of trees planted, and yielding 6 oz. of dry bark per tree, we have, say, 330 lb. of bark at 3*s.* per pound (less 10*d.* per pound cost of barking, drying, shipping and broker's expenses), yielding a nett return of, say, £35 per acre. This, it will be noticed, will more than cover expenses of the plantation up to end of the fourth or fifth year. There will then be left some 2400 trees to the acre, well established, and capable of yielding regular crops of bark at the rate of £30 to £60 per acre up to the time when the whole plantation is cropped. The total yield of the plantations (deducting cost of barking, curing, and shipping expenses, up to the end of the ninth year) will probably be not less than £175 per acre, against a total outlay for planting operations for that period of about £40 to £45 per acre. The estimates in all these cases are based on the price of Creole labour as at present existing in Jamaica, viz., men, 1*s.* to 1*s.* 3*d.* per day; women, 9*d.* to 1*s.* per day. The weeding is entirely by hand, done mostly by children and women, at rates varying from 4½*d.* to 9*d.* per day.

Fiji.—The particulars of the murder by the natives of Duke of York's Island of the naturalist, J. T. Klinesmith, in April last, have come to hand. Mr. Klinesmith, after visiting Fiji and the Navigator Isles, established himself with his wife at Duke of York's Island, where he made collections for the Godefroy Museum in Hamburgh. He lived in perfect security for two years, making frequent expeditions to New Ireland and New Britain. It appears he was preparing to go to New Britain, when his boat's crew of natives deserted him, and on going to ascertain the cause he and two German associates were attacked by the natives and killed. No cause is assigned for the treacherous conduct of the natives, and the inaction of the men-of-war on the station is unfavourably commented on.

FLORISTS' FLOWERS

Seasonable Notes: Auriculas.—The exceptionally mild weather has continued almost without intermission, and the appearance of our own plants is very much what it usually is at the time of surface-dressing them in February. As most people want their plants to bloom about the middle or end of April, it would be desirable to place the frames where they are scarcely exposed to the sun at all, and also to pull off the lights whenever the weather is favourable. Should severe weather set in, and frosty winds be prevalent, it is much better not to let the plants be fully exposed to them; and considering the state of the plants they will not stand so much exposure as they would have done had they not been unduly excited. There is scarcely any other work required this month than to keep the plants clean. Fumigate twice during the month to destroy fly, or to prevent its appearing. Look over the plants two or three times, and carefully remove all the dead or decaying leaves. If the outer surface of the pots is green, or the surface of the soil, wash the one and stir the other with a pointed stick without injuring the roots.

Carnations and Picotees.

During this weather all the protection that these require is sufficient to prevent the rain from reaching them. The more air they have all around them the better; that is, if they are rooted, as the general collection will be. There are some, of course, not yet rooted; these are still in close frames or hand-lights; we may have a dozen pairs in the whole collection in that state, but they are rooting rapidly aided by a little heat. We look over the plants about once a week, and any that require water receive it; but, as a rule, not one plant in ten requires water. They are kept as dry as possible without causing them to suffer.

Carnations, Perpetual Flowering.

The new dwarf free-flowering varieties raised from A. Alegatière are a great boon to us. Their bright scarlet and crimson coloured flowers are useful for many purposes for which the white and flesh-tinted varieties may not be used. Their cultural requirements are so simple that any one who can find room for two dozen of good plants need not be without flowers from now until midsummer. They do well in such a temperature as is required for producing a good bloom of zonal Pelargoniums; they also favour

a rather dry atmosphere. If the pots are well filled with roots the plants are much benefited by being occasionally supplied with weak manure-water.

DAHLIAS.

The roots had a good chance to ripen well during last summer, and it is likely that they will keep in good condition during the winter. It is as well to look over them at intervals of a few weeks, and if the stems of any of them persist in rotting they should be taken out, the affected parts cut off, and the roots be well dried before they are put back again. Perhaps the best place to keep them is a dry cellar, if frost is excluded. They should not be in a very airy place, else those with few fleshy tubers dry up. Those who have saved seed will find it keep best in the pods, but they must be well dried.

HOLLYHOCKS.

The dull damp weather may have caused many of the leaves to decay. It would only be repeating previous advice to say that their removal is imperative, and that plenty of air, with a dry atmosphere, is all that can be done to prevent it. The plants may be kept quiet all this month. Those planted out in frames, if the soil is moderately moist, will require no water; the plants in pots must have enough to keep the soil from becoming too dry. The importance of trenching the ground as early as possible, for these and any other choice plants, is not yet fully recognised; if it has not yet been done, see to it at once. Heavy soils may be much improved by the addition of vegetable or leaf mould, burnt earth, and stable-manure; light soils are improved by cow-manure dug in liberally. The surface of the ground, after it has been trenched, ought to be forked over once in three or four weeks when it is dry. This thoroughly exposes it to frost, which has an excellent effect in loosening the soil.

PANSIES.

This has been a remarkably good time for the plants put out in October; they have been growing freely ever since, and have received no other attention than just to stir the surface of the ground in fine weather. In our light soil the plants succeed remarkably well early in the year. In heavy soils I have seen cocoa-nut fibre refuse laid on the surface, and the plants, by their clean healthy growth, have shown how they appreciate it. The plants in pots grown in cold frames, intended to flower there, or to be planted out, must have plenty of air night and day, and more water than most other hardy plants. The Pansy does not like over-dry soil at any time. We have a lot of plants in large 60's, and though potted late the pots are now filled with roots, and if they were to flower in pots it would be necessary to pot them into 6 or 7 inch pots at once.

PINKS.

The instructions given at p. 602 will apply now. The weather has been quite as favourable for these as for the Pansies, and all the sections of them succeed well out-of-doors when the weather is mild. They would not suffer from frosts, except that the alternations of frost and thaw throws the plants out of the ground; and although they may be planted in again firmly almost immediately, the plants must suffer. All the forcing Pinks do well out-of-doors, and it is very desirable to plant a few to succeed those that have been forced in warm hothouses, or flowered a little earlier by being placed in a greenhouse or frame. The plants in frames require but little attention; those intended to be forced should be firmly established in their pots. They must have plenty of air, and be kept free from greenfly by dipping or fumigating them with tobacco-smoke.

PENTSTEMONS.

These useful flowers have had a favourable autumn, but the plants have at last come to be neither ornamental nor useful, and it is best to clear them off. A few cuttings of each variety were put in some time ago in pots, and they stand the winter well in any glass protection. It is best to obtain a succession of young plants by propagating from cuttings every year in October.

PHLOXES.

The only object in keeping a few stools of the old plants in pots is to obtain cuttings early in the year, so that good blooming plants may be obtained from them to flower in pots for the decoration of the greenhouse. If the weather continues open this month beds of Phloxes may be planted, or they may be planted about singly in the herbaceous border. We had a lot of seedlings planted out a foot apart, which flowered strongly with one stem to each. These have been taken up and replanted in very rich soil, 20 inches apart; they will thus make a capital display. A very large proportion of the seedlings are neither better nor worse than the parents. I find when seeds are saved indiscriminately from the very best varieties not more than one in a hundred is to be found distinct and good enough to be introduced as a new variety. If the seeds were saved last month they should be kept in the husks in a dry place until it is time to sow them.

POLYANTHUSES.

All the choice border varieties, selfs of numerous shades of colour, mottled varieties, &c., are looking remarkably well, and a few very good trusses might be gathered. Keep them free from weeds, and watch frequently for nightly depredators. The choice laced varieties have wonderfully improved owing to the mild weather; some plants that it seemed doubtful if they would survive the winter will probably produce good trusses of bloom. If they are required for the exhibitions about the end of April it would be well to keep them in as cool a place as possible.

ROSES.

It is not necessary to add much to the instructions given at p. 602. See that all the planting is done without any delay. The surface of the soil round the plants should be mulched with rotten manure. I have protested before, and would do so again, about planting standard Roses so freely in gardens near London and other large towns; dwarf Roses do much better, and continue in health for a much longer period. *J. Douglas.*

Reports of Societies.

Scottish Horticultural Association. — The ordinary monthly meeting of this Association was held at 5, St. Andrew Square, Edinburgh, on Tuesday, the 6th inst., the President, Mr. John Downie, in the chair. Mr. A. Mackenzie, Warriston Nursery, read a paper on "The Azalea indica, with special reference to early forcing," and which we hope to publish in an early number. There was an animated discussion on the paper, particularly on the varieties recommended by Mr. Mackenzie for stocks, and on the relative merits of plants grown from cuttings and those from grafts, and at the close the President conveyed the thanks of the meeting to Mr. Mackenzie for his suggestive paper.

Mr. Lawrence Dow, of Newbyth Gardens, next read a paper on "Melon Culture." He said that Persia was the home of the Melon, where it has been regarded for ages not as a luxury but as one of the necessaries of life. It is the richest of all soft fleshy fruits. The date of its introduction is not exactly known. The Romans in the time of Tiberius cultivated them by means of artificial heat, from which it would appear that forcing was an art not unknown to the ancients. The cultivation of Melons has been general in England since the middle of the sixteenth century. Although many of the varieties in cultivation are very fine, they are not regarded as safe or wholesome fruits to be partaken of too freely in our cold climate. Many, however, are very fond of them, and they have a handsome appearance on the dessert table. In too many instances, however, quality is sacrificed to external appearance, because the common-looking and smaller fruits are much superior in flavour to those that are large and handsome. The varieties that have been and are now in cultivation are almost innumerable. There are three distinct types of Melons which are known as the scarlet-flesh which have sprung from the Cantaloup; the green-fleshed from the Egyptian green-fleshed, and the white-fleshed from the Persian white. The chief improvement that has been made in Melon growing during this generation is their being more generally cultivated in Melon-houses, trained near the glass on wire trellises. In Scotland, however, seasons of such sunlight and heat as would enable this to be done without a little artificial heat do not often occur, and in such localities one should choose certainly not the most tender and uncertain varieties for summer culture in frames not supplied with a maximum of heat. Plenty of Melons have, however, been ripened in May by means of hotbeds and common garden frames and pits, but not without much care and labour, and for very early and late crops this old system is not now to be recommended. To embrace all classes of growers Mr. Dow gave his experience at considerable length in the culture of Melons both by dung beds and Melon-houses.

Mr. T. Bowman, gr. to Lord Deas, at Pittendreich, exhibited a fine sample of Brussels Sprouts of the Reading Exhibition variety. Mr. Chapman, Easter Duddingstone Lodge, exhibited fine specimens of Helleborus angustifolius, Lithospermum prostratum, and Rhododendron atrovirens. Mr. G. Barry, Saltoun Hall, exhibited a seedling Apple named Lady Charlotte, a cross between the Ribston and King of the Pippins. Dr. Paterson, Bridge of Allan, exhibited photographs of the baskets of Orchids which he recently had the honour of presenting to the Queen. Messrs. Dicksons & Co. exhibited plants in flower of Helleborus niger, and Messrs. Downie & Laird exhibited Salvia Bothwelli.

Obituary.

THE death of Mr. DECIMUS BURTON is announced, at the age of eighty-one. Among the numerous important works upon which he was engaged may be mentioned the erection of the Palm-stove in the Royal Gardens, Kew, the most imposing structure of its kind yet erected. Mr. Burton also designed the conservatory of the Royal Botanic Society in the Regent's Park.

Variorum.

MISSELTOE. — (1.) Viscum, or Misseltoe, hath many slender branches spread otherwart one another, and wrapped and interlaced one with another: the barke of which is of a light greene or popinjay colour: the leaves of this branching excresence be of a browne-greene colour; the flowers be small and yellowe; which being past there appeare small clusters of white translucent berries, which are so cleere that a man may see through them, and are full of clammie or vicious moisture, whereof the best birdlime is made, farre exceeding that which is made of Holme, or Hollie barke, and within this berrie is a small blacke kernell or seede: this excrescence hath not any root neither doth increase himself of his seed as some have supposed, but it rather cometh of a certain moisture or substance gathered together upon the boughs or joints of the trees, though the barke whereof this vaporous moisture proceeding bringeth foorth the Misseltoe: many have diverslie spoken heerof; some of the learned have set down that it came of the dung of the birde called a tbrush, who having fedde of the seedes thereof, as eating his own bane, hath voided and left his dung upon the tree, whereof was engendred this berry, a most fit matter to make lime of to intrap and catch birds withall. (2.) Indian Misseltoe groweth likewise upon the branches of trees, running alonst the same in manner of Polypodie; the strings of the rootes are like those of couch grasse, from which rise up divers stalks, smooth, and even set with joints and knees at certaine distances. Towards the top cometh foorth one leafe, ribbed like the Plantaine leafe, whereon are marked certain round eies such as are in the haft of a knife; from the bosome commeth foorth a chaffie branch, set with small leaves, which continue greene winter and sommer. [The figure shows that this is a Pleurothallis, so that Orchids were not wholly unknown to the herbalists of the 16th century.] (3.) Misseltoe of Perue.—There is found also another plant growing upon the boughs or branches of trees in maner as our Misseltoe doth, and may very wel be reckoned for a kinde thereof: the plant cleaveth unto the branches, being set thereto, as it were with the pillings of the Sea-onion [Scilla maritima?] of the bredth of a man's hand toward the bottome, and somewhat hollow; the tops whereof are very small and rushie, hollow likewise, and of a purple colour. Among which comes forth a branch like that of Hastata regia, or the speare for a king, resembling the bush of ores covered with a white silke, such as is to be founde in Asclepias, of a salt and nitrous taste, and very unpleasant. [Probably Tillandsia usneoides is intended.] *Gerard's "Herbal."*

PICEA ENGELMANNI.—The most attractive tree I have seen is the Silver Spruce, Picea Engelmanni, near of kin to what is often called the Balsam Fir. Its shape and colour are both beautiful. My heart warms towards it, and I frequent all the places where I can find it. It looks as if a soft, blue, silver powder had fallen on its deep green needles, or as if a bluish hoar-frost, which must melt at noon were resting upon it. Anyhow, one can hardly believe that the beauty is permanent, and survives the summer heat and the winter cold. The universal tree there [Rocky Mountains] is the Pinus ponderosa, but it never attains any considerable size, and there is nothing to compare with the red woods of the Sierra Nevada, far less with the Sequoias of California. *"A Lady's Life in the Rocky Mountains," by Miss Bird.*

CULTIVATION OF BEETROOT FOR SUGAR IN NEW ZEALAND. — Beetroot cultivation for sugar manufacture seems to be attracting considerable notice in New Zealand. Efforts are being made to set up a factory in the Waikato, and to induce the settlers to cultivate Beet. We are told that the Hamburg Company have announced their willingness "to furnish seed of the best quality for the cultivation of 500 tons of Beet, and send out a plant capable of manufacturing 10,000 tons per annum, and skilled labour to work it, and to take about £6000 money interest in

the undertaking, if the settlers would grow that quantity of Beet and provide the remaining capital required—some £24,000." Notwithstanding the fact that the soil and climate in Waikato are very suitable for the growth of Beetroot, the settlers appeared indisposed to undertake its cultivation. A wealthy landowner, however, who possesses many thousands of fertile acres at Matamata has undertaken to grow from 500 to 700 acres of Beetroot per annum for a long term of years. It is anticipated that ere long sugar will form one of the principal articles of export from Auckland.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 21, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
15	29.84	+0.03	41.0	36.5	4.5	38.8	− 1.9	30.9	73	S.E.	0.10
16	29.54	−0.18	43.0	36.5	6.5	40.8	+ 0.1	37.6	89	S.:S.W	0.08
17	28.98	−0.84	49.5	40.5	9.0	45.5	+ 5.0	43.2	94	S.W.	0.43
18	29.33	−0.49	50.0	37.0	13.0	43.7	+ 3.5	40.4	88	W:SW	0.39
19	29.34	−0.49	43.5	33.0	10.5	38.9	− 1.1	40.1	93	S:S.W	0.00
20	28.89	−0.95	43.5	36.0	7.5	40.9	+ 1.2	36.8	85	W.	0.33
21	29.58	−0.26	43.0	33.0	10.0	37.9	− 1.4	32.4	83	W:NW	0.08
Mean	29.36	−0.45	44.8	36.1	8.7	40.9	+ 0.8	37.3	87	S.W.	1.41

Dec. 15.—A dull, cloudy, damp day. Aurora borealis seen. A dark, cloudy night.
— 16.—A dull, rainy, overcast, damp morning; rainy afternoon. Fine night. Dark sky. Strong wind.
— 17.—A dull, rainy, stormy, rough, overcast day; the barometer reading at 2 was 28.94 inches, at 3 was 28.88 inches, at 4 was 28.85 inches, at 4.30 was 28.89 inches, at 5 was 28.91 inches, at 6 was 28.93 inches. A dark, cloudy night.
— 18.—A cold, windy, bright day. Heavy rain in the morning. Gale of wind. Fine clear night.
— 19.—A fine, bright day; sun shining, but cold. Fine, cold night.
— 20.—A fine, bright day; very windy. Rough night; slight rain.
— 21.—A fine, bright day; rather windy and cold. Fine, cold night.

LONDON: *Atmospheric Pressure.*—During the week ending December 17 the reading of the barometer at the level of the sea increased from 29.67 inches at the beginning of the week to 30.33 inches by 9 A.M. on the 13th, decreased to 30.32 inches by 3 P.M. on the 13th, increased to 30.37 inches by midnight of the same day, decreased to 29.03 inches by 4 P.M. on the 17th, and was 29.17 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.87 inches, being 0.05 inch lower than last week, and 0.10 inch lower than the average of the week.

Temperature.—The highest temperature in the shade during the week was 49°.5, on the 17th. On the 11th the temperature did not rise above 36°. The mean of the seven high day temperatures was 41.2°.

The lowest temperature in the week was 31°, on the 11th, 13th, and 14th; on the 17th the lowest temperature was 40°.5. The mean of the seven lowest temperatures was 34°.4.

The greatest range of temperature in one day was 11°.2, on the 14th; the smallest was 4°, on the 12th. The mean of the seven daily ranges was 6°.8.

The mean daily temperatures were, on the 11th, 33°.7; on the 12th, 36°.7; on the 13th, 34°.3; on the 14th, 37°.7; on the 15th, 38°.6; on the 16th, 40°.8; and on the 17th, 45°.5. On the 16th and 17th, were 0°.1 and 5° above their averages; all the rest were 7°.1, 4°, 6°.3, 3°, and 2°.1 respectively below their averages.

The mean temperature for the week was 38°.2, being 2°.2 lower than last week, and 2°.5 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 66°.5, on the 14th; the highest, on the 12th, was 40°. The mean of the seven readings was 52°.

The lowest reading of a minimum thermometer placed on grass and fully exposed to the sky was 27°.5, on the 43th. The mean of the seven readings was 31°.2.

Rain.—Rain fell on six days, to the amount of 0.78 inch, of which 0.43 inch fell on the 17th.

ENGLAND: *Temperature.*—During the week ending December 17 the highest temperatures were 54° at Truro, 50°.1 at Bristol, and 50° at Plymouth. The highest temperature at Sheffield was 41°, at Wolverhampton 41°.2, at Hull and Leeds 42°. The general mean was 44°.9.

The lowest temperatures in the week were 21°.4 at Nottingham, 23° at Truro and Wolverhampton. The lowest temperature at Brighton and Blackheath was 31°, and at Sunderland was 30°. The general mean was 25°.9.

The greatest ranges of temperature in the week were 31° at Truro, 23°.1 at Bristol, and 22°.5 at Leicester. The least ranges were 14° at Brighton, Sheffield, and Leeds. The general mean was 19°.

The mean of the seven high day temperatures was highest at Truro, 48°, and lowest at Wolverhampton, 36°.1, at Nottingham 38°.5, and at Leicester 39°.3. The general mean was 40°.6.

The mean of the seven low night temperatures was highest at Brighton, 35°.7, at Blackheath 34°.4, at Sunderland 33°.6; and was lowest at Wolverhampton, 28°.3, at Nottingham 28°.9, at Truro 29°.1. The general mean was 31°.

The mean daily range was greatest at Truro, 18°.9, at Plymouth 12°.1, and at Bristol 11°; and was smallest at Brighton, 7°.1, at Liverpool 7°.3, and Wolverhampton 7°.8. The general mean was 9°.6.

The mean temperature for the week was highest at Brighton, 39°.3, at Plymouth 38°.8; and at Sunderland 38°.6; and was smallest at Wolverhampton, 32°.2, at Nottingham 33°.7, and at Leicester 34°.5. The general mean was 36°.4.

Rain.—The largest falls were 2.02 inches at Truro, 1.64 inch at Cambridge, and 1.61 inch at Sheffield. The least falls were 0.50 inch at Bristol, and 0.76 inch at Brighton. The general mean was 1.16 inch. It fell on six days at most places.

SCOTLAND: *Temperature.*—During the week ending December 17 the highest temperature was 46°.5, at Glasgow; at Dundee the highest temperature in the week was 41°. The general mean was 43°.7.

The lowest temperature in the week was 19°.5, at Glasgow; at Edinburgh the lowest temperature was 28°.8. The general mean was 23°.1.

The mean temperature for the week was highest at Aberdeen, 37°.1; and lowest at Dundee, 34°.2. The general mean was 35°.8.

Rain.—The largest falls were 2.64 inches at Greenock, and 1.69 inch at Paisley. The smallest falls were 0.45 inch at Leith, and 0.49 inch at Edinburgh. The general mean was 1.04 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

WATER CRESS.—I want to make six acres, or more, of Water Cress beds. Will some of your experienced readers kindly tell me the best way of going to work, or give me any hints of practical value? *J. H. M.*

Answers to Correspondents.

BOOKS: *R. C.* *The London Market Gardens*, by C. W. Shaw (37, Southampton Street, W.C.), price 2s. 6d.; and *Market Gardening for Farmers*, by Charles Whitehead (Effingham Wilson), price 1s.—*C. B.* Lindley's; the other is a bad compilation.

BLOOD MANURE: *D. C. L.* Yes; a very valuable manure.

ERRATA.—In the short paragraph of mine upon the weather, at p. 794 of last week's impression, an error has crept in which renders the article unmeaning, and should read thus:—"The following dates of lowest temperature up to December 9, extracted from daily readings *kept here*," instead of "daily readings last year." And in order to show the highest temperature between the dates mentioned—viz., November 14, on which day the maximum thermometer registered 62°—and the lowest *at* night, 51°.2, or mean temperature, 56°.5—not the lowest night, which would read for the whole period. *J. Webster, Gordon Castle.*

FUNGUS: *A. N., Oaklands.* The Fungus you send, 7 inches in diameter, is not a Lactarius, but an extremely large specimen of Agaricus sublateritius. *W. G. S.*

NAMES OF FRUITS: *T. P. & Sons.* 1, Hollandbury. Not quite sure of the others.—*C. M., Northampton.* Ribston Pippin.

NAMES OF PLANTS: *J. & J. G.* Not a Sedum; probably Saxifraga hypnoides.

OIL OF VITRIOL: *B. O.* This is simply commercial sulphuric acid, to be had at any chemist's at a low price per pint or gallon. It is frightfully corrosive, and should therefore be used with the greatest caution. For destroying weeds it may be used mixed in an earthen pan with an equal quantity of water. When mixed the fluid will become very hot.

PODOPHYLLUM: *W. R.* Pronounce Pod-o-phyll-um.

POTATO DISEASE: *C. & R.* We are not aware that the Government has offered any reward for a cure for the Potato disease, nor do we think it at all likely they will do so.

ROMAN HYACINTHS.—The experience of Mr. R. H. Poynter is different from mine, for always when handling Roman Hyacinths I find an irritation which I never found when handling other bulbs, although having had eighteen years in the seed and bulb trade. *R. Cleaver, Lichfield.*

SPINACH BEET.—I have been told that the leaves of the Silver or White Beet are often dressed like Spinach, and I know that young Lettuce so cooked are excellent. They have the exact flavour of Spinach. Endive I have also cooked. It should be boiled soft, pressed dry, chopped fine, and put into a stewpan to re-warm, with salt, pepper, and a spoonful of cream. *Helen E. Watney.*

STYPTIC: *C. M. G. E. H.* Yes, very good. Almost all seedsmen keep it. We do not know the Colens.

THE KEW GARDEN REPORT.—We are requested to state that copies may be had of Messrs. Clowes & Son, 13, Charing Cross.

VINES: *H. Henderson.* The roots are rotten, and swarming with insects, as well as woodlice, but we cannot find any trace of Phylloxera.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors*," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.

JAMES COCKER & SONS, Aberdeen—Roses.
V. DÖPPLEB, Erfurt, Germany—Trade Seed List.
R. DEAN, Ranelagh Road, Ealing—Seed Potatos, Hardy Florists' Flowers, &c.
EDWARD WEBB & SONS, Wordsley, Stourbridge—Spring Catalogue for 1882.
R. CLEAVER, Bore Street, Lichfield—Garden and Farm Seeds.
SUTTON & SONS, Reading—Amateurs' Guide for 1882.
B. S. WILLIAMS, Upper Holloway, London, N.—Flower, Vegetable, and Farm Seeds.
HARRISON & SONS, Leicester—Farm and Garden Seeds Wholesale.

COMMUNICATIONS RECEIVED:—F. Burnside.—W. A. T.—An Exhibitor (your letter should be addressed to the Council. It is not a public matter).—M. S.—T. B.—W. P. R.—E. M.—Bucephalus erecta (you have not sent us your name and address).—J. Scott.—W. H.—A. D.—J. H.—J. R.—J. M.—H. W. W.—H. J. R.—W. W. (please repeat the question about paraffin).—T. W. S.—J. C.—R. H.—E. C.—R. B.—C. Mugnarot.—W. H. F.—J. B. (we are not able to say what the substance is; we find starch grains in abundance, and threads of fungi).

DIED, on December 11, at Sibbertoft, Northamptonshire, CECILIA EMMA, the beloved wife of the Rev. M. J. Berkeley, F.R.S.

DIED, on November 5, at Melbourne, Australia, of phthisis, ALEXANDER H. RICHARDS, formerly an assistant in the publishing department of this journal, aged twenty-seven years.

Markets.

COVENT GARDEN, December 22.

A very moderate trade has been doing here this Christmas week, prices remaining without any alteration. A few good samples of Californian Pears have reached us this week, as also New Town Pippins, realising their value, otherwise there is nothing of importance to remark upon. Kent Cobs dull. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Lettuces, Cabbage, per doz.	0 6– 1 6
Asparagus, French Sprue, per bundle	1 6– ..	— Engl. Cos, score	1 6– ..
Barbe de Capucin, per bundle	0 8– ..	Mint, green, bunch	0 4– 0 6
Beans, French, p. lb.	1 0– ..	Mushrooms, p. baskt.	1 6– 2 0
Beet, per doz.	1 0– ..	Onions, per bushel	4 0– ..
Cabbages, per doz.	1 0– 2 0	— Spring, per bun.	0 6– ..
Carrots, per bunch	0 4– 0 6	Parsley, per bunch	0 4– ..
Cauliflowers, English, dozen	2 0– 4 0	Peas, per lb.	1 0– ..
Celery, per bundle	1 6– 2 0	Potatos (new), punnet	1 6– ..
Celeriac, per head	0 4– ..	Radishes, per bun.	0 2– 0 6
Cucumbers, each	0 6– 1 0	— French, p. bund.	0 6– ..
Endive, per doz.	1 0– 1 6	Rhubarb, per bundle	1 0– ..
Garlic, per lb.	1 0– ..	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Seakale, per punnet	2 0– 2 6
Horse Radish, bund.	4 0– ..	Small salading, pun.	0 4– ..
		Spinach, per bushel	2 6– ..
		Tomatos, per lb.	0 9– 1 0

Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatts, 100s. to 120s.; Champions, 50s. to 70s.; Magnum Bonums, 90s. to 10s.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve..	1 0– 3 6	Pears, Eng., ½-sieve	2 6– 7 0
Grapes, per lb. ..	1 0– 4 0	— French, per doz.	1 6– 4 0
Kent Cobs, p. 100 lb.	70 0–77 6	Pine-apples, Eng., lb.	1 6– 2 6
Lemons, per 100	4 0– 5 0		

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 6
Begonias, per doz. ..	6 0–12 0	Hyacioths, per doz..	8 0–12 0
Bouvardia, per doz..	9 0–18 0	Lily of the Valley, per pot	4 0– 6 0
Chrysanthemums, per dozen	6 0–18 0	Myrtles, per doz. ..	6 0–12 0
Cissus discolor, doz.	18 0–24 0	Palms in variety, each	2 6–21 0
Cyclameo, per doz..	12 0–24 0	Pelargoniums, scarlet, per dozen ..	3 0– 6 0
Cyperus, per dozen	6 0–12 0	Poinsettia, per doz..	12 0–18 0
Dracæna termioalis	30 0–60 0	Primula (single), per dozen	4 0– 6 0
— viridis, per doz...	12 0–24 0	Solanums, per dozen	9 0–12 0
Epiphyllum, per doz.	18 0–30 0	Tulips, per dozen ..	8 0– 9 0
Euonymus, various, per dozen	6 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	0 3– 0 6	Lilac (Fr.), p. bunch	8 0–10 0
Anemone, 12 bun...	4 0– 6 0	Marguerites, 12 bun.	4 0– 6 0
Azalea, 12 sprays ..	1 0– 2 0	Mignonette, 12 bun.	6 0– 8 0
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 sprays	1 0– 1 6
Camellias, 12 blooms	3 0– 6 0	— zonal, 12 sprays	0 6– 1 0
Carnations, 12 blms.	1 0– 2 0	Primula, double, per bunch	1 0– 1 6
Chrysanth., 12 bun.	12 0–18 0	— (single), 12 bun.	6 0–12 0
— 12 blooms ..	2 0– 4 0	Roses (indoor), doz.	1 0– 3 0
Cyclamen, 12 blooms	0 3– 0 6	— Tea (French), per dozen	1 0– 2 0
Epiphyllum, 12 blms.	0 9– 1 0	Tropæolum, 12 bun.	1 0– 3 0
Eucharis, per doz. ..	6 0– 9 0	Tuberoses, per dozen	3 0– 6 0
Gardenias, 12 blms..	9 0–18 0	Violets, 12 bunches..	1 6– 2 0
Heliotropes, 12 sp...	0 6– 1 0	— (French Parme), per bunch.. ..	4 6– 5 0
Hyacioths (Roman), 12 sprays	2 0– 3 0		
Lapageria, white, 12 blooms	4 0– 6 0		
— red, 12 blooms..	1 0– 3 0		

*** These prices must not be relied on for ordering for Christmas week.

SEEDS.

LONDON: *Dec.* 21.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that rather more disposition to buy red Clover seed has recently been shown, but the firmness of holders contracts business. Cable advices rom America describe the markets there as steady. There is no quotable change in either Alsike, white, or Trefoil. Italian Rye-grass is dearer; stocks in France have proved exceedingly light. The trade for Canary and Hemp seed is in the narrowest possible compass. Other articles at the present quiet season offer no subject or remark.

CORN.

At Mark Lane on Monday English Wheat sold in retail quantities at unaltered value. Foreign Wheats were dull, and somewhat irregular. Flour was dull, and inferior foreign offered more cheaply. Fine malting Barley was scarce, and tended against buyers; secondary sorts were quiet and unchanged, as also were grinding descriptions. Beans upheld their value; Peas were 6*d.* cheaper on the week; Oats sold with a moderate demand at about the previous Monday's rates; and Maize was firm.—On Wednesday there was but a retail demand for any kind of grain. In English or foreign Wheat quotations were nominally unaltered. Flour was unchanged; Barley quiet, but steadily held; Beans and Peas firm; Oats sold slowly at about Monday's prices, and Maize on the spot was steady in value, but easier off coast.—Average prices of corn for the week ending Dec. 17:—Wheat, 44*s.* 9*d.*; Barley, 31*s.* 8*d.*; Oats, 20*s.* 6*d.* For the corresponding period last year:—Wheat, 44*s.*; Barley, 31*s.*; Oats, 20*s.* 7*d.*

HAY.

The Whitechapel market report for Thursday states that a very short supply of fodder was on sale. There was a good trade, and prices were very firm, as follows:—Prime Clover, 100*s.* to 135*s.*; inferior, 60*s.* to 95*s.*; prime meadow hay, 100*s.* to 124*s.*; inferior, 50*s.* to 90*s.*; and straw, 30*s.* to 52*s.* per load. — Cumberland Market quotations:—Superior meadow hay, 126*s.* to 134*s.*; inferior, 84*s.* to 105*s.*; superior Clover, 130*s.* to 140*s.*; inferior, 90*s.* to 114*s.*; and straw, 48*s.* to 52*s.* per load.

COALS.

The following are the quotations current at market during the week:—Bower's West Hartley, 14*s.* 3*d.*; Ravensworth West Hartley, 14*s.* 3*d.*; East Wylam, 17*s.*; Walls End—Hetton, 17*s.*; Hetton Lyons, 15*s.* 6*d.*; Hawthorns, 15*s.* 9*d.*; South Hetton, 17*s.*; Tunstall, 15*s.* 6*d.*; Chilton Tees, 16*s.*; Tees, 16*s.* 9*d.*; Lambton, 16*s.* 6*d.*; Original Hartlepool, 17*s.*; Wear, 15*s.* 6*d.*; Radford Navigation, 18*s.* 6*d.*

Government Stock.—Consols closed on Monday at 99 to 99⅛ for delivery, and 99 5/16 to 99 7/16 for the account. Tuesday's figures were, for delivery, as on Monday, and 99¼ to 99⅜ for the account. The final quotations on Wednesday were, for both delivery and the account, those of Monday. Thursday's closing figures were, for delivery, 99⅛ to 99¼, and 99⅜ to 99½ for the account. The above quotations are all ex div.

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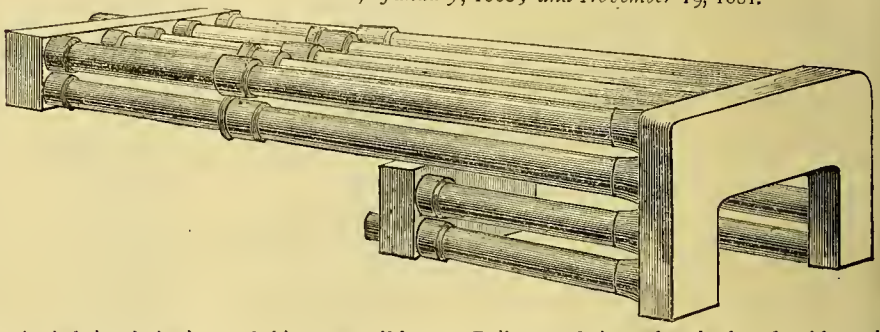

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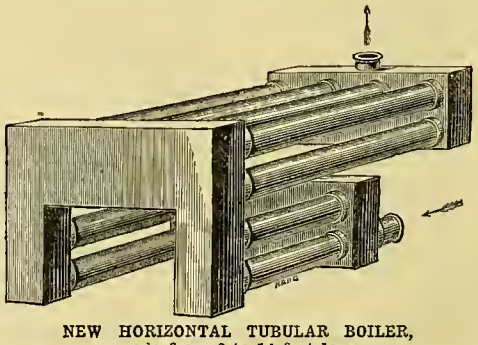

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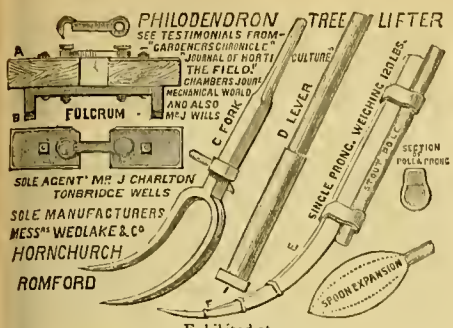

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Also 26-oz., 28-oz., and 32-oz. Glass.

SMALL SIZES, IN 16-OZ., PER 100 FEET.

6 × 4 to 7½ × 5½ ..	9s. 6d.,	10s. 6d.,	11s. 6d., 12s. 6d.
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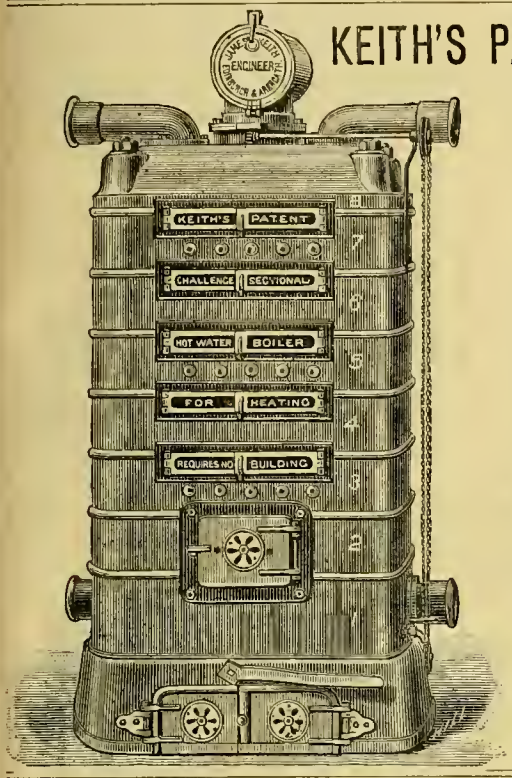
KEITH'S PATENT "CHALLENGE" BOILERS,
FOR HOT-WATER HEATING.



Can be Heightened or Lowered to suit any requirements. They stand complete in themselves, and require no building work round them, being wholly "water jacketed," and thus entirely free from risk by fire.

These PATENT "CHALLENGE" BOILERS have about ten times the heating surface of the ordinary Saddle Boilers, and are certainly THE BEST, MOST POWERFUL, and MOST ECONOMICAL Hot-water Boilers in use.

See Prospectuses, References, &c.

One of these Boilers has been over a year in use, heating 7500 feet of 4-inch pipe (or nearly 1½ mile of pipe), at the Winter Gardens of Isaac Holden, Esq., Oakworth, Keighley. This Boiler has only a 30-inch square fire-grate surface, and has 306 square feet of effective heating surface directly over the fire.

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Gas and Water Engineer,
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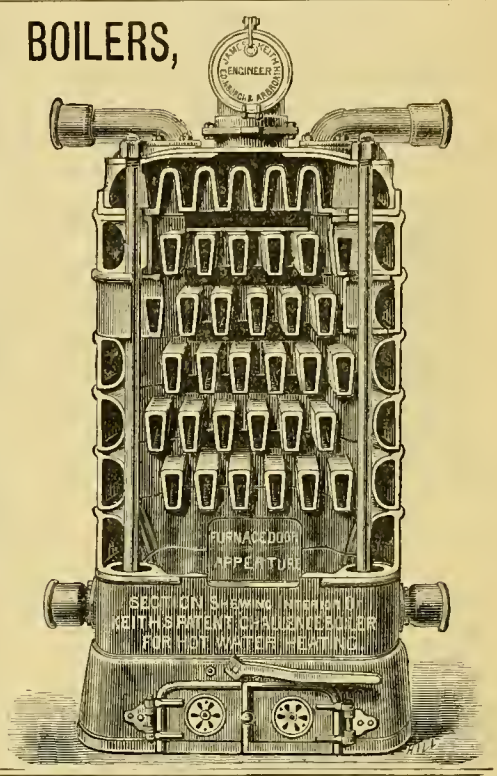

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HYDRAULIC ENGINEERS,
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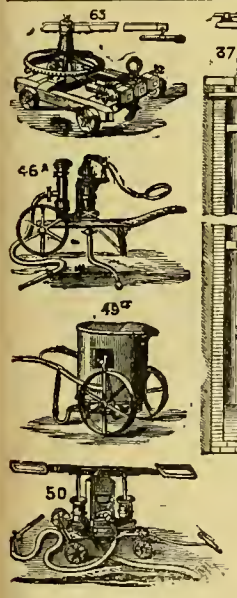

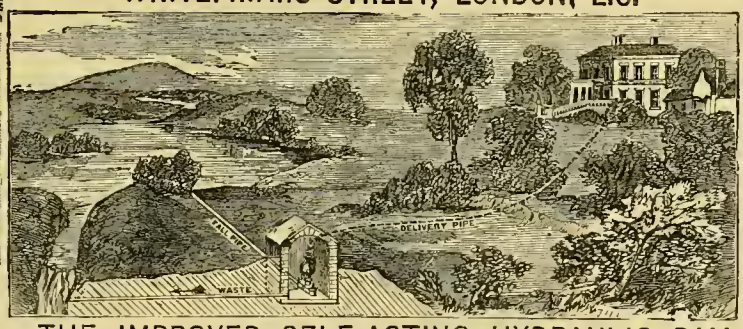

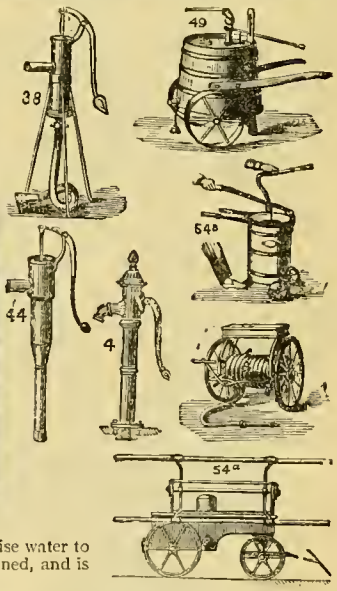

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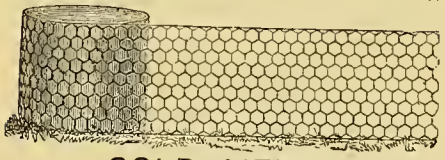

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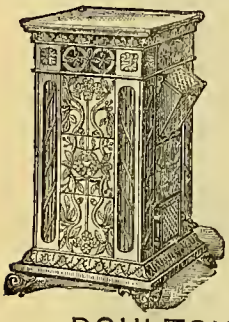

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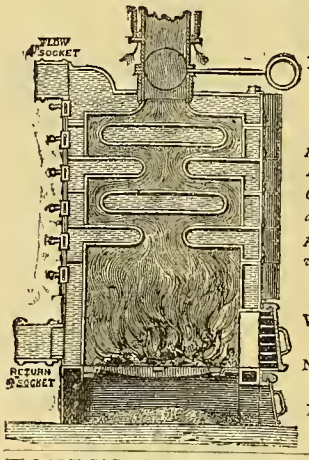

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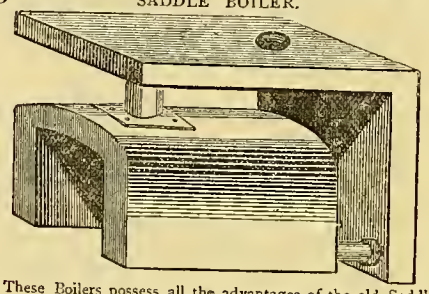
JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

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High.	Wide.	Long.	Feet.	£	s.	d.
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20 ,,	18 ,,	24 ,,	400	8	0	0
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24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
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24 ,,	24 ,,	48 ,,	1400	20	0	0
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Larger sizes if required.

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"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

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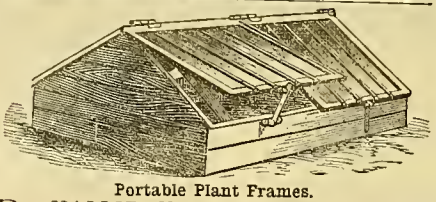

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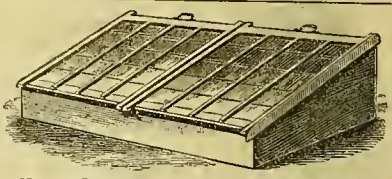

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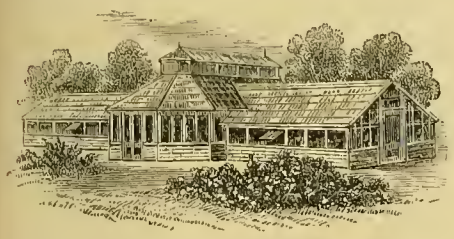
It is the cheapest and best system in the end, and takes less heating power than the old system.



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To Nursery Gardeners.

WANTED, a young MAN for Indoor Work in the Nursery Grounds; must have experience and wishful to improve.—CLARK BROS. & CO., Nurserymen, Carlisle.

WANTED, a GARDEN LABOURER and WIFE, in a Nursery near London—the man to do General Outdoor Work, wages 20*s*. per week (he would be required to reside close to the Nursery); and the wife could have several days' employment in the week, Washing, &c. Abstainers preferred.—J. C., *Gardeners' Chronicle* Office, W.C.

WANTED, a CLERK, with a knowledge of the Seed and Nursery Business, a good Penman and Correspondent, accurate, careful, and methodical. State experience and full particulars, with salary, expected.—F. & A. DICKSON & SONS, 106, Eastgate Street, Chester.

WANTED, an active industrious man, as ORDER CLERK, to Superintend the Execution of Orders, also Packing and Forwarding same. Must be a steady persevering man.—Apply, stating age, experience, and salary expected, to THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

WANTED, an ASSISTANT SHOPMAN. Must be energetic and well understand Flower Seeds. —HARRISON AND SONS, Seed Merchants, Leicester.

WANTED, a YOUTH, who writes a good hand, to Assist in Seed Shop and Conservatory. Must have had three or four years' experience. — GEORGE EDWARDS, Balham Nursery, London, S.W.

WANTED, an active, industrious YOUTH for a Retail Seed Establishment; must have some knowledge of the Trade.—Apply, in own handwriting, to ALPHA, *Gardeners' Chronicle*, W.C.

WANT PLACES.

To Noblemen and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS.

JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter.—Enquiries should be made to 237 and 238, High Holborn, W.C.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

GARDENER (HEAD).—Age 36, married, no family; thoroughly practical. Well recommended as a competent, successful, and trustworthy man. Total abstainer.—G., 35, Southampton Road, Haverstock Hill, N.W.

GARDENER (HEAD). — Age 38, married, no incumbrance; over twenty-three years' practical experience in all branches of Gardening. Three first-class references.—E. JONES, St. Frances Cottages, Lindfield, Sussex.

GARDENER (HEAD).—Age 38, married; thoroughly practical in Early and Late Forcing, Stove and Greenhouse Plants, Orchids, and the General Management of a good Garden. Has held a similar situation for upwards of six years. Satisfactory reasons for leaving. Highest testimonials.—G. LUCAS, 243, Coleman Street, Witmore Reans Wolverhampton.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 26, married; thoroughly experienced in all branches of the profession. Good reference from last employer.—J. C., Hill Cottages, Letchmore Heath, Watford, Herts.

GARDENER, or GARDENER and BAILIFF.—Any Nobleman or Gentleman requiring a first-class practical Gardener, or Gardener and Bailiff, can hear of one by applying to the MANAGER, The Liverpool Horticultural Co. (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool.

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To Nurserymen.

PROPAGATOR and GROWER, Hard and Soft-wooded Plants; good at Heaths.—Age 27, married; eight years' experience in London and Provincial Market Nurseries. Three and a-half years' excellent character from last situation.—G. H., 7, Smallwood Road, Lower Tooting, Surrey, S.W.

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Pure, Mild and Mellow, Delicious and Most Wholesome. Universally recommended by the Profession. The Cream of Old Irish Whiskeys.

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"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctor's bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—*Civil Service Gazette.*

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The Medical Profession for over Forty Years have approved of this pure solution as the Best Remedy for

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SUTTONS' CHOICE NOVELTIES IN VEGETABLES, FLOWERS, AND POTATOS.

The following varieties are of proved excellence, having been tested either by eminent Gardeners or at the R. H. S. Gardens. They are perfectly distinct, and **MANY OF THEM ARE NOW SENT OUT FOR THE FIRST TIME.**

SUTTONS' NEW VEGETABLES for 1882.

SUTTONS' DWARF GREEN GEM BEAN.

Prolific and distinct; of superior flavour. The seed has a peculiar pale green colour. The pods retain their beautiful appearance when brought to table.

From Mr. J. DOUGLAS, *Gr. to* F. Whitbourne, Esq.—"Very distinct, and the most prolific Bean known to me. The pods are literally produced in handfuls. The plant is dwarf and compact."

SUTTONS' READING FAVOURITE CAULIFLOWER.

Remarkably fine and distinct; of level and compact habit. Fit for use from seven to twelve days before Early London. Is a good succession to Suttons' First Crop, which is the earliest in cultivation.

SUTTONS' READING ALL HEART CABBAGE.

Unquestionably the best variety in cultivation for small gardens. Very dwarf and compact in habit, with a remarkable absence of outer leaves; in fact it is absolutely all heart. As a proof of its exceptionally quick growth, seed sown March 19 produced splendid heads on August 10, nearly a fortnight before other kinds were ready.

Mr. SHIRLEY HIBBERD, in the *Gardeners' Magazine*, said:—"This is a new variety with a very distinct character, and admirably combining usefulness and beauty. I have seen it in two places lately. In Messrs. Sutton & Sons' large trial of Cabbages it has an honourable place, and in the kitchen garden at Loxford Hall there is a handsome crop. The colour is bright green, the hearts are of a somewhat long rounded shape, with usually one leaf folded to give an elegant finish. Amongst other sorts this is conspicuous for uniformity, beauty, solidity, and profitableness."

SUTTONS' "READING GIANT" PEA.

Singularly robust and distinct in habit, the stalks being unusually large, while the thickness of the leaves enables it to resist alike disease and mildew. The pods are very large and fleshy, and often contain ten large Peas, which are of a deep olive-green colour, and deliciously sweet. It is a prolific and excellent variety, either for the amateur's garden or for exhibition purposes. Height 4 feet.

From Mr. D. MCDONALD, *Gr. to* Sir C. Nicholson.—"I consider this the best Pea, the pods containing from eight to ten of the largest Peas I have ever seen, and of fine quality."

PRESIDENT GARFIELD TOMATO.

A new and distinct variety from Serbia. Remarkable for its enormous size, spicy quality, and luxuriant growth. Grows 7 feet high, and bears thirty to thirty-five fruit on a plant, each fruit weighing from 20 to 30 ounces.

SUTTONS' VICTORY OF MANCHESTER CUCUMBER.

We have purchased the entire stock of this magnificent white-spined Cucumber, which was awarded the First Prize in a competition of fifty entries at the Manchester International Exhibition, 1881. Perfect in form, with a remarkably short neck; of dark green colour and a splendid cropper.

SUTTONS' READING MAMMOTH WHITE COS LETTUCE.

The largest Cos variety in cultivation. Very large, crisp, and of fine flavour.

From Mr. LEES, *Gr. to* Mrs. Marsland, *The Wilderness, Whiteknights.*—"Will become a universal favourite. Grows to a great size, of excellent flavour, and is the best Lettuce for a hot dry season, as it does not run to seed like other sorts."

SUTTONS' MARVEL, or RED-EDGED CABBAGE LETTUCE.

Pronounced by eminent gardeners to surpass any other Cabbage Lettuce in cultivation. Beautifully curled. Outer leaves edged with red. Hearts pure white, deliciously crisp, pure white, and of excellent flavour.

From the "Journal of Horticulture," July 14, 1881.—"I have grown many Cabbage Lettuces, and seen many more, but I have no experience of any to surpass the one named. It is superb in every way. It can be grown close together, and solid heads are soon formed of great crispness. I have several new vegetables on trial here this season, but none has pleased me so much as this Lettuce." J. MUIR.

VICTORY OF BRISTOL MELON.

Combines the largest size with the richest flavour of any scarlet-flesh Melon in cultivation. Beautifully netted, of bright red colour, very hardy constitution, flesh rich, deliciously melting and juicy. In addition to the First Prize at the International Show at Manchester, it has been awarded sixteen other First Prizes, including Crystal Palace and Leeds.

SUTTONS' GOLDEN BALL CABBAGE LETTUCE.

Unrivalled for early forcing and for summer use. Does not quickly run to seed, and may be left very thick in the rows. Very crisp and sweet.

From the "Garden," July 9, 1881.—"Of new, distinct, and improved Lettuces we have four from Reading this season. We have had many new Lettuces on trial, but never any equal to them. One is named Golden Ball. It grows larger than that good little Lettuce, Tom Thumb, folds in equally well and compactly, and is all that could be desired as regards flavour and crispness. It catches the eye of every stranger, and has been much praised for its beautiful colour, and firm, well swelled heads."

GIANT LEMON ROCCA ONION.

New and perfectly distinct: 20 to 25 per cent. larger than the ordinary Rocca Onion. Of oval shape, pale lemon colour, and mild flavour.

From Mr. J. RUST, *Gr. to the* Most Noble the Marquis of Abergavenny.—"Your 'Giant Lemon-coloured Rocca' is a magnificent Onion, producing a grand crop."

SUTTONS' "PRESIDENT GARFIELD" PEA.

Pronounced by our own trials as well as by the most eminent horticultural authorities in the kingdom to be the best main crop Pea in cultivation. The pods are produced in pairs, and cover the plants with remarkable profusion. They are of beautiful bright green colour, and contain from eight to ten Peas. Constitution hardy and vigorous. Remarkably free from mildew. Height 2 to 2½ feet.

From Mr. W. B. UPJOHN, *Gr. to the* Right Hon. the Earl of Ellesmere.—"A splendid Pea in all respects, good crop, immense pods and Peas, fine flavour. I think it the best Pea we have met with."

NEW SCARLET GLOBE RADISH.

Valuable, new, and distinct, brilliant red skin, and beautiful white flesh. Awarded a First-class Certificate by the Royal Horticultural Society. Excellent in flavour, and of beautiful shape.

From Mr. D. MCDONALD, *Gr. to* Sir C. Nicholson.—"The best Radish of its kind I have ever grown; beautiful colour, and mild flavour; the growth wonderfully clean."

SUTTONS' NEW FLOWERS FOR 1882.

SUTTONS' NEW BEGONIA, "METEOR."

Novel and attractive: flowers bright orange in centre, changing to a reddish orange and distinct red at the edges of the two broad petals. Foliage dark, and beautifully marked with light veins. Of dwarf and compact habit.

SUTTONS' NEW BEGONIA, "READING SNOWFLAKE."

Pure white flowers, twice the size of semperflorens, from which it is a seedling.

From HERBERT RASTALL, Esq., *Ruswarp House, near Whitby.*—"The Snowflake Begonia I had of you this spring is one of the most beautiful things I have ever seen."

SUTTONS' NEW CYCLAMEN, "READING GEM."

Awarded a First-class Certificate by the Royal Horticultural Society, January 14, 1879. Flowers large and well formed; petals broad and pure white, rosy-purple base. Dwarf in habit, with round, marbled foliage.

SUTTONS' NEW FERN-LEAVED PRIMULA, "ROSY QUEEN."

A splendid variety, and a great improvement on other Fern-leaved Primulas. Leaves shorter, and habit more compact. Flowers a delicate salmon-rose.

From Mr. SAMUEL TAYLOR, *Gr. to* Sir H. W. Ripley, Bart.—"The 'Fern-leaf Primulas' have been simply grand, many of them carrying twenty-five and thirty blooms per stem, averaging 2 inches across. Some plants in 8-in. pots are quite 30 in. through, and have been one mass of flower for the last 2 months."

PETUNIA GRANDIFLORA ROBUSTA FIMBRIATA. (Double.)

Very compact and symmetrical in growth. Large double ringed flowers of the finest shades of colour.

GAILLARDIA PICTA LORENZIANA (Double Gaillardia).

Large, beautifully double flowers, of various shades of colour. Borne on long stems, they are valuable for bouquets. Plants remain in bloom during the entire summer and autumn.

LINARIA MULTIPUNCTATA.

A beautiful little annual, not exceeding 3 inches in height, with glossy green foliage, and flowers of a very bright orange ground colour, dotted over with minute black spots.

LINARIA RETICULATA AUREA PURPUREA.

A very showy, early flowering annual, remaining in bloom during the entire summer. About 9 inches in height, with a robust, erect habit, flowers a rich golden-yellow and maroon colour, produced very freely. Valuable either for open ground or pot culture.

MIGNONETTE "GOLDEN GEM."

An attractive and distinct variety, of dense pyramidal habit, throws up very numerous flower-stalks terminated by spikes of golden-yellow blossoms, with which the bright green foliage of the plant forms a pleasing contrast.

PANSY "LORD BEACONSFIELD."

A highly effective and beautiful variety, with large flowers, having a ground colour of purple-violet. The upper petals shade off to a light tint.

SUTTONS' NEW PRIMULA, "READING PINK."

A charming novelty. Will become a great favourite on account of its exquisite colour. In habit the plant resembles Ruby King. Flowers rich salmon-pink, with yellow eye clearly defined and surrounded by a narrow band of carmine.

PHLOX DRUMMONDII GRANDIFLORA SPLENDIDA.

Far surpasses all the striped varieties hitherto offered. In habit of growth and form of flower it equals any of the grandiflora strain, while each of these varieties is remarkable for the decided colouring. The white stripes run from the centre to the margin in a very effective manner, giving the flowers the appearance of having a rayed white cross upon a rich ground colour.

SALVIA FARINACEA.

A useful and showy pale blue flower, a colour with which our gardens are not sufficiently familiar. Similar in habit to S. splendens, produces a large number of lavender-like spikes of bloom during the entire summer and autumn.

SILENE PENDULA COMPACTA AUREA.

This charming novelty is thus described by the raiser:—"The plants form compact bushes of vigorous growth, foliage light green, but early in spring changes to a splendid gold colour, forming a wonderful contrast to its rosy-red blossoms."

TROPÆOLUM LOBBIANUM CARDINALE.

A beautiful winter-blooming variety. The large round fiery scarlet flowers furnish excellent material for bouquets. A fine climber for the open ground, and is well adapted for covering fences, arbours, &c., where its abundance of bright flowers form a very effective contrast to the greyish-green foliage.

WALLFLOWER "CLOTH OF GOLD."

This splendid variety is an immense improvement on any Wallflower hitherto offered. Its flowers are of enormous size, frequently measuring more than 2 inches in diameter, and are of a pure bright golden colour. It blooms very early, is of good habit, and invaluable for spring gardening.

SUTTONS' NEW POTATOS FOR 1882.

SUTTONS' EARLY BORDER.

A distinct first early, with Ashleaf-like foliage. Produces good-sized tubers of excellent shape; shallow eyes. Of very superior quality.

The *Gardeners' Chronicle*, August 27, in its report of trials of Potatos at Chiswick, alluded to this variety, under the designation "No. 1 Fenn," as "highly approved for cropping qualities and handsome appearance."

SUTTONS' FIFTYFOLD.

Very distinct and good. Tubers generally round but occasionally elongated. Flesh firm and white: boils very mealy. Resists disease.

From Mr. W. WILDSMITH, *Gr. to the* Right Hon. Viscount Eversley.—"Very heavy crop; I should say about 2½ bushels from the 4 lb. you sent for trial. Quite free from disease, very handsome tubers, and but a moderate amount of haulm. A first-rate garden Potato, perfect in flavour, very mealy, whitish-yellow in colour."

SUTTONS' READING RUSSET.

Result of a cross between Bountiful and Late Rose. Exceedingly handsome, flattish round in shape. Skin red and beautifully russeted. Flesh white. Exquisite in quality and flavour.

From Mr. W. MILLEN, *Gr. to the* Most Noble the Marquis of Donegal, *Hampstead Park.*—"Productiveness first-class, the handsomest round I have seen."

From Mr. C. ILOTT, *Gr. to* Major Allfrey, *Wokefield Park.*—"The crop was rather undersized, from the hot weather, but very handsome. None were diseased; the flavour is exquisite."

From the "Gardeners' Magazine," September 24, 1881.—"The only good coloured round was a handsome red seedling from Mr. Fenn out of Bountiful and Late Rose, evidently a most promising sort."

SUTTONS' PRIZETAKER.

Awarded a First-class Certificate by the Royal Horticultural Society, 1881. A beautifully formed pink kidney, exceptionally useful for exhibition purposes, while its cooking qualities cannot be too highly spoken of.

Report of the Fruit Committee of the Royal Horticultural Society, in the "Gardeners' Chronicle," August 27, 1881.—"A large, very handsome, pale red kidney, remarkably fine in quality. . . . Highly approved for cropping qualities and handsome appearance. . . . On being subjected to the test of cooking, was awarded a First-class Certificate."

From Mr. C. ILOTT, *Gr. to* Major Allfrey, *Wokefield Park.*—"Large crop of handsome pink tubers, at the rate of 2½ bushels to the pole. The finest coloured kidney ever seen here; no disease when the crop was lifted, and only about 3 per cent. found after being stored a fortnight. The cooking qualities are quite first-class."

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THE

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The GARDENERS' CHRONICLE for Saturday next, Jan. 7, 1882, will contain a COLOURED ALMANAC.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.
The ANNUAL GENERAL MEETING of the Members of this Society will be held at the Bedford Hotel, Covent Garden, W.C., on THURSDAY, January 12 next, for the purpose of receiving the Report of the Committee and the Accounts of the Institution for the present year, and Electing Officers for the ensuing year, and also for placing EIGHT PENSIONERS on the Fund. The Chair to be taken at 7 o'Clock precisely.—By order,
EDWARD ROGER CUTLER, Secretary,
14, Tavistock Row, Covent Garden, London, W.C.

CAMELLIAS. — Stong Bushy Plants, best kinds, well set with bloom, 24s. per dozen.
W. JACKSON, Blakedown, near Kidderminster.

GREEN HOLLIES, for Hedges, are offered by the undersigned, established in 5-inch pots, 1½ to 2 feet high, bushy, at 50s. per 100. The object of pot culture is to avoid the check on removal, and the disappointment so often attending the transplanting of this tree.
WM MAULE AND SONS, The Nurseries, Bristol.

To the Trade.
EDMUND PHILIP DIXON'S General Trade CATALOGUE of Seeds has been posted to all his Customers. Should any not have received a copy, another will be sent on application.
57, Queen Street; 52, 75, 76, and 77, High Sreet, Hull.

Hardy Rhododendrons and Azaleas.
ANTHONY WATERER has to offer many thousands of healthy well furnished and well budded RHODODENDRONS of the best and most popular kinds.
Hardy AZALEAS, a selection of the most beautiful kinds known, all well furnished and well budded, many thousands
AZALEA MOLLIS, seedlings and best named varieties, covered with buds, many thousands.
Knap Hill Nursery, Woking, Surrey.

CHRYSANTHEMUMS. — Shaw's Golden Madame Marthe is the finest yellow Pompon in the world. Will be grown by everybody, shown by everybody, and admired by everybody. Plants, 3s. per dozen; twelve very best varieties for Exhibition, including Golden Madame Marthe and Souvenir d'un Ami, for 2s. 3d., all post-free.
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RASPBERRY CANES. — 100,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, August 1, 1881, at p. 1044), to Dispose of at £2 per 1000; samples of 100 for 5s. Also 50,000 Fastolf, at £1 per 1000, 250 for 6s., on rail. The Canes are small, but being well rooted are equally as good as large grown ones. Payments to accompany orders. Postal Orders on Knockholt. Apply to
A. AND E. BATH, Colgates Farm, Sevenoaks, Kent.

STRAWBERRIES.—Strong roots for fruiting next year, 4s per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen, Worcester.

RHUBARB STOOLS for SALE.—3000 Victoria and finest early sorts. Stools extra fine. Apply THOS. BLACK, Seedsman, Jedburgh, N.B.

ONION SEED.—Bedfordshire Champion, very fine; and Intermediate and White Spanish, all at 5s. per pound, which you may depend on to be all new and genuine. Good 1-yr. old QUICK, 8s. per 1000; large SAGE ROOTS, 4s. per 100. Terms cash.—RICHARD WALKER, Market Gardens, Biggleswade, Beds.

SEED POTATOS.—Myatt's Kidneys, fine, £5 5s. per ton in ton lots, £5 in 5-ton lots, £4 10s. in 10-ton lots, on rails. All other leading sorts in great quantities, equally cheap.
LITTLE AND BALLANTYNE, Seed Growers, &c., Carlisle.

To the Trade.
JAMES CARTER, DUNNETT, AND BEALE'S Wholesale CATALOGUE of Seeds, Horticultural Sundries, Novelties, &c., for 1882 has now been posted to all Customers. A duplicate copy will be forwarded immediately, post-free, on application to
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I have only a few to offer this season, but they are fine; 7 to 9, 9 to 10 10 to 11, and 11 to 13 inches in circumference.
LILIUM GIGANTEUM, also fine. This is the time to plant.
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HYACINTHUS CANDICANS.
Bulbs of I. Quality, £1 per 100, £9 per 1000, nett.
,, II. ,, 12s. per 100, £5 per 1000, nett.
,, III. ,, 8s. per 100, £3 10s. per 1000, nett.
L. SPÄTH, Nurseryman, Berlin S.O., Köpnicker Strasse, 154.

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Apply to Mr. COOPER, F.R.H.S., Calcot Gardens, near Reading, Berks.

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BRADFORD AND SONS, Yeovil, Somerset, now Grow and Cut yearly 100 Acres and upwards of OSIER BEDS, and will quote prices to the Trade, *according to quantity required.* Samples and prices of Osier "Sets" on application.

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RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

CHESTNUT (Spanish), Hazel, Ash, Larch, Scotch, Birch, Alder, Willow, and Thorn Quick.—Stout, well-rooted, transplanted. A large quantity to be sold.
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ENGLISH YEWS, 3½ to 4½ feet, 15s. per doz., 100s. per 100; 4 to 5 feet, 18s. per doz., 140s. per 100. All recently transplanted.
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THORN QUICKS.—Strong and extra strong, in very large quantity and of very excellent quality.—Prices, samples, and all particulars on application to
Messrs. JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

SPECIAL OFFER to the TRADE of the following clean grown well-rooted Trees:—
LARCH, 15 to 24 inches, 1½ to 2, 1½ to 2½, and 2 to 3 feet.
SCOTS FIR (true Native), 2-yr. 2-yr., and 2-yr. 3-yr.
PINUS AUSTRIACA, twice transplanted, 9 to 18 inches.
Price and samples on application to
STEPHEN WILSON, Nurseryman, Aberdeen, N.B.

The Best Dwarf Roses in the Trade.
JAS. GARAWAY AND CO. offer the above, 100 in Best Leading Varieties, their selection, packed and carriage paid to any railway station, on receipt of Post-office Order for 60s.; 50 for 33s.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

6000 Grape Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, have a splendid stock of VINES grown from eyes this year, suitable for present planting. CATALOGUES free. Trade supplied.

Grape Vines.
M. ROCHFORD has a lot of strong, well-ripened Canes of GROS COLMAR to offer, both Fruiting and Planting. Price on application.
Page Green Nursery, Tottenham, London.

Floral Commission Agency.
WANTED, all kinds of CHOICE WHITE FLOWERS.—Nurserymen and others having the above will please communicate with W. CALE, Floral Commission Agent, 4, Tavistock Row, Covent Garden, W.C.

WANTED, Consignments of choice CUT FLOWERS, also GRAPES, CUCUMBERS, &c.—WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, Perpetual or Autumn-flowering CLEMATIS, good 2-yr. old plants. State price per 100 or 1000 to
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

WANTED, MANETTI, LA GRIFFERAIE, and Seedling BRIERS, for Stocks; also Cuttings of MANETTI and LA GRIFFERAIE. Wholesale Houses will oblige by sending Catalogues, both English and Continental, to Messrs. JARRETT AND JOHNSTON, Craven Nursery, London Road, Newbury, Berks.

To the Trade.
WAITE, NASH, HUGGINS, AND CO. have posted their GENERAL CATALOGUE to all their Customers; if not received another copy will be sent on application.
79, Southwark Street, London, S.E.

LILIUM AURATUM, splendid sound bulbs, at 4s., 6s., 9s., 12s., and 18s. per dozen; 30s., 40s., 50s., 75s., and 100s. per 100; extra strong, 30s. and 42s. per dozen.
LILIUM HUMBOLDTII, beautiful, hardy and easily grown, 18s. and 30s. per dozen; gigantic roots, 42s. per dozen.
LILIUM WASHINGTONIANUM, a splendid, hardy, easily grown species, 30s. and 42s. per dozen.
LILIES OF VARIOUS SORTS, either for Greenhouse, Conservatory, or Open Border, by the dozen, 100, or 1000.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade Only.
TEA ROSES, on own roots, extra strong, out of 4½-inch pots, £2 per 100, for cash. Now ready, Isabella Sprunt, Gloire de Dijon, &c.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

ROSES.—The celebrated North of Ireland Roses, the best plants in the trade, in best sorts only. Per doz., 12s. and 15s.; extra selected, for potting (specimens), 18s. per doz.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

ROSES.—The most superb Roses that money can buy. Dwarfs, very strong and healthy, 12s. per dozen, 84s. per 100. LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

IMPORTANT NOTICE.— First-class NURSERY STOCK, specially cheap for Cash only, to clear the ground by March next.
CATALOGUES on application to
WALTER DAWSON, Nurseryman and Seedsman, Coventry.

RHODODENDRON CATAWBIENSE. Exceptionally fine, with flower-buds, 2 to 3 ft. high.
CHARLES NOBLE, Bagshot.

CONTINENTAL SEEDS.—O. KNOPFF & Co., Erfurt (Established 1832), offer their well known FLOWER SEEDS to the Trade. For CATALOGUES, &c., apply, BECK & POLLITZER, 211, Upper Thames Street, E.C.

LARGE HORSE CHESTNUTS and LARGE POPLARS, often transplanted, shapely and well rooted trees. Prices, sizes, &c., on application to
FRAS. R. KINGHORN, Sheen Nurseries, Richmond, Surrey.

Cypripedium japonicum, &c.
THE NEW PLANT and BULB COMPANY beg to advise that their GENERAL CATALOGUE (No. 54) is just published, and will be sent free on application.
Lion Walk, Colchester.

RASPBERRY CANES. — Fastolf, 20s.; Carter's, 30s. per 1000.
R. BATH, Crayford, Kent.

Vines.
STRONG PLANTING CANES of BLACK HAMBURGH and MUSCAT of ALEXANDRIA, 36s. per dozen.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

CAMELLIA BLOOMS, Double White. Can arrange for regular weekly supply.
J. PAGE, The Hornsey Nursery, Hornsey.

WHITE EVERLASTING FLOWERS. First quality. Immense stock of same.
CHARLES AYRES, Wandel Street, Cape Town, South Africa.

SCOTCH FIR SEED.—Seed from the true Native Highland Scotch Fir (guaranteed). Price per pound on application to
R. AND A. MORRISON, The Nurseries, Elgin, N.B.

LAPAGERIA ALBA, at greatly reduced prices. Established healthy plants, in 4-inch pots, 10 to 12 inches high, 10s. 6d.; by post, 11s. 6d. Plants in 5½-inch pots, 15s.; in 6½-inch pots, 21s.; in 8-inch pots, 31s. 6d.; in 9-inch pots, 42s.
BARR AND SUGDEN, 12 and 13, King Street, Covent Garden, W.C.

LAPAGERIA ALBA, well-rooted plants, 10s. 6d., 15s. and 21s. A few extra specimens, size and price on application.
LAPAGERIA RUBRA, superb, 7s. 6d., 10s. 6d. and 15s. A few extra-sized specimens, size and prices on application.
W. HOWARD, Southgate, N.

LILIUM AURATUM. — Splendid direct Imported and Home-grown Bulbs, 30s., 40s., 50s., 60s., 75s., and 100s. per 100.—SANDER AND CO., St. Alban's.

CHRYSANTHEMUMS.
Special offer during January.
We have now, perhaps, the finest house of Cuttings of the above ever seen—all the varieties arranged as per Catalogue; consequently orders are dispatched by return of post. Our selection of Cuttings, all distinct and true to name, 10s. per 100; 500 distinct kinds, 40s.; stock plants, our selection, in good kinds, 25s. per 100. Illustrated CATALOGUES post-free.
H. CANNELL AND SONS, The Home for Flowers Swanley, Kent.

SALES BY AUCTION.

15,000 Lilium auratum, just received from Japan in fine condition.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, January 2, at half-past 12 o'Clock precisely, an importation of 15,000 LILIUM AURATUM, just received from Japan in splendid condition; fine bulbs of English-grown LILIES, many rare sorts; New American CAMELLIAS, Hardy ORCHIDS, some good Roots of a New and Rare GENTIAN, from Switzerland; flowering Bulbs of EUCHARIS CANDIDA, 500 HYACINTHUS CANDICANS, the pure White Summer-flowering Bulbous Plant; and a fine assortment of Rare HARDY PLANTS and BULBS from various parts of the world.

On view the morning of Sale, and Catalogues had.

Fruit Trees, Roses, Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 4, at half-past 12 o'Clock precisely, first-class Pyramid and Dwarf-trained FRUIT TREES, all good named sorts; choice named Standard and Dwarf ROSES, including most of the leading varieties; Specimen CONIFERS, GOOSEBERRY and CURRANT BUSHES, CARNATIONS, PICOTEES, and PINKS, and other HARDY HERBACEOUS PLANTS, DUTCH BULBS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.
ODONTOGLOSSUM POLYXANTHUM.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 5, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, St. Alban's, a fine importation of ODONTOGLOSSUM POLYXANTHUM. This grand new species flowered in several collections, received a First-class Certificate, and has been figured in the *Floral Magazine*, and in *Warner's Orchidaceous Plants*. The Sale will also contain several other valuable importations, including a fine batch of extra varieties of ODONTOGLOSSUM ALEXANDRÆ, a large lot of ONCIDIUM MACRANTHUM, NANODES MEDUSÆ, &c.

May be viewed the morning of Sale, and Catalogues had.

The Choice Collection of Orchids formed by Frederick Yates, Esq.

MR. J. C. STEVENS has received instructions to offer for SALE by AUCTION, without the least reserve, the entire COLLECTION of ORCHIDS formed by Frederick Yates, Esq., of Higher Feniscowles, near Blackburn.

The first Sale will take place about the Third Week in JANUARY, and will include twelve grand plants of Dendrobium Wardianum, in bud and flower; a magnificent plant of Cypripedium Spicerianum, with about twelve growths and breaks; C. Sedeni, C. Stonei, C. lævigatum, C. Lowii, C. Veitchii, &c.

Further particulars in future advertisement. Every plant in this collection will pass through the Sale, and nothing retained or sold prior to it.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Lilium auratum.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, January 9, 10,000 very fine Bulbs of LILIUM AURATUM, and 300 SPECIOSUM ROSEUM and ALBUM, just arrived from Japan, together with an assortment of Hardy English-grown LILIES and miscellaneous BULBS.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Valuable Nursery Grounds and Building Land, &c., AT SALE.

Re R. S. Yates, Nurserymao and Florist.—In Liquidation.

MESSRS. ARTINGSTALL AND HIND will SELL by AUCTION, at the "Merchants' Hotel," Oldham Street, in Manchester, on WEDNESDAY, January 11 next, at 7 o'Clock in the evening prompt, subject to conditions which will then be produced:—

Lot 1. All that VALUABLE FREEHOLD ESTATE, situate at Sale, in the county of Chester, close to the Turnpike Road to Altrincham, and within a very short distance of the Railway Station at Brooklands, now or late in the occupation of Mr. R. S. Yates, containing in the whole 3a. 2r. 26p., Cheshire measure, or 7a. or. 37p statute measure or thereabouts. And also all that Dwelling-house erected on the said land, with the barn, stables, and all other outbuildings thereon, together with the Cottage-ornée, or Entrance Lodge, on the said ground. And also all and every the horticultural erections thereon, which comprise 14 extensive Houses, all of which are heated in the most efficient manner with hot water and flues, several of them being of great size and importance. And also all the Shrubs and Plants on the said ground, comprising great numbers of Hollies, Rhododendrons, Azaleas, &c., of the most approved quality, and which to a large extent are fully and correctly named. Together with all and every the Cold Pits and Frames, and all other incidental matter now standing on the said ground, which have been used by the said R. S. Yates in connection with his said business. The property is free from chief, and subject to no building or other restrictions whatsoever.

Lot 2. All that POLICY of ASSURANCE effected by the said R. S. Yates on his own life, in the Mutual Life Assurance Office, for £500, dated the 11th day of November, 1847, at and subject to the annual premium of £17 13s. 9d. The assured is in his 76th year, and the premiums have been duly paid up to, and including the 11th day of November last. The Policy is in mortgage to the Assurance Office for securing £350 and interest, which latter on October 1 last amounted to £40 5s.

All further particulars may be obtained on application to the AUCTIONEER, 45, Princess Street; Messrs. MARCHANTON AND KENDAL, Accountants, 67, King Street; Messrs. A. AND G. W. FOX, Solicitors, 53, Princess Street; or Mr. SAMUEL SIMPSON, Solicitor, South Gate, King Street West, all in Manchester.

TO LET, a SMALL OUTDOOR NURSERY, where a very profitable trade has been carried on. No stock or valuation.—For full particulars, apply to A. A., Mr. Hart, Florist, Shepherd's Bush, W.

Special Notice.

MESSRS. WM. CUTBUSH AND SON would be greatly obliged to their Friends and Patrons if they will kindly address all Business Communications to HIGHGATE, and *not* to their *Branch Nurseries at Barnet*, as much time is saved thereby.
HIGHGATE NURSERIES, LONDON, N.

FRISBY'S EXCELSIOR BEET.—The best and most distinct Beet in cultivation. It is excellent both for the Flower Garden and for Table use. The top is small, with dark shining leaves; Root growing about double the length of most kinds, is of fine tapering form, with very dark skin; flesh deep crimson, of fine quality and exquisite flavour. Price per ounce packets, 1s. 6d.
EDMUND PHILIP DIXON, Hull.

NEW CHRYSANTHEMUM—LADY SELBORNE.
One of the Best Whites yet raised.

MR. H. JAMES, of Castle Nursery, Lower Norwood, Surrey, has now the pleasure of announcing to his numerous Customers and Friends that he intends sending out the NEW CHRYSANTHEMUM, LADY SELBORNE—raised by Mr. C. Salter, and which has already gained Three First-class Certificates—on January 1, 1882. Price 5s. each.
P.O.O. payable at Thomas Terrace, Lower Norwood, S.

LILIUM AURATUM, and other LILIES, the best picked Bulbs only. Size No. 1, 9d.; No. 2, 1s.; No. 3, 1s. 6d.; and the largest Bulbs imported, 2s. each. Equally low prices for other Lilies, and Special LIST of Orchids forwarded on application to
WM. GORDON, City Office, 10, Cullum Street, London, E.C. Special Price to the Trade.

SINGLE DAHLIAS.
YELLOW DWARF, 1s. 6d. each, 15s. per dozen.
SCARLET GEM, 1s. 6d. each, 10s. per dozen.
COCCINEA, 1s. 6d. each, 15s. per dozen.
A pot-root of each of these splendid kinds, post-free, 4s. 6d.
We have the most complete collection of doubles, and always grow not less than 10,000 pot-roots, and can therefore offer best in cultivation.
H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent.

SPIRÆA PALMATA, the largest stock of forcing plants in Europe.

DWARF ROSES, good, 9s. per dozen.

RHODODENDRONS, covered with buds, for forcing.

STANDARD RHODODENDRONS, of finest kinds; may be selected from hundreds.

CHARLES NOBLE, Bagshot.

Vegetable and Flower Seeds, of superior quality.

DICKSON AND ROBINSON, SEED MERCHANTS, 12, Old Millgate, Manchester, offer:—

		s.	d.
BEET—D. & R.'s Improved Dwarf-top Black,	per oz.	1	6
BORECOLE—D. & R.'s Improved Moss		1	0
BRUSSELS SPROUTS—Aigburth Improved	per pkt.	1	0
BROCCOLI—D. & R.'s Superb Dwarf Early White	,,	1	0
,, D. & R.'s Superb Dwarf Late White ..	,,	1	0
CABBAGE—D. & R.'s Improved Nonsuch	per oz.	1	0
CAULIFLOWER—Dickson's Eclipse ..	per pkt.	1	6
CELERY—D. & R.'s Manchester Champion Red	,,	1	0
,, D. & R.'s Manchester Champion White ..	,,	1	0
CUCUMBER—D. & R.'s Improved Telegraph ..	,,	1	6
LETTUCE—Dickson's All-the-year-round Cabbage	p. oz.	1	0
MELON—Conqueror of Europe	per pkt.	1	0
TURNIP—Dickson's Snowball	per oz.	0	4
TOMATO—Criterion, extra choice	per pkt.	1	0
CALCEOLARIA—D. & R.'s superb strain ..	,,	2	6
CINERARIA—D. & R.'s superb strain	,,	2	6
CYCLAMEN persicum giganteum	,,	1	6
COCKSCOMB—Dwarf velvety-crimson ..	,,	2	6
GLOXINIA hybrida grandifolia erecta	,,	2	6
PRIMULA sinensis fimbriata—D. & R.'s superb strain, Red, White, and Mixed, each ..	per pkt.	2	6
PETUNIA hybrida grandiflora fimbriata, Double, splendid, mixed	per pkt.	1	0
,, ,, ,, ,, Single, splendid, mixed	,,	1	0

For descriptions of the above and other Select and Genuine Seeds, see our Illustrated Vegetable and Flower Seed CATALOGUE, which may be had free on application.
DICKSON AND ROBINSON, 12, Old Millgate, Manchester.

SINGLE DAHLIAS.

THOMAS S. WARE

Has pleasure in announcing that he proposes publishing early in April, a full and

DESCRIPTIVE LIST
of all the leading varieties in cultivation,

Including those figured in the Plate accompanying this week's issue of the *Garden*, and a number of other beautiful varieties, many of which have not been offered before; also the best of the double varieties in each section. This Catalogue will be posted to the whole of my Customers. Applications received now will be carefully filed, and copies posted the moment they are printed.

A LIST of SINGLE DAHLIA and other CHOICE FLOWER SEEDS is in course of preparation, and will be ready in a few days.

Hale Farm Nurseries, Tottenham, London.

CRANSTON'S NURSERIES.
(ESTABLISHED 1785.)

NEW CATALOGUES
OF ROSES AND FRUIT TREES
Now Ready.

Over 120 First Prizes for Rose Blooms have been obtained by us during 1880 and 1881, being the largest number ever awarded to one establishment in two seasons.

CRANSTON'S NURSERY and SEED CO. (LIMITED), King's Acre, Hereford.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection, which was again awarded first prizes at all the London great Flower Shows. Sealed packets, free by post, 1s. and 2s. 6d. each. All first quality. The Trade supplied.
JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

"The Celebrated North of Ireland Roses."

THE ONLY ROSES in IRELAND having any claim to such a title are those grown by us, and we repudiate the right of any other Nurserymen to claim such "celebrity."

Having gained many hundreds of First Prizes at the leading shows all over the country, WE ALONE have thus made North of Ireland Roses celebrated. Our stock of Standards and Dwarfs numbers over 100,000 plants, in the finest possible health, and embraces every good variety in cultivation.

Descriptive CATALOGUES may be had on application to
ALEX. DICKSON AND SONS, Nurseries, Newtownards; or, HUGH DICKSON, Belmont Nursery, Belfast.

Gooseberries and Black Currants.

GEORGE BUNYARD AND CO. can offer the above in large or small quantities, in the best Garden or Market kinds, as recommended in *Fruit Farming for Profit*.
The Old Nurseries, Maidstone.

HALF-STANDARD H.P. ROSES, in large or small lots.
GEORGE BUNYARD AND CO., Maidstone.

CHARLES NOBLE has fine plants of
CUPRESSUS LAWSONIANA
THUYA GIGANTEA (Lobbii)
,, AMERICANA
RETINOSPORA PISIFERA
} 6 to 12 feet high, transplanted last August.
Exceptionally handsome AVENUE TREES.
LIME TREES, 14 to 16 feet.
DWARF PYRAMID PEARS, in fine variety, on Dwarfing Stock (so that they bear quantities of Fruit when only the size of Currant Bushes), just coming into bearing: some produced fruit last season.
The finest Bedding Rose ever raised,
ROSE "QUEEN of BEDDERS" (Noble).
Requires no pegging, has never (with me) produced a shoot without a flower, and I have cut Bouquets from the open ground during five months consecutively.
Bagshot.—December, 1881.

Chrysanthemums.

S. MAHOOD AND SONS, Windsor Nurseries, Putney, have now to offer Cuttings of their splendid collection, which has taken three First-class Prize Cups (*vide Gardeners' Chronicle*, Nov. 19 and 26). 2s. per dozen. Rooted Plants later on.
CATALOGUES on application.

CHRYSANTHEMUMS, best and newest, now ready. Large stock of 300 distinct sorts. Purchaser's selection, plants 2s. 6d. per doz., 14s. per 100; W. E.'s selection, 2s. per dozen, 10s. per 100, post-free. Cuttings much cheaper.
CATALOGUE one stamp.
W. ETHERINGTON, Manor House, Swanscombe, Kent.

STUART, MEIN AND ALLAN have to offer the undernoted LARGE TREES for immediate effect:—

ELMS, 3 to 15 feet.	FIR, Spruce, 2 to 2½ feet.
MAPLE, Norway, 10 to 16 ft.	HAZELS, 3 to 5 feet.
CHESTNUT, Horse, 6 to 14 ft.	CHERRIES, Standard, strong
CHERRY, Wild, 10 to 18 feet.	APPLES, Pyramid, strong.
POPLARS, Black Italian, 10 to 18 feet.	SNOWBERRY, 4 to 6 feet, strong.
ASH, Mountain, 5 to 6 feet.	SPIRÆA, in variety.
ALDERS, 4 to 8 feet.	THORNS or QUICKS, 1½ to 2 feet.
LARCH, 2 to 4½ feet.	

CUPRESSUS LAWSONIANA, large specimen plants, 6 to 8 feet. The Nurseries, Kelso, N.B.

Raspberry Canes.

FOR SALE, 40,000 SEMPER FIDELIS, the best Raspberry in cultivation; also a large quantity of the undermentioned varieties:—
NORTHUMBERLAND FILLBASKET.
CARTER'S PROLIFIC.
RED ANTWERP.
FASTOLF.
And the leading varieties of STRAWBERRY PLANTS.
JOSIAH H. BATH, Manor Farm, North Cray, Kent.

Deutzia gracilis.

WILLIAM FLETCHER has still a few hundreds of the above to offer. Twelve to thirty branches in each plant. Very cheap. Price on application.
Ottershaw Nursery, Chertsey.

To the Trade.

THORNS, 1-yr. Seedling, 2s. 6d. per 1000, in quantities of 100,000 and upwards.
LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle.

Notice to the Trade.

NUTTING AND SONS have now posted their ANNUAL TRADE CATALOGUE of Garden Flower and Agricultural Seeds to all their friends. If not duly received, they will be obliged by an early intimation, when another copy will be posted.
NUTTING AND SONS, Seed Merchants, 60, Barbican, E.C.

SPECIAL OFFER.

	Per doz.	Per 100.
OAK, English, 8 to 10 feet	9s. od.	60s. od.
CHESTNUT, Horse, 8 to 10 feet	6s. od.	40s. od.
COTONEASTER MICROPHYLLA ..	6s. od.	..
CRYPTOMERIA JAPONICA, 8 to 10 feet	24s. od.	..
COB-NUTS, Kentish	6s. od.	40s. od.
HONEYSUCKLE, Late Dutch	4s. od.	30s. od.
YEWS, Common, 2½ to 3 feet	9s. od.	60s. od.

FIR, Larch, fine stuff, 2 to 3 feet, 35s. per 1000; 3 to 4 feet, 45s. per 1000.
PEAT.—Good fibrous Peat, put on the South-Eastern or London, Chatham and Dover Railways here, 14s. per yard.
C. F. CATTELL, Sevenoaks, Kent.

SELECTED POTATOS for PLANTING.—Our LIST, which includes all the best kinds, with specially low prices for present delivery, is now ready, and will be sent post-free on application.
JOHN AND GEORGE McHATTIE, Seed Merchants, Chester.

NOTICE.—SELLING OFF OF NURSERY STOCK.

Great Reduction in Price for Cash Payments.

EWING & CO.,

Having determined to discontinue their Nursery Business at EATON, near NORWICH, and in order to induce a quick Sale of their Stock, offer the following discounts off List Prices, viz.:

15 per Cent. for Cash with order,
10 per Cent. for Cash within One Month of date of invoice.
5 per Cent. for Cash within Three Months of date of invoice.
After Three Months no discount can be allowed.

The following are some of the Goods they hold large and very fine Stocks of:—

ROSES—Dwarfs of the best old sorts of Hybrid Perpetuals, Bourbons, Mosses, &c., 9s. to 15s. per dozen, 63s. to 100s. per 100, £28 to £40 per 1000.
,, Dwarfs of Teas and Noisettes, best old kinds, 12s. to 15s. per dozen, 80s. to 100s. per 100.
NEW ROSES—French Varieties of 1881 and English of 1880, 24s. per dozen.
,, French Varieties of 1880, 18s. per dozen, 130s. per 100.
CURRANTS—Black, good bushes on stems, 3s. to 6s. per dozen, 20s. to 30s. per 100; cheaper by the 1000.
NUTS and FILBERTS—Largest and Best Varieties, fine bushy plants, 6s. to 9s. per dozen, 40s. to 60s. per 100, £18 to £27 10s. per 1000.
ASPARAGUS—extra fine, strong planting roots, 2s. 6d. to 3s. 6d. per 100, 20s. to 30s. per 1000.
HERBS of many kinds, 3s. to 6s. per dozen.
DOGWOOD, Red-twigged (Cornus alba)—Stout bushes. This shrub gives a fine effect in winter. 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100.
ELM—Wych, transplanted, 4 to 6 feet, 8s. per 100, 60s. per 1000; 6 to 8 feet, 25s. per 100, 200s. per 1000.
POPLAR—Black Italian, 6 to 8 feet, 3s. per dozen, 20s. per 100, 160s. per 1000; 8 to 10 feet, 5s. per dozen, 30s. per 100, 240s. per 1000.
WILLOW—Bedford or Huntingdon, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet, 4s. per dozen, 25s. per 100; 10 to 12 feet, 6s. per dozen.
,, Cœrulean, 6 to 8 feet, 3s. per dozen, 15s. per 100; 8 to 10 feet 4s. per doz., 25s. per 100; 10 to 12 feet, 6s. per doz.
ASH—(Fraxious excelsior) atrovirens, 3 to 4 feet, 12s. per dozen; aucubæfolia, 4 to 6 feet, 12s. per dozen; 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
,, spectabilis, an exceedingly fine Ash, which grows with extraordinary vigour, 3 to 4 feet, 6s. per dozen; 4 to 6 feet, 9s. per dozen; 6 to 8 feet, 12s. per dozen; 8 to 10 feet, 24s. per dozen.
BEECH—Crested-leaved, a very ornamental tree, 4 to 5 feet 9s. per dozen; 5 to 6 feet, 12s. per dozen; 6 to 8 feet 24s. per dozen.
,, Cut-leaved, very beautiful, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen; 8 to 10 feet, 36s. per dozen.
,, Fern-leaved, one of the most beautiful small trees grown, 3 to 4 feet, 12s. per dozen; 4 to 5 feet, 18s. per dozen; 5 to 6 feet, 24s. per dozen.
,, **Purple-leaved**, the best dark broad-leaved variety, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 75s. per 100; 5 to 6 feet, 18s. per dozen, 120s. per 100; 6 to 8 feet, 24s. per dozen.
,, Weeping, 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen; 6 to 8 feet, 24s. per dozen.
HORSE-CHESTNUT—Extra transplanted, very fine, well-rooted trees, 8 to 10 feet, 9s. per dozen, 60s. per 100; 10 to 12 feet, 12s. per dozen, 75s. per 100.
,, Scarlet-flowered, 6 to 8 feet, 18s. per dozen; 8 to 10 feet, 24s. per dozen.
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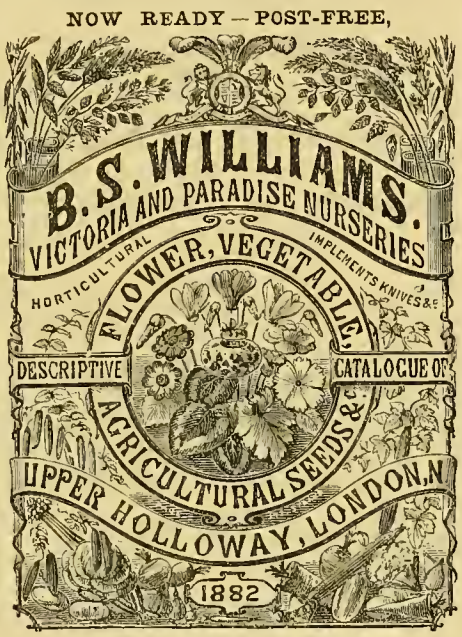

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LETTUCE, Hick's Hardy White Cos	per ounce	1	6
MELON, High Cross Hybrid	per packet	1	6
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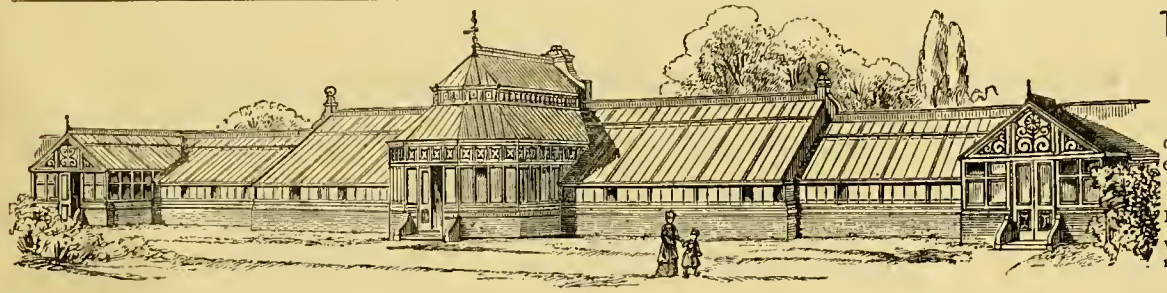

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THE

GARDENERS' CHRONICLE

FOR

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THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 31, 1881.

GARDENING ON THE RIVIERA.

(*See Supplementary Sheet.*)

LAST week we gave an illustration showing what an English gardener could effect under unfavourable circumstances as regards climate, and not very favourable conditions as regards site. This week we give a scene of a totally different character. We have, indeed, often had occasion to allude to the beautiful vegetation of the Mediterranean shores, where so many of our compatriots take refuge at this season to seek for, and find, genial spring in mid-winter. The general character of the vegetation, natural and artificial, of this favoured district has been descanted upon in our columns by many botanists and gardeners—notably by Dr. Henry Bennet. The gardens of Mr. Hanbury, of the late M. Thuret, and various others, have been from time to time described, but there is no fear of satiation, for from the bold masses of the Esterels on the west jutting out into the azure sea to beyond the Italian frontier, as far as Genoa on the east, a landscape is unrolled before the eye of the visitor unrivalled for beauty, and specially striking to the botanist and the gardener. Frèjus, St. Raphael, Hyères, Cannes, Gulf Juan, Antibes, Nice, Beaulieu, Monaco, Mentone, Ventimiglia, Bordighera, San Remo, abound in sites of matchless loveliness, and a vegetation which recalls that of subtropical Australia, the Cape, the Canary Islands, and the mountains of the tropics rather than of Southern Europe. None of these localities, however, surpasses Monaco and Monte Carlo. Rocks of picturesque outline and rich warm maroon colour bound the clear purple or deep emerald sea, forming here bold promontories, there sharp headlands; in one place sweeping bays, in another isolated bluffs. These rocks, formerly denuded of vegetation, have, by the art of the landscape gardener, become converted into gardens that may vie in beauty with the imaginative creations of fairyland. Every one must be struck with the beauty of the scene, but the botanist and the gardener alone can appreciate the vigorous growth of tree and shrub which even under the best circumstances under glass in our northern latitudes are stunted and feeble by comparison. Eighteen years ago the proprietors of the gaming saloons of Monte Carlo undertook some modest work in the way of landscape gardening with the assistance of a German gardener. The increasing prosperity of the enterprise necessitated increased resources for the accommodation and pleasure of visitors, so that in 1879 M. Charles Garnier, the architect of the new Paris Opera House, was summoned to Monte Carlo to erect the splendid theatre which now confronts the sea. In the same year our friend and *collaborateur*, M. Edward André, the eminent landscape gardener, favourably known in this country by his works at Sefton Park, Liverpool, Impney Hall, &c., was requested to remodel the old garden and to form new ones. His work, now approaching completion, has been so successfully carried out that no one would imagine that it had been accomplished so recently. The illustration, given as a supple-

mentary sheet in the present issue, will give some idea of the exuberance of the vegetation in this lovely spot, and will show what a richly contrasted effect is afforded by the Date Palms and the Stone Pines rising out of a thicket of Aloes and Opuntias and an undergrowth of flowering shrubs. These latter grow so freely that Pelargoniums and Pyrethrums, Polygalas and a host of other "greenhouse plants" have, as we saw to our amazement, to be cut with shears, as a Privet hedge would be here The new garden laid out by M. André consists of three distinct portions. In front of the Casino a large geometric garden has been formed, with beds disposed on green turf. The beds are filled with flowering plants in summer and with evergreens and variegated foliage plants during the winter. Statues and vases of marble and bronze are intended to be added, so that the whole will harmonise with the lines of the new buildings to be erected or remodelled by M. Garnier.

On either side of this more formal architectural garden an avenue forms a transition to the two pleasure-grounds where M. André, not being tied down by other requirements, was at liberty to work in a more picturesque manner according to his own taste. One of these gardens, called the sunk garden (*jardin creux*), forms a charming valley, down which splashes and bounds amid the rocks a stream which loses itself in a lake surrounded by Bamboos more than 30 feet high. Overlooking this valley is a summer-house of iron and artistic *faience*, surrounded by a verandah covered with Banksian Roses, and overshadowed by noble Date Palms. The sides of the valley are clothed with clumps of Chamærops excelsa, fine Aralias, Wigandias, Eucalyptus, and a hundred other noble "subtropical" plants. On the other side of the avenue a second pleasure-ground corresponds to that just described. It is terminated by a mass of rock with a grotto. Here Opuntias, Agaves, Aloes, Cereus, Cactus, Mesembryanthemum, abound, in combination with trailing plants and creepers of all kinds. Large lawns, copiously irrigated in summer, prove that, even in this climate, where in the summer months the sun shines with almost incredible fierceness, a fine turf can be obtained, if only the necessary pains and cost be afforded. In a spot so splendidly endowed by Nature, it might almost seem presumptuous for Art to interfere; but those who know the surroundings, and those conversant with M. André's taste, will admit that in this case the beauties of Nature are enhanced and brought into more relief by the skill of the gardener.

New Garden Plants.

NEPENTHES COURTII ×, *Hort. Veitch.**

This is a remarkably handsome hybrid, raised in the nurseries of Messrs. Veitch by Mr. Court, whose name it appropriately bears. It was raised from the seed of an unnamed Bornean species fertilised by the pollen of N. Dominii ×, the latter being itself a hybrid between N. Rafflesiana and the same undetermined Bornean species. It is a matter for regret that no means exist now of ascertaining what this Bornean species was, but as it was made use of in several of Messrs. Veitch's crosses we may in time be able to detect the progenitor in the characters of its descendants. All we can say at present is a mere guess that the unknown plant may have been N. lanata, concerning which plant we shall have more to say at another time. The plant is of robust habit and free growth, the stems purplish and hairy. The leaves measure 10—12 by 2¾ inches, are dark green, leathery, glabrous above, paler beneath, lanceolate, acute at the apex, tapering toward the base which expands to clasp the stem; the midrib and margins, as well as the tendril-like prolongation of the leaves, are pilose. On either side of the midrib are 3—5 parallel nerves, the tertiary transverse ones are inconspicuous in the fresh plant. The pitchers measure about 5 by 2¼ inches, are very firm in texture, of a dull greyish-green, spotted with red, distended at the base, cylindrical above the middle, with deep, sharply laciniate wings, equal in width all the way down, and an ovate mouth, finely and evenly ribbed, and prolonged into a short column at the back. The lid is somewhat convex ovate, smaller than the mouth, and with a simple spur at the back. The throat is shining and red-spotted; the inflorescence of the male plant is a close raceme; the pollen grains, observed by Mr. Smith, are globose, and aggregate in groups of four. The Rafflesiana blood is shown in the prolonged neck supporting the lid, and in the somewhat hooded lid. *M. T. M.*

* Nepenthes Courtii, Hort. Veitch: hybrida inter N. Dominii × marem, et speciem Borneensem haud determinatam.

ANGRÆCUM FASTUOSUM, *Rchb. f.*

The more we see of Orchids the more we have to dread their protean nature. Sir Trevor Lawrence kindly sends me a flower of my Angræcum fastuosum purchased at a Sandersio-Humblotian sale. No doubt it is the first flower obtained in Europe. It has a fine ivory texture, a fine perfume of Polianthes tuberosa; it is equal to my type in all details—in the singular toothed crest of the anther, in the long caudicula sunk in the spur, but it has an obovate rounded lip in lieu of a narrow acute one! I cannot but think that Mr. Humblot's flowers were a pelorioid state, or are there two species closely alike? Not being one of those prophetical botanists who decide such questions off-hand, I propose to wait and to watch the plants. *H. G. Rchb. f.*

THE "CAUTION TO NURSERYMEN."

MR. KAILE, in issuing through your columns his note of warning, may be doing good service to the nurserymen of his own class, but to the experienced members of the trade it will be of little value, as they would neither create nor fall into such a "bog" as Mr. Kaile made for himself. By experienced nurserymen I mean those who have been duly brought up to and instructed in the business, in contradistinction to men who, having spent the first portion of their lives in some other avocation, start in middle life to conduct a business for which they have not been duly qualified.

When an individual goes into a court of law, or seeks to gain sympathy from the public by stating his grievances in the columns of a newspaper, he should be very careful not to overstep the bounds of veracity. As Mr. Kaile has introduced my name into his "warning" as having supplied "some of the trees" which died, and also with bringing about the verdict of which he complains, I cannot allow his mis-statements to pass uncontradicted.

The defendant in this case came to my nursery wanting some trees to plant on a bank close to palings, and was recommended by my foreman to have Arbor-vitæ, Cupressus Lawsoniana, or plants of that character, but did not order them. Mr. Kaile came some time afterwards and asked for *Spruce Firs, 20 feet high if he could have them.* He was shown some 15 to 18 feet high; he purchased forty. They were delivered at defendant's residence, paid for by Mr. Kaile, and no word of complaint ever reached me from him.

Now I give the most positive denial to Mr. Kaile's statement that the trees "were selected by the defendant," who never saw them in my nursery, nor did he even go into the field in which they were growing. I ask if any nurseryman who understands planting would place Spruce Firs 15 to 18 feet high on a steep dry bank not wide enough to accommodate their roots, and if he would bury their stems to the depth of 18 inches, as I found these when asked by the defendant to inspect them?

Some time after this visit I chanced to meet Mr. Kaile, and, speaking on the subject, advised him in a friendly way to come to an amicable arrangement with Dr. La Fargue; and I also have it on the authority of defendant's solicitor that only a few days before the trial he was authorised to settle the matter if possible. Mr. Kaile, however, refused this offer, and preferred to take the case into the County Court.

I stated at the trial that it was my custom (and that of my father before me) to replace failures *where the planting was done by my own men*, and that I believed other nurserymen of any position would do the same. Whether the award of the judge was the result of my "sole evidence" and my "trade circular" I know not, but I may state that my foreman, the defendant, his gardener, and two if not three other witnesses were called for the defence, as well as myself.

Referring to the application for a new trial, I copy the following from the *Surrey Advertiser* of November 12:—

"Mr. Hicks applied on behalf of Mr. Kaile, of the Godalming Nurseries, for a new trial in the case of Kaile *v.* Dr. La Fargue, on the ground that the plaintiff had been taken by surprise in the evidence of one of his own witnesses, named Newman, and that the plaintiff had not had the time and opportunity of examining the trees which were stated to have died.—His Honour said he would not trouble Mr. Eve to make any observations, as the application appeared to be based upon two points, neither of which formed the ground of the decision which he gave after a long hearing of the case.—The application was refused."

It is not surprising that Mr. Kaile, like most litigants who implicitly believe in the strength of their own case, should be dissatisfied with an adverse verdict.

Might I suggest a more appropriate title for the heading of his article—"A Caution to Persons about to Plant"? *Maurice Young, Milford Nurseries, near Gadalming.*

THE EMBER NURSERY.

THIS nursery garden, now carried on by Mrs. M. Lewis, is of more than ordinary interest to the horticultural visitor, from the fact of its having been a reserve garden for the monks in the time of Cardinal Wolsey. Indeed it is easy to see at a glance that the nursery was once a private garden, by its being enclosed (or, rather, a portion of it) by substantial brick walls and its venerable fruit trees, which, although of great age, are still famous in the district for their fine crops of fruit. It is also of more than passing interest to the geologist, who will find great diversity of soils and subsoils within the walls of the garden—from blue clay to the finest mellow loam to be found in the county of Surrey. The Green Gage Plums are especially a noteworthy product of the garden; but Roses, and not a few of them, must be added to the specialities at the present day—not to mention the thousands of other plants that are grown for sale in the nursery and also for Covent Garden Market. Herbaceous plants and ornamental shrubs occupy a considerable portion of the out-of-door nursery, where they flourish luxuriantly. The glass department is, however, the most interesting at this dull season.

The nursery is entered off the main road from Hampton Court to Esher, the Rose-house being the most important structure (from a business point of view) in the nursery. It is planted chiefly with Gloire de Dijon Roses, budded on the Brier, and cutting begins about the end of the first week in March. Camellias and Azaleas are wintered in the house, and various other plants find a temporary shelter in it also. A span-roofed house over 45 feet long contains over 300 dozen of Heliotropes for early spring flowering, and quantities of Marguerites, Cyclamens, Abutilons and other plants for winter decorative purposes. A second span-roofed structure is gay with Pelargoniums, the bulk of which consist of Vesuvius, Madame Vaucher, and Clipper: about sixty varieties in all are grown. Mrs. Marshall is the favourite Fuchsia, and of Abutilons Crimson Banner, Duc de Malakoff, Purity, Purple Emperor and Golden Nugget are selected as being the very best for general decorative purposes.

The gayest house in the nursery at the present time is that which is filled with red and white Primulas arranged alternately—a very good strain, with the flower-spikes well shot up above the foliage. In a lean-to-house facing the south Heliotropes and Bouvardias are flowering freely. Among Bouvardias the large flowering kind, Humboldtii corymbiflora, is preferred to any other for early winter flowering. Three thousand Spiræas are forced annually, and a house 60 feet long is filled with Roses for early forcing, consisting largely of such kinds as Safrano and Isabella Sprunt. Camellias are grown without heat in this nursery, and well and healthy they look. They were turned out of their pots about four years ago, and planted in the borders of a lean-to-house facing the north. Roses planted in the same house grew, but refused to flower in consequence of the wood not getting properly matured, to use a hackneyed garden phrase. The Camellias however, grow and flower, and have not a singed leaf after the frosts of the past two winters. A fine plant of imbricata is worthy of special remark, and is smothered with flower-buds. Several other structures are occupied by fruit trees, and plants of the ordinary market type and stove plants comprise such subjects as are useful for furnishing, in conjunction with Maidenhair and other Ferns, which are largely required for cutting purposes throughout the season. *W. Hinds.*

THE VEGETATION OF NORTH-EAST CAPE.

NORDENSKIOLD'S circumnavigation of Asia and Europe in the *Vega* is certainly one of the most memorable voyages of recent years; and the German narrative* that is now in course of publication abounds, among other things, in interesting details of the vegetation of the various points touched. The narrative appears in parts; and Petermann's *Geographische Mittheilungen*, xxvii., p. 395, reproduces the description of the north-east point of Asia, some portions of which will doubtless be welcome to the readers of the *Gardeners' Chronicle*. The position of the extreme northern point was ascertained to be 77° 36′ 8″ N. latitude, and 103° 17′ 2″ E. longitude from Greenwich. The *Vega* was the first ship that ever rounded it; but a sledging party, under the command of Tscheljuskin, rounded it as long ago as 1742, in the month of May; and reckoned its latitude within 2′ of Nordenskiold's deduction. Tscheljuskin relates that they found very little drift-wood, but numerous tracks of bears, and following some of these seaward they succeeded in slaying one bear. The drift-wood, it should be explained, was of the utmost importance to these early travellers, because that was their only fuel. Tscheljuskin named the point North-east Cape—a name the Russians have since altered to Cape Tscheljuskin, and erected a "signal" of drift-wood. Whether Nordenskiold's party found any trace of this monument does not appear. Beyond determining the geographical position of various points, and indicating the nature of the soils and rocks, Tscheljuskin's expedition was productive of no scientific results. The only allusions to organic beings are those noted above. About a century later Middendorff traversed what is now the Yeneseisk Government and Taimur Land, penetrating as far north as the Taimur Bight, or within about 2° of the latitude of North-east Cape. Middendorff thoroughly investigated the natural history of the country he visited, and the botany was published in considerable detail by Trautvetter and other botanists. On Bear Island, just within the mouth of the river Yenesei, in 75° 36′ N. lat., he collected between forty and fifty species of flowering plants, a list of which follows, for comparison with that of those species collected by Nordenskiold's party at North-east Cape:—

FIG. 160.—NEPENTHES COURTII × : PITCHER GREEN, SPOTTED RED. (SEE P. 844.)

P, P, Young Pitchers; ♂, Male flowers and inflorescence; pollen-grains magnified 320 diam.

List of Flowering Plants of Bear Island.

Alopecurus alpinus	Papaver nudicaule
Alsine macrocarpa	Phippsia algida
„ arctica	Poa pratensis var. humilis
Calamagrostis lapponica	Potentilla fragiformis
Cardamine bellidifolia	Ranunculus affinis var. macrocalyx
Cerastium alpinum	Salix polaris,
Chrysosplenium alternifolium	„ arctica
Deschamosia cæspitosa var. minor	Saxifraga cernua
Draba aspera var. Adamsiana	„ cæspitosa var. uniflora
„ pauciflora	„ flagellaris var. platysepala
„ glacialis	„ serpyllifolia
„ alpina	„ Hirculus
„ lactea	„ stellaris
Dryas octopetala	„ nivalis
Eriophorum Scheuchzeri	„ æstivalis
Eritichium villosum	Sedum Rhodiola
Juncus biglumis	Sieversia glacialis
Luzula hyperborea	Senecio resedifolius
Melandrium apetalum	„ palustris var. congesta
Myosotis alpestris	Stellaria Edwardsii
Oxyria reniformis	„ ciliatosepala

In this flora twenty-seven genera and fourteen natural orders are represented.

The ships of Nordenskiold's expedition anchored in a bay formed by two narrow arms of land at the North-east Cape on August 19, 1878. In consequence of the drought, the ground was everywhere more or less regularly broken up into hexagons, usually devoid of all growth on their surface, whilst stunted flowering plants, lichens and mosses, peeped out from the fissures. In some places, however, there was a carpet of lichens, mosses, grasses and sedges, resembling that seen in Actinia Bay, Taimur Island; though there the flowering plants were less numerous, the mosses more stunted and bearing less fruit. The lichen-flora, too, according to Dr. Almquist, was very poor in species, yet often luxuriantly developed. The extreme end of the peninsula was the richest in vegetation. It looked almost as if the plants of the Taimur country had attempted to emigrate further north through this region, but had been stopped in their progress by the sea, and were unwilling to turn back. Thus, Dr. Kjellman found here in a very small area nearly all the species that grew in the vicinity.

List of Flowering Plants at North-east Cape.

The species constituting the principal features were—

Alopecurus alpinus	Papaver nudicaule
Alsine macrocarpa	Phippsia algida
Cerastium alpinum	Saxifraga oppositifolia
Deschampsia cæspitosa*	Stellaria Edwardsii
Draba alpina	

Less common species were—

Cardamine bellidifolia	Saxifraga cæspitosa
Cochlearia fenestrata	„ cernua
Eritrichium villosum	„ flagellaris
Luzula hyperborea	„ nivalis
Oxyria reniformis	„ rivularis
Poa flexuosa	„ serpyllifolia
Salix polaris	„ stellaris

Altogether, then, there were twenty-three species of small flowering plants, including some species of Saxifraga, a sulphur-yellow Poppy, commonly cultivated in our gardens, and the very pretty Forget-me-not-like Eritrichium. As Dr. Kjellmann observed, the densely tufted habit of most of the plants testified to the fact that vegetation has to struggle against a very severe climate. At the time of Nordenskiold's visit all the rivers were dry, and, as mentioned before, the ground was deeply fissured from drought, yet there was evidence of an ample efflux of water during the melting of the snow. This agrees perfectly with what was previously known

* *Die Umsegelung Asiens und Europa's auf der Vega.*

* In this and some other instances the generic names have been changed to make them uniform with those adopted in the list of plants on Bear Island.

of the conditions under which the flora of arctic Asia exists; and Nordenskiold's naturalists, as might have been expected, did not detect a single species of flowering plant that had not previously been observed in other parts of arctic Asia. On the other hand it is not probable that they quite exhausted the flora during their brief stay. Let us extract one short paragraph, bearing on the distribution of arctic plants, from Sir Joseph Hooker's classical essay:—"The greatest number of plants occurring in any given arctic district is found in the European, where 616 flowering plants (species) have been collected from the verge of the circle to Spitzbergen. From this region vegetation rapidly diminishes in proceeding eastward and westward. Thus in arctic Asia, only 233 flowering plants have been collected; in arctic Greenland, 207 species; in the American continent east of the Mackenzie River, 379 species; and in the area westward of that river to Behring's Straits, 364 species.

Animal life at North-east Cape is, likewise, not very varied. The naturalists of Norkenskiold's expedition observed that the only insects at all numerous were springtails (Poduræ); they also saw a few flies, and even one beetle (Micralymma Dicksoni). Among birds, snipes were abundant, and an exceedingly numerous flight of the ring-necked goose was seen moving southward, and perhaps came from some polar country north of North-east Cape. Further, some mews and gulls and a diving-bird, as well as traces of owls, were seen. Mammals were represented by a bear, which evaded the party; some reindeer and lemmings, tracks of which were found on the plains; and in the sea were seen one walrus, several seals (Phoca hispida), and some shoals of white dolphins. *W. B. Hemsley.*

PLANT PORTRAITS.

ACONITUM ROTUNDIFOLIUM, Kar and Kir., *Gartenflora*, t. 1063.—A Turkestan species, with radical orbicular palmately-lobed leaves, the upper ones sessile laciniate; flowers green, the sepals edged with white.

ALLIUM STIPITATUM, Rgl., *Gartenflora*, t. 1062, 1—3.—A Turkestan species with flat lanceolate slightly hairy leaves, and large loose umbels of rather large violet flowers.

ALLIUM SUWOROWI, Rgl., *Gartenflora*, t. 1062, 4—5.—A Turkestan species with narrow glabrous linear lanceolate leaves, and dense globose umbels of small dark violet flowers.

CHRYSANTHEMUM ANGELINA, *Floral Mag.*, t. 436.—A sport from Lady Slade; an incurved variety of good form, colour golden-amber, and cinnamon-brown.

LILIUM HUMBOLDTI, *Garden*, Dec. 10.—A handsome Californian Lily with racemose drooping flowers, the reflexed segments of which are orange with deeper spots.

MASDEVALLIA BELLA, *Floral Magazine*, t. 433.—A remarkable species, native of Columbia, having the three large sepals yellow spotted with orange-brown, broadly ovate cuneate at the base, and each prolonged into a very long tail at the point; the petals are very small and rounded; the lip transversely oblong, whitish. Mr. Bull.

NEPETA KOKAMIRIÆ, Rgl., *Gartenflora*, t. 1030.—A hoary perennial, with small ovate crenate leaves, and terminal dense spikes of violet-blue labiate flowers. Allied to N. lagopus.

NEPENTHES SUPERBA×, *Floral Magazine*, t. 434.—A hybrid resembling N. Hookeri in habit, but its pitchers are intermediate between those of that species and those of N. Sedeni×. General Horticultural Company.

SILPHIUM LACINIATUM, *Bot. Mag.*, t. 6534.—A noble herbaceous perennial, with bold, deeply pinnately cut, and with yellow flower-heads, 4 inches across. Native of the Eastern United States. It is the Compass-plant of the Americans. See *ante*, p. 699, vol. xv. Hort. Kew.

STATICE CALLICOMA, C. A. M., *Gartenflora*, t. 1063.—An East Turkestan species, of dwarf habit, with tufted spatulate stalked hoary leaves, and dense terminal clusters of pinkish flowers.

TANACETUM LEUCOPHYLLUM, Rgl., *Gartenflora*, t. 1064.—A tufted Composite with palmatifid deeply lobed silky leaves and small heads of tubular yellow florets. Native of Eastern Turkestan.

ZINNIAS, *Floral Mag.*, t. 435.—Three fine double varieties, of varying colours. For those who do not object to a little formality, these are fine flowers.

Orchid Notes.

WORK IN THE HOUSES.—In the East India-house the greater part of such things as Aerides, Vandas, and Saccolabiums will be resting; the tips of the roots will have closed up, thus indicating that no action or searching after food is going on in this direction. If now these are kept moderately dry the buds for flower will soon be forming, and will be seen at the axils of the leaves slightly above the flower-spikes of last year. Much of the display of next spring depends upon the present rest; so, too, will the leaves remain better on the plants if they are not just now kept too warm. At the present time this house may with perfect safety be permitted to run down to 55° at the early morning, and if cold nights should set in this reading will be much better than even 60°, which often means 65° in the morning by mistake. The Cypripediums in this house are growing, but will be perfectly at home with this low temperature; in fact, villosum is better if during the winter it is subject to a temperature even lower than this. So, too, the Cattleya-house may with perfect safety be permitted to run down to 50° on very cold nights; many of the Cattleyas are almost dormant, and even those, such as Warneri, now starting into growth, or the many varieties of Trianæ just pushing their flowers up in the sheath, will not suffer at all on account of a low reading; of course it must be remembered that no undue moisture should be present, or damp is liable to attack some of the more tender. In this house Cypripedium caudatum, Dominianum, Roezlii, &c., are now growing vigorously, and appear to enjoy the cool, moist corner just now far better than the heat of June and July. The Dendrobiums are in many cases resting, and will in due time show the beneficial results of such a quiet time. As they show flower they will be benefited by removal to the warmer division, where the extra heat will soon bring them on; this house, too, may run down occasionally to 50°. The Odontoglossum-house should now be gay; this section requires less rest than either of the others. By chance or at an odd time the glass may run down to 38° or 40°, but it is of no use, nor is there any credit in proving how near one can go to the dangerous point; rather keep in a safe course, and endeavour never to let this house get below 45°, and if the weather is moderately mild I consider that 50° at early morning is quite low enough. Flowers will keep fresh when the latter figures are well kept to; if the glass often runs down very low the blooms become spotted, soon perish, and must be removed. *W. Swan, Fallowfield.*

MESSRS. VEITCH'S NURSERY.

In Messrs. Veitch's nursery Cattleya maxima alba is now finely in flower, and a very fine variety it is. The sepals and petals are broad for this species and pure white. The lip is also white, and prettily marked with rosy-purple veins. The ordinary form has rosy coloured sepals and petals, and having been recently imported in quantity is now flowering in various collections. There are several varieties, all of which are well worth growing in the most select collections. This species does not seem to require so high a temperature as some, and when the conditions are favourable it grows well and flowers freely. What a charming Orchid, too, is Barkeria Lindleyana, numerous fine examples of which are now in flower in Messrs. Veitch's nursery, Introduced from Costa Rica so long ago as 1842, it is not yet so common as it ought to be. The flowers, which are rich rosy-purple in colour, the base of the lip being marked with a white blotch, are produced in clusters on long slender stems. Amongst numerous Odontoglossums, two very pretty little things may be selected for special mention, viz., O. blandum, which may be described as like a small form of O. nævium, but the markings are quite distinct; the whole flower is white, the sepals and petals being densely spotted with brown, the white lip being purple-spotted. O. crocidipterum is also a miniature species, the flowers yellow, the sepals and petals being densely spotted with cinnamon. The lip is of a reddish-brown or cinnamon. *J. D.*

VANDA TERES.

In the beginning of the present year attention was drawn by M. du Buysson to the fact that V. teres could be induced to bloom more freely if an incision was made in the sheath over the latent flower-bud previous to its becoming too freely developed. I practised this method and succeeded in inducing each stem that I had operated upon to send forth flowers. Has any one else taken advantage of this hint? If not, I would certainly advise them to do so. *T. W. S.*

MR. BULL'S NURSERY.

The cool-house in this nursery is well furnished with a grand display of flowering plants. Indeed, so numerous and fine are the individual specimens that even experienced Orchid growers may well be excused if they go into raptures at such a sight in the last days of the old year. Odontoglossum crispum in numerous fine and distinct varieties worthily holds the first place, some of them pure white, others white with a few brown spots, others, again, blush and more densely spotted. Probably the best in the collection is C. crispum grandiflorum; its flowers are of large size, and the margins of the broad petals are nicely fringed. O. Pescatorei is also in fine form, and of it the varieties are as numerous as of the other. One spike had forty-six expanded flowers on it, and another thirty-seven. One does not know which to admire most of these two beautiful Orchids. The smaller flowers and more elegant spikes of O. Pescatorei are preferred by many persons of good taste. *J. D.*

PESCATOREA LEHMANNI.

This is now in flower in the establishment of Messrs. Makoy, the well-known nurserymen here. It is no doubt the finest of its genus in cultivation, and should be in every collection. The beautifully marked petals, which are quite as large as those of P. Klabochorum, and much longer, being slightly tapered at the base, are delicately striped with white and pink. Its great curiosity, however, consists in its labellum, which is large, revolute, and very bristly, happily compared by Professor Reichenbach to a hedgehog. It succeeds well in the Vanda-house. *Kr., Liége.*

ODONTOGLOSSUM HEBRAICUM.

Another rare plant is in flower in the collection of M. Ferd. Massange de Louvrex, where it has made its appearance among a number of imported Odontoglossum Alexandræ—it is O. hebraicum, which has in addition to its other charms a powerful perfume. Is it known in any other collection, besides that of Mr. Lee at Downside? *Kr., Liége.*

Notices of Books.

British Bee-Farming: *its Profits and Pleasures.* By J. F. Robinson. Chapman & Hall.

It is quite surprising how little many of the bee-keepers of the present day can be induced to admit, much less appreciate, the real progress which has been made in the science of bee-farming during the past ten or fifteen years. The book before us is an instance of this. More than this, we were frequently struck whlie reading it with the plain evidence of compilation. Its claim to the title which the author adopts is slight. Had we had the task of naming it, we should have called it, "A Gossip about Bees: with notes of what the Author hears is the best way of keeping them." We find little of the author's experience, but a good many anecdotes which we believe we have seen before somewhere or other; and the whole reads like a collection of facts—of stories gathered from village traditions, musty bee-books, and old-fashioned hive-makers' catalogues. The stories are good enough, but we do not like to see them too often. Mr. Robinson tells us little or nothing about the position of this increasing industry, which will, we believe, attain considerable importance in Britain during the next few years. The Americans are our teachers in bee-keeping. They have taught us how to prevent bees from wasting their time in comb-building, and how to make bees store super honey in saleable wooden boxes, besides many other improvements. Mr. Robinson says nothing about these. He recommends us to make use of a wooden hive with a wooden crown-board, but he says nothing about a quilt! No plan could be more unhealthy and destructive. We see no mention of wax comb foundation, although there can be little doubt that the later phases of this invention have almost revolutionised bee-keeping. Mr. Robinson does not seem to know anything of slow feeding. He gives many particulars of different straw hives, and even treats us to a chapter on their manufacture. Ample particulars are,

however, given us about the "Enemies of Bees," and "Superstitions concerning Bees." A really entertaining chapter describes an American bee hunt, but this is owing to the genius of Washington Irving! The subject of supers is considered by Mr. Robinson hardly worth mentioning. He obtains a honey harvest entirely by extraction, and that with clumsy apparatus. The following is apparently all the advice given about putting supers on hives:—"When the bees exhibit signs of swarming, place a super, such as a neat bell-glass, on the top of the hive; the bees will immediately take to this, and if the honey harvest is abundant, they will soon fill it with honey." Mr. Robinson is also very sceptical about artificial swarming, and "confesses that it has not answered or proved successful in his apiary." A thoroughly complete and exhaustive treatise on modern bee-keeping has yet to be written, but for small manuals there is nothing better than Mr. Cowan's excellent little work.

Garden Operations.

PLANT HOUSES.

STOVES.—A small pinch of Gloxinia seed from a select strain should be sown as soon as possible. The great improvements attained of late years render them invaluable adjuncts to every establishment; splendid varieties can be obtained from seed now with certainty. Sow in a shallow pan on a mixture of peat and loam, with a liberal addition of silver-sand, and cover the pan with a square of glass to prevent rapid evaporation. Some of the old stock may be potted fresh where an extra early bloom is required; see, however, that the bulb has not become shrivelled—if such should be the case soak it for awhile in rather warm water. Use good fibrous soil of peat and loam; where the latter is of good quality it may slightly predominate; add also a little good leaf-soil, and sufficient sand to keep the soil open. A small quantity of bone-meal is also beneficial, or a few ½-inch bones sprinkled over the crocks would do if the former is not at hand. Seed of the tuberous Begonias may also be sown for an early display; though not properly classed as stove plants they will be found to germinate more quickly in heat, and afterwards subjected to cooler treatment. Grevillea robusta is a most serviceable plant of the foliage class; seed of this may also be sown in heat, but when become established a temperate-house will suit it best. Those who have not as yet included this in their seed order may with advantage do so. The requisite amount of peat and loam for potting purposes, for all stove plants, should be secured under cover if not already done, taking advantage of any bad weather to get it all prepared for potting, when that work is commenced.

GREENHOUSE, &c.—Keep the stock of such plants as Kalosanthes and Rochea falcata on the dry side at the root yet awhile, and let them also have the driest position that can be afforded them. Keep Eupatoriums well supplied with water; if allowed to suffer the foliage will soon look sickly; where they are advancing into flower occasional doses of manure-water will be beneficial. Nerines that are now making their growth should be looked after and encouraged as much as possible to develope a sturdy growth. All the stock of Richardia should be liberally treated to induce them to throw up strong spathes of good substance. *James Hudson, Gunnersbury House, Acton, W., Dec. 27.*

FRUIT HOUSES.

VINES.—The earliest house will now be showing bunches, and can be kept at a night temperature of 65° with a rise of 10° by day, and in very severe weather a few degrees lower. Raise the temperature early in the day, admit air by the back ventilators when the temperature reaches 75°, closing the house early in the afternoon, and thoroughly damping down paths and borders with tepid water. Discontinue syringing the Vines overhead when the bunches can be plainly seen, and if the weather should be very dull and sunless keep the atmosphere a little drier, or sometimes the bunches will run to tendrils; keep the evaporating pans filled with weak manure-water until the blooming period; stop the Vines at the third or fourth joint beyond the bunch according to the room there is on the trellis, and leave only sufficient growths to cover it without crowding. Water the border thoroughly with tepid-water at 85° when dry; the fermenting material can be left in a short time longer, as the ammonia greatly benefits the young growths. If the heat declines below 75° on the outside border add a little fresh dung and leaves to keep it steady. A succession-house of Black Hamburgh can either be started now, or a little later, according to the supply of Grapes required. If fermenting material is used no fire-heat will be required for the first fortnight; before closing the house water the border thoroughly with clear tepid water, at a temperature of 85°. The Muscat season is now drawing to a close, but if they are wanted to be kept longer they should soon be taken from the Vines and bottled; they will now want great care and attention to keep them well till the end of January, which is as late as they can be kept without loss. As soon as the Grapes are cut throw the house open night and day, and prune it after a few days, to give the Vines all the rest possible; apply styptic to the cuts a few hours after pruning. Now is a good time to start Muscats where there are several houses, keeping them at a night temperature of 50°, with a rise of 10° by day. Keep the rods well syringed several times daily, and if fermenting material is used turn it over every morning, to liberate the ammonia. Water the border with clear tepid water at 85° when the house is closed. All late Grapes will now keep better taken from the Vines and bottled, filling the bottles with soft water and a few knobs of charcoal in each; stand them in the fruit-room a few days before using, when the water will be of the same temperature as that of the room. Be very careful when bottling not to rub them, or they will be much disfigured. Keep the temperature of the Grape-room as near 45° as may be and the atmosphere dry. After the Grapes are cut keep the houses as cool as possible, and as soon as the sap is down prune them and thoroughly wash the glass and woodwork, and if the border is dry give a good soaking of clear cold water, for a Vine, even when at rest, never ought to be dust-dry at the roots, but the soil kept fairly moist and healthy. After pruning do not peel the Vines, only take off the loose bark with the thumb and finger. If the Vines are clean no painting will be necessary, but if they are infested with mealy-bug wash them thoroughly, and then paint them as recommended in previous Calendars. Pot Vines can still be kept at a night temperature of 65°, with a rise of 10° by day. Stop them at the third joint beyond the bunch, and give back air when the temperature reaches 75°. A little air daily if the weather permits will greatly strengthen the growth, but always avoid cold draughts. Keep the bottom-heat at 75° to 80°, and give liberal supplies of clear tepid water at the roots. Close early in the afternoon while the sun has full power, and damp the house down with tepid water, to keep a moist, healthy growing atmosphere. *Joshua Atkins, Lockinge Gardens, Wantage.*

PINES.

When those pernicious insects, white-scale and mealy-bug, are on the plants, some time in the winter months is spent in cleaning them; it is an utter impossibility to exterminate all once the plants are infested, yet it is possible to keep them in check so that Pines may be grown and fruited. As I have before stated, the most satisfatory way of getting rid of these pests is to throw away the old stock. In some cases this strong measure cannot be applied, as Pines cannot be done without for the long interval that must elapse in getting up a clean new stock. Even in these days of high pressure it will take from eighteen months to two years to get up a new stock of any size, with a corresponding number of succession plants and suckers. It is also very costly to purchase fruiting plants or a great number of succession and suckers, therefore the best way to meet all cases is to grow on the old stock and fruit them: at the same time start a new lot, if only a few, that are known to be clean; grow them on rapidly in another part of the garden, or in detached houses, so that there is no chance of contamination. The most efficacious and best way of keeping these pests in check, without spending too much time in the operation, is to get hot water at a temperature of 150°, with a can and rose, pour it quickly over the leaves, crown, and fruit when in a green state: the insects soon loose their hold and fall off in great numbers. It is almost instantaneous death to the white-scale, but the mealy-bug is more tenacious, yet it acts on them with great force and keeps them in check. I have used water at 160°, but it is not safe to exceed that limit. The heat of the water should be correctly tested by thermometers specially made to indicate heated liquids, as those of common make cannot be relied upon. In ten minutes after the first lot of water has been poured over the plants, pour a second lot, at a temperature of 100°, over the same parts; this will wash off any insects that are adhering to the plants, and also cool them down. These operations are best performed in the morning when the plants are not over-stimulated with heat. Attend to the covering of pits and houses; if Frigi-domo is not at hand mats may be used. Reeds worked on strong laths also make excellent coverings, and, where they are obtainable, form one of the best coverings in very severe weather. Examine all linings, and renew them when required. Keep in reserve a good lot of Oak leaves and litter fermenting, so that it will give off heat as soon as used. Make sure that the roots in the bottom of the pots which are in close proximity to the bottom-heat pipes do not become too dry. Turn off the bottom-heat at 10 P.M., if it gets too hot with hard firing. *D. Wilson, Castle Hill, Devon.*

HARDY FRUIT GARDEN.

Advantage should be taken of the first opportunity when the ground is hard with frost to get manure and fresh soil for surface-dressings wheeled upon the fruit quarters and borders, the mild weather hitherto experienced having been unfavourable for such work. Where the vegetable refuse from the garden is systematically kept and turned in order to ensure its equal decay, it is one of the most useful dressings for the enrichment of fruit borders, as it is so easily pointed in, and is not unsightly when, from the proximity of the roots to the surface, it is found difficult to cover it. To have it so thoroughly rotten as to possess this desirable fineness for surface dressing, it is necessary for the heap to be the collection of one year, which then remains another year before being used. Wood-ashes are also very useful for the purpose of surface dressing, and the benefit to exhausted fruit borders from the application can scarcely be over-estimated. Any quarters of Raspberries not yet securely tied should be no longer neglected, securing them with ties of tar-cord to the stakes or wires, as the case may be, after removing any weak growths that may have escaped attention when the canes were thinned out to the required number during the summer. Should any weeds or suckers be visible, they must be removed before putting on the winter dressing of manure, which it will be found advantageous to leave on the surface rather than incur the risk of destroying any of their very shallow roots. The pruning of bush fruits may now be proceeded with as opportunity offers for effecting the operation without treading on the soil in a wet state. It may be well to observe, however, that where birds are found to be very troublesome in destroying the buds, the pruning may with advantage be delayed until the early spring; or hot lime may be made into a wash, with which the bushes may be thickly dashed after pruning, when they will generally be avoided by the birds. Gooseberry bushes may have all young shoots spurred-in that are not required to furnish the bush, taking care to have all the shoots that are left for forming the frame of the bush or for extension to proceed in as straight a line as possible from the centre of the bush, and by this means avoid crossing branches, and the difficulties that are entailed in gathering the fruits when the hand cannot be inserted from every part of the bush in a direct line to the centre. All suckers and any very strong shoots that proceed from portions of the bush where they are not required to assist the form should be pulled out, so as to remove the cluster of buds around the base, which would again be troublesome if the shoot were removed by the knife. Young bushes should be encouraged to extend freely, only removing weak and ill-placed shoots, also any that are likely to crowd the bush, and the tips of shoots that bend too much to the earth may be cut back to a bud pointing upwards on the straighter portion. In pruning red and white Currants the same attention is necessary to the prevention of crowded bushes, and crossed or irregular branches; but it is not advisable to spur-in all the shoots so closely as is usually done with Gooseberries, for many of the shorter ones can be left as fruit-bearers. The principal pruning required by Black Currants will be the removal of exhausted branches, and those that are weak or crowded. Young sucker-like growths from the base should be encouraged for the renewal of weakened bushes, and to replace branches that have become enfeebled by heavy cropping. Put in cuttings of any bush fruits that are required, if not yet done. The strong shoots of Gooseberries, recommended above to be torn out, will make the best plants. With the exception of black Currants, all cuttings of bush fruits should have all the buds removed but about four at the top, and the heel will require to be carefully scraped with the point of a knife to remove the small buds clustering around it. It is well to insert the cuttings rather deeply, and to use a little sand for those of Gooseberries where the soil is heavy. Should severe weather set in, a supply of stakes for trees may be secured, and the points charred to resist decay. Trenching, grubbing up worn-out trees, and lightening crowded ones in orchards, may be attended to; also the drainage of fruit quarters that suffer from stagnant moisture; while a supply of shreds for nailing may be cut during weather that prevents the progress of work outside. *Ralph Crossling, Castle Gardens, St. Fagan's.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 2	Sale of Lilium auratum Bulbs, at Stevens' Rooms.
WEDNESDAY,	Jan. 4	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Jan. 5	Sales of Imported Orchids, at Stevens' Rooms.

NOW that the time for taking stock of THE HORTICULTURAL DOINGS OF THE YEAR has once more come round, we think we may fairly congratulate ourselves on a year of industry and progress in most departments of our subject.

We are all so peculiarly interested in the weather that we naturally turn to that subject in the first place. The winter was one of the worst on record, and even after the disastrous year 1879 that of 1880-81 has had pre-eminence. The great storm of January 18, preceded as it had been by a long spell of very severe weather, will not soon be forgotten, nor the disorganisation of business and traffic which resulted from it. Three and a-half millions of tons of snow, it is calculated, fell in London alone, and as for the temperature, when we had to record so low a degree as —2°, 2° below zero, at Cambridge !, and to chronicle a mean temperature for England during the week ending January 22 of only 10°, and in Scotland of 6°, we may have been pardoned, when reading the records which appeared in our columns during the early part of the year, for thinking of the access of a new glacial period. The havoc was great among shrubs, trees, and Roses, but great as our losses were they were after all trifling in comparison with what befel our Continental neighbours.

Spring, however, came, and summer in its turn, and things looked altogether more promising, when towards harvest time heavy rains and untoward weather largely interfered with the realisation of our hopes ; nevertheless, bad as the harvest was generally, both the Potato crops and the fruit crops turned out fairly well. There was much less disease among the Potatos than was anticipated, and the fruit crop was on the whole good, especially in the case of Apples. Complaints, however, reached us of Pears ripening out of season, and a general lament as to their not keeping was heard on all sides. October was rendered memorable by the fearful gale of October 14, which devastated woods and plantations all over the country, and indeed many parts of the Continent also. The disaster put gardeners and others on their mettle to raise and restore the overthrown giants, and we hope may have stimulated careful and judicious replanting. The late autumn and early winter have been remarkable for their genial character, and even Christmas weather has failed to assume the characteristics commonly assigned to it.

The general progress may be estimated by the success of the numerous exhibitions during the year. Those of the Royal Horticultural and of the Royal Botanic Societies have been at least up to the average. The implement show of the Royal Horticultural Society was unusually successful, and the fruit shows at Hereford and elsewhere have been remarkably good. The show of the year, however, took place at Manchester, and through the exertions of Mr. BRUCE FINDLAY was an unqualified success. There is room for improvement in turning these gatherings to greater account from an educational point of view. In this connection it is agreeable to note the attempt that was made at Nancy by our French neighbours, who, by a system of instructive labelling, managed to convey an idea of the geographical distribution of plants and of the results of climatic influence, which, properly worked, might be of great service to gardeners and others. The show at Chiswick was interesting, as a partial revival, or at least a genial reminder, of the old times. In the North the Scottish, Dundee, and North of Scotland Horticultural Associations, and the Scottish Aboricultural Society are all doing good work, and realising that exhibiting is not the be-all and end-all of horticultural societies. The lectures given at the Royal Horticultural Society and elsewhere by Rev. G. HENSLOW, Mr. SHIRLEY HIBBERD, Mr. HORNER, and others, are all steps in the right direction.

The establishment of a school of horticulture at the Crystal Palace, though at present on a moderate scale, may ultimately lead to the supply there or elsewhere of a great want in this country, and eventually place us more on a level in this matter with our Continental and Transatlantic friends. Of the work done by the committees of the Royal Horticultural Society we have lately spoken : it may suffice to add, that at the Scientific Committee plant diseases and the effects of frost have formed some of the most frequent subjects of discussion ; and it is to be hoped that the publication of the elaborate report on the effects of the last few winters on plants, now in preparation, may not long be delayed. The very irregular and incomplete manner in which the publications of the Society have been issued reduces materially the influence of the Society for good. In this connection may be mentioned the numerous researches and observations published this year on such subjects as the disease in Lilies, Tomatos, Lilacs, and other plants, and the influence for evil of minute nematoids to which some of the diseased conditions of Cucumbers, Stephanotis, Carnations, Auriculas, Disas, and other plants may be attributed. The influence of Bacterial germs has received much attention during the year under the stimulus of the brilliant researches of PASTEUR, noted at the time. Amongst other things the relation of these organisms to certain forms of canker in fruit trees has been pointed out for the first time, as we believe, by an American physiologist. The International Medical Congress held in London, whereat vegetable pathology was represented by an extensive series of specimens, though not directly, yet indirectly, may prove of great service to gardeners ; and as the results there brought forward showed with overwhelming force the value of well devised and carefully controlled experiment in benefiting the human race and in mitigating and preventing many of the ills which afflict all living creatures—plants as well as animals—it is to be hoped that the well-meant but ignorant and thoroughly mischievous agitation raised against physiological experiments may meet with the condemnation from sensible people which it so richly deserves. The great smoke case in Scotland, where a proprietor gained a verdict against the Shotts Iron Company, is an illustration of the need for further study in this direction, and brought out rather painfully the defects in our system of taking evidence in such cases. This subject naturally leads us to mention the interesting exhibition of furnaces and other apparatus for the promotion of economy in the use of fuel and the abatement of the smoke nuisance, which is now being held in the arcades at South Kensington, and to which we referred so recently that no further allusion need here be made to it. The experiments with the electric light on the growth of plants have been continued during the year, especially in Paris, but there is evidently much more to be done ere we can look forward to its practical use for forcing purposes in dull weather, though the results already obtained are full of promise for the future. The Wheat plants exhibited by Mr. BUCHANAN before the Scientific Committee were extremely remarkable, even if they did not hold out the prospect of profitable Wheat cultivation by the agency of the electric light. The production of double flowers by artificial agency, as recorded by M. HACKEL, is also at least significant, and may lead us to hope that attention to what are now matters of morphological interest alone may some day be turned to good account from a practical point of view.

In connection with the Royal Horticultural Society and its doings we ought to mention that the prospects of the old Society are on the whole brightening. The Chiswick garden has done excellent service, as usual. A large accession of new Fellows has been registered, and the fact that the action against the Society brought by Her Majesty's Commissioners was dismissed with costs, is so far hopeful, though it must be remembered that an appeal against the Judge's decision has been made, the results of which are still unknown.

Among the signs of the times may be mentioned the increasing taste for plants as such, and not as garden decorations only. From this point of view the increasing popularity of herbaceous and alpine plants, and the formation of rock gardens, are eminently satisfactory. A memorial, influentially signed, has been sent in during the year to the First Commissioner of Her Majesty's Works, with a view of inducing the Government to sanction the formation of a rock garden at Kew on a scale commensurate with the necessities of the case and with the condition of other departments of that great establishment. This memorial, it is understood, is under consideration, and there is ground for hope that the prayer of the memorialists will meet with a favourable response.

The regulations made by various colonial and foreign Governments with reference to the transit of plants, and which formed the subject of representations from the Scientific Committee, have been reconsidered at the Phylloxera Congresses held at Berne and elsewhere, and there is some hope that the worst of the absurd regulations may be at least mitigated. In the case of some of the colonies the panic-born regulations are so absurd that they must sooner or later be destroyed by their own absurdity ; and while all reasonable precautions are taken to protect the Vine growers, it will be remembered that such restrictions as now adopted would, if carried out in their entirety, prove ultimately more injurious than the Phylloxera itself.

Of the many new and remarkable plants introduced during the year we propose to speak more at length in a subsequent issue ; suffice it to say that a glance over our volume for the past year will show that they have neither been few nor unimportant.

As aids to horticultural progress good books are most valuable. An evidence of the popularity of gardening is afforded by the host of publications that appear : many of these are of so little value that it is wonderful that a public should be found for them. Strictly botanical books and memoirs, whether devoted to systematic or to physiological botany, need hardly be more than alluded to here, but it is impossible to pass without allusion to the very remarkable papers of Mr. BENTHAM "On the Classification of Orchids and Grasses," indicative as they are also of the speedy conclusion of the invaluable *Genera Plantarum* of Mr. BENTHAM and Sir JOSEPH HOOKER. Professor PFITZER'S work *On the Morphology of Orchids* has not yet reached us, but the summary given by the Professor himself in our columns shows that cultivators have something to learn even from abstruse questions of morphology, such as are treated of by the Professor. Mr. DARWIN'S work on the *Common Earthworm* affords food for reflection on the part of gardeners and farmers. Mr. BURBIDGE'S account of his *Travels in Borneo* is also a book that may be recommended to gardeners for its interest and suggestiveness. Mr. HORNE'S work on Fiji is also full of interest for intelligent cultivators. Mr. DAYDON JACKSON'S *Classified Guide to the Literature of Botany* is valuable to those with little time for

personal research, and who wish to be guided quickly to the class of book of which they are in search. Messrs. VEITCH'S *Manual of Conifers* is a most valuable accession to garden literature. Its arrangement is perhaps not the most convenient that could have been adopted, but its value will be greatly enhanced by the index which, we are glad to hear, is in preparation. Mr. FAWKES' work on *Horticultural Buildings* goes a good way towards filling a void that was greatly felt. Miss ORMEROD'S *Manual of Injurious Insects* is a valuable addition to garden literature, and one which we hope soon to see in an extended edition. M. DES CAR'S work on *Tree Pruning*, translated under the superintendence of Professor SARGENT, is a serviceable guide to those interested in the management of trees; and Mr. SIMPSON'S work on *The Pruning of Fruit Trees* will also furnish suggestions to the thoughtful practitioner. M. FOCKE'S work on *Hybrid Plants* we should be glad to welcome in an English dress, and the same may be said of Count DU BUYSSON'S useful book on *Cultivated Orchids*. Mr. WILLIAMS' *Orchid Album* may be specially commended to growers of Orchids as the experience of a man whose knowledge of Orchids is very unusually great. The *Epitome of Gardening* comprises within a small compass an outline of modern horticultural practice, and the most recent, though very condensed, summary of the theory and principles of horticulture. The reprint of Miss HOPE'S papers should do much to stimulate amateurs, and put them in the right direction; while Mr. WARRINGTON'S *Chemistry of the Farm* is almost as serviceable to the gardener as to the farmer. *Fruit Farming for Profit* has been ably treated on by Mr. BUNYARD, but it is clear, from the experience of some of our correspondents, that this method of counteracting agricultural depression must be entered upon with great caution and thorough knowledge.

The analyses of artificial manures undertaken at our suggestion has revealed the fact that while some are excellent and none, so far, positively bad, yet the price asked for them is in almost every case so extremely high as to outweigh any profit from their use on any but the most restricted scale.

The competition for plant labels, instituted by Mr. G. F. WILSON, has not been altogether satisfactory, but now that the subject is thus prominently brought forward it is to be hoped that inventive ingenuity will bring out that desideratum, a serviceable and durable form of label.

The obituary list of the year is, we regret to say, unusually heavy. Among practical men we have had the sad task of recording the decease of ANTHONY PARSONS, C. EDMONDS, GORRIE, SPENCER of Bowood, CARSON of Cheam, TOWARD of Osborn, GRIGOR of Forres, CHARLES LEE, NIVEN of Hull, W. E. RENDLE, NESFIELD, Dr. DENNY, J. REID, ALEXANDER INGRAM, and Provost RUSSELL; nor must we omit a tribute to Madame VAN HOUTTE; while among naturalists we have had to deplore the loss of JOHN GOULD — Hummingbird GOULD, FREDERICK CURREY, the mycologist and genial Secretary to the Linnean Society; G. C. JOAD, an accomplished gardener and botanist; H. C. WATSON, SCHLEIDEN and SONDER, the botanists; HILDEBRANDT, the botanical traveller; and C. LAURENCE, of Cirencester, an old and valued correspondent of this journal.

Such are a few only of the many subjects suggested by a retrospect of the year—enough, surely, to show that horticulture has made good progress during the year that has passed, and that the promise for the future is, on the whole, very satisfactory.

—— GARDEN EVOLUTIONS.—Grumble as we may there is in gardening a continuous process of change that is seemingly insensible and yet certain and inevitable. Naturally some old gardeners are impatient, and some intolerant, when they fully realise this progression, to them of course backward—for "Gardening like everything else is fast going to the deuce now, sir," and they don't like it. But all impartial observers remark that the change is in the right direction—that we are more and more escaping from cramped notions and operations, that our practice is becoming more liberal and, let us hope, more natural. Old writers laid down for us directions for procedure of the most exact and didactic kind. Almost every operation was to be performed by rule of thumb—indeed the gardener became under such instructions the slave of conditions of the most precise kind. Nothing has so much helped to burst the bonds in which garden practice was thus held as the expansion of our horticultural Press. Gardeners, however, have now become not merely a reading but a thinking class, and even very largely a literary one, indeed it is doubtful whether there can be found in any profession or vocation so many persons who now hold intercommunion on professional matters with their fellows, and even with the general public. Flower shows have become everywhere local institutions; they teach and they expand ideas; they promote that contact amongst horticulturists of all sections that was previously wanting, and have and are doing a power of good. The growth of the market plant and flower growing trade is a remarkable feature, and one that is exercising an enormous influence on gardeners in one direction and the public in another. That necessity, which is invariably the mother of invention, has sharpened the wits of the market plantsmen, and they have taught the less active gardener many a sharp lesson. With the public they have worked miracles. The love for flowers is now universal; it is a national passion, and the very force which promoted its growth now finds material in immense quantities on which to expend itself. The seed trade is promoting change: old kinds, though ever so good in their day, are giving place to newer, and, let us hope, really "improved" varieties. In the plant trade the same thing is going on even more rapidly, and all these changes we must accept in a right spirit. If we don't swim with the stream we may find ourselves presently stranded upon the sand-bank of our blundering stupidity.

—— THE METEOROLOGICAL SOCIETY. — The usual monthly meeting of this Society was held on Wednesday, the 21st inst., at the Institution of Civil Engineers, Mr. G. J. SYMONS, F.R.S., President, in the chair. The papers read were:—(1.) "The Rainfall of Cherrapunji, by Professor J. ELIOT, M.A., F.M.S. Cherrapunji is notorious for its excessive rainfall, larger in amount, it is believed, than at any other place so far as is known. Cherrapunji is a small Indian station situated in the south-west of Assam, on a small plateau forming the summit of one of the spurs of the Khasia hills. These hills rise on the south with exceeding abruptness, and have the Bengal plains and lowlands at their base. Cherrapunji stands on the summit of one of these hills, at an elevation of about 4100 feet. The hill on which it is situated rises precipitously from the lowlands of Cachar and Sylhet, which are barely 100 feet above sea-level. During the S.W. monsoon the lower atmospheric current advancing across the coast of Bengal has a direction varying between S.S.W. and S.E. in Lower and Central Bengal. In thus advancing almost directly towards the hills of Western Assam, the mountain ranges cause a very considerable deflection of the current; one portion is forced upwards as an ascending current with a velocity directly dependent upon the strength of the current in the rear, and upon other conditions which need not be enumerated. The rapid diminution of temperature which accompanies expansion due to ascensional movement of air is usually followed by rapid condensation in the case of a moist current such as the S.W. monsoon current. The normal annual rainfall in Cachar and in the plains of Northern Bengal is about 100 inches. The average annual rainfall of Cherrapunji is 493 inches, that is, 393 inches in excess of that at the foot of the hills on which it is situated. The rainfall of Cherrapunji is not due to any abnormal local conditions of atmospheric pressure, air movement, &c., but simply and solely owing to the presence of a vast mechanical obstruction which converts horizontal air motion into vertical air motion. (2.) "On the Meteorology of Cannes, France," by Dr. W. MARCET, F.R.S., F.M.S. This is a discussion of the observations made at this celebrated health resort during the six winter seasons ending 1880. (3.) "Report on the Phenological Observations, 1881," by the Rev. T. A. PRESTON, M.A., F.M.S.

—— "NOMENCLATOR PLANTARUM." — We are delighted to hear that it is proposed to publish a new edition of STEUDEL'S *Nomenclator*. Materials for the purpose exist at Kew in the shape of an interleaved copy of the last edition, posted up to date with approximate completeness. The onerous task of editing the new venture has been undertaken by Mr. B. D. JACKSON, one of the Secretaries to the Linnean Society, and well known for his bibliographical labours. We believe science will be indebted to the generosity of Mr. DARWIN for this great boon. If a similar benefit could be conferred by bringing out completed index of plates, for which like materials exist at Kew, the gratitude of workers would be intensified.

—— PRESENTATION TO MR. E. S. DODWELL. —The committee appointed last autumn to raise a subscription for presentation to Mr. DODWELL met at South Kensington on December 13, and resolved, on the proposition of Mr. T. MOORE, seconded by Mr. G. SMITH, "That the committee of the Dodwell Testimonial Fund, in instructing the Treasurer to transmit to Mr. E. S. DODWELL the amount which has been subscribed (100 guineas clear of expenses), accompanied by a list of the donors, desire to give expression to their feelings of hearty sympathy with their friend in his bodily sufferings, and to signify their ardent hope that he may speedily be restored to health, and spared to attend at their floral gatherings for many years to come."

—— VARIABILITY OF ODONTOGLOSSUM CRISPUM. —Those who believe in limited variability need have large faith in the case of Orchids in general, and of this in particular. Messrs. SHUTTLEWORTH & CARDER send us two flowers; in one the pure white segments and the lip are heavily spotted with large chocolate-brown spots; in the other the segments are narrower, very pale primrose-yellow, and almost destitute of spots, there being one small one on the upper sepal, and two on the lip.

—— COCOA-NUT, PALMYRA, AND ARECA-NUT PALM CULTIVATION IN TRAVANCORE. — Some recent notes from India state that the cultivation of the Cocoa-nut extends over the whole of Travancore, which has hence been facetiously called "Cocoa-nut Core." Forty-four years ago the total number of Cocoa-nut trees was 11,100,000, and the increase since has been so considerable, much waste land having been planted with this valuable Palm, that the present number cannot be estimated at less than 15,000,000. These are almost invariably too closely planted to obtain full advantage of sun and air; but suppose they stood at the moderate distance of 20 feet apart (which is 109 to the acre), the area covered would amount to 137,000 acres. It is well known that the situations best suited for Cocoa-nut cultivation is near the seashore, the banks and alluvium of rivers, and level lands exposed to the sea breezes, which conditions abound in Travancore. Inland, on the mountains, the Cocoa-nut grows, but does not bear fruit. The young plants generally require watering for the first two or three years, and must be protected from the inroads of cattle until they rise some feet above the ground. Ashes are applied as manure at the beginning of the wet season, and the ground opened about the roots of the trees, which come into bearing some eight or ten years after planting. A Cocoa-nut plantation is one of the most easily managed and most remunerative products of the country. The natives have but to put down the nuts, and guard the trees more or less while attending to their other employments, and in due course a permanent and profitable plantation is created. Europeans, however, seldom attempt such an investment, and few who have done so have succeeded in it. For new plantations waste lands are usually taken up. Within the last twenty or thirty years much land otherwise worthless has been reclaimed along the sandy seacoast, and many trees have been planted on either side of new roads opening up into the interior. The produce of the trees vary much in different soils and climates. The average of a good tree in full bearing has been stated at 120 nuts per annum, while in low and sandy soils it will amount to 200, and in gravel or laterite under sixty. The dried kernels, under the name of "copra," are exported to other

parts of India, for the expression of oil; and the coir, or fibre, which composes the husk is sent in enormous quantities to Europe and America. The annual value of the products of this Palm exported—nuts, dried kernel, or "copra," oil, and fibre—amounts to 42 lacs of rupees, besides oil, nuts, timber, and leaves for home use. It has been estimated that 60,000,000 of nuts are annually consumed in the country. The timber is not exported, but split up and used for rafters, and leaves are in great demand for thatching. The trees are sometimes tapped for a few months to produce the sweet juice, which, boiled while fresh, gives a palm-sugar, and, kept a day or two till it ferments, becomes toddy—a slightly intoxicating drink, somewhat like beer. The toddy is also distilled into "arrack," or native spirits. The Palmyra Palm (Borassus flabelliformis) stands next in importance to the Cocoa-nut. It is grown only in the driest districts towards Cape Comorin. This Palm, with its sweet sap and sugar, leaves, timber, and fruit, furnishes a living to a great number of the Thamar caste in Travancore and in Tinnevelley. The number of trees in 1880 was about 6,000,000. It is probable that no considerable increase has taken place since, as old trees are in demand for their timber, and the slow growth of this Palm discourages planting. From 160,000 to 24,000 cwt. of the sugar ("jaggery") of this Palm are annually exported, worth something over 3½ rupees per cwt. The beautiful Areca Palm (Areca Catechu) is planted in damp clayey soil on the banks of tanks and rivers. Unlike the Cocoa-nut, it will thrive at a distance from the sea, and on the hills. It is grown very largely in North Travancore, whence the nuts are carried to the south by traders. The trees will grow 2 or 3 feet apart. The Areca begins to bear in five years, and continues to produce fruit for twenty-five years. The nuts are sold wholesale at six or eight chuckrams per thousand, and retail in Trevandrum at from eight to thirty-two for a chuckram, according to season and demand; 3500 candies are annually exported to Bombay and other ports, the value of which is about 4½ lacs of rupees.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending December 26, issued by the Meteorological Office, London:—The weather has been very cloudy and dull; but although the atmosphere has been extremely humid, the rainfall has been slight. The temperature has again been below the mean, the deficit ranging from 5° in the "Midland Counties," to 1° in "Ireland, S." The thermometer was highest on the 25th, when it rose to 54° at Nairn, and to between 47° and 53° in most other places. The minima, which were generally registered on the 23d, were as low as 20° in central Ireland and many parts of England. The rainfall has been less than the mean in all districts. Bright sunshine shows a decrease at nearly all stations; the percentages were very low, ranging from 25 in the "Midland Counties" to only 2 in "England, N.W." Depressions observed:—At the commencement of the period the barometer was rather low in all parts of our area; a depression was shown, passing from west to east, across England, the wind being strong to a gale from west, over all our more southern counties, and from south-east in the east. On the following day the wind had veered to the north-west, and fallen light, but on the 22d, owing to the appearance of a depression off the north-west of France, it shifted to the eastward on all except the Scotch coasts. On the 23d this depression had disappeared, and an area of high pressure had formed over England, so that the winds were very light and variable; but by the 24th the barometer was falling quickly in the west and north; and southerly winds, blowing a gale in Ireland and Scotland, had sprung up at all our stations. Towards the end of the week the barometer was again high and rising, and westerly winds, generally light or moderate, were reported from all our coasts.

THE INDIA-RUBBER TREE.

The way in which this remarkable tree, Ficus elastica, became known to botanists and horticulturists was very singular, as related by Roxburgh in his *Flora Indica*, iii., p. 543. Towards the close of 1810 a Mr. Matthew Richard Smith, of Silhet, sent Roxburgh a vessel, there called a "turong," filled with honey in the very state in which it had been brought from the Pundua or Juntipoor mountains north of Silhet. The vessel was a common, or, rather, coarse basket, in the shape of a four-cornered, wide-mouthed bottle, made of split Rattans, several species of which grow in abundance in the above-named mountains, and contained about two gallons. Mr. Smith observed that the inside of the vessel was smeared over with the juice of a tree which grows on the mountains. Roxburgh was therefore more anxious to examine the nature of this lining than the quality of the honey. The turong was accordingly emptied and washed out, and Roxburgh then found that it was very perfectly lined with a thin coat of caoutchouc. Young trees were speedily procured through Mr. Smith, and cultivated in the Botanic Garden at Calcutta, where they throve with the greatest luxuriance. The name only was first published in Roxburgh's *Hortus Bengalensis* (1814), p. 65. When we say name only, we mean without description, although Roxburgh indicated that it was a large tree, and gave the season of flowering and fruiting. Recently Dr. Brandis (*Forest Flora*, p. 418, in a footnote) has stated that Blume must stand as the authority for Ficus elastica, "because Roxburgh did not include it in his *Hortus Bengalensis*, and his *Flora* did not appear till 1832, whereas Blume published it in his *Bijdragen tot de Flora van Nederlandsch Indie* (1825), p. 446." But this objection fails, inasmuch as the name is included in the *Hortus Bengalensis* in the place quoted. Blume received the plant from the Calcutta garden, and published the name as his own. We sometimes find Linnæus cited as the authority for the name, but, as we have shown, it could not have been known to him.

In 1815, five years after its discovery, as we learn from Sweet's *Hortus Britannicus*, 2d ed., p. 461, it was in cultivation in this country. Its hardy nature enabling it to bear smoke, dust, gas, wet, and drought, better than most other plants, it soon became a common and favourite ornament in sitting-rooms and other parts of dwelling-houses, as well in this country as on the Continent. Although it will bear a great deal of rough treatment it repays a little care by producing leaves as much as 2 feet in length; but for indoor (dwelling-house) decoration it should be kept in small pots, in moderately rich soil, or it will soon outgrow its space. Indeed, it is remarkable how long this tree, which attains gigantic dimensions in a wild state, may be kept healthy and ornamental in a mere handful of earth. With regard to the size of this tree in its native country, we find some interesting particulars in William Griffith's "Report on the Caoutchouc Tree of Assam," in the *Journal of the Asiatic Society of Bengal*, vii., part 1, p. 132. In the district where it grows it overtops the other vegetation, not only growing tall, but forming colossal trunks. The dimensions of one tree measured by Griffith were: Circumference of main trunk, 74 feet; ditto of main trunk and supports, 120 feet; estimated height, 100 feet. The nature of the trunk is very extraordinary, and is thus described by Griffith:—"It differs in the first place from the ordinary trunk by its sculptural appearance, and it is from this that its extremely picturesque appearance arises. The appearance arises entirely from the tendency of these trees to throw out roots, both from the main trunk as well as from the branches, and from the extreme tendency these have to cohere with the trunk or with each other. If the roots are thrown out from or very near the main trunk, they ordinarily run down its surface, and cohere with it firmly, and hence the sculptured appearance. If, as happens in some, they are thrown from the branches at such a distance from the trunk that they do not come in contact with it, they pass down to the earth and form what I call supports. These supports never appear to produce leaf-bearing branches, so long, at least, as they remain attached to the tree. They are generally perfectly straight at first, becoming conical only by divisions at the apex when near the earth, and by the mutual adhesion of these divisions. Very generally it would appear this species, as well as some others, vegetates in other trees; its first processes of growth being probably similar to those of other dicotyledonous trees. The roots, however, in obeying the laws regulating their descent, soon come into contact, and wherever they do so a mutual and firm adhesion is the result. A network is soon formed round the tree; the size of its reticulations soon diminishes with the increase in the number of roots; and at last a nearly solid and excessively firm cylinder is formed, which encloses, as it were, in a case, the tree which originally protected the young seedling. To such an extent is this carried that the death of the tree is sure to occur sooner or later. In such a case as this the Fig tree has, it may be said, no trunk at all comparable to ordinary trunks, which result from growths in an ascending direction. In these they originate from the aggregation and cohesion of roots, or from growth in a descending direction." From Griffith's observation it appears that this tree rarely fruits in a wild state, and still more rarely does it fruit under cultivation in this country. An instance occurred in the garden of Mr. Boyce, of Clapham, in 1874, and the fruit was figured in this journal, n.s., ii., p. 359.

ROSES ON THEIR OWN ROOTS.

Much discussion has taken place during the past year with regard, not so much as to the stock on which Roses should be budded, as whether they should be budded on any stock whatever—whether, in fact, to strike Roses from cuttings and grow them on their own roots without having the strength of any foster-mother supplied to them, is not the best way to grow them. Mr. George Baker, of Reigate, both a scientific and practical rosarian, wrote in the *Rosarians' Year Book* for 1881 thus:—"Notwithstanding all I have expressed about the propagation of Roses, I feel persuaded the best mode of growing them is on their own roots; and I believe this opinion will become confirmed, and we shall find it ere long generally adopted. . . . I have grown 200 from cuttings, and find them easy to cultivate." This opinion has been expressed by many writers in the gardening periodicals, while the contrary has been as freely stated. I think that we may say as a rule that the nurserymen take the opposing side, and that amateurs are favourable to the plan. It is probably a question which will ever remain a moot one. For I am not one of those who think that Roses on their own roots are the Roses of the future; it may be worth while, however, to take (if one can) an impartial view of the question, and see what is the best method of carrying out the practice, when it is determined on.

The reasons adduced for growing Roses on their own roots are, I believe, the following:—

(*a*.) That it is a more natural way—that is, that they then grow as bushes, and that it is more natural to see them thus than growing on the top of a stick, as standards do, but the question is not between dwarf and standard, but between dwarfs on the Manetti or seedling Brier, or Brier cutting, and on their own roots. If Roses are properly budded, that is, as near to the surface of the ground as possible, and planted when removed so that the point of union between stock and scion is underneath the ground, it is impossible to distinguish whether they have a foster mother or not.

(*b*.) That by this plan all annoyance from suckers is avoided: that is doubtless the case, but I am inclined to think that this annoyance is smaller than some imagine, while I believe it might be reduced to an infinitesimal degree if nurserymen were a little more careful. If all the eyes from whence suckers were likely to be developed were cut out, the Manetti would not so frequently annoy buyers. The seedling Brier throws up underground shoots not suckers, but I have personally been but little annoyed with it.

(*c*.) That the underground portion of the stock is apt to breed a fungus, which is injurious, if not destructive to the well being of the Rose. This is an evil which I think rarely arises, especially where Roses are well moved about; where they are allowed to continue in the same spot it may be so, but I do not see how Roses on their own roots could escape this if the underground portion became enlarged.

(*d*.) That it is easier to strike cuttings than to bud. Of course of this there can be no doubt, and where Rose growers, like myself, are getting stiff in the lumbar regions, it is easier to put in a few cuttings than it is to bud the same number of dwarfs.

On the other hand reasons have been adduced against the system, which it must be confessed have a good deal of weight in them. They are as follows:—

(*a*.) That it takes a much longer time to make a plant. I know that this has been questioned, but I confess I have not seen any good ground to doubt it. If a cutting be put in in June, as some do, or in October, as others practise, it is beyond all doubt next to impossible to get anything of a bloom from it the following year; whereas if budded the glorious maiden

blooms will delight the eyes of the grower the next season.

(*b.*) That there are some sorts which positively refuse to strike on this system. Messrs. Barry & Elwanger state that Baroness Rothschild, Madame Lacharme, &c., absolutely refuse to grow from cuttings, but when budded become sturdy plants, while plants of the Marie Baumann, Louis van Houtte, and Horace Vernet types make but little way.

(*c.*) That Roses on their own roots are more liable to be lost in the winter than when budded. I suppose this would not apply to all cases, but to some. I have, however, recorded already that in looking over some rows of that very hardy Rose, Souvenir de la Malmaison at Mr. Prince's, at Oxford, the losses were many last winter, while when budded on the Brier but few suffered; nor, I think, is this to be wondered at. The budded Rose has its foster mother to lean on, and damp and excessive moisture, which do more damage oftentime than frost, are much more likely to do injury on Roses which, many of them, have the delicate blood of the Tea Rose in them. This is especially the case on clay soils; and when in addition to all this, we may add, that when Roses are properly budded and properly planted they strike out from the point of union, and become own-root Roses, with the additional advantage of being strengthened by the stock, I think that but few advantages can be claimed for own-root Roses.

Still there are many who will, at any rate, like to give this method of propagation a trial, and if so the best time of the year is the autumn; it can indeed be done in the summer months, but there are two disadvantages to small growers in it. It must be done in a frame, and the plants when raised require the protection of a house to keep them in during the winter, and many amateurs have not the convenience and, therefore, the autumn or early winter is the period most suitable. It is advisable to consider well the time when this is to be done: some writers recommend September, but I very much doubt whether in the generality of gardens wood would be sufficiently ripe for the purpose, indeed I would prefer that it should be deferred until December rather than do it too early. The best time is the month of November.

The first thing necessary, when you have determined how many cuttings you wish to put in, is to select a place for them; it must not be very much sheltered, but in a place where you can, if necessary, apply in severe weather the protection of some dried bracken, or even straw; there need not be any special preparation of the soil, if the ordinary soil of the garden is good. It is very essential to the success of the cuttings that there should be no delay in inserting them after they are cut; it is, I believe, hopeless to attempt to strike those received from any distance, or which have been left out of the ground for any time. The best plan is to take those of one kind, have your place ready for them, and insert them at once; the cuttings themselves should be about 8 or 10 inches, or even more, in length, the wood should be sound and ripe—half-ripened cuttings will do no good. They should be inserted quite 5 or 6 inches in the ground, and when a row is completed it should be well trodden down on each side. Care should be taken also in planting that no space be left at the bottom of the hole in which the cutting is inserted; indeed, some growers insist on the necessity of not using a dibble at all, but of laying the cuttings as in a trench, and then turning the earth in and treading it down; when all this has been done, the cutting bed or border may be left without any protection, unless very severe weather follows, when, as I have said, some light material may be thrown in amongst them. They will be kept in this position during the following summer, and will occasionally give a bloom or two, but as a general rule this is not to be looked for. *Wild Rose.*

THAPSIA GARGANICA AND ITS USES.

In an abstract of a thesis presented to the Montpellier School of Pharmacy, by M. C. Blanchet, and published in a recent number of the *Therapeutic Gazette*, is a good deal of information which we do not remember having come across before, regarding the uses of the Thapsia garganica. We abstract some of the most important facts from this interesting paper.

It seems that during the past few years the Thapsia garganica has attracted considerable attention in France on account of its yielding a rubefacient resin that has been made the basis of numerous preparations. The plant is now known amongst the Arabs as the "Bou-nefa," meaning God of Health. In the present day the inhabitants of the Cyrenaican district call it "derias," and the Kabyles use it under the name "deries." A few years since it was alleged that the plant known to the inhabitants of the Cyrenaican district as "drias," was the real Silphion plant of the ancients, and Dr. Laval, who collected the plant, described it as a new species under the name of Silphium cyrenaicum. This claim, however, was refuted in an exhaustive treatise by M. Henricq, who demonstrated that the plant was identical with the Thapsia garganica of Southern Europe.

The root-bark of the Thapsia garganica is largely used as a medicine by the Arabs and Kabyles internally in chronic diseases of the lungs and sterility, and externally as a remedy for rheumatic pains, gout, coughs, bruises, eruptions, &c. For internal use the bark after drying is reduced to a powder, and this is frequently made into a paste with roasted Semolina flavoured with honey and butter; the paste is called "taminat-bou-nefa," and preserved for use when wanted. Semolina is also added to water, in which fragments of the root have been macerated seven days. The water becomes albuminous, milky, and contracts a decided bitterness and disagreeable taste. Sometimes a tablespoonful of the powder is simply added to a glass of water, and taken as a dose. Another plan is to cut the cleaned and dried root into slices which are boiled in a little rancid oil, the oil preserves the active principle, and the slices are rejected. A decoction of the root prepared in closed vessels is used for fumigations. As a purgative, the Arabs and Kabyles boil eggs in a decoction of the fresh or dried roots, one or more being taken as a dose. Finally, as a remedy in long standing pulmonary complaints, a drink, in which the natives have great confidence, is made by boiling fragments of the fresh, or dried and cleaned bark in milk. For external use the roots are crushed and dried; they are afterwards cut in pieces, with which the parts affected are rubbed; an ointment is also prepared for use in veterinary practice, by digesting the fresh or dried roots in tar.

The collection of Thapsia in Algeria is made exclusively by the natives. It is commenced in December, about a month after the appearance of the first leaves, and is continued to the end of March; it is never extended beyond the appearance of the stem, which takes place about the middle of April. The plant contains the greatest quantity of active principle in January, but the natives in Constantine prefer for their own use the roots gathered in March, though why is not known. Only the roots are gathered, the leaves being cut away. When a sufficient quantity has been obtained, they are taken to the nearest stream and washed; a longitudinal incision is then made, and the bark is removed from the wood, which is easily effected when the root is of a suitable age. The central part is rejected, as nearly the whole of the active principle of the plant is contained in the bark of the root. The bark is sometimes brought in by the collectors in the fresh state, and sometimes it is dried by spreading it out in layers 3 or 4 inches thick. When collected in large quantities for a special market, the fresh clean bark is worth twenty-five to thirty francs per 100 kilograms. The collection of the Thapsia is described as being very disagreeable work, nearly all those engaged in it returning with their faces, arms, and other parts of the bodies puffed up and swollen. The Kabyles, who take less precaution than the Arabs, have frequently the whole body covered with pimples, which suppurate. Sometimes the collectors are seized with fever, but the worst cases are cured in a few days.

Thapsia root bark is not met with in European commerce. It is externally of a brownish-yellow colour, and internally of a white chalky appearance, often spotted with red. The fresh surface of a section often exhibits a very clear golden-yellow resin, which is found also in the internal crevices of the bark.

Together with the Thapsia garganica, there grows another umbelliferous plant, called by the Arabs "Cleka" and by Europeans "false Thapsia." This is referred to Ferula nodiflora, L. The root of this plant is perennial, fleshy, greyish, nearly black on the exterior, and contains an abundance of an acrid milky juice, devoid of any vesicating action. Deprived of the ligneous portion and dried, it presents a great resemblance to the bark of Thapsia garganica, and is now largely substituted by the Arabs for it. When the root is in a fresh state this fraud may be detected under the microscope. In the Thapsia the primary interior layer of the liber is constituted by a series of broken concentric lines; in the Ferula the layer is formed by a continuous line, and the resinous canals, which are regularly distributed, appear especially in the interior, whilst in the Thapsia they are found especially in the exterior of the liber layer. When dry these characters can no longer be detected, and dependence must be placed on the colour of the external surface, which in the Thapsia is brownish-yellow, and in the Cleka greyish and nearly black. After the barks have been dried a long time, however, exfoliation takes place, and the sophistication is difficult to determine.

It seems that a quantity of resin is contained in the root of the Thapsia, and that this resin in a pure state is brown in colour, and burns with a bright flame. The resin is prepared on a large scale in Algeria. Its activity is so excessive that in spite of all precautions during the treatment with alcohol, and especially during the evaporation of the alcohol in the course of preparation, it is impossible entirely to prevent inconvenience to the operator, even to remain a few minutes in the place where the operation is being conducted is sufficient sometimes to provoke a rather painful feeling of heat, which is localised generally in the neck, the eyelids, and below the lobes of the ears.

The reducing of the bark to a coarse powder, and the handling of the latter to put it into the apparatus, are the operations that require most care, and are most dreaded by the Arab workmen. It is very difficult to persuade them to undertake the work a second time, as from the first hour it causes a very intense swelling, notwithstanding that they fasten cloths closely across their mouths and nostrils. The resin is much used for plasters, mostly, however, when mixed with other resins.

FRUIT NOTES.

King of the Pippins Apple.—If Mr. Culverwell, at p. 792, had in his note upon this popular Apple said nothing about King Pippin? it might have been concluded that in his northern locality King of the Pippins did not mature that pleasant table quality found here in the South. But this King Pippin, which is at Thorpe Perrow found fit to class with Cox's Ribston and Golden Pippin, somewhat bothers Southern readers, who know King of the Pippins so well, but have never heard of the other Apple monarch. Although our King of the Pippins is a yellow-skinned kind, yet as a rule it carries considerable colour, many fruits this season being richly striped with red. The fruits are distinctly conical, slightly ribbed, in full-sized samples; bright yellow on the shaded side, and richly striped in the sun. The eye is open, and set in a somewhat deep basin. In habit the tree is erect, not a coarse grower, and fruits freely. It is a curious fact as regards its other assumed appellation of Golden Winter Pearmain, that though I have seen many hundreds of dishes of Apples during the autumn, I do not recollect to have seen one sort so named. I have also remarked that amongst dessert Apples at exhibitions King of the Pippins has been found in all the best classes. Having regard to the season at which the fruit may be said to be at its best, I have no hesitation in classing it with Cox's Orange Pippin, Blenheim Pippin, Ribston Pippin, Court-pendu Plat, and Golden Reinette, as the best half-dozen dessert Apples both for the table and for exhibition. *A. D.*

—— I have grown this Apple for more than thirty years, and as an eating Apple I always found it very poor in quality. It is a nice showy fruit, and sells well in the market, but there are very few people who, having once tasted it, will care to do so a second time. I have had it sometimes, when the crop has been light, very fine, but I generally found it deficient in flavour; the flesh is white and firm, the tree is an upright grower, and bears abundantly. *M. Saul, Stourton, Yorkshire.*

—— At p. 792 of the *Gardeners' Chronicle* for Dec. 15 there is a little discussion between Mr. Culverwell and "Philomelos" about two Apples. First Mr. Culverwell says he has been struck with the high character given by "A. F. B." and "A. D." to the King of the Pippins as a dessert fruit. I think these two gentlemen are right as regards the qualities of the true King of the Pippins, as described by me at p. 88 of the

Orchardist, viz. :—2 size, 1 qual. Sept. to Nov. Conical, ovate. Flesh white, crisp, and juicy, with a fine vinous flavour. A beautiful Apple, whose name has been confounded with Golden Winter Pearmain, called also King of the Pippins, which is the best of the two. The flesh is yellowish, firm, tender, juicy, rich, and sweet, with a fine aromatic flavour. A beautiful Apple for dessert and culinary purposes, and also for cider-making. The tree is a strong, healthy, upright grower, the most upright Apple tree I know. It is plentiful in Hampshire, where I first made its acquaintance in 1844. It is both a great and constant bearer. The trees of the King of the Pippins is dwarf and spreading, and bear abundantly. There is also another Apple called King of the Pippins, with the synonyms Reinette du Roi, King's Apple and Winter Citron—this is the same as my King of the Pippins, mentioned above. To finish, I would advise "Philomelos" to call his King of Pippins Winter Citron, if he desires to change the name. *John Scott, Merriott.*

—— I consider this one of the best of dessert fruits, and it is also a great bearer here. I never knew it under the name of Golden Winter Pearmain, but from thirty-five to forty years ago it was only known and grown about here as Orange Pearmain, and round Wantage and that district it was known as no other, and that was the name it was sold under. I remember that, when a boy, I went to Wantage for some trees for orchard planting, and they are there now under the name of King of the Pippins; but I find there are two varieties of it, one a pyramidal grower, and the other more compact and spreading, but they are both close growing and short in the growth of wood. As a rule they bear wonderfully every other year, but the latter variety is later in coming to maturity; hence the great value of the two kinds. We are using them now in fine condition and quality. Cox's Orange Pippin is a good quality Apple and handsome, but not worth a penny here—about half-a-dozen on a tree that ought to produce a bushel; but the last two years here have been very bad for fruit—this especially, only a few for home use—the most were King of the Pippins, and a few others; French Crabs, Jacks, Deux Ans, &c., next to none the last few seasons. Cellinis have done badly—no yield at all. *J. S. C., Didcot.* [The name Orange Pearmain is a local one in Cheshire and Flintshire. Eds.]

The Chatsworth Grape.—This Grape has been referred to more than once in the pages of the *Gardeners' Chronicle*, but I have not had an opportunity of seeing it until the early part of the present month, when I saw a few good bunches of it in the fruit-room in Heytesbury House Gardens. I took it to be Black Alicante at first sight, which variety it is not unlike in form and finish, excepting that the bunches, as I saw them, are more tapering than those of the Alicante, and partake somewhat of the Muscat flavour. Mr. Horsefield, Lord Heytesbury's gardener, speaks very highly of this pleasantly-flavoured Grape, and considers it a good late variety. The bunches in question, the berries of which were large, plump, and finely finished, would certainly give one that impression, but that it is an improvement upon existing varieties I am not prepared to say. *H. W. Ward.*

Grape Golden Queen.—Some four years ago I had in the second vinery here two Grapes of Frontignan, which did not exactly please me, so, when the Queen was sent out with such a high character, I thought, Here's the white Grape at last, to match the Hamburghs;" the old was soon dug up and the new planted, which grew nicely and fruited freely (for it has a good constitution). At the end of the fifth month the Hamburghs were ripe; not so the Queen, she had a greenish tint, and at the sixth month the Muscat of Alexandria growing in the same house was as yellow as gold, while the newcomer was only a dirty white, and the flavour only second-rate. I have very often got visitors to taste this Grape, but still the same verdict—only second-rate; therefore, I say now, as I have said before, let us have no more new Grapes till Mr. Barron has had them at least one year at Chiswick. *J. Rust, Eridge Castle.*

DROSERA SPATULATA.

The accompanying drawing (fig. 161), from a plant of Drosera spatulata growing in the porch of the Orchid-house at Kew, shows what may be regarded possibly as an initial step in the passage of the form peculiar to a Drosera leaf into the similitude of a Dionæa, which belongs to the same natural order. The broad distal half of the leaf shown to the right of illustration is bent inwards in vernation, and has its margin also bent inwards as in Dionæa. To complete the transformation there is required a constriction at the point where the leaf is bent, a partial notching of the free end of the leaf and modification of its halves, an obliteration of all the glandular hairs except those fringing the distal portion, which should become spinous, and two or three on its face, which should be eglandular and sensitive; and finally a concentration of the irritability of the leaf and its glands in the tissues of the leaf which control the motions and functions of the leaf of Dionæa. *J. D. Hooker, Kew, Dec. 12.*

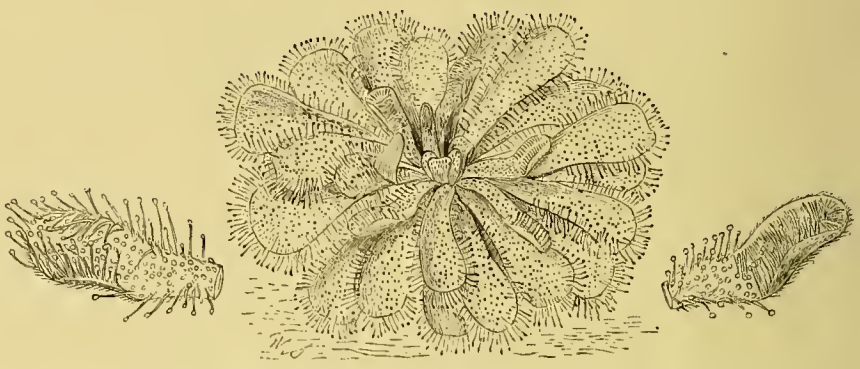

Fig. 161.—Leaf of Drosera spatulata, showing transition to that of Dionæa.

Home Correspondence.

Peach Trees in Flower.—Not very often have we the privilege of seeing Peach trees in blossom in a house with open ventilators in Christmas week, and yet this is the case in Sir Robert Carden's garden at Mole Lodge, West Molesey, Surrey. The house, in which the trees are fast coming into bloom (many of the flowers are fully developed), is an ordinary lean-to, with front sashes about 6 feet in height. There are bedding-plants wintered in the house, so that it is necessary to take the precaution of closing it in every night; but doors and ventilators are kept open to their fullest capacity through the day. In order that there may be no misconception with early forcers, it may be as well to state that ordinarily the Peaches in this house are ripe about the second week in June, and Mr. Moody, Sir Robert's head gardener, hopes this year also to bring them in about the same time, which is as early as they are required. The treatment this year will, however, have to be reversed from that of former years, so that for once the weather has enabled horticulturists to steal a march on time. In ordinary winters one is thankful enough to have early Peach trees in flower in January. But apart from this the house is also remarkable for the homogeneous nature of its occupants, all of which succeed well and yield satisfactory crops. There are Grapes, Peaches, and Figs in the same house, besides the usual miscellaneous stock, which are accommodated with a temporary shelter in it. The planting of the house is carried out in the following unusual way:—The back wall is covered with trained Peach trees, and in the centre of the house a second row of trees are trained espalier fashion to a height of about 5 feet. At the front of the house a row of bushes are grown orchard-house fashion until their points touch the roof, when they are trained to a trellis. Two Black Hamburgh Vines are planted, one at either end of the house, and trained over the back path of the house until they meet in the centre. Fig trees are planted at either end. Many cultivators might object to this system of planting on the plea of overcrowding, but utility takes precedence of beauty with Mr. Moody. Of the Grapes I cannot speak, but I was assured they did well, and there can be but one opinion about the Peach trees—they are fruitful as need be, and there are scores of ungainly looking half empty houses throughout the country which hardly pay for the fuel that is burned in them that might be dealt with in a similar way and with equally good results. *W. Hinds.*

Blair Athole.—Judging from "W. I.'s" narrative respecting Blair Castle and its scenery (p. 816)—which, in the words of Dr. Johnson, is "terribly grand"—I fear that he has missed seeing a piece of the grandest and most romantic scenery, not only on the Athole estates, but in the Highlands. I refer to Bruar Water, which is situate about 2½ miles south-east of Blair Castle, and which the poet Burns, in his *Humble* (and successful) *Petition* to the then Duke of Athole (a great planter) to plant its banks with towering trees and spreading bushes, immortalised in a poem of eighty-eight lines, in which he says respecting these waters, which in their downward and rapid course have, in the course of time, cut archways here and there through the rocks—

"Here, foaming down the shelvy rocks
In twisting strength I rin:
There, high my boiling torrent smokes,
Wild roaring o'er a linn:
Enjoying large each spring and well,
As Nature gave them me,
I am, altho' I say't mysel',
Worth gaun a mile to see.
Would, then, my noble master please
To grant my highest wishes,
He'll shade my banks wi' tow'rin' trees,
And bonnie spreading bushes;
Delighted doubly, then, my lord,
You'll wander on my banks,
And listen mony a grateful bird
Return you tuneful thanks." &c.

H. W. W.

Pandanus from Small Cuttings.—I quite agree with your correspondent "H. S." (p. 793), that there is a decided advantage to be gained in the choice of small *versus* large cuttings for raising these plants. Last spring we propagated a number of very small cuttings of both P. Veitchii and javanicus variegatus in small pots (2-inch), in which they have remained up to the present time. These were daily supplied with weak applications of liquid cow and soot manure during the summer months, the results being a miniature batch of exquisitely coloured and graceful plants. We have applied this method to several kinds of Dracænas and Crotons, for indoor decorative purposes, and have found it to be a successful one. Our experience in choosing small *versus* large cuttings for raising plants for decorative purposes convinces us of the superiority of the former over the latter method, since with the aid of artificial stimulants much better results are obtained by way of colour and habit. *T. W. S.*

Blackbirds and Slugs.—Do they eat slugs? Is the question. For very many years I have been of opinion that the blackbird does not eat slugs, and as far as my knowledge goes the only bird that does really feed on slugs is the duck. Here we have numbers of blackbirds, and yet the slugs were most plentiful, but a few ducks (young ones), turned down, very soon made a lasting difference. I have never seen a blackbird eat a slug, nor have I ever found one in his crop. People in writing on subjects often write somewhat loosely, such as confounding slugs and snails together, and I think such is the case as regards the blackbird. As to his eating snails, I do not think he has any very great liking for them—and for this reason: I never found any in the crop, and, further, last winter when the weather was very severe, I fed the birds in my garden; amongst them were blackbirds, starlings, and thrushes. Knowing of a place where there was a quantity of snails laid up for the winter I went and got some, and placed them amongst the food put out for the birds. The blackbirds, though very hungry, never even touched one, the starlings only rolled one or two over, but the thrushes seemed delighted, and soon took them to the rocks and made a meal of them, and so day by day until all the snails were gone. I do not believe for one moment that blackbirds eat slugs, and very seldom snails. I do not think also that the thrush eats slugs, nor do the starlings, and I only wish the two latter were as plentiful in my garden as the former. The thrush here is getting a scarce bird, the last two winters having been very fatal to them. I find the blackbirds most troublesome, spoiling a quantity of Plums, Pears, and Apples, and hereabouts the

VIEW IN THE GARDENS AT MONTE CARLO, NEAR MONACO.

number of these marauders increases fast. In one tree of Cratægus Crus-Galli there were between twenty and thirty at one time helping themselves to the berries. In my opinion the blackbird eats more fruit than insects—at least he destroys more, which amounts to the same thing as regards the fruit grower. *Harrison Weir, Weirleigh, Brenchley, Kent.*

Asparagus plumosus nanus.—This is quite a distinct thing in the way of foliage plants, and is altogether a better plant, both for decorative purposes and cutting from, than A. scandens. It forms a neat-habited, bushy specimen, and small plants of it would be well adapted for table decoration. No one can form any idea of the beauty of this without seeing it. The tiny needle-like branchlets are set so closely together on the branched stems, as to form feathery plumes of great beauty. One would surmise from their fragile character that they would not last long after being cut; but they remain in good condition for three weeks with the stems in water. *J. D.*

Our Young Gardeners' Literature.—The other day I came across a copy of a translation of the *Georgics* by R. D. Blackmore—a rendering brilliantly enthusiastic, and showing on every page the fervent love of Mr. Blackmore for his author and for Nature. Oh, that a copy could be near every gardener's hand! Why should our young gardeners so earnestly desire to acquire a smattering of third-rate science? Botany they must know, and the elements of a few others, such as heat; but why, in the name of the Parcæ, do they require to inebriate their life by devouring popular science? Perhaps inebriate is an exaggeration, but there are valid reasons for such a word. A little science is as dangerous as a little learning—"drink deep or taste not." Cannot a man observe Nature without trying to pursue an abortive casual nexus? There is more truth than many think in the epigram that the "natural scientist knows least of Nature." The end of the feeble or sufficiently exercised intellect that wets its feet in the vast ocean of science is dogmatic ignorance. The minds of gardeners are not feeble, but they have enough—and often have more than enough—to think about. Next to the literature of our craft, let such as Tennyson and Ruskin be our teachers, and so will our souls imbibe some part of the purity of our flowers, and the sternness of duty be illuminated by some errant rays of culture. How often are gardeners called uncultivated, and with justice? I am amongst those that believe that gardeners ought to have a social status better than they have now: this end can only be reached by our own perseverance. *W. Carmichael.*

Mr. Rochford's Boilers.—Mr. Warhurst now admits, what from his first communication was obvious, that he virtually knows nothing about the boiler he has sought to disparage, except from a mere recollection of what appeared in the *Gardeners' Chronicle* last January. This may seem to Mr. Warhurst a good opportunity to let the gardening world know what he is doing with his own boilers—for such is really the gist of what he has to say on the subject—but I think most people will consider this as outside the question, having nothing to do either for or against Mr. Rochford's boilers, the well proved merits of which alone have so far been all that has brought them into use. They were not invented with a view to make money, or to their ever being sold at all. Mr. Rochford—than whom few men have given more attention to, or had a better opportunity of proving the merits and demerits of most of the different forms of boiler hitherto brought out—simply set his head to work to construct a boiler for his own use that was durable, powerful, and cheap in every sense. And the verdict of those who do not commit themselves without an opportunity of knowing what they are talking about is that he has succeeded. If the smashing of boilers and dead plates Mr. Warhurst speaks of was a common occurrence, it would be about time to return to the old smoke flues. If I might venture a word of advice to Mr. Warhurst it would be that in future it will be better to withhold his condemnation of anything until he has some acquaintance with it, and something more substantial to rest his criticism on than imagination. The objection to these boilers on account of the room they occupy in a garden is about equal to that of the individual who maintained that the ancient pack-horses were preferable to carts and waggons, on account of the room the latter take up. *T. B.*

White Varieties of Wild Flowers.—These must be in high favour at present if it is correctly stated on p. 783 of the *Gardeners' Chronicle* that a First-class Certificate was granted on August 9 to Malva moschata alba, a very old favourite amongst our hardy flowers, of which I have annually given away hundreds of seedlings for many years past. It always comes true from seed, though the rose-coloured type is common in the neighbourhood. The same may be said of the white variety of Verbascum blattaria, which Mr. Horsefield tells us is the only form found about Heytesbury; amongst several thousand self-sown plants which have been allowed to flower in my shrubbery borders in the last ten years I have never had one with yellow flowers. The most beautiful white Mullein, which I once found wild near Burnham Beeches, and still have, is the white variety of Verbascum nigrum; it is quite as worthy of a First-class Certificate as the white Musk Mallow. The stiff red clay here seems equally productive of white varieties with the chalk at Heytesbury. Amongst flowers not often seen white I can always find in the season white flowers of Erythræa Centaurium, Prunella vulgaris, Ononis arvensis, Campanula rotundifolia and latifolia, more rarely of Scilla nutans and Orchis mascula. White-flowered plants of Pedicularis palustris are also common, but this is a plant I have never been able to persuade to grow in a garden. *C. Wolley Dod, Edge Hall, Malpas, Cheshire.*

Late Flowering Chrysanthemums.—I would recommend to the notice of your correspondent inquiring for the above (p. 797) the following varieties:—Princess Teck and Blonde Beauty—incurved blooms, and Fair Maid of Guernsey—Japanese. If one variety only is required I would strongly recommend Princess Teck. I have grown it for the past five years, and always found it a grand late variety for cutting. *W. Mayo.*

The Protection and Treatment of Figs.—It will, no doubt, be remembered by many how badly Fig trees got cut up last year, and how thin and poor the crop was in consequence of so much of the young wood being killed and injured, and as there is every prospect of a similar recurrence, owing to the immature condition of the young shoots, it will be well to set about their protection at once. This may be done in a variety of ways, the most simple and easiest being by the aid of straw or bracken, either of which put on thinly and kept in position by means of ties and sticks will ward off the frost sufficiently to render all safe. The thing to be avoided is over-protection, as to straw up the branches and keep them air-tight often does more harm than good, for being warm the embryo Figs are brought forward in a half-bleached, delicate state, and when uncovered in the spring are at once nipped by the cold. If the trees are on walls it is a good plan to draw the main branches up together as far as can be done, when the straw or bracken can be placed over the front, and lashed there with string; or Fir branches may be used instead of the straw, as they answer well by letting the air in behind. Figs that are protected in this or any other way should always be uncovered piecemeal, so as to inure them to the change, as sudden exposure chills the sap and throws off the fruit. Why Figs are so often barren and get so injured by frost is from making too much growth, as when they do this it is always of a soft pithy nature, and wood of this kind, if it escapes the effects of winter, seldom or never affords anything like a crop. To be prolific in this fickle climate of ours Figs must be restricted at the roots, as it is only by limiting the larder that their gross habit can be checked. The cheapest and most effectual way of putting proper restraint on the plants is to brick-in a space on a concrete bottom, and give them only a small portion of soil with fine chalk to grow in. The chalk causes an endless number of fibres to form, and builds up the wood in such a manner as to make it almost as hard and firm as that of the Ash. *J. S.*

Florists' Flowers.

Japanese Chrysanthemums.—From a popular point of view these curious and even grotesque forms find more favour at our Chrysanthemum shows than do the formal incurved flowers, about a stand of which there is a great deal of sameness. This is inevitable in a case where it is required that the flowers shall all be of one shape, and as the richest colours in the Chrysanthemum are found among the reflexed flowers, they are excluded from the competition. For growing in a conservatory there is no more effective and pleasing variety than Julia Lagravère, and with this we can associate Progne, Dr. Sharpe, and a few others of a like colour and shape. The glory of the Japanese varieties is that they are so diverse in colour and form, and a stand of twenty-four blooms suggests an appearance the very reverse of sameness. Among them there is as yet a scarcity of rich-coloured flowers, but these are being gradually added to, and crimson tints multiply as a result of the additions. The richest coloured flowers noted this season are—Red Dragon, Sho Yakko, Garnet, Mons. F. Lemoine, not quite so deep in colour as some of the foregoing, but yet good, and Orphée, very fine. Of magenta-coloured flowers there are Dark Striata, in which case the purple hue of the stripes on the white ground has completely overshadowed the whole of the florets; Nuit d'Automne, a fine magenta-crimson; Madame Andiguier, and Fulgore.

Here it may be remarked that the hue of colour of a certain flower seen in one stand of blooms was of a deeper or paler cast than seen in others, showing that cultivation has something to do with the density or otherwise of the tint, and it appeared that when the flowers were large and the florets broad, showing high cultivation, the colour was the deepest. Madame Andiguier was shown so pale in colour in some stands as scarcely to be recognisable at first sight, and others might be named showing the same marked varieties of colour.

Of pale magenta or bright lilac coloured flowers the following were particularly noticeable:—Baron de Prailly, Oracle, Mons. Delaux, a variety that has a centre of dull orange-red and cinnamon; Cry Kiang, and Grand Turk. Then there is a group having what may be appropriately termed silvery-lilac flowers, such as James Salter, Magnum Bonum, Mons. Ardene, Duchess of Connaught, an incurved form of the Japanese Chrysanthemum, Delicata, and Hiver Fleur, of a particularly soft and pleasing shade. Flowers of orange and red shades, in which the two are found in combination, are had in Bronze Beauty, Red Gauntlet, Comte de Germiny, another incurved form of a dullish aspect when the petals are folded over to the centre—it has very broad florets; Ne Plus Ultra, and Mons. Lemoine. Cinnamon and yellow flowers, which are paler than those in the foregoing section, are found in Chang, Madame Bertier, Lutea striata, Madame B. Rendatler, very delicate; Triomphe de la Rue de Châtelet, a distinct variety, with thread-like petals; and Apollo. The following have flowers of rich gold and yellow tints, paling to light yellow:—Fulton, very rich, one of the very best in this section; Grandiflora, Criterion, bright orange-buff; Peter the Great, Mons. Delaux, delicate yellow; Yellow Dragon, Golden Dragon, Thunberg, an incurved variety, with very fine deep yellow flowers; and Soleil Levant. A crimson and buff-coloured flower, named Apollo, deserves to be classed by itself. In some catalogues it is described as orange, but as shown it was delicately striped, and quite distinct in character. Of striped flowers but one good representative could be seen, viz., Striata, white striped with purple, very pretty and distinct, the flowers large and full. Of white flowers the best are Elaine, Fair Maid of Guernsey, Ethel, and Meg Merrilees.

The foregoing sections do not include all the varieties grown, but only such as have been prominently shown; and the writer cannot be held responsible for errors of nomenclature—the names given were copied from the exhibition stands.

The Japanese Chrysanthemums given above are capable of being arranged in three other groups, viz., those with broad ribbon-like florets; those with florets of medium breadth; and those with thread-like florets. Into the former comes the greater number of the flowers, such as Ethel, Chang, James Salter, Fair Maid of Guernsey, Elaine, Magnum Bonum, Bronze Beauty, Mons. Ardene, Delicata, Comte de Germiny, Triomphe du Nord, Peter the Great, Duchess of Connaught, Striata, Triomphe de la Rue de Châtelet, The Daimio, Madame Andiguier, Apollo, and Grand Turk. Flowers with florets of medium breadth are found in Bouquet Fait, Golden Dragon, Fulgore, Bronze Dragon, Cry Kang, Soliel Levant, Mons. Lemoine, Mons. Delaux, and Madame Rendatler. Flowers with narrow or thread-like petals include Orphée, Garnet, Sho Yakko, Red Dragon, and Madame Bortier.

A selection of the very best varieties of the Japanese Chrysanthemum should comprise The Daimio, Grandiflora, Baronne de Prailly, Magnum Bonum, Bronze Beauty, Red Dragon, Fair Maid of Guernsey, Hiver Fleur, Lutea striata, Criterion, Mons. Ardene, Peter the Great, Mons. Lemoine, Nuit d'Antomne, Red Gauntlet, Mons. Delaux, Triomphe du Nord, Striata, Orphée, Thunberg, Triomphe de la Rue de Châtelet, Fulgore, Garnet, James Salter, Elaine, Madame C Andiguier, and Fulton. *R. D.*

Polyanthus Lancer.—It is well to caution purchasers of gold-laced Polyanthuses to be on their guard against what they buy under the name of this fine old variety. Not long since I received some plants from the Midland districts, but they are not Lancer—simply Sidney Smith, an inferior red-ground variety. Lancer has darker foliage, which is broader in the leaf and more vigorous than Sydne

Smith. It is as distinct in the foliage as any variety, and once known can soon be recognised. Lancer is now very scarce, and plants of the true form are dear. This is mainly owing to the severity of last winter, before which many Polyanthuses went down, and what the winter spared the uncongenial spring did not improve. Lancer, when in good form, has a flat symmetrical pip, a good red ground, and fine lacing, and throws up a large and symmetical truss on a rather short foot-stalk; when in good form it is difficult to beat. This, President, and William IV. I take to be the three best of the red-ground section. Napoleon, which is in every respect, with me, the same as Sidney Smith, and Telegraph, are useful also, but lack the refinement of Lancer and President. So far the autumn has proved highly favourable to the growth of the plants. The collection I have, which includes some sorts new to me, such as Staffordshire Queen, Congleton Queen, Brilliant, Lancashire Hero, Lord Morpeth, which I bloomed last year, but only imperfectly, and Highland Mary, look well and are growing away merrily; how they will fare during the winter remains to be seen. Last winter, do what I would, I could not get them out of the range of the frost, and in common with others who had to mourn over a like experience I lost some of my most promising specimens. They were kept in a low, cold frame, with an ash bottom, on a north aspect, and this proved too much for them. They are now sharing with my Auriculas the elevated stage in my Auricula-house, where they will be wintered. *R. D.*

THE CARNATION AND PICOTEE. — Dealers in these plants inform me that the orders for them—or at least the largest proportion of the orders—are delayed until the spring. Probably the reason for this may be owing to some fear lest the plants should suffer injury during the winter, or that it is too much trouble to attend to the plants during the winter season. It is a sufficient answer to this to say that the plants require very little attention during the winter, and that with ordinary care the losses are inconsiderable. Any plants that we require to complete our collection are purchased in the autumn in preference to waiting until the spring. This is also the time that the lists of new and old varieties are placed before the public, and I think one may almost venture to say that never before in the history of the Carnation and Picotee were so many really good varieties of recent introduction available to purchasers. Until the last three or four years good scarlet bizarres were so scarce that the supply was not nearly adequate to the demand. That good old variety, Admiral Curzon, stood almost alone as a really good variety. It was also sold under the name of Dreadnought; a coarse variety was sold under the name of Sir J. Paxton, the true "Paxton" being also scarce. Mars, a later variety, introduced by Mr. C. Turner, was first-rate when it had not too much colour. Mr. Dodwell came upon the scene not six years ago, and, *presto!* all this has been changed. In a very few years he has quite revolutionised the scarlet bizarre class, and added to it some varieties as good as Admiral Curzon, but of a much more free growing habit. He was good enough to send me a collection of seedlings last year, and having grown them under my own eye, I can speak of their good qualities. Fred was very fine, and one bloom was good enough to obtain "premium" at the great exhibition at South Kensington in July last. Arthur Medhurst, George, and Robert Lord, are really first-rate. Harry Turner and James McIntosh were both very fine in our own garden, and fully bore out the character I had formed of them as they were exhibited by Mr. Dodwell. Although the crimson bizarre class contained some really fine flowers, the new varieties will hold their position along with the best of them. Harrison Weir is a superb variety; Squire Llewelyn and Squire Penson are in their way quite as good. Shirley Hibberd and Thomas Moore, to which must be added Master Fred, were exhibited last year, and have again proved themselves worthy of the high position in which they were placed. Mr. Simonite's Crimson Banner is also a very constant high-coloured and good flower in this class. The same grower has also in Joseph Crossland a scarlet bizarre of full size and richest colours with a good white. Mr. Gorton, of Eccles, has also won an honourable position as a raiser of seedlings during the last few years. His William Skirving is a distinct and good crimson bizarre, and Tim Bobbin represents the richest coloured of all the rose-flakes, although Mr. Gorton has some others of great promise. Amongst Picotees there are three in the Slough collection that will seldom be far from the front in their respective classes. Mrs. Chancellor is queen amongst the heavy purple-edged flowers, and Baroness Burdett Coutts is a grand light-edged purple. Constance Heron is quite the best in the class for heavy rose or scarlet edges. Mr. Dodwell has also added a fine variety to that weak class the light-red edged Picotees. Elsie Grace is a seedling from Mary, and much like that good old variety, except that the new one has a red edge. It is a good companion to Violet Douglas and Thomas William. There are numerous other new and good flowers, but I cannot speak so confidently about them from personal experience. Some I have seen, and think highly of them. I ought to say that as soon as the plants arrive they ought to be carefully potted in light sandy soil, using pots in proportion to the size of the plants. We use large and small 60's, and put two plants in the large size, and one in the small ones. They are then placed in cold frames; and I prefer the frames with their backs to the south—at least in the early part of the season. The frames may now be turned round to face the south. *J. Douglas, Loxford Hall, Ilford.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 28, 1881.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec	In.	In.	°	°	°	°	°	°			In.
22	29.83	—0.02	37.5	30.5	7.0	34.2	— 4.6	31.3	90	E.	0.00
23	30.30	+0.45	33.5	28.0	5.5	30.9	— 7.5	29.8	96	N.: N.E	0.00
24	30.31	+0.45	38.0	24.0	14.0	31.9	— 6.3	27.3	83	N.: N.E	0.00
25	30.33	+0.46	43.0	28.2	14.8	36.7	— 1.3	31.6	82	S.W.	0.00
26	30.40	+0.52	49.5	39.0	10.5	44.8	+ 7.0	43.5	95	S.W.	0.00
27	30.44	+0.55	45.0	41.0	4.0	42.8	+ 5.2	40.6	92	S.W.	0.00
28	30.23	+0.34	42.7	37.5	5.2	40.3	+ 2.8	38.7	95	W.: SW	0.00
Mean	30.26	+0.39	41.3	32.6	8.7	37.4	— 0.7	34.7	90	S.W.	0.00

Dec. 22.—A fine day, but cold, cloudy, and foggy. Misty and cold night.
— 23.—A foggy day, overcast, dull, very cold. Cold, misty night, sharp frost. Maximum temperature took place early in the morning; minimum temperature at midnight.
— 24.—A cold sharp frost, ice on ponds ¼-inch thick. A fine bright afternoon and night.
— 25.—A fine, cold morning; a dull afternoon, slight rain. The maximum temperature of this day took place at midnight.
— 26.—A damp day, some fog, slight rain. Mild and warm evening, dampness falling.
— 27.—A damp, cold morning; dull but fine afternoon. Calm, mild night.
— 28.—A dull, damp morning, overcast, gloomy. Fine, warm night, stars visible between clouds. Maximum temperature at midnight.

LONDON: *Atmospheric Pressure.*—During the week ending December 24 the reading of the barometer at the level of the sea increased from 29.19 inches at the beginning of the week to 29.57 inches by 9 A.M. on the 19th, decreased to 28.94 inches by 9 A.M. on the 20th, increased to 30.56 inches by midnight of the 23d, decreased to 30.48 inches by 3 P.M. on the 24th, and was 30.52 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.83 inches, being 0.04 inch lower than last week, and 0.19 inch below the average of the week.

Temperature.—The highest temperature in the shade during the week was 50°, on the 18th. On the 23d the temperature did not rise above 33°.5. The mean of the seven high day temperatures was 41.3°.

The lowest temperature in the week was 24°, on the 24th; on the 18th the lowest temperature was 37°. The mean of the seven lowest temperatures was 31°.6.

The greatest range of temperature in one day was 14° on the 24th; the smallest was 5°.5, on the 23d. The mean of the seven daily ranges was 9°.7.

The mean daily temperatures were, on the 18th, 43°.7; on the 19th, 38°.9; on the 20th, 40°.9; on the 21st, 37°.9; on the 22d, 34°.2; on the 23d, 30°.9; and on the 24th, 31°.9. Of these, that of the 18th was 3°.5, and that of the 20th was 1°.2 above the average; all the remainder were below by 1°.1, 1°.4, 4°.6, 7°.5, and 6°.3, successively. It will be seen that the mean temperature of the 23d day was no less than 12°.8 of lower temperature than that of the 18th.

The mean temperature of the air for the week was 36°.9, being 1°.3 lower than last week, and 2°.3 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo, placed in the full rays of the sun, was 76°.5, on the 19th; the highest on the 23d was 38°. The mean of the seven readings was 57°.4.

The lowest reading of a minimum thermometer with its bulb placed on grass and fully exposed to the sky was 20°, on the night of the 24th. The mean of the seven readings was 28°.

Rain.—Rain fell on three days, to the amount of 0.80 inch, of which 0.39 inch fell on the 18th, and 0.33 inch fell on the 20th.

ENGLAND: *Temperature.*—During the week ending December 24 the highest temperatures were 54°.2 at Plymouth, 51°.6 at Brighton, and 51° at Truro. The highest temperature at Liverpool was 38°.9, at Hull 41°, and at Bradford 42°. The general mean was 45°.5.

The lowest temperatures in the week were 20°.4 at Wolverhampton, 21°.5 at Bristol and Cambridge. The lowest temperature at Plymouth and Brighton was 30°, and at Liverpool was 28°.4. The general mean was 24°.6.

The greatest ranges of temperature in the week were 26° at Truro and Blackheath, and 24°.2 at Plymouth. The least ranges were 10°.5 at Liverpool, 15°.6 at Bradford, and 17° at Hull. The general mean was 20°.9

The mean of the seven high day temperatures was highest at Truro, 48°.1, at Plymouth 47°.4, and at Brighton 43°.8; and was lowest at Hull, 38°.1, at Bradford 39°, and at Leicester 39°.1. The general mean was 41°.5.

The mean of the seven low night temperatures was highest at Truro, 37°.3, at Plymouth 34°.7, and at Brighton and Liverpool 33°.9; and was lowest at Wolverhampton, 28°.5, at Hull 29°.1, and at Leicester 29°.2. The general mean was 31°.8.

The mean daily range was greatest at Plymouth, 12°.7; at Wolverhampton 11°, and at Nottingham 10°.9; and was smallest at Bradford, 6°.8, at Liverpool 7°.4, and at Hull 9°. The general mean was 9°.7.

The mean temperature for the week was highest at Truro, 42°.7, and at Plymouth 41°.1; and lowest at Hull, 33°.6, and at Wolverhampton 34°. The general mean was 36°.7.

Rain.—The largest falls were 1.92 inch at Bristol, 1.21 inch at Sheffield, and 1.17 inch at Nottingham. The least falls were 0.38 inch at Brighton, 0.44 inch at Hull, and 0.53 inch at Wolverhampton. The general mean was 0.89 inch.

Snow fell at Cambridge on the 18th, at Sheffield on the 19th, and at Bradford on the 20th. *Fog* was very prevalent at the end of the week.

SCOTLAND: *Temperature.*—During the week ending December 24 the highest temperature was 48°.8 at Edinburgh; at Dundee the highest temperature was 40°. The general mean was 44°.4.

The lowest temperature in the week was 24°.1, at Aberdeen; at Greenock the lowest temperature was 28°.2. The general mean was 25°.4.

The mean temperature for the week was highest at Glasgow, 36°.4; and lowest at Dundee, 33°.3. The general mean was 34°.9.

Rain. — The largest falls were 2.25 inches at Greenock, and 2.03 inches at Paisley. The smallest falls were 0.05 inch at Dundee, and 0.09 inch at Aberdeen. The general mean was 0.78 inch.

JAMES GLAISHER, F.R.S.

The Poultry Yard.

PRICES OF FOWLS AT THE GREAT SHOWS. — To fanciers in particular, and the general public as well, the highest prices paid for fowls at the Crystal Palace, Birmingham, and other great shows, is always a matter of interest. As a rule it is at the two last named places where the highest prices are secured, and there were many large sums paid for birds at the recent shows. The highest price paid for any fowl at the Palace was £25 each for two dark Brahma cockerels, the property of Lady Gwydyr; a light Brahma cock, £18 18*s.*; several Dorkings from £6 to £10; a silver spangled Hamburgh hen, £15 15*s.*; and a black-red game bantam cockerel, £20, which must certainly be regarded as a great deal for such a little braggart. Some pigeons on this occasion brought more money than the fowls, one Antwerp changing hands at £30, and others at £20 and £25. Last year Capt.

Heaton, Worsley Hall, Manchester, gave £100 for a black-red game cock, but nothing so high as this was given this time; £50, however, was given for a black-red game pullet, and many other prices came up to the average. It may be observed that many of those who know most about such things are hardly ever known to buy a pair of fowls at any of these shows, as it is pretty well known that many fowls shown in pairs are brother and sister, or so closely related as to be little or no good for breeding. Buying a cock from one and a hen from another is generally the safest plan, unless arrangements are made not to have them related if taken from the same person. *Hen-wife.*

Answers to Correspondents.

AZALEA: *R. D.* You may reduce the ball moderately, and repot into well drained porous soil, but you had better defer the operation till the plant is showing signs of active growth; and then you should give it the stimulus of a gentle heat.

BOOKS: *H. J. C.* Apply to Crosby Lockwood & Co., 7, Stationers' Hall Court, E.C.

INSECTS: *R. K. P.* The minute white objects on your Fuchsia leaves are not eggs of an insect, but the shrivelled pupa-skins of a very minute white four-winged insect common in some greenhouses (Aleyrodes vaporariorum, Westw.), described and figured in *Gardeners' Chronicle*, 1856, p. 852. *I. O. W.*

NAMES OF PLANTS: *C. W.* 1, Rondeletia speciosa; 2, Euphorbia jacquiniflora.

PYRETHRUM: *Texas.* Get a good trade catalogue, like that of Mr. R. Parker, of Tooting, or Mr. Ware, of Tottenham.

THERMOMETERS: *R. M.* Mr. Hicks, 8, Hatton Garden, London.

VINE-ROOTS: *Remus.* We could not find any Phylloxera on the roots.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "*Editors*," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

Letters relating to ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.

DOWNIE & LAIRD, Edinburgh—Garden, Flower, and Agricultural Seeds.
LOUIS VAN HOUTTE, Ghent, Belgium—Gesneraceous Plants.
ALEX. DICKSON & SONS, Belfast—Vegetable and Flower Seeds.
H. & F. SHARPE, Wisbech—Garden and Agricultural Seeds, Wholesale.
CHARLES SHARPE & CO., Sleaford—Seed List for 1882.
JAMES COCKER & SONS, Aberdeen—Forest and Ornamental Trees, &c.
DICKSON, BROWN & TAIT, Corporation Street, Manchester—Vegetable and Flower Seeds.
JAMES VEITCH & SONS, King's Road, Chelsea—Garden and Flower Seeds.

COMMUNICATIONS RECEIVED.—H. H. C.—W. B. H.—J. G.—C. H. C.—Remus.—G. J. W.—W. B. L.—E. P.—W. O'M. (thanks)—T. C.—W. Badman.—M. T.—J. S.—W. H. D.—J. M.—Observer.—R. D.—W. H.—E. M.—J. D.—W. P. R. G. D.—F. W. B.—J. C. & Co.—B. H.—B. F. (thanks).—F. S. & Co.—C. W. D.—W. H. D.—J. H.—Prof. Wittmack.—R. D. B.—W. H. F.—M. P. W.—D. O.—Miss Nicholson.—T. W.—T. C.—J. C.—E. J.—W. B.

Markets.

COVENT GARDEN, December 29.

Almost a total cessation of business has been the characteristic of the week. Scarcely anything of note has reached us, and buyers have been conspicuous by their absence. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	18 0–42 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 6
Azalea, per dozen	30 0–42 0	Hyacinths, per doz.	8 0–12 0
Begonias, per doz.	6 0–12 0	Lily of the Valley, per pot	4 0– 6 0
Bouvardia, per doz.	18 0–24 0	Myrtles, per doz.	6 0–12 0
Chrysanthemums, per dozen	6 0–18 0	Palms in variety, each	2 6–21 0
Cyclamen, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen	3 0– 6 0
Cyperus, per dozen	6 0–12 0	Poinsettia, per doz.	12 0–18 0
Dracæna terminalis	30 0–50 0	Primula (single), per dozen	4 0– 6 0
— viridis, per doz.	12 0–24 0	Solanums, per dozen	9 0–12 0
Epiphyllum, per doz.	18 0–30 0	Tulips, per dozen	8 0–10 0
Euonymus, various, per dozen	6 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 blooms	3 0– 6 0	Lily of Val., 12 spr.	2 0– 4 0
Azalea, 12 sprays	1 0– 2 0	Marguerites, 12 bun.	4 0– 6 0
Bouvardias, per bun.	1 0– 1 6	Mignonette, 12 bun.	6 0– 8 0
Camellias, 12 blooms	3 0– 6 0	Pelargoniums, 12 sprays	1 0– 1 6
Carnations, 12 blms.	1 0– 2 0	— zonal, 12 sprays	0 6– 1 0
Chrysanth., 12 bun.	12 0–18 0	Primula, double, per bunch	1 0– 1 6
— 12 blooms	2 0– 4 0	— (single), 12 bun.	6 0–12 0
Cyclamen, 12 blooms	3 0– 6 0	Roses (indoor), doz.	2 0– 4 0
Epiphyllum, 12 blms.	9 0– 1 0	— Tea (French), per dozen	1 0– 2 0
Eucharis, per doz.	6 0– 9 0	Tropæolum, 12 bun.	1 0– 3 0
Gardenias, 12 blms.	12 0–18 0	Tuberoses, per dozen	3 0– 6 0
Heliotropes, 12 sp.	0 6– 1 0	Tulips, 12 blooms	1 0– 2 0
Hyacinths (Roman), 12 sprays	2 0– 3 0	Violets, 12 bunches	1 6– 2 0
— (large), 12 spikes	9 0–12 0	— (French Parme), per bunch	6 0– 8 0
Lapageria, white, 12 blooms	4 0– 6 0		
— red, 12 blooms	1 0– 3 0		
Lilac (Fr.), p. bunch	7 0– 8 0		

*** These prices must not be relied on for ordering for Christmas week.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 3 6	Pears, Eng., ½-sieve	2 6– 7 0
Grapes, per lb.	1 0– 5 0	— French, per doz.	1 6– 4 0
Kent Cobs, p. 100 lb.	70 0–77 6	Pine-apples, Eng., lb.	1 6– 2 6
Lemons, per 100	4 0– 5 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 6 0	Lettuces, Cabbage, per doz.	0 6– 1 6
Asparagus, French Sprue, per bundle	1 6– ..	— Engl. Cos, score	1 6– ..
Barbe de Capucin, per bundle	0 8– ..	Mint, green, bunch	0 4– 0 6
Beans, French, p. lb.	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Beet, per doz.	1 0– ..	Onions, per bushel	4 0– ..
Cabbages, per doz.	1 0– 2 0	— Spring, per bun.	0 6– ..
Carrots, per bunch	0 4– 0 6	Parsley, per bunch	0 4– ..
Cauliflowers, English, dozen	2 0– 4 0	Peas, per lb.	1 0– ..
Celery, per bundle	1 6– 2 0	Potatos (new), per lb.	0 6– ..
Celeriac, per head	0 4– ..	Radishes, per bun.	0 2– 0 6
Cucumbers, each	0 6– 1 0	— French, p. bund.	0 6– ..
Endive, per doz.	1 0– 1 6	Rhubarb, per bundle	1 0– ..
Garlic, per lb.	1 0– ..	Salsify, per bundle	1 6– ..
Herbs, per bunch	2 0– 0 4	Seakale, per punnet	2 0– 2 6
Horse Radish, bund.	4 0– ..	Small salading, pun.	0 4– ..
		Spinach, per bushel	2 6– ..
		Tomatos, per lb.	0 9– 1 0

Kent Regents, 100s. to 110s.; Roses, 80s. to 90s.; Myatt's, 100s. to 120s.; Champions, 50s. to 70s.; Magnum Bonums, 90s. to 10s.

SEEDS.

LONDON: *December* 28.—The market to-day, as might be expected, presented quite a holiday aspect, and there was but little business doing. With regard to red Clover, Alsike, white, and Trefoil seeds there is no quotable variation. The tendency in Italian Rye-grass is upwards. The Canary seed market is somewhat firmer. Hemp seed on the spot is scarce. Blue Peas and Haricot Beans are unchanged. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday there was no business, and on Wednesday the inquiry was limited, but the scanty supply of English Wheat was firmly held, and prices tended against buyers. Foreign Wheat also showed a tendency to harden in value. Only a very moderate business was concluded, but extreme rates were obtained. Flour sold slowly, and without appreciable change in value. Fine malting Barley was scarce and very firm. Grinding sorts only were in moderate request. Beans and Peas were held for steady value, and bids at easier rates refused. With rather large arrivals of Oats, the common qualities of Russian were the turn easier for buyers. Maize, though not active, could hardly be so well bought as on Friday last.

CATTLE.

At the Metropolitan Market on Monday there were but few prime beasts to hand, and these cleared off early at very full value. Second qualities, though not so readily sold, maintained late rates, supplies being altogether light. Very few sheep were penned, and they sold dear, but hardly to alter quotations. Calves met only a limited demand. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.*, and 5*s.* 6*d.* to 6*s.* 2*d.*; calves, 4*s.* 4*d.* to 6*s.*; sheep, 5*s.* 4*d.* to 6*s.* and 6*s.* 2*d.* to 7*s.* 4*d.*—Thursday's trade was dull. Supplies of both beasts and sheep were in excess of the demand, and the tendency was therefore in favour of buyers, particularly for inferior breeds. Calves were dull, but pigs were steady.

HAY.

There was no business done at Whitechapel Market on Tuesday.—On Thursday there was a fair supply of fodder on offer. The trade was steady, and prices were as follows:—Prime Clover, 100*s.* to 137*s.*; inferior, 60*s.* to 95*s.*; prime meadow hay, 100*s.* to 126*s.*; inferior, 50*s.* to 90*s.*; and straw, 30*s.* to 54*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 126*s.* to 135*s.*; inferior, 84*s.* to 110*s.*; superior Clover, 130*s.* to 140*s.*; inferior, 100*s.* to 112*s.*; and straw, 48*s.* to 54*s.* per load.

Government Stock.—Monday being a Bank Holiday the Stock Exchange was closed. On Tuesday Consols finished at 99⅛ to 99¼ for delivery, and 99 7/16 to 99 9/16 for the account. Wednesday's closing figures were, for delivery, as on Tuesday, and 99¼ to 99⅜ for the account. The final quotations on Thursday were, for delivery, 99¼ to 99⅜, and 99⅜ to 99½ for the account. The transactions noted are ex div.

JOHN EDMONDS & CO.,
HORTICULTURAL BUILDERS, &c.

CONSERVATORIES, GREENHOUSES,
AND EVERY DESCRIPTION OF
HORTICULTURAL BUILDINGS
Manufactured by Steam-Power Machinery, and of the Best Materials and Workmanship.

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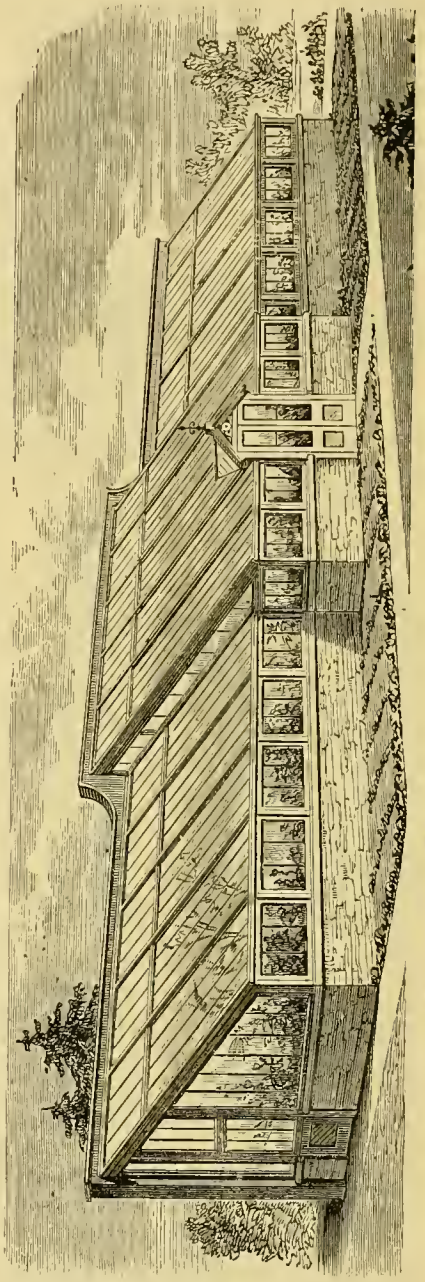

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HOT-WATER APPARATUS ENGINEERS.

Manufacturers of Wrought-Iron, Welded, and Rivetted Boilers of all descriptions.

Patentees of the Cast-Iron Tubular Saddle Boiler.

LILLIE BRIDGE, LONDON, S.W.

☞ *Adjoining West Brompton Station, Metropolitan and District Railway.*

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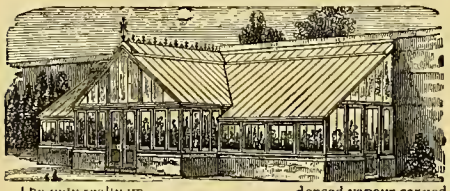
With Wrought-iron Channelled Rafters, continuous Lapped Glass and Rain-proof Ventilators under Glass Super Roof.



The only really imperishable system of Roofing. The lightest in appearance and the strongest. By far the least costly in repairs and repainting. The only system free from drip—all condensed vapour carried off in the channelled rafters. Any Gardener's man can replace a broken glass. Equally adapted for Glass Roofs of Factories, Railway Stations, &c.

Specimens on view at either address. An Inspection is respectfully invited.

Prospectus, Plans and Estimates on application.

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GREENHOUSE SASHES,
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HELLIWELL'S Patent SYSTEM

OF HORTICULTURAL BUILDINGS AND IMPERISHABLE GLAZING WITHOUT PUTTY,

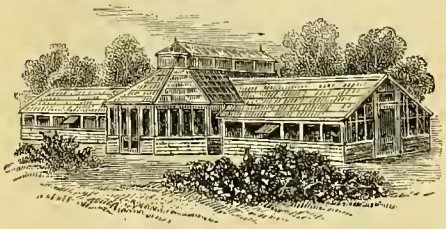
As adopted by H.R.H. the Prince of Wales, and universally at home, the Channel Islands, and Abroad.

They require no outside painting or reputtying, as there are no sash bars and the woodwork is covered by the glass.

The fasteners are brass, and therefore imperishable. There is no drip from condensation; the ventilation is perfect, and no hidden crevices for moisture, dirt, or insects to accumulate in and cause decay. As little iron as possible is used in the construction. Every part inside can be got to at any time to clean or repaint, and the whole houses arranged to be easily taken in pieces and removed if required. Any gardener's assistant can repair.

Full play is allowed round each square for contraction and expansion; therefore breakage, except by accident, is almost unknown.

It is the cheapest and best system in the end, and takes less heating power than the old system.



It obtained the Banksian Medal at the Royal Horticultural Society's Show, June, 1881; and Medal, York Fine Art Exhibition, 1879.

The Light and Plant Growth is perfect. Heating by Hot Water in the most perfect manner.

All particulars and Plans from

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Helliwell's system is also very largely used for Railway Station Roofs, Billiard Rooms, Sheds, Covered Yards, Picture Galleries, &c.

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The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.

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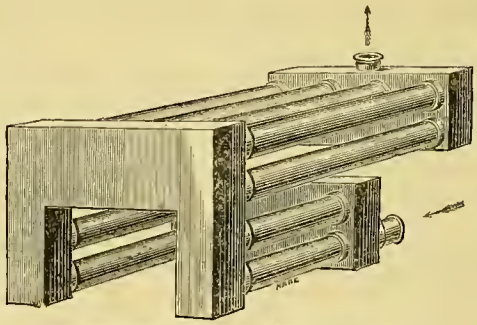

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PRICE LIST on application free.

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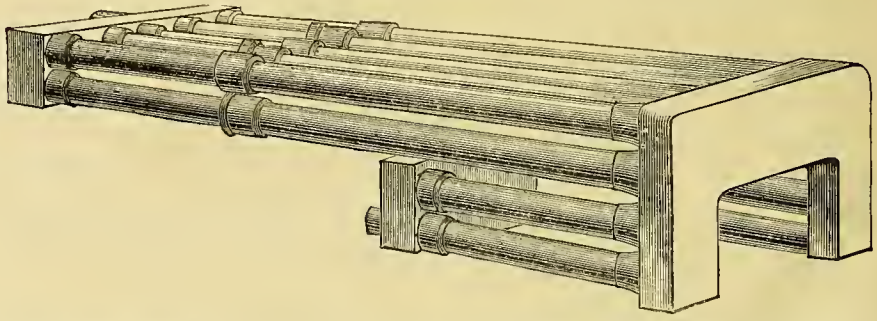

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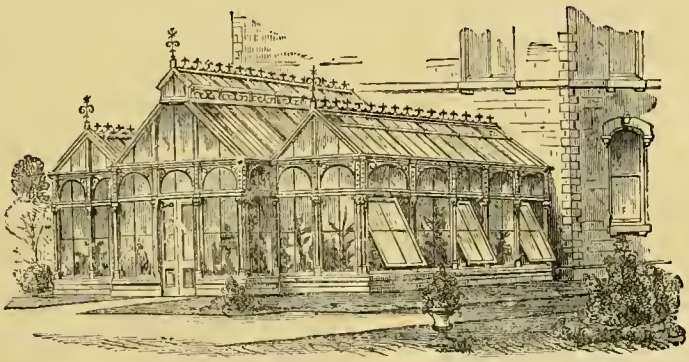

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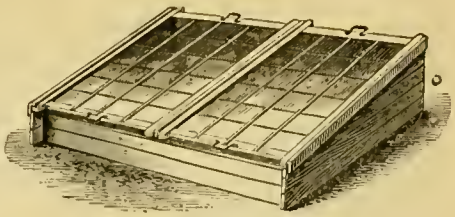

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Prices, delivered to any station in England, also Dublin and Belfast:—

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2-light frame, 8 feet by 6 feet	3	10	0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

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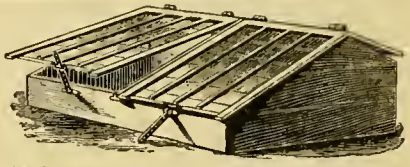

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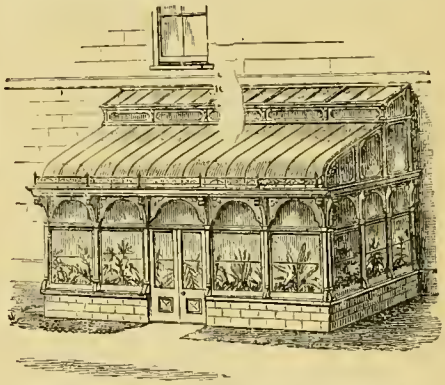

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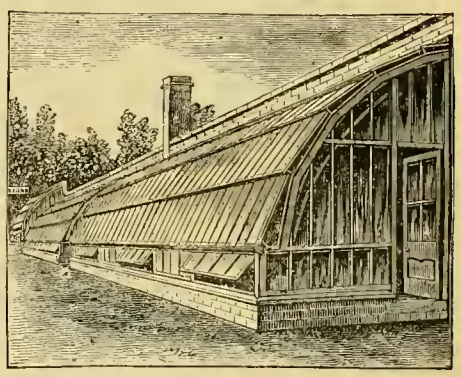

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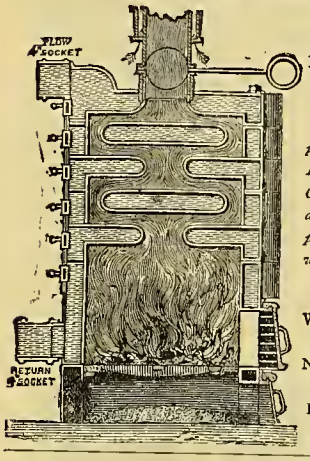

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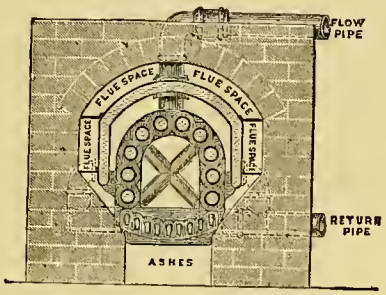

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Elbows (No. 12)— ,,	1 1 ..	,, 1 8 ..	,, 2 0 ,,
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Syphons (No. 23)— ,,	1 3 ..	,, 2 0 ..	,, 3 0 ,,

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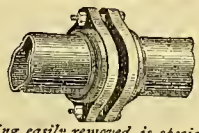

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This Joint, being easily removed, is specially adapted for Tenants.

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Pipes (6 ft. long)—2-in.,	1 8 ..	3-in., 2 8 ..	4-in., 3 4 each.
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Elbows (No. 3)— ,,	0 8 ..	,, 0 10 ..	,, 1 0 ,,
Tees (No. 13)— ,,	0 11 ..	,, 1 2 ..	,, 1 4 ,,
Syphons (No. 16)— ,,	1 0 ..	,, 1 4 ..	,, 1 6 ,,

Joint complete, with Rubbers and Pins, 2-in., 1s. each; 3-in., 1s. 3d.; 4-in., 1s. 6d.

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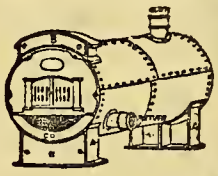

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For COVERING GARDEN FRAMES.
SEED BAGS and SACKS.
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